INVESTIGATING THE LINKAGE BETWEEN
BUSINESS OBJECTIVES AND INFORMATION TECHNOLOGY OBJECTIVES:
A Multiple Case Study in the Insurance Industry

by

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ABSTRACT

This research study used a multiple case methodology to investigate two questions: 1) how can the degree of linkage between business and information technology (IT) objectives be measured, and 2) what factors are associated with the attainment of linkage. The linkage within multi-divisional life insurance companies was studied at both the corporate (3 sites) and business unit (10 sites) levels.

Linkage was defined as a state in which there is a high level of "mutual understanding between IS and business executives about each others' mission, objectives and plans." It was measured by assessing 1) cross-references between IT and business plans, 2) mutual understanding of current objectives by information systems (IS) and business executives, 3) congruence in long term vision for IT among executives, and 4) subjective assessments of linkage by interviewees.

The research model included four factors which would potentially influence linkage: 1) shared knowledge between IS and business executives, 2) previous IT implementation history, 3) frequency of communication between IS and business executives, and 4) connections between IT and business planning processes.

The data collection process was designed to enable new factors of interest to emerge from the sites. A total of 57 long, semi-structured interviews were held with 45 informants. Written business and IT strategic plans, minutes from IT steering committee meetings, and other strategy documents were collected from each of the three corporate units and the ten business units.

Data analysis indicated that both short term and long term linkage existed within the units. Of the four linkage measures, mutual understanding of objectives (by IS and business executives) and congruence in IT vision were found to be the best measures of short and long term linkage, respectively. Data on these measures showed little congruence, indicating that short and long term linkage are two separate dimensions of
In the sample, Corporate IS departments provided services for two major internal clients: the company as a whole (represented by the Chief Executive Officer, and the Senior Vice Presidents of Finance, Corporate Development, and Administration), and the various business units. Corporate-level linkage proved difficult to isolate until linkage between corporate IT and corporate business objectives was separated from linkage between corporate IT and business unit objectives. Two of the three companies were successful in achieving the first type of linkage, none was successful in achieving the latter. No long term vision for the future of IT within the company was present in any of the three corporate sites.

**Linkage between corporate IT and corporate business objectives** was associated with: 1) the presence of written corporate objectives, 2) shared beliefs about the value of IT, 3) communication between IS and business executives, and 4) CEO involvement in IT management.

**Linkage between corporate IT objectives and business unit objectives** was uniformly low in the sample companies and was associated with: 1) very low levels of communication between corporate IS and business unit executives, 2) a disagreement about the nature of linkage and 3) a "double-bind" for corporate IS departments in which the technology leadership requested by business unit executives was resisted by them when it was provided.

It appears likely that the tension between corporate IS and business units could provide positive benefits if managed appropriately. However, it may be unrealistic to expect corporate IT objectives to exhibit high levels of linkage simultaneously with both corporate objectives and BU objectives since actions taken to improve one aspect of linkage seemed to reduce the other.

**Within the ten business units**, there was a wide variance in achieved levels of
linkage, both long and short term. The factors which seemed to influence the level of linkage attained were: 1) shared knowledge between IS and business executives, 2) a successful IT implementation history, 3) shared beliefs about the value of IT, and 4) communication between IS and business executives.

Findings from this study must be interpreted cautiously, not only because of the small sample size, but also because of the factors present in the insurance industry during the time of data collection. This industry, for the first time in several decades, was under stress. Margins were being eroded, profits were decreasing, and many of the traditional business practices were under review. In a more stable industry, the relationships between the factors and linkage might have been different.

This study separated factors into antecedents (shared knowledge, IT implementation history) and current practices (communication and connections in planning). An important outcome was the emergence of several other influential antecedents (e.g. shared beliefs, double binds) and the finding that antecedents seemed to strongly influence communication which, in turn, influenced both measures of linkage: mutual understanding and vision for IT. These findings suggest that both practitioners and researchers should reposition their work away from the technical aspects of IT planning and organizational interventions (e.g. IT steering committees) and towards the longer term issue of creating shared knowledge and shared beliefs between business and IS executives in organizations.
TABLE OF CONTENTS

Abstract ..................................................................................................................... ii

List of Tables .......................................................................................................... viii

List of Figures .......................................................................................................... x

Acknowledgements ................................................................................................ xii

CHAPTER I: INTRODUCTION

A. Why is the Study of Linkage Important? ............................................................. 1
B. Research Objectives ........................................................................................... 3

CHAPTER II: THEORETICAL FRAMEWORK

A. The Linkage Construct - Definition and Dimensions ......................................... 5
B. A Model of the Factors Influencing Linkage ....................................................... 14
C. An Integrated Model to Guide Research into Linkage ........................................ 28

CHAPTER III: RESEARCH METHODOLOGY

A. The Research Model ............................................................................................ 36
B. The Units of Analysis ......................................................................................... 38
C. Case Selection .................................................................................................... 40
D. Data Collected ................................................................................................... 44
E. Operationalizing the Research Model .................................................................. 52
F. Data Gathering and Analysis ............................................................................. 61
G. Issues in Reliability and Validity ........................................................................ 64
H. Potential Contribution of the Research Methodology ........................................ 67

CHAPTER IV: FINDINGS CONCERNING LINKAGE and the MEASUREMENT of LINKAGE at the CORPORATE LEVEL

A. Company A ........................................................................................................ 71
B. Company B ........................................................................................................ 77
C. Company C ........................................................................................................ 83
D. Across-Site Findings ......................................................................................... 87
CHAPTER V: FINDINGS CONCERNING FACTORS WHICH POTENTIALLY INFLUENCE LINKAGE at the CORPORATE LEVEL

A. Factors - Company A ........................................... 98
B. Summary and Analysis - Company A ............................ 109
C. Factors - Company B ........................................... 122
D. Summary and Analysis - Company B ......................... 128
E. Factors - Company C ........................................... 137
F. Summary and Analysis - Company C ......................... 147
G. Across Site Findings ............................................ 156

CHAPTER VI: FINDINGS CONCERNING LINKAGE and the MEASUREMENT of LINKAGE at the BUSINESS UNIT LEVEL

A. Business Unit 1 .................................................. 169
B. Business Unit 2 .................................................. 173
C. Business Unit 3 .................................................. 177
D. Business Unit 4 .................................................. 182
E. Business Unit 5 .................................................. 184
F. Business Unit 6 .................................................. 189
G. Business Unit 7 .................................................. 193
H. Business Unit 8 .................................................. 198
I. Business Unit 9 .................................................. 202
J. Business Unit 10 .................................................. 207
K. Across-Site Findings ............................................ 210
L. Overall Linkage Ratings for the Business Units ............ 224

CHAPTER VII: FINDINGS CONCERNING FACTORS WHICH POTENTIALLY INFLUENCE LINKAGE at the BUSINESS UNIT LEVEL

A. Factors - Business Unit 1 ...................................... 231
B. Summary and Analysis - Business Unit 1 .................... 238
C. Factors - Business Unit 2 ...................................... 245
D. Summary and Analysis - Business Unit 2 .................... 251
E. Factors - Business Unit 3 ...................................... 257
F. Summary and Analysis - Business Unit 3 .................... 262
G. Factors - Business Unit 4 ...................................... 267
H. Summary and Analysis - Business Unit 4 .................... 271
I. Factors - Business Unit 5 ...................................... 277
J. Summary and Analysis - Business Unit 5 .................... 283
K. Factors - Business Unit 6 ...................................... 289
L. Summary and Analysis - Business Unit 6 .................... 295
CHAPTER VIII: CONCLUSIONS

A. Linkage at the Corporate Level .............................................. 369
B. Linkage within the Business Unit ........................................ 379
C. Implications for Future Research ........................................ 386
D. Implications for Practise .................................................. 389
E. Contribution of the Study ................................................ 391

REFERENCES ................................................................. 394

APPENDICES

A. Sample Interview Guides .................................................. 400
B. A Brief Overview of the Companies and Business Units ........ 412
C. Measures of the Linkage Construct .................................... 429
D. Scales used to Measure the Factors .................................... 435
E. Reasons given by Respondents for their Subjective Ratings of Linkage .............................. 438
LIST OF TABLES

Table II.1 Processes and Stages in the Formulation of Business and IT Strategy . . . . 10
Table II.2 Items in the Social Process Dimension of Linkage .......................... 13
Table II.3 Results of Empirical Studies on Factors Associated with Linkage and Related Constructs ......................................................... 19
Table II.4 Factors which may Influence Linkage ........................................... 26

Table III.1 Interviewees within each of the Corporate Units ......................... 46
Table III.2 Interviewees within each of the Business Units ............................ 47
Table III.3 Archival Data Collected within each Unit of Analysis ................. 49
Table III.4 Galbraith's Lateral Relations Typology with Examples of Communication between IS and Senior Executives ..................... 58
Table III.5 A Comparison of IT Planning Typologies .................................. 60

Table IV.1 Summary of Linkage ratings Between Corporate IT and Corporate Business Objectives ................................................................. 88
Table IV.2 Summary of Linkage ratings Between Corporate IT and Business Unit Objectives ................................................................. 91

Table V.1 A Summary of the Factors and Linkage Ratings for Company A ...... 110
Table V.2 A Summary of the Factors and Linkage Ratings for Company B ...... 129
Table V.3 A Summary of the Shared Business and IT Experience in Company C 140
Table V.4 A Summary of the Factors and Linkage Ratings for Company C ...... 148

Table VI.1 A Summary of the Linkage Findings in the Business Units ............. 211
Table VI.2 Linkage Ratings for the Business Units ....................................... 227

Table VII.1 A Summary of the Factors and Linkage Ratings for Business Unit 1 239
Table VII.2 A Summary of the Factors and Linkage Ratings for Business Unit 2 252
Table VII.3 A Summary of the Factors and Linkage Ratings for Business Unit 3 263
Table VII.4 A Summary of the Factors and Linkage Ratings for Business Unit 4 272
Table VII.5 A Summary of the Factors and Linkage Ratings for Business Unit 5 284
Table VII.6 A Summary of the Factors and Linkage Ratings for Business Unit 6 296
Table VII.7 A Summary of the Factors and Linkage Ratings for Business Unit 7 309
Table VII.8 A Summary of the Factors and Linkage Ratings for Business Unit 8 319
Table VII.9 A Summary of the Factors and Linkage Ratings for Business Unit 9 332
Table VII.10 A Summary of the Factors and Linkage Ratings for Business Unit 10 342
Table VII.11 The Effects of the Shared Knowledge Factor ............................ 348
Table VII.12 The Effects of the IT Implementation Success Factor ............. 350
Table VII.13 The Effects of the Communication Factor ......................... 353
Table VII.14 The Effects of the Connections in Planning Factor ............... 355
Table VII.15 The Effects of Emergent Factors .................................... 357
Table VII.16 Demographic and Functional Factors in the Business Units ....... 366
Table VII.17 The Relationship between the Age of the IS Department and Overall Linkage ................................................................. 367
LIST OF FIGURES

Figure II.1 A Proposed Model of Factors Influencing Linkage ........................................... 29
Figure II.2 A Two-Stage Model of Linkage and the Factors Influencing Linkage ........ 30

Figure III.1 The Research Model for this Study ................................................................. 38
Figure III.2 Corporate-Level Linkage .................................................................................. 39
Figure III.3 Linkage at the Business Unit Level ................................................................. 40

Figure IV.1 Some Aspects of "Ideal" Corporate Linkage ...................................................... 70
Figure IV.2 Corporate Linkage Findings in Company A ...................................................... 77
Figure IV.3 Corporate Linkage Findings in Company B ...................................................... 83
Figure IV.4 Corporate Linkage Findings in Company C ...................................................... 87

Figure V.1 Expected Relationships Between the Factors and Linkage ................................. 97
Figure V.2 Corporate IT to Corporate Business Linkage: Causal Relationships in Company A .......................... 116
Figure V.3 Corporate IT to Business Unit Linkage: Causal Relationships in Company A .................................................................................. 120
Figure V.4 Corporate IT to Corporate Business Linkage: Causal Relationships in Company B .................................................................................. 133
Figure V.5 Corporate IT to Business Unit Linkage: Causal Relationships in Company B .................................................................................. 135
Figure V.6 Corporate IT to Corporate Business Linkage: Causal Relationships in Company C .................................................................................. 152
Figure V.7 Corporate IT to Business Unit Linkage: Causal Relationships in Company C .................................................................................. 155
Figure V.8 Corporate IT to Corporate Business Linkage: Across-Site Causal Relationships .................................................................................. 161
Figure V.9 Corporate IT to Business Unit Linkage: Across-Site Causal Relationships .................................................................................. 165

Figure VI.1 "Ideal" Linkage at the Business Unit Level ......................................................... 167
Figure VI.2 Relationship Between Two Linkage Measures: Mutual Understanding of Objectives and Cross-References in One Year Plans ......................... 214
Figure VI.3 Relationship Between Two Linkage Measures: Shared Vision for IT and Cross-References in 5 Year Plans ......................................................... 216
Figure VI.4 Relationship Between Two Linkage Measures: Mutual Understanding of Objectives and Subjective Assessments ......................................................... 218
Figure VI.5 Relationship Between Two Linkage Measures: Shared Vision for IT and Subjective Assessments ......................................................... 219
Figure VI.6 Relationship Between Two Linkage Measures: Subjective Assessments and Involvement in New Product Development ......................................... 221
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI.7</td>
<td>The Relationship Between Measures of Short and Long Term Linkage: Mutual Understanding of Objectives and Shared Vision for IT</td>
<td>226</td>
</tr>
<tr>
<td>VII.1</td>
<td>Expected Relationships Between the Factors and Linkage</td>
<td>230</td>
</tr>
<tr>
<td>VII.2</td>
<td>Causal Relationships in BU 1</td>
<td>244</td>
</tr>
<tr>
<td>VII.3</td>
<td>Causal Relationships in BU 2</td>
<td>256</td>
</tr>
<tr>
<td>VII.4</td>
<td>Causal Relationships in BU 3</td>
<td>266</td>
</tr>
<tr>
<td>VII.5</td>
<td>Causal Relationships in BU 4</td>
<td>276</td>
</tr>
<tr>
<td>VII.6</td>
<td>Causal Relationships in BU 5</td>
<td>288</td>
</tr>
<tr>
<td>VII.7</td>
<td>Causal Relationships in BU 6</td>
<td>300</td>
</tr>
<tr>
<td>VII.8</td>
<td>Causal Relationships in BU 7</td>
<td>312</td>
</tr>
<tr>
<td>VII.9</td>
<td>Causal Relationships in BU 8</td>
<td>323</td>
</tr>
<tr>
<td>VII.10</td>
<td>Causal Relationships in BU 9</td>
<td>335</td>
</tr>
<tr>
<td>VII.11</td>
<td>Causal Relationships in BU 10</td>
<td>346</td>
</tr>
<tr>
<td>VII.12</td>
<td>Business Unit Linkage: Across-Site Causal Relationships</td>
<td>368</td>
</tr>
<tr>
<td>VIII.1</td>
<td>Corporate IT to Corporate Business Linkage</td>
<td>370</td>
</tr>
<tr>
<td>VIII.2</td>
<td>A Revised Model of Corporate Level Linkage: Corporate IT to Corporate Business Objectives</td>
<td>373</td>
</tr>
<tr>
<td>VIII.3</td>
<td>Corporate IT to Business Unit Linkage</td>
<td>374</td>
</tr>
<tr>
<td>VIII.4</td>
<td>A Revised Model of Corporate Level Linkage: Corporate IT to Business Unit Objectives</td>
<td>378</td>
</tr>
<tr>
<td>VIII.5</td>
<td>Linkage within the Business Unit</td>
<td>380</td>
</tr>
<tr>
<td>VIII.6</td>
<td>A Revised Model of Business Unit Linkage</td>
<td>385</td>
</tr>
</tbody>
</table>
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INVESTIGATING THE LINKAGE BETWEEN BUSINESS OBJECTIVES AND INFORMATION TECHNOLOGY OBJECTIVES:

I. INTRODUCTION

A. Why is the Study of Linkage Important?

In recent surveys of information systems managers (Niederman et al., 1991; Index Group, 1988; Brancheau and Wetherbe, 1987; Dickson et al., 1984), Information Systems (IS) Planning has consistently been rated as one of the most important issues. Since IS planning is a complex activity which includes forecasting, evaluating, prioritizing, and allocation of resources, it is important that an investigation into IS planning determine first what aspects of planning are problematic. A review of the empirical literature reveals that one issue, the linkage\(^1\) of IS plans with organizational objectives, is always among the top few problems reported by IS managers and planners (Galliers, 1987A; Lederer and Mendelow, 1986).

There is both theoretical and empirical support for the concerns of IS managers regarding their ability to link IS and organizational plans. Emery (1969), in his general theory of organizations as systems governed by a hierarchy of plans, remarks that "The behaviour of an organization ultimately depends, of course, on the composite activity at the lowest level. However, if the organization as a whole is to achieve purposeful behaviour... lower-level activity must be guided by a hierarchy of higher-level planning constraints. Otherwise, lower-level success tends to be local rather than global" (p. 124). Davis and Olson (1985) support this objective in an IS context, stating "A very important

\(^1\) Several terms other than "linkage" are used in the literature - alignment (Galliers, 1987; Henderson and Venkatraman, 1989), fit (Venkatraman, 1989; Das, Zahra and Warkentin, 1991), and coordination (Lederer and Mendelow, 1989). Because the underlying concepts are very similar, we will not distinguish between them and will use "linkage" exclusively.
The fundamental concept of information system planning is that the organizational strategic plan should be the basis for the MIS\(^2\) strategic plan. Alignment of MIS planning is one of the central problems of MIS planning" (p. 446).

The importance of linkage was corroborated empirically by Cresap, McCormick and Paget (1983), who found that linkage of IT objectives with business objectives was an important predictor of success in IS planning.

Evidence from surveys suggests that most organizations have not been very successful in linking their IS and business plans. Galliers' study (1987A) of IS planners in the UK inquired about the extent of the link between IS planning and corporate planning. Of the 129 respondents, 8% reported that the plans were "totally isolated", 34% were "tenuously linked", 48% were "somewhat linked" and 10% were "inextricably tied". These results are very similar to another UK study in which Earl (1987) reported only 41% of the 42 respondent organizations as linking their IT plan with their business long-range plan. Cresap, McCormick and Paget's (1983) findings in their U.S. study varied widely by industry. However, an average of 29% of respondents replied "applies precisely" when asked if their "IS Plan refers to Business Plans". Of the remainder, 55% replied "applies somewhat", and 16% replied "does not apply". A similar percentage was found in a large Canadian study (Conrath et al., 1992/93), in which 31% of respondents claimed to base their IS plans on corporate plans.

Although the need for linkage has been established and companies report low success rates in attaining it, there are few studies of how companies perceive the linkage issue or how they actually organize and act to achieve linkage. The authors suggest that

\(^2\) In this document the acronyms IT (for Information Technology), MIS (Management Information Systems) and IS (Information Systems) are used in two ways. When referring to other research, the acronyms used in those articles are used unchanged. We use "IT" holistically to mean the technology, systems, and people in the industry or in a particular organization and "IS" to refer to the functional department in an organization which oversees the IT environment.
a more comprehensive model of the linkage construct might help to explain current findings and guide the design of new studies to investigate it.

**B. Research Objectives**

The specific research objectives were to:

1. Develop a theoretical framework of the factors influencing linkage,
2. Define and develop ways to measure the linkage construct,
3. Describe how several organizations have achieved or failed to achieve linkage as influenced by the factors in the framework.

It was felt that achievement of these objectives would increase our knowledge about linkage and the factors which influence it. The theoretical framework was developed to guide future investigation and the development of a measurement theory about the linkage construct was designed to lay the foundation for the creation of valid and reliable instruments.

Underlying this research is the assumption that achievement of high levels of linkage between organizational and IT objectives is beneficial to a significant number of formal organizations\(^3\). This study makes no attempt to identify or quantify these benefits.

**Organization of this Document**

In Chapter II, a definition of linkage and a survey of the literature which pertains to it are presented. A research model is developed after dimensions of the linkage construct.

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\(^3\) McFarlan et al. (1983) suggest that linkage is less important in organizations for which IT, either now or in the future, is not a strategic resource. This view is considered to be valid by many researchers and is included in this research approach through the selection of sites to be studied. This is discussed in the "selecting the cases to be studied" section of Chapter III.
construct have been explored. In Chapter III, the research approach is described and the detailed data collection protocol is presented.

Chapter IV and V present findings on linkage at the corporate level, chapter VI and VII present findings on linkage at the business unit level. These four findings chapters are long because of the decision made to present evidence in detail, including quotes from interviewees and quotations from written documents. Readers wishing to "fast track" through the findings should skip to the Across Site sections at the end of chapters IV through VII. Chapter VIII summarizes the findings and presents implications for research and practice.
II. THEORETICAL FRAMEWORK

This chapter will first discuss the linkage construct and propose a definition. Then the factors which are hypothesized to influence linkage will be reviewed. From this review, a theoretical model of linkage is developed.

A. The Linkage Construct - Definition and Dimensions

In order to build a multi-dimensional view of linkage, we will 1) use concepts from the strategic management literature to define a broad range of connections between business and IT, 2) differentiate between the "cause" and "outcome" views of linkage, and 3) distinguish between the "intellectual" and "social" processes in the formulation and assessment of linkage.

1. Developing a Strategic Management View of Linkage

In the IT literature, the concept of "linkage" emanates from the IT planning perspective and authors suggest that IT "plans" should be linked to other artifacts in business - business plans (Lederer and Mendelow, 1986; Conrath et. al, 1992/93), business strategies (Pyburn, 1983) or business objectives (Galliers, 1987A; Zviran, 1990). While these terms (i.e. plans, strategies and objectives), are considered interchangeable by some IS researchers, they are carefully differentiated by strategic management researchers.

Although there are many variations in the strategic management literature, we will begin by using the following terms (definitions adapted from Thompson and Strickland, 1990):

Missions are long-term visions of what an organization seeks to do and what kind of an organization it intends to become.
Example: Become the predominant U.S. manufacturer of knitwear.
Goals are specific measurable performance targets (i.e. the "ends") an organization seeks to produce through its activities and the competitive position the enterprise wishes to occupy in the market.

Example: Increase market share to 25% by 1995.

Strategies are the approaches (i.e. the "means") which will be used to pursue the goals.

Example:
- IT Goal = Reduce the application backlog to 20 person-years by 1995.
- IT Strategy = Have the users develop systems using a 4GL.

Plans are the detailed roadmaps of the direction and course that the organization presently intends to follow in conducting its activities.

Example:
- IT Strategy = Have the users develop systems using a 4GL.
- IT Plan Item 1 = Install the Software AG 4GL product.
- IT Plan Item 2 = Write the investment system in the 4GL as a pilot.

There is usually not a single goal/strategy pair created before plans are made. A high level goal (i.e. increase ROI profitability by 10%) can be attained in several ways (i.e. reduce cost, increase revenue, reduce investments). Once it is chosen, the strategy of "increase revenue" becomes a goal, when quantified. This goal too can be achieved in many ways. And so an "ends/means" hierarchy can exist above any item in the plan.

An item in a plan can potentially support more than one goal and, therefore, the connections between plan items and goals and/or strategies are not tree-like, but may form a network.

Because of this complex ends/means hierarchy, we introduce another definition to simplify the discussion and subsequent research:

Objectives are the aggregate of the goals and strategies of an organizational unit. Objectives denote the intentions of the organizational unit, representing both the

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4 We are not suggesting that these ends/means hierarchies would be explicitly developed in all organizations but that, upon reflection, a senior manager could reconstruct ends/means chains to explain the rationale behind any significant item in the current organizational plans.
future performance targets and the means selected to achieve them.

Because the IT literature is not consistent in describing what the IS plans should be linked to, we will take our direction from the strategic management literature, and look at the broadest possible set of linkages between the IS function and the business.\textsuperscript{5} Our preliminary definition of linkage will be "the degree to which the IT mission, objectives, and plans reflect the business mission, objectives, and plans."\textsuperscript{6} This departure from the more simple notion of linking IT and business plans may increase the complexity of measurement of the linkage construct but will allow the maximum possible range of investigation.

A more precise definition of the meanings of the word "reflect" used in the linkage definition are developed in the next two sections. We argue for the definition of linkage as a "state" rather than as a "process" and we identify two dimensions of it - an "intellectual" dimension (i.e. "linkage as a high level of fit between IT and business strategies") and an "social" dimension (i.e. "linkage as a high level of mutual understanding\textsuperscript{7} between IS and business executives).

2. Distinguishing Causes from Effects in Linkage

In the IT Literature, there has been little discussion of whether linkage is an

\textsuperscript{5} There is some support for a broad conceptualization of the linkage construct. Lederer and Mendelow (1989), extending King (1978), suggest that "coordination is achieved when the IS strategy set (system objectives, constraints, design strategies) are derived from the organization's strategy set (mission, objectives, strategy)."

\textsuperscript{6} We make the distinction between mission, objectives and plans here since they become different sub-dimensions of the linkage construct later in this paper.

\textsuperscript{7} The idea of "mutual understanding" was introduced by Churchman and Shainblatt (1964) in the context of the interaction between management scientists and managers. They suggested that the relationship between the scientist and manager was central to any theory of implementation of scientific management techniques and warned that "we believe intensive research is required to discover its (i.e. mutual understanding) real implications".
organizational process or is an outcome resulting from these processes. Webster's Third
New International Dictionary describes linkage alternately as a process ("the manner or
style of being fitted together or linked") and as an outcome ("the quality or state of being
linked"). Some empirical studies have measured it as a process (e.g. Conrath et al.
(1992/93) asked "Is your EDP/MIS long range plan modeled after the corporate plan?")
and others have measured it as an outcome (e.g. Galliers, 1987A asked "How close is the
link between the IS plan and the corporate plan?".)

In our view, certain organizational processes lead to the outcome of "being
linked". We therefore consider the organizational processes as potential "causes" of
linkage and the outcomes as the "effect" (i.e. linkage itself). Since our objective in this
research is to create a model of the factors which influence linkage, it is necessary to
separate out cause from effect and to define linkage as an outcome of the various
organizational processes which may influence it. This approach leads us to deconstruct
some of the previous frameworks developed to investigate linkage.

The first attempt to dimensionalize linkage is found in the accounting literature
(Shank et al., 1973). They suggested that business plans and budgets could be tightly or
loosely linked, depending on three characteristics: 1) content linkage (between the plans
and budgets), 2) timing linkage (between the planing and budgeting systems) and 3)
organizational linkage (between the people doing the planning and budgeting). These three
dimensions were adopted by IT researchers (Lederer and Mendelow, 1989), who stated
that "coordination... can be achieved in three dimensions - content, timing and
personnel".

The only study of IS planning which used multiple items to measure linkage
(Cresap, McCormick and Paget, 1983) also reflected this three-part view. They created
the following five items of which four can be directly related to the Shank et al.'s (1973)
terminology:
1. The business plan states information system needs. (content linkage)
2. The IS plan makes reference to items in the business plans. (content linkage)
3. IS plans are closely checked against business plans.
4. Line and staff managers participate actively in information systems planning. (organizational linkage)
5. Business planning calendars and IS planning calendars are carefully synchronized. (timing linkage)

These studies, while explicitly recognizing the multi-dimensional nature of linkage, did not separate the efforts made toward achieving it (organizational and timing dimensions, which we view as causes of linkage) from linkage as an outcome (content dimension). After separating these two ideas, we have:

- the "organizational" and "timing" dimensions as potential influences on linkage. (e.g. who is involved, when is planning done).
- the "content" dimension as a way to objectively measure linkage (Cresap McCormick and Paget (1983) suggest looking at written plans).

3. Differentiating Intellectual from Social Process Dimensions

In the mainstream strategic management literature, there is a clear distinction made between the formulation and the implementation\(^8\) of strategy. Formulation pertains to the crafting of strategy and implementation to the realization of strategy. This research is dealing exclusively with the issues in the formulation of IT and business mission, objectives and plans.

Another important distinction can be made between the issues relating to content and those relating to style. This distinction was identified by Horovitz (1984) who labelled the two dimensions "intellectual process" and social process". The intellectual process refers to the particular methodologies, techniques and data used in the formulation

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\(^8\) We are indebted to Professor Raphael H. Amit, University of British Columbia, for bringing this distinction to our attention.
of strategy. The social process dimension refers to the choice of actors and levels of involvement and support given to the chosen methodologies. Put simply, the distinction is between strategy formulation techniques and styles.

After combining the idea of cause and effect and the distinction between intellectual and social processes, we have a framework within which to build dimensions for the study of linkage. The preliminary framework is presented in Table II.1

<table>
<thead>
<tr>
<th>Processes/Stages</th>
<th>Influences on Linkage (CAUSE)</th>
<th>Linkage (EFFECT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intellectual Process</td>
<td>What methodologies for formulation of IT and business mission, objectives and plans were used and what were the steps and techniques?</td>
<td>A high quality set of IT and business mission, objectives and plans that are complementary.</td>
</tr>
<tr>
<td>Social Process</td>
<td>Choice of actors, timing, and support for IT and business strategy formulation</td>
<td>High levels of organizational understanding of the mission, objectives, and plans.</td>
</tr>
</tbody>
</table>

Chapter III of this paper discusses the various factors to be included in the "Influences on Linkage" part of the framework. The next section discusses the intellectual and social dimensions of linkage.

4. Dimensions of Linkage

a) Linkage as the Result of an Intellectual Process

There are very few empirical studies centred around the intellectual process issues in the formulation of business and IT linkage. Zviran's study (1990) identified separate IT and business strategies. It reported the presence of 16 IT objectives in the 131
companies which responded to the survey/questionnaire. Tavakolian (1989), found a strong relationship between generic business strategies (i.e. defender, reactor, prospector) and the structure of the IS function - the more aggressive the business, the more decentralized the IS function.

Although these early studies are inconclusive, strategy research into other functional areas such as production and marketing is much better developed and is an indication of the importance of this intellectual, content-oriented dimension of linkage.

One possible "intellectual" dimension of linkage is the concept of "comprehensiveness" from the strategic management literature (Fredrickson, 1984; Henderson and Venkatraman, 1992). This is defined as "the extent to which an organization attempts to be exhaustive or inclusive in making and integrating strategic decisions". However, our separation of causes from effects places "comprehensiveness" into the set of factors which might influence linkage. A recent article (Henderson and Sifonis, 1988), suggests that strategic plans need internal consistency and external validity. In the linkage context, these notions would result in two aspects of the intellectual dimension of linkage:

1) Business and IT planning outputs are internally consistent. (i.e. the IT mission, objectives and plans chosen are consistent with the given business mission and objectives).

2) Business and IT planning outputs are externally valid (i.e. they are comprehensive and balanced with respect to external data from the business and IT environments).

These two aspects will be used in the preliminary model of linkage.

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9 Cresap et al. (1983) suggested a measure for this dimension: "the degree to which the written IS and business objectives and plans reference each other". We also, as explained in the next section, expect articulated plans and objectives (i.e. those recounted by managers in interviews or questionnaires) to be mutually referencing in situations characterized by high linkage.
b) Linkage as a Result of a Social Process

The preoccupation in the IT literature with issues of process is understandable on three counts - 1) the historical position of the IS function as a second string player (Hossack, 1989), 2) the need for strong organizational processes in order to move smoothly and effectively into implementation phases of strategic management, and 3) the difficulty of tracing IT strategy through to organizational outcomes. The focus for IS managers, and hence for most researchers, has been on creating a social process to link themselves to the formulators of corporate strategy, rather than investigating the business outcomes of strategic choices.

On the social process dimension, linkage has been identified as a high level of mutual understanding by organizational members. In the previous section, we noted the possibility of looking into the wording of the written business and IT plans to identify understanding. This approach, while intuitively pleasing since it is amenable to operationalization, poses a significant practical problem - the absence of written IT and/or business plans. Several studies (Lederer and Mendelow, 1986; Calhoun and Lederer, 1990), have reported that detailed, written business plans are often not produced. Since there is no theoretical reason why a lack of written business plans means that linkage is nonexistent, we need to search for other sources and manifestations of plans and strategies.

One other source of business objectives is the "minds" of senior managers. If the IT objectives are highly linked to the objectives and plans of the business, we suggest that:

1) the senior IS executive would understand and be able to articulate the business objectives and
2) business executives would understand and be able to articulate the current IT objectives.
It also seems possible that executives may lack understanding of current IT objectives, while an over-arching mission or vision unites the organization and provides linkage. If both business executives and IS executives share a common vision of the way IT will support the business mission\textsuperscript{10}, one might predict that decisions made within this shared knowledge will be congruent and "linked". Therefore, another proposed dimension of linkage is the existence of a common vision of the future role of IT within the organization.

These items in the social process dimension can be characterized along two axes - their source and their timeframe. These are depicted in Table II.2.

<table>
<thead>
<tr>
<th>Timeframe\Source of Linkage</th>
<th>IS Function</th>
<th>Business Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>The 1-3 year plans and objectives.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future</td>
<td>IS and business executives share a common vision of the role and contribution of IT to the organization's mission.</td>
<td>IS and business executives share a common vision of the role and contribution of IT to the organization's mission.</td>
</tr>
<tr>
<td>(The 3-10 year mission and vision).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Summary

Our discussion to this point would result in a definition of linkage as the state in which the set of IT and business mission, objectives and plans are:

1) of high quality and complementary and

2) are well understood by executives in the organization.

\textsuperscript{10} e.g. "IT will allow our company to place significant decision making responsibility in the hands of our agents and clients in support of our vision of superior service."
The linkage construct would have the following dimensions:

Dimension I (Intellectual Dimension) - The quality of the set of business and IT mission, objectives and plans:

1. High internal consistency
2. High external validity

Dimension II (Social Dimension) - Mutual Understanding between IS and business executives

1. Mutual understanding of and commitment to current business and IT plans and objectives.
2. Shared vision of future IT role and contribution to the business mission.

**B. A Model of the Factors Influencing Linkage**

In this section, the literature which directly and indirectly relates to linkage as an outcome will be reviewed and used to formulate a model of the potential factors influencing linkage.

1. **Factors derived from research into Linkage**

   In the only study in which linkage was the dependent variable, Lederer and Mendelow (1989) interviewed 20 IS managers. They found that a mandate from the CEO was a significant enabler of linkage. Inhibitors of linkage were 1) lack of a stable, clear business plan, 2) lack of communication between IS and business executives, 3) IS not being involved in business planning, and 4) unrealistic expectations of users. The presence of an IS steering committee or the reporting relationship of the IS director did not seem to mitigate these problems.
2. Factors derived from empirical research into the dimensions of IS planning

Several recent studies which have investigated the factors affecting the quality of IS planning (ISP), included dependent variables which are associated with the linkage construct as defined earlier in this paper.

Raghunathan (1985) theorized that ISP is done at three levels: strategic ISP, systems planning, and implementation planning. Using these planning dimensions, he developed, through exploratory factor analysis, 11 dimensions of ISP. Two of the strategic ISP dimensions, 1) the level of strategic content in the ISP process and 2) integration of the IS function into the business, directly relate to our definition of linkage. Later studies (Raghunathan and Raghunathan, 1988; Gupta and Raghunathan, 1989) reported that top management support and the presence of an IS Steering Committee were associated with high levels of these two ISP dimensions.

In a survey of 192 IS managers, Raghunathan and Raghunathan (1989) reported that the rank of the most senior IS manager and increasing use of an IS Steering Committee (as opposed to decreasing or no use) was significantly related an organization's ability to have its IS plan "linked to organizational concerns". Jang (1989) created a uni-dimensional measure of the extent of business strategy in the ISP process by asking respondents whether or not their ISP process included certain activities, including 1) top management involvement in ISP, 2) IS attendance at senior business management meetings and 3) user managers' involvement in ISP. He found that the extent of business strategy in the ISP process could be modeled as a function of IS access to senior management and maturity of the IS function\(^\text{11}\). Environmental volatility was also significantly positively related to the extent of ISP.

Calhoun and Lederer (1990), in a study of eighteen matched pairs of IS and

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\(^{11}\) This was defined as a function of sophistication in data processing, telecommunications and office automation technologies.
business managers, found no relationship between the quality of the business planning process and the extent\textsuperscript{12} of IS planning. They did, however, find a significant correlation between communication of the business plan (to IS managers) and the extent of IS planning.

3. Factors derived from research into IS planning success

Several studies investigated factors associated with ISP success. Although there is no detailed examination of the "success" construct in any of them, our belief (supported by Cresap et al., 1983) that direct measures of ISP success will implicitly include measures of linkage suggest that these studies are relevant to the search for factors influencing linkage.

Cresap et al. (1983) measured ISP success using two items: "business programs are assured of needed IS support" and "scarce IS resources are allocated wisely". Approximately 50% of the sample of 334 companies reported ISP success based on these criteria. They found a strong relationship between certain business planning practices, namely wide distribution of the business plan, commitment of top management to planning, perceptions that the plan was realistic, monitoring performance based on the business plan, and ISP success. They found no relationship between the choice of ISP methodology\textsuperscript{13} and ISP success.

Pyburn (1983), in an in-depth analysis of seven companies, created a typology of potentially successful planning styles, labelling them "verbal/informal", "written/formal", and "written/informal". He found that the success of any planning style is contingent on

\textsuperscript{12} The "extent" of IS planning was measured by asking about the content of the written IS plan (i.e. whether or not it included objectives and strategies, a portfolio approach to applications, and financial projections for each time period in the plan).

\textsuperscript{13} e.g. Business Systems Planning (IBM, 1974); Critical Success Factors (Rockart, 1979); Stages of Growth (Nolan, 1979).
several moderator variables, such as senior management style, and status, proximity of
the IS manager to business executives, complexity of the IT environment and volatility
of the business environment.

Sullivan (1985), after analyzing data from 35 firms, found that successful planners
(as represented by effectiveness ratings) matched the choice of ISP methodology\textsuperscript{14} to the
level of infusion and diffusion of IT in the company. Infusion was defined as the strategic
value of IT to the company. Diffusion was a function of the distribution of IT technology
and the responsibility for IT decisions throughout the business processes of the
organization.

Vitale, Ives and Beath (1986), found two factors to be highly correlated with
reported satisfaction with strategic ISP processes. There was a positive correlation with
"the existence of IS-knowledgeable line managers" and a negative correlation with
"environmental turbulence". To measure planning effectiveness, Waibel (1987) created
a 12 item scale which primarily measured the comprehensiveness of the ISP process, not
the outcome of the ISP effort. He found a significant relationship between the presence
of an IS Steering Committee and planning effectiveness. There was no relationship
between planning effectiveness and top management presence on the Steering Committee
or top management support for ISP.

Raghunathan and Raghunathan (1990) found that higher levels of top management
support and comprehensiveness in IS planning were positively associated with the
"fulfilling ISP objectives" dimension of their ISP success measure.

Lederer and Sethi (1990) in a survey on implementation of strategic IS plans,
found that, after more than half of the planning horizons had been passed: 1) only 24%
of planned projects had been initiated, 2) 38% of projects begun since strategic IS

\textsuperscript{14} see previous footnote.
planning were not in the plan, 3) only 50% of recommended changes in the IS organization were done. The reported level of strategic ISP implementation was the best discriminator between ISP satisfaction and dissatisfaction.

Galliers (1987B) surmised that failures of linkage might partially be explained by the fact that business planners were seldom involved in IS planning and only 6% of organizations conducted a formal review of the IS plan, although they had ranked this activity as being very important.

The findings from these empirical studies, grouped by independent variable, are displayed in Table II.3. The dependent variables are not directly comparable and the findings are not consistent between studies. However, there are indications that high levels of top management support, increased use of IS steering committees and certain business planning practices (such as distribution of the business plan and commitment to planning) are associated with higher levels of linkage (and surrogates of linkage).
<table>
<thead>
<tr>
<th>INDEPENDENT VARIABLE (IV)</th>
<th>DEPENDENT VARIABLE (DV)</th>
<th>CITATION</th>
<th>FINDINGS (relationship between IV and DV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental turbulence</td>
<td>ISP Success</td>
<td>Pyburn (83)</td>
<td>The combination of volatile environments and informal ISP styles are associated with ISP success.</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with ISP</td>
<td>Vitale et al. (86)</td>
<td>Turbulence was negatively related to satisfaction.</td>
</tr>
<tr>
<td></td>
<td>Extent of business strategy in the ISP process</td>
<td>Jang (89)</td>
<td>Turbulence was positively related to the dependent variable (DV).</td>
</tr>
<tr>
<td>IS Maturity</td>
<td>Extent of business strategy in the ISP process</td>
<td>Jang (89)</td>
<td>IS maturity was significantly related to the DV.</td>
</tr>
<tr>
<td>Business Planning (BP) System</td>
<td>ISP Success</td>
<td>Cresap, McCormick and Paget (83)</td>
<td>Certain business planning practices (distribution of plans, realistic plans, commitment to planning, monitoring performance to plans) are important to ISP success.</td>
</tr>
<tr>
<td></td>
<td>Problems in Implementing the IS Plan</td>
<td>Lederer and Sethi (90)</td>
<td>Tactical business planning results in a higher severity of ISP problems than strategic business planning.</td>
</tr>
<tr>
<td></td>
<td>Comprehensiveness of the IS Plan</td>
<td>Calhoun and Lederer (90)</td>
<td>1) No relationship between the quality of business planning and the DV. 2) Significant relationship between the high levels of communication of the business plan and the DV.</td>
</tr>
<tr>
<td></td>
<td>Linkage</td>
<td>Lederer and Mendelow (89)</td>
<td>Lack of a business plan and lack of IS management involvement in business planning inhibits linkage.</td>
</tr>
<tr>
<td>INDEPENDENT VARIABLE (IV)</td>
<td>DEPENDENT VARIABLE (DV)</td>
<td>CITATION</td>
<td>FINDINGS (relationship between IV and DV)</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------</td>
<td>----------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>ISP System (the social process surrounding IS planning)</td>
<td>ISP Success</td>
<td>Pyburn (83)</td>
<td>ISP styles must match the characteristics of an organization and its environment.</td>
</tr>
<tr>
<td></td>
<td>Linkage</td>
<td>Lederer and Mendelow (89)</td>
<td>Unrealistic expectations of users inhibit linkage.</td>
</tr>
<tr>
<td></td>
<td>Linkage</td>
<td>Galliers (87B)</td>
<td>Low levels of reported linkage may result when business planners do not get involved in IS planning.</td>
</tr>
<tr>
<td>ISP Methodology (BSP vs CSF vs SOG)</td>
<td>Fulfilment of ISP Objectives</td>
<td>Raghunathan and Raghunathan (90)</td>
<td>The level of capabilities of the ISP methodology is positively related to the fulfilment of ISP objectives.</td>
</tr>
<tr>
<td></td>
<td>ISP Success</td>
<td>Cresap, McCormick and Paget (83)</td>
<td>No relationship was found between the use of a particular methodology and ISP success.</td>
</tr>
<tr>
<td></td>
<td>ISP Success</td>
<td>Sullivan (85)</td>
<td>Organizations which reported success in ISP had methodologies which matched the level of diffusion and infusion of IT in the organization.</td>
</tr>
<tr>
<td>IS-knowledgeable Line Managers</td>
<td>Satisfaction with ISP</td>
<td>Vitale et. al (86)</td>
<td>There was a significant relationship between having IS-knowledgeable managers and satisfaction with IS planning.</td>
</tr>
</tbody>
</table>
Table II.3
Results of Empirical Studies on Factors Associated with Linkage and Related Constructs

<table>
<thead>
<tr>
<th>INDEPEND'T VARIABLE (IV)</th>
<th>DEPENDENT VARIABLE (DV)</th>
<th>CITATION</th>
<th>FINDINGS (relationship between IV and DV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Management Support</td>
<td>Fulfilment of ISP Objectives</td>
<td>Raghunathan and Raghunathan (90)</td>
<td>Top management support was significantly related to fulfilment of ISP objectives.</td>
</tr>
<tr>
<td></td>
<td>Extent of Strategic ISP</td>
<td>Raghunathan and Raghunathan (88)</td>
<td>A positive relationship was found between the level of top management support and the emphasis placed on strategic ISP.</td>
</tr>
<tr>
<td></td>
<td>Linkage</td>
<td>Lederer and Mendelow (89)</td>
<td>A mandate to link IS and business plans is important in order to achieve linkage.</td>
</tr>
<tr>
<td></td>
<td>Comprehensiveness of the IS planning process.</td>
<td>Waibel (87)</td>
<td>No relationship between top management support for ISP and comprehensiveness of the IS planning process.</td>
</tr>
<tr>
<td>Rank of the CIO</td>
<td>Linkage</td>
<td>Lederer and Mendelow (89)</td>
<td>No relationship was found between the rank of the CIO and linkage.</td>
</tr>
<tr>
<td></td>
<td>ISP is linked to organizational concerns</td>
<td>Raghunathan and Raghunathan (89)</td>
<td>A significant relationship was found between the rank of the CIO and the DV if the CIO is one rank below the CEO.</td>
</tr>
<tr>
<td></td>
<td>ISP implementation problems</td>
<td>Lederer and Sethi (88)</td>
<td>The lower the CIO in rank, the more severe were the ISP implementation problems.</td>
</tr>
<tr>
<td></td>
<td>ISP Success</td>
<td>Pyburn (83)</td>
<td>The combination of a high status IS manager and an informal planning style was associated with ISP success.</td>
</tr>
</tbody>
</table>
### Table II.3

Results of Empirical Studies on Factors Associated with Linkage and Related Constructs

<table>
<thead>
<tr>
<th>INDEPEND'T VARIABLE (IV)</th>
<th>DEPENDENT VARIABLE (DV)</th>
<th>CITATION</th>
<th>FINDINGS (relationship between IV and DV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of an IS Steering Committee</td>
<td>Comprehensiveness of the IS Planning Process</td>
<td>Waibel (87)</td>
<td>The presence of an IS Steering committee is related to ISP effectiveness.</td>
</tr>
<tr>
<td></td>
<td>Linkage</td>
<td>Lederer and Mendelow (89)</td>
<td>No relationship was found between the presence of an IS steering committee and linkage.</td>
</tr>
<tr>
<td></td>
<td>Extent of Strategic ISP</td>
<td>Gupta and Raghunathan (89)</td>
<td>A significant relationship was found between the presence of an IS steering committee and the extent of strategic ISP.</td>
</tr>
<tr>
<td></td>
<td>ISP is linked to Organizational Concerns</td>
<td>Raghunathan and Raghunathan (89)</td>
<td>An IS steering committee is related to ISP which has stronger links to organizational concerns.</td>
</tr>
<tr>
<td>Top Management Presence on the Steering Committee</td>
<td>Comprehensiveness of the ISP Process</td>
<td>Waibel (87)</td>
<td>No significant relationship between having top management on the steering committee and comprehensiveness of the IS planning process.</td>
</tr>
<tr>
<td>Access to and Communication with Executives</td>
<td>Linkage</td>
<td>Lederer and Mendelow (89)</td>
<td>Lack of communication with top management inhibits linkage.</td>
</tr>
<tr>
<td></td>
<td>Extent of business strategy in the ISP process</td>
<td>Jang (89)</td>
<td>Ease of access by the IS executive to the CEO is related to the DV.</td>
</tr>
<tr>
<td></td>
<td>ISP Success</td>
<td>Pyburn (83)</td>
<td>Proximity of the IS manager to the CEO is important in the success of informal planning styles.</td>
</tr>
</tbody>
</table>
Table II.3

Results of Empirical Studies on Factors Associated with Linkage and Related Constructs

<table>
<thead>
<tr>
<th>INDEPENDENT VARIABLE (IV)</th>
<th>DEPENDENT VARIABLE (DV)</th>
<th>CITATION</th>
<th>FINDINGS (relationship between IV and DV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation of the ISP</td>
<td>Satisfaction with ISP</td>
<td>Lederer and Sethi (90)</td>
<td>The higher the perceived implementation of the IS plan, the higher the satisfaction with ISP.</td>
</tr>
<tr>
<td></td>
<td>Linkage</td>
<td>Galliers (87B)</td>
<td>Low levels of reported linkage may be attributed to lack of formal review of IS plans by business executives.</td>
</tr>
</tbody>
</table>
4. Factors derived from the Prescriptive/Theoretical Literature

There have been several prescriptive and descriptive articles on ISP in the recent IT literature. Those which add to our understanding of linkage are described below.

A key theoretical factor which might influence linkage was proposed by McFarlan et al. (1983). They suggested a contingency framework called the Strategic Grid which separated companies into four quadrants based on the strategic value of their current and future IS and claimed that different IS strategies were needed for different quadrants. In particular, they stated "for companies where IS is and should be in the support role, .... less effort needs to be made to ensure alignment of IS and corporate strategy". The management techniques prescribed for companies in the "strategic" quadrant include 1) devotion of significant management time to the IT planning process, and 2) close organizational relationships between IT and senior management (Cash et al., 1988). From a descriptive point of view, organizations in different quadrants of the strategic grid may exhibit different levels of linkage. From a prescriptive point of view, achieving linkage is more important for organizations in the strategic quadrant.

A recent article by Das, Zahra, and Warkentin (1991) proposed a model which linked strategic IT planning and business strategy and related it to competitive advantage. It distinguished between the "content" and process" of strategic IT planning, and discussed the importance of integrating these dimensions in order to increase the "fit" between strategic MIS planning and business strategy. The model presented in our paper extends the content/process discussion into the definition of linkage: "intellectual process" and "social process" become the two dimensions of linkage.

King (1978) developed the earliest planning model which explicitly linked strategic IS planning to organizational strategy. This model is composed of 1) the organizational

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15 Recent research into this hypothesis by Takuna and Weber (1991) has reported "moderate support for the usefulness of the strategic-grid model in accounting for some types of IS planning phenomena".
strategy set (i.e. a mission, objectives, strategy for each claimant group), 2) the MIS strategic planning process and 3) the MIS Strategy Set (i.e. system objectives, constraints, and design strategies). Henderson and Sifonis (1988) suggest that IS planning is an attempt to create an internally consistent and externally valid set of means-ends chains which gradually become concrete. Their three stage planning model includes 1) strategic business planning, 2) strategic IS planning and 3) IS investment planning. In their model, the outputs of the business planning process (i.e. vision, critical success factors, and goals) are fed into the strategic IS planning process, which identifies the set of critical decisions, assumptions and business processes. These are used to prioritize IS projects and create an IS plan.

For both the King and the Henderson and Sifonis models, the existence of a strategic business plan and planning process is a prerequisite to the creation of linkage.

5. A Summary

Using both the empirical and prescriptive literature, we have placed the factors which have the potential to influence linkage into five groups as shown in Table II.4. In grouping these factors, there were several choices which might be considered debateable and are somewhat arbitrary. These are discussed below.

The External Influences group contains factors which exist at the level of the environment or industry and have been shown to influence the success of IT planning and the extent of business strategy in the IT planning process. One major factor is the volatility and turbulence in the environment of an organization. Another factor of interest is the current use of IT in the industry (i.e. the "strategic grid" position of the industry). We have chosen to place the strategic grid factor at the organizational level (it is included in the IT Characteristics group) since significant variations in the "perceived" strategic grid position may exist within industries.
<table>
<thead>
<tr>
<th>Factor Group</th>
<th>Independent Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External Influences</strong></td>
<td>- environmental turbulence</td>
</tr>
<tr>
<td></td>
<td>- complexity of the IT environment</td>
</tr>
<tr>
<td><strong>Characteristics of IT in the Organization</strong></td>
<td>- maturity of the IT function</td>
</tr>
<tr>
<td></td>
<td>- perceived strategic grid position</td>
</tr>
<tr>
<td></td>
<td>- infusion and diffusion of IT in the organization</td>
</tr>
<tr>
<td></td>
<td>- IS-knowledgeable line managers</td>
</tr>
<tr>
<td><strong>Connections between the IT and Business Planning Systems</strong></td>
<td>- availability of the business plan to IT planners</td>
</tr>
<tr>
<td></td>
<td>- timing between IT and business planning</td>
</tr>
<tr>
<td></td>
<td>- particular methodologies or techniques which connect the ISP and the business planning processes</td>
</tr>
<tr>
<td></td>
<td>- involvement of senior management and business planners in ISP</td>
</tr>
<tr>
<td></td>
<td>- involvement of the senior IS manager in business planning</td>
</tr>
<tr>
<td></td>
<td>- review and approval of the IT plan</td>
</tr>
<tr>
<td></td>
<td>- monitoring the progress of the IT and business plan</td>
</tr>
<tr>
<td><strong>Communication between IS and Business Executives</strong></td>
<td>- access/proximity of the senior IS manager to senior management</td>
</tr>
<tr>
<td></td>
<td>- top management support for IS</td>
</tr>
<tr>
<td></td>
<td>- status/reporting level of the senior IS manager</td>
</tr>
<tr>
<td></td>
<td>- presence, composition and usage of the IS Steering Committee</td>
</tr>
<tr>
<td><strong>Implementation of Previous IT Plans</strong></td>
<td>- level of success in implementing the IS plan</td>
</tr>
</tbody>
</table>

The Characteristics of IT in the Organization group exists primarily to allow researchers to classify organizations as to the importance and the incidence of IT within them. Maturity, diffusion and infusion of IT, and perceived strategic grid position are the characteristics which have been shown to be significant in previous studies.

The Connections between IT and Business Planning Systems focuses quite narrowly on those activities which take place during strategic business and/or IT planning. Not all organizations will engage in these activities; many organizations will do strategic planning only sporadically, in reaction to significant events. This group
encompasses the facets of business and IT strategic planning processes which serve to "connect" them, namely their timing, the availability of shared information, and involvement of specific individuals in both processes.

The Communication between Business and IS Executives factor group contains those factors which, taken together, would describe the level of everyday interaction between IS and senior business executives. These include physical proximity, reporting relationships, and involvement on committees and task forces. The "steering committee" factor is included in this group, although it might also be considered part of the "connections between the IT and business planning system" group. It was placed under "communication" based on our belief that steering committees are primarily used as venues for communication and mutual education, not for strategic planning. In other words, steering committees may exist in an organization which did no strategic planning.

A factor which was ill-defined by previous research and therefore difficult to place was "top management support for IS". It was placed under "communication", since we felt that the primary indicators of top management support, in addition to a large operating and capital budgets, would be increased communication with IS executives and higher reporting relationships for IS executives.

Although the "IS knowledgeable line managers" factor was identified by only one empirical study, it seemed important since our model defined linkage as "mutual understanding". Although it might be important enough to stand alone (i.e. as a "characteristics of executives in the organization" group), it has been placed in the "communications" group due to our belief that its influence would be primarily on the communication between IS and business executives.

The Implementation of Previous IT Plans factor group represents the set of organizational memories and perceptions about the success of IT within the business. Specifically, it would measure the satisfaction with IS, both from a project perspective
(i.e. did projects go in on time and on budget?) and from an organizational contribution perspective (i.e. did projects contribute to business success?).

In the next section, these five factor groups are used to create the integrated research model and propositions concerning their influence are developed.

C. An Integrated Model to Guide Research into Linkage

1. The Model

A model incorporating potential factors identified in the broad survey of IT literature and the linkage dimensions developed in the previous section is shown in Figure II.1.

Although organizational factors often are recursive in their causality (Jang, 1989), there are several factor groups which logically would precede particular behaviours that might be observed in an organization. Recognizing the existence of this lag between events and outcomes, we have organized the factors into the two-stage model shown in Figure II.2 - separating Antecedents from Current Practices. One of the items in the Communications factor group, IS-knowledgeable line managers, has been separated out as an Antecedent. Observed linkage is the dependent variable. In general, Antecedents are expected to affect linkage indirectly, by affecting Current Practices. Current Practices are expected to directly affect Linkage. The expected contribution of each of the factor

\[ \text{In the only reported test of causality in this area, Jang (1989) used path analysis to show the bi-directional nature of causality. In his data set, while external factors (IS maturity, volatility of the environment, size of the organization) and internal factors (style of top management, status of IS manager, IS access to senior executives) influenced the extent of business strategy in the IS planning process, the IS planning process also significantly influenced the internal IS factors.} \]
a) External Influences

In general, external influences such as environmental turbulence and complexity are expected to affect linkage *indirectly* by influencing Current Practices.

Figure II.1
A Proposed Model of the Factors Influencing Linkage
In a turbulent IT\(^{17}\) and business environment, one might expect that companies (in which IT is of critical importance)\(^{18}\) will:

Proposition I: have their IT and business planning systems tightly connected (e.g. through timing, exchange of documents, use of certain executives as members of both

\(^{17}\) In this discussion, there are several levels at which the abbreviation "IT" is used. First, there is an IT industry or environment, composed of suppliers and customers of information technology and services. Secondly, there is the internal IT function of an organization, composed of the IS personnel and information technologies. One of the systems in an organization is the IT planning system, composed of the people and procedures used when an organization creates its plans for the IT function.

\(^{18}\) We expect that "perceived strategic grid position" would moderate the relationships described in Proposition I and II.
processes), although both may be short term in nature, and

Proposition II: exhibit high levels of communication between IS and business executives in order to keep each other informed of changes in their respective environments which impact their objectives.

b) Characteristics of IT within the Organization

As the prevalence and importance of IT grows within an organization, planning and communication practices are affected. For example, it has been found that mature IS functions (measured in number of years) have more formal and therefore more strategically focused IT planning processes (Doll and Torkzadeh, 1987; Raghunathan and Raghunathan, 1989). We expect that factors such as IS maturity, diffusion of IT throughout the organization, and the perceived strategic grid position will influence linkage by affecting Current Practices.

Proposition III: Organizations in which IT is mature, highly diffused, and perceived to be central to organizational objectives would exhibit higher levels of connection between their business and IT planning systems.

Proposition IV: Organizations exhibiting high levels of diffusion or infusion of IT within the organization will exhibit high levels of communication between IS and business executives.

Within organizations, barriers between functional areas (e.g. marketing, IT) and between roles (e.g. staff, line) can inhibit understanding and cooperation. An important factor in explaining ISP success was found (Vitale et al., 1986) to be the presence of IS-knowledgeable line managers. If line executives within an organization have experience in IT management and IS executives have experience in line management, we believe this will lead to a higher levels of communication.

Proposition V: Organizations in which there is a high level of shared experience
among the senior business and IS executives will lead to high levels of communication between them.

c) Success in the Implementation of Previous IT Plans

A good, but unimplemented, IT plan obviously contributes little to an organization. Subsequent planning efforts may be weakened since organizational members have low expectations of the outcome and therefore contribute few creative ideas. At this stage in IT research, these ideas (the effect of history on current behaviours) have not been empirically tested. However, we believe that success (or failure) in implementing previous IT plans will have an indirect effect on linkage by affecting other components in the model. Previous success is conceptualized as having at least two levels: operational (i.e. IT projects delivered on time and on budget) and strategic (i.e. IT projects seen to contribute to important business objectives).

Proposition VI: A recent history of strategic IT success will lead to tighter connections between IT and business planning.

Proposition VII: A recent history of operational IT success will lead to increased levels of communication between IS and business executives. Conversely, a history of operational IT failure will lead to reduced levels of communication between IS and Business executives.

d) Communication between IS and Business Executives

When members in an organization meet frequently, in both informal and formal settings, barriers between functions and roles can be broken down, leading to higher levels of mutual understanding and trust. Executives will be more inclined to share their plans and strategies with executives they know well and have frequent contact with.

Proposition VIII: High levels of communication will lead to high levels of
connection between the IT and business planning systems.\textsuperscript{19}

Proposition IX: High levels of communication will lead to high levels of mutual understanding of objectives and similar visions of the future role of IT.

e) Connections between the IT and Business Planning Systems

Certain IT and business planning processes and behaviours (e.g. participation of IS in business planning, participation of senior management in IT planning, interchange of planning documents) will increase the volume of information shared between IS and business executives and thus will \textit{directly} influence linkage.

Proposition X: High levels of connection between business and IT planning systems will lead to a high quality, complementary set of IT and business plans.

Proposition XI: High levels of connection between business and IT planning systems will lead to high levels of mutual understanding and a shared vision for IT between IS and business executives.

2. Literature Critique

From our investigation into the literature pertaining to linkage, we concluded that research into linkage suffers from some important problems. Most of these can be categorized as 1) lack of theoretical foundation, or 2) inappropriate research designs. Each will be briefly discussed below.

The lack of theory or even a theoretical framework has meant that research into linkage lacks focus. Certain variables of interest (e.g. rank of the CIO, presence of the steering committee) have been investigated but these have not been identified as part of a comprehensive theory. The lack of theory has made it difficult 1) to interpret results

\textsuperscript{19} We also believe that the "perceived" position on the strategic grid will moderate this relationship. The more important that IT is perceived to be by business executives, the stronger the relationship will be.
which are contradictory to earlier findings and 2) to hypothesize backwards from the statistically significant findings. For example, if the rank of the CIO is positively associated with higher levels of strategic IS planning, what influences the rank of the CIO? In addition, the lack of research interest in the linkage construct itself has resulted in the absence of a clear definition and a theory of measurement.

The preponderance of current research into IS planning in general and linkage, in particular, has been done via large survey studies or smaller interview-based studies. Many of the research designs have lacked the reliability and validity components which are important when conducting organizational level research. The most obvious shortcomings are: 1) use of single respondents to investigate organizational variables\(^{20}\), 2) exclusive use of the IS manager as a survey respondent as opposed to senior line managers, and 3) use of single item scales to investigate linkage.

Other studies have included a mix of organizations, without testing for the perceived strategic value of IT in each. This oversight makes interpretation of linkage statistics meaningless if one believes that the strategic grid theory has some validity. Another important weakness in the linkage research is the lack of longitudinal studies. For practitioners, as well as researchers, causality is important to understand and the cross-sectional nature of the current work makes it impossible to discern. For example, does the presence of a highly ranked CIO follow or precede high levels of strategic IS planning? The findings to date give little direction to a manager who wonders what actions to take.

This research project has been conceived as a first step in filling some of the gaps in our knowledge about linkage and about the factors which influence it. By examining several organizations in depth (paying attention to their history and the multiple points of

\(^{20}\) The one notable exception to this generalization is Pyburn's (1983) case research which provided us with a rich perspective on organizational life.
view within them), and creating "organizational stories" about their attempts at linkage, we hope to show the interrelationships between the factors in these specific cases and to identify additional ways in which linkage can be defined and measured. By comparing the "stories" and drawing out commonalities among them, we hope to create grounded theory concerning the factors which influence linkage.

In the next chapter contains a discussion of the way we chose to study linkage within organizations and will identify the strengths and weaknesses of this approach.
III. RESEARCH METHODOLOGY

A. The Research Model

In Chapter II we proposed a two-stage model to guide investigation into the linkage construct. This research project has operationalized parts of this model. We have focused on measurement of the "social process" dimension of linkage and identification of the factors which influence it. We have chosen a sample which allows us to hold constant several of the factors identified in the two-stage model and thereby to simplify the investigation. Within this limited research scope, we have tried to be as comprehensive and holistic as possible with our data collection practices and analysis.

Our decision to focus on the social process (understanding and commitment of managers) dimension of linkage stemmed from our belief that too much attention had been paid to the dissection of the other dimension (methods of planning and contents of plans) and not enough to the very real problem of ensuring that managers understood and agreed upon a common strategy and vision for IT. Calhoun and Lederer's (1990) research supports this view, identifying communication of the business plan, rather than the content of the business plan, as influencing the comprehensiveness of the IT plan.

Another reason to focus on the social process was the relative immaturity of the research into the typology of IT strategies and missions (i.e. the intellectual content dimension). The exception is Zviran's study (1990) which reported the presence of 16 IS objectives in the 131 companies which responded to his survey. As yet, no attempt has been made to investigate whether the list is complete or if the items are mutually exclusive. No work has been done to match these IS "objectives" with IS "missions" and no empirical study has yet matched different sets of IT objectives to various business
objectives. Our sampling strategy was chosen to minimize variance on two of the factors potentially influencing linkage: External Influences on the Organization, and Characteristics of IT in the Organization. The resulting model which guided our study is shown in Figure III.1. This model, since it was created from a wide body of IS research, should represent a comprehensive approach to the internal organizational forces which have the potential to affect linkage. In the next sections, the plans for investigating the groups of factors in the model will be discussed.

Bonoma (1985) suggests that phenomena which meet the dual conditions of little theoretical knowledge and high complexity should be suited to the application of qualitative research methods. As discussed previously, little theory exists about linkage in organizations. It can also be argued that linkage is inherently a complex phenomena since it is an organization-level construct, influenced by current processes and historical events.

The development of the model shown in Chapter II from the findings and prescriptions in a wide body of IS literature positions us at the beginning of Bonoma’s "design" stage of research into linkage. Collection of data to investigate the groups of factors in the model should allow us to "assess and refine" the major areas of inquiry. However, as Bonoma cautions, we "must be willing to let further data recycle our thinking if beginning conceptualizations do not hold up against new situations" (Bonoma, 1985).

This study has been designed as a case research project. The following sections

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21 Tavakolian (1989), however, found a strong relationship between generic business strategies (defender, reactor, prospector) and the structure of the IS function. Chan and Huff (1992) are currently investigating the relationship between generic business and IT strategies and business outcomes.

22 One element in this factor group, shared knowledge between business and IS executives, could not be held constant and has been investigated in this research.
describe the selection criteria and specific features of the research design. Following this is a discussion of the methods used to enhance the reliability and validity of the research and a summary of the contribution that this research approach can bring to the study of linkage.

B. The Units of Analysis

Because our definition of linkage revolves around business and IT mission, objectives and plans, we need to carefully identify the possible locations of these artifacts. The companies in our study are multi-divisional organizations with each division having some responsibility for profit and loss and all divisions having responsibility to forge their
own unique set of mission, objectives and plans within corporate guidelines. We identified two distinct loci of linkage within multi-divisional organizations: corporate linkage (in which the corporate IT mission, objectives and plans need to be aligned with the business), and business unit linkage (in which business unit (BU) IT mission, objectives and plans need to be aligned with the business). Each linkage is forged in different ways.

We defined corporate linkage as that which is created by aligning corporate IT mission, objectives, and plans with the business mission, objectives, and plans from both corporate management and from each of the business units, as shown in figure III.2. Corporate linkage, as defined, is complex. In an organization with many business units, the corporate IT mission, objectives, and plans should reflect each of their requirements in the context of the overall corporate mission, objectives, and plans.
We defined business unit linkage as that which is created by aligning IT and business mission, objectives, and plans within a single business unit. This is shown in Figure III.3.

![Diagram of business unit linkage

C. Case Selection

We selected three large Canadian life insurance companies for this research project. This selection of organizations was made to reflect Yin's (1989) strategy of

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23 Please note: in the diagrams, we have used the word "objectives" to stand for the mission, objectives and plans in the unit. This has been done for purposes of brevity, not to emphasize objectives over other planning outputs.
"literal replication" in which all cases are theoretically the same. In order to make the organizations more comparable, the cases selected minimized differences along the two groups of factors which were not being investigated, namely External Influences and Internal IT Characteristics.

In order to minimize variance from External Influences, we chose organizations which were established businesses, operating for profit in a competitive marketplace. These organizations offered similar products within similar markets (across Canada). Their asset bases respectively are 1, 10 and 20 Billion $Can. They all have Canadian headquarters and a large national network of agents and brokers. All companies sell products in the United States and other countries but our study investigated only the Canadian operations because of logistical problems investigating foreign operations.

In each of the companies, data were collected at two levels: the company as a whole (to investigate corporate-level linkage) and within several business units (to investigate business unit linkage). Each business unit had responsibility to set its own strategic goals and plans, within a corporate framework.

In selecting life insurance companies with similar products (e.g. life and health insurance for individuals and groups, retirement investments), we were ensuring that all companies and business units would theoretically be in the Strategic or Turnaround quadrant of the Strategic Grid24 model, and therefore, would have similar aspirations with respect to linkage between business and IT mission, objectives and plans. Because they were in the insurance industry, all units satisfied some important criteria discussed in the strategic IS literature, including: very high levels of information intensity in both the products and their distribution, and continual evolution of new products and new ways to use information in the industry (i.e. the information technology usage has not yet

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24 According to the Strategic Grid model (McFarlan et al., 1983), companies in the Strategic and Turnaround quadrants have plans to use IT as a major enabler of their strategic business plans.
However, within different organizations, data are often interpreted in unique ways. Selecting organizations who "should" believe that IT is strategic to their future is not enough to ensure that they will in fact feel this way and therefore act to ensure that linkage is obtained within their organization. Without extensive interviewing, an organization's attitude towards IT can be discerned by looking at factors such as IT budget, composition of the IT Steering committee and the reporting relationship of the senior IS manager. In general, the bigger the budget, the more senior the business representation on the IT steering Committee, and the higher the IS manager reports, the more likely it is that the company takes its investment in IT seriously. To ensure that the "perceived" position on the strategic grid was comparable among companies, we applied a filter during the selection process. We looked for companies which satisfied one or more of the following criteria:

a) A large IT budget (in the insurance industry, this means >15% of operating expenses).
b) The President/CEO chaired the IT Steering Committee.
c) An organizational structure in which the senior IS executive reports to the President.

Although budgets are not easily comparable, all of our companies spend more than 15% of their operating expenses on IT. In the two companies which had IT Steering Committees, they are chaired by the President/CEO. In all of the companies, the senior IS Executive reported to the Senior Vice President/Chief Financial Officer, not the President.

Another criteria which indicated to us that the company believed in the strategic value of IT was its willingness to participate in this study. We were asking for access to strategic business and IT documents and interviews with most of the senior executives in the company. By agreeing to participate, we felt that each of our companies exhibited beliefs that IT was strategic to their success.
In order to minimize variance on the Internal Characteristics of IT within the Organizations, we chose companies which had been stable on a macro level (mergers, acquisitions, major expansion within Canada) for at least five years. However, at a business unit level, such stability was hard to find and several of our business units have recently been formed or have been restructured. These changes will be noted in our descriptions and analysis.

The IT units within the organizations ranged from being relatively mature (IS employees with 5 years of company experience) to very mature (IS employees with 20 years of company experience). However, all senior IS executives had been in the industry for at least 10 years.

Another goal of our case selection strategy was to maximize the variance in attained linkage between the companies and business units. This was difficult to do a-priori since we did not yet have sophisticated instruments to measure linkage. The first company was found through personal connections of the primary researcher. The second was suggested by a colleague. After interviews with the IS manager and the Chief Financial Officer in both companies, we felt that they would exhibit low-moderate levels of attained linkage. The third company was selected after extensive probing of industry colleagues to determine which companies were considered to be exemplars in the use of IT. We invited three of these companies to participate and when one accepted, we were satisfied that we had a set of units which would exhibit a variance on the linkage construct which was available in Canadian industry.

The life insurance industry, with respect to its use of IT, is quite mature. Most of the back office (policy enrolment, underwriting, actuarial, claims) is fully supported by information systems. The front office (sales and product management) is more unevenly supported but agents have had presentation software to aid their sales efforts for several years. Most life insurance companies are operating in an extremely competitive
marketplace where IT is used both to reduce unit costs and to create new and innovative products and marketing support environments.

Within these three Canadian life insurance companies, we selected 10 business units for analysis. They were: 3 units selling individual life insurance, 2 selling group insurance, 2 offering retirement assets, 1 selling reinsurance services, 1 doing internal investments and 1 selling life insurance for automotive sales. In order to keep our promise of confidentiality to these companies, we will not be identifying any of the business units by name, nor will we be associating any business unit with any corporate unit.

The companies who participated in our study will be named company A, B and C. the business units have been mixed into random order and numbered from 1 to 10.

D. Data Collected

1. Informants

Because the data to be collected was qualitative and largely post-hoc, it was imperative to collect different types of data to explore the topic and verify any finding (Jick, 1979). There were two data collection methods used in the study: gathering of written archival data and interviews with informants. In this section, we identify the people who were interviewed and the questions they were asked; in the next section we list the archival data collected.

It was important for two reasons to include a wide constituency of informants. First, by interviewing a wide range of informants, we were able to gather data about all aspects of an event or a process, thus increasing the reliability of our data. Second, having multiple informants at the same level in the unit of analysis increased our ability to identify differences of opinion within organizations and to investigate any outcomes of it. Earlier studies which used single respondents did not have this opportunity.
The research model included three factors which potentially influenced the level of attained linkage: the history of IT implementation, communication between IS and line executives, and the connections between business and IT planning. In order to gather data about these factors, we identified the roles which would have data pertinent to our investigation. These included: the senior business executives, the senior IS executives, the members (if any) of the IT Steering Committees, and any technological "gatekeepers". To the best of our ability, we included people from all these roles in our interview schedule.

A list of the interviewees is presented in Table III.1 for the corporate level analysis and in Table III.2 for the Business Unit analysis. In total, we conducted 57 interviews with 45 informants. To investigate corporate level linkage, we interviewed both corporate and business unit executives. Because Senior Vice Presidents have responsibilities at corporate and at business unit levels, each interview with these individuals was done from a corporate as well as a business unit perspective. In each unit except BU 4, we were able to include at least three informants who had relevant information about the factors from our model.

With most executives, one long interview (approximately two hours) was conducted. Some short follow-up interviews were also held as necessary. The Senior corporate IS executives were interviewed between three and five times since they were the people most knowledgeable about the IT history within the organization.

A generic set of interview guides is presented in Appendix A. As shown, separate guides were prepared for the President/CEO, the IS managers, the business unit executives and other participants in IT. The actual interview guides used were customized to use correct organizational titles and to ask about specific events which the author had identified previous to the interview. This customization process is discussed in the next section.
Table III.1
Interviewees within each of the Corporate Units

<table>
<thead>
<tr>
<th>Unit of Analysis</th>
<th>Corporate Business Executives</th>
<th>Corporate IS Executives</th>
<th>Business Unit Business Executives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company A</td>
<td>- President/CEO</td>
<td>- Vice President (VP) Information Services (IS), - 2 Assistant Vice Presidents (AVP), IS, - 2 Directors, IS</td>
<td>- 2 SVPs of Business Units</td>
</tr>
<tr>
<td></td>
<td>- Senior Vice President (SVP) Chief Financial Officer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- SVP/Chief Investment Officer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company B</td>
<td>- President/CEO</td>
<td>- VP, Corporate IS - VP, Corporate Operations - 2 Directors, Corporate IS</td>
<td>- 2 SVPs of Business Units</td>
</tr>
<tr>
<td></td>
<td>- SVP, Corporate Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- VP/Controller</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Director, Corporate Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- SVP (retired) Corporate Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company C</td>
<td>- President/CEO</td>
<td>- VP, IS</td>
<td>- 3 SVPs of Business Units</td>
</tr>
<tr>
<td></td>
<td>- SVP, Corporate Services</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Archival Data

Archival data was used in three ways during the study. Before any interviewing commenced, planning procedure manuals, organization charts and annual reports were used to give the researcher background knowledge concerning significant organizational business and IT events. They were also used to customize the interview guides with correct organizational titles and to guide the selection of interviewees.

During the process of interviewing (which took several weeks), minutes from meetings, strategy documents, and consultants reports were used to add specific questions to the interviews concerning important events and outcomes and to enlarge the set of interviewees. This allowed the researcher to collect holistic data about organizational "stories" with contributions from many sources.
<table>
<thead>
<tr>
<th>Unit of Analysis</th>
<th>Business Unit Business Executives</th>
<th>Business Unit IS Executives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Unit 1</td>
<td>- SVP, Business Unit</td>
<td>- VP, Admin. and IS</td>
</tr>
<tr>
<td></td>
<td>- VP, Marketing</td>
<td>- Director, Admin. Systems</td>
</tr>
<tr>
<td>Business Unit 2</td>
<td>- SVP, Business Unit</td>
<td>- VP, Admin. and IS</td>
</tr>
<tr>
<td></td>
<td>- VP, Marketing and Administration</td>
<td>- Director, IS</td>
</tr>
<tr>
<td></td>
<td>- VP, Finance</td>
<td></td>
</tr>
<tr>
<td>Business Unit 3</td>
<td>- VP, Finance</td>
<td>- Director, IS</td>
</tr>
<tr>
<td></td>
<td>- Director, Administration</td>
<td>- Manager, Systems Development</td>
</tr>
<tr>
<td></td>
<td>- Director, Marketing</td>
<td></td>
</tr>
<tr>
<td>Business Unit 4</td>
<td>- VP, Operations</td>
<td>- Director, IS</td>
</tr>
<tr>
<td>Business Unit 5</td>
<td>- SVP, Business Unit</td>
<td>- Manager, Systems Development</td>
</tr>
<tr>
<td></td>
<td>- Manager, Marketing Administration</td>
<td></td>
</tr>
<tr>
<td>Business Unit 6</td>
<td>- SVP, Business Unit</td>
<td>- Manager, Admin. and IS</td>
</tr>
<tr>
<td></td>
<td>- Director, Finance</td>
<td></td>
</tr>
<tr>
<td>Business Unit 7</td>
<td>- VP, Administration</td>
<td>- AVP, IS</td>
</tr>
<tr>
<td></td>
<td>- AVP, Marketing</td>
<td></td>
</tr>
<tr>
<td>Business Unit 8</td>
<td>- SVP, 2 Business Units</td>
<td>- AVP, IS</td>
</tr>
<tr>
<td></td>
<td>- VP, Business Unit</td>
<td></td>
</tr>
<tr>
<td>Business Unit 9</td>
<td>- SVP, 2 Business Units</td>
<td>- AVP, IS</td>
</tr>
<tr>
<td></td>
<td>- VP, Business Unit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- AVP and Controller</td>
<td></td>
</tr>
<tr>
<td>Business Unit 10</td>
<td>- SVP, 2 Business Units</td>
<td>- AVP, IS</td>
</tr>
<tr>
<td></td>
<td>- VP, Business Unit</td>
<td>- Manager, IS</td>
</tr>
</tbody>
</table>

After the interviewing was complete, strategic plans were analyzed to assess one dimensions of linkage "the extent to which written IS and business plans reference each other". The minutes from Steering Committee meetings and other strategic documents were used to assess the workings of these
liaison groups such as the level of actual participation, and the strategic level of the meetings. Minutes from weekly and monthly managers meetings provided us with data to corroborate interview data on communications between IS and business executives. For example, we could make rough calculations concerning the frequency with which IS concerns were addressed at these meetings and we could identify the amount of time that an IS manager was exposed to other executive’s views and concerns and vice versa.

A detailed list of the archival data collected for each unit of analysis is presented in Table III.3. We were successful in obtaining IT and business plans from each unit in the study (if they had prepared them). In some cases, we collected plans from previous years since the current year plans were in draft form or otherwise incomplete.
Table III.3
Archival Data Collected within each Unit of Analysis

<table>
<thead>
<tr>
<th>Unit of Analysis</th>
<th>Background</th>
<th>Business Plans</th>
<th>IT Plans</th>
<th>Steering Committee (SC) Minutes etc.</th>
<th>Other Strategy Documents</th>
</tr>
</thead>
</table>
| Company A        | - 5 Annual reports | - Strategic 5 yr plan
- 1990 IT Plan
- Strategic Technology direction paper | - SC mandates
- 10 sets of minutes (senior management SC)
- 12 sets of minutes (technical SC)
- Presentation to SC on data management, and rapid application development | - 1991 Planning Process Document (2 levels)
- PC Acquisition Policy
- Authorities & Responsibilities manual re IT
- IS Chargeback Policy |
| Company B        | - 2 Annual reports | - 5 year planning directive 1991-1995
- 2 years of SC minutes (technical SC) | - minutes from IT planning meetings
- reports from a reorganization of corporate IS units
- letter from President to IS director |
| Company C        | - 4 Annual Reports | - Not produced | - 1991 IT Plan | - 2 years of SC minutes (senior management SC) | - 1989 IS Strategic Planning retreat minutes
- 1986 IS plan
- 1985 IS Direction Statement |
<table>
<thead>
<tr>
<th>Unit of Analysis</th>
<th>Background</th>
<th>Business Plans</th>
<th>IT Plans</th>
<th>Steering Committee (SC) Minutes etc.</th>
<th>Other Strategy Documents</th>
</tr>
</thead>
</table>
| Business Unit 1 | - Annual Reports | - 5 yr Strategy 1991-1995  
- 5 year Operating Plan 1991-1995  
- 1991 Plan | - no separate 5 or 1 yr IT plan produced.  
- unpublished 5 yr. technology strategies. | - no BU steering committee | - minutes from 2 representative monthly planning meetings of the BU executive |
| Business Unit 2 | - Annual Reports | - Strategic Plan 1990-1995  
| Business Unit 3 | - Annual Reports | - Background sections, Business Strategy, 1991-1995  
- 1991 Plans | - no 5 yr or 1 yr IT plan compiled.  
- projects embedded in the 1991 Plan. | - no BU Steering Committee | - 2 memos re systems priorities |
| Business Unit 4 | - Annual Reports | - excerpts from 1991 Strategic Plan (not finished)  
- no 1991 IT Plan  
- no 5 yr IT plan | - no BU Steering Committee | - Mission, goals, objectives for IS, 1989  
- Strategic Planning output, 1990 |
<table>
<thead>
<tr>
<th>Unit of Analysis</th>
<th>Background</th>
<th>Business Plans</th>
<th>IT Plans</th>
<th>Steering Committee (SC) Minutes etc.</th>
<th>Other Strategy Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Unit 5</td>
<td>- Annual Reports</td>
<td>- Strategic Marketing Plan 1991</td>
<td>- no unified IT strategy - 1991 Projects</td>
<td>- no BU steering Committee</td>
<td></td>
</tr>
<tr>
<td>Business Unit 6</td>
<td>- Annual Reports</td>
<td>- Administration Plan, 1991</td>
<td>- IT Plan, 1991</td>
<td>- no BU Steering Committee</td>
<td></td>
</tr>
</tbody>
</table>
E. Operationalizing the Research Model

1. Observed Linkage

To operationalize the linkage construct (defined as the "degree of mutual understanding between IS and business executives about the IT and business mission, objectives and plans"), we needed to consider: 1) whether to capture perceptions or objective measures or both, 2) whether to use quantitative or qualitative measures of the "degree" of linkage, and 3) how to investigate both the "current" and "future" dimensions of linkage. These questions will be discussed below.

a) Perceptions vs. Objective Measures

One of the purposes of this research is to discover whether there are any objective, outcome-based ways to measure linkage. However, because much of organizational reality is constructed by individuals and groups, it did not seem reasonable for us to create purely objective measures without verifying that the perceptions of organizational participants would be congruent with them.

For example, a researcher might categorize an industry as being in the "Strategic" quadrant of the model developed by McFarlan et. al (1983). However, if influential organizational participants do not perceive themselves as being a "Strategic Quadrant" company, their actions may not be congruent with the prescriptions for that kind of company. In this case the perceptions and objective measures would show no congruence. Neither measure is right or wrong, they measure two different aspects of the same construct, the actual and the perceived. In this project, we are attempting to develop objective measures which can be reconciled with perceptions and, therefore, we
investigated linkage using both objective and perceptual measures.\(^{25}\)

b) Quantitative or Qualitative Measures of Linkage

Since there may be multiple IS and business objectives in a given business unit, we can construct both quantitative and qualitative measures of the degree of linkage. For example, we might say that 7 out of 10 written IT objectives reference business objectives and use this statistic in a comparative analysis to rate this organization as more "linked" than an organization in which only 4 out of 8 IT objectives referenced business objectives. However, without a theory which identifies the nature of IT objectives and the percentage that we would expect to reference business objectives, this use of interval measurement scales is meaningless. Therefore, our preliminary measures of linkage were ordinal. Their construction is described below and the scales are contained in Appendix C.

c) Measuring Current and Future Linkage

Because no study had looked comprehensively at the linkage construct, we created several measures of the construct, expecting that others would emerge and that some or all of our pre-designed measures would be impractical or redundant. The measures used included:

1) Mutual understanding of current objectives, measured by assessing whether IS managers could articulate the business objectives and whether business managers could articulate the current IT objectives. The data was gathered during interviews and analyzed

\(^{25}\) As Lee (1991) suggests, there are three objectives which a researcher may pursue during data collection and analysis: - to identify the "constructed reality" of the participants, to make qualitative interpretations guided by scales developed by the researcher, or to provide quantitative assessment from instruments such as surveys or experiments. In this study, we spent considerable effort to ascertain the participants "reality" and to make our interpretations based on this reality and on our own independent assessments.
using a simple scale as shown in Appendix C.

i.e. does the IS manager understand the near-term business objectives are? Do the senior managers know what the IT objectives are?

2) Cross-references in written plans, measured by assessing the degree to which IT and Business plans reference each other. Two measures of cross-referencing were taken - one from the one year plans and one from the 5 year plans. An ordinal scale (see Appendix C) was created for this measure.

i.e. do the IT plans reference specific parts of the business plans, such as business objectives or current problems? Do the business plans indicate how IT might help in achieving organizational objectives?

3) Shared vision for the future role of IT, measured by comparing the open-ended vision statements obtained in interviews from IS and business executives and assessing their congruence.

i.e. do senior managers and the IS manager share the same vision of IT in the future, specifically with respect to:

- the usage of Information Technology (i.e. processors, communication technology, database technology, expert systems..) in the business
- the use of Information Systems to automate certain business functions
- who will make IT-related decisions
- the future structure and size of the IS function

4) Subjective ratings of linkage, taken from all interviewees. Each manager interviewed was asked to rate linkage (at the business unit or corporate level) as high, moderate or low and to give rationale and evidence supporting the rating (see Appendix C). This data was used as the "perceptions" measure and also allowed us to explore their subjective understanding of what linkage was.
2. Shared Knowledge between Business and IS Executives

In organizations where managers have a deep understanding of each other's position, communication is likely to be more efficient. Less communication may be needed to accomplish organizational goals than in organizations in which basic misunderstandings cause differences of opinions and take time away from discussion of content issues. Understanding is fostered, in part, when people have similar work experiences (e.g. by being in the same industry, the same organization or in similar roles). Each of these similarities gives the participants a "shared language"; a shorthand method of describing situations and objectives.

The primary way organizations create shared work experiences is through temporary and permanent transfers, such as job rotation and special assignments. Since participants in each case selected for study were already in the same industry and organization, evidence of similarities in experience were made by gathering data about temporary and permanent transfers from general management to IT management and vice versa within the organization. Evidence of three types of similar work experience were collected: line management transfers\textsuperscript{26}, project management roles, and membership in liaison roles. A nominal scale was developed (Appendix D) to reflect the amount of managerial experience each executive had in the opposite domain. Specifically, data was collected to identify:

a) How many of the current executives have:
- held direct responsibility for the IS function (i.e. was the senior IS manager),
- chaired an IS steering committee/ ISP project/large Development project,
- acted as a member of an IS Steering Committee/ISP project/large development project.

\textsuperscript{26} This measure reflects the permanent lateral transfers which have occurred in the organization. According to Galbraith (1977), lateral transfers increase the amount of direct communication between various functions. So this variable may be a predictor of the direct contact component of communication.
b) Whether or not the senior IS manager has:
   - held direct responsibility for a non-IS function,
   - managed a non-IS project,
   - been a member on a non-IS project.

3. Implementation of Previous IT Plans.

Since past behaviours are hypothesised to influence current levels of linkage, this part of the investigation was designed to identify evidence of long-standing strategic control behaviours, not intentions. Previous studies have indicated that factors such as review and approval of the IT plan, monitoring of the implementation of the IT plan, and the actual level of implementation of the IT plan are important influences on planning outcomes. Evidence of implementation success was investigated by gathering descriptive data about any:

a) Formal procedures for monitoring and communicating the progress of the projects in the IT plan to senior management.

b) Formal procedures for changing the contents of the IT plan because of changing external/internal conditions.

c) Incentive system which rewards participants for successful implementation of the ISP projects.

In addition, the organization's success with respect to implementation of IT Plans was assessed by both IS and line managers.27

4. Communication Between IS and Senior Executives

It is our belief that mutual understanding (i.e. linkage) comes about through contact between individuals during the everyday course of events - either face to face or written contact, in groups or in pairs, formal or informal. Therefore, we gathered data to assess

\[^{27}\text{The level of implementation of previous IT plans will not be objectively assessed since no theoretical work has been done which would suggest a method or a measure for such an assessment. However, perceptions of organizational participants concerning implementation was gathered.}\]
the differences between organizations on this dimension. This data was collected from individuals in interviews and corroborated, where possible, with written documents (e.g. minutes from meetings) and with interview data from other executives in the communication network.

Because we wished to investigate communication between different functions in the company (the management function and the IS function), we needed to employ an investigative framework which emphasises relationships between distinct groups. The best known framework was that of Galbraith (1977), whose typology of lateral relations within organizations contained seven items. Galbraith (1977) used the typology to itemize ways to reduce information overload at the top of an organization by increasing the communication between groups at lower levels of management. However, the overall goal of these techniques was to "maintain integration" (p 116) which is very similar to our purposes of establishing "linkage". Apart from the last level (i.e., the matrix form, which we found to be irrelevant since his model assumes that the two groups are hierarchically similar), the typology can be used to capture many of the ways in which IS and senior management interact. The typology plus examples of how it was investigated are shown in Table III.4.

Data gathered using the Galbraith typology was analyzed to see whether the communication is primarily IT-related (i.e. focused) or general business-related (i.e. diverse) and an assessment was made of its frequency, relative to other units in the study.

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28 For the purposes of this study, the senior IT manager will be considered as a member of the IT group rather than as a member of senior management. The proposed typology of communication will detect any overlap in roles.
Table III.4
Galbraith’s Lateral Relations Typology with examples of Communication between IS and Senior Executives

<table>
<thead>
<tr>
<th>Relation</th>
<th>Examples</th>
</tr>
</thead>
</table>
| Direct contact Between IS management and senior management. | - Informal interaction e.g. ad-hoc meetings, business lunch/dinner engagements, social engagements.  
- Formal internal interaction e.g. scheduled meetings, presentations.  
- Formal external interaction - e.g. joint attendance by IS and Executives at events  
- Written contact - memos, reports, electronic mail, etc. |
| Liaison role | - A senior V.P. named as a contact person between IS and senior managers.  
- Creation of specific IT-related roles (i.e. marriage broker, rich uncle) (Vitale et al., 1986) to foster strategic systems. |
| Temporary Task Forces | - A strategic IS planning project with senior management participation. |
| Permanent Teams/Committees | - A permanent part-time IS Steering Committee staffed with senior management. |
| Integrating Roles | - A permanent full-time department staffed with people from other parts of the business to address IS issues. |
| Managerial Linking role | - IS managers in roles as "general managers"  
- Senior IS manager on the Executive Committee. |

5. Connections between Business and IT Planning

Much of the literature on linkage identifies the IT planning process as the crucial time during which linkage is forged. In order to assess the amount of connection between the business and IT planning processes, we gathered data about the most recent IT and business planning cycles and looked for evidence that IT planning was done in conjunction with business strategy setting.

To create a "level of connection" scale, we investigated the IT planning literature. There have been numerous attempts to categorize IT planning methodologies. The original "top-down" vs "bottom-up" dichotomy (Rapanos, 1985) was expanded to include
"middle-out" (Henderson and Sifonis, 1988). Huff and Munro (1985) developed a model of IT adoption and assimilation which suggested that IT opportunities could be surfaced through issue-driven, technology-driven, or opportunistic organizational processes.

Recently, a number of descriptive and prescriptive typologies (Kottemann and Konsynski, 1984; Galliers, 1987A; Jang, 1989; Henderson and Venkatraman, 1990;) have begun to converge on five generic types of IT planning and can be used to develop a typology of planning styles based on the degree of connection between the IT and business planning process. Table III.5 contains a summary of the various typologies.

With respect to their potential to create linkage, the types of IT planning depicted in table III.4 theoretically represent a continuum, from low to high. For example, an Architected planning system can be hypothesized to be easier to link with business objectives than is an Isolated planning system since the overall blueprint for future applications and technology is known. A Derived IT planning system ensures a higher level of linkage than an Architected (but unprioritized with respect to strategy) plan. A better situation is the Integrated model in which both business and IS planning is done at the same time, with interplay between the systems. The fifth type of planning, labelled "Proactive", might be considered superior since the IT opportunities are guaranteed to be considered when business strategy is formulated. Only companies which incorporate the latest technology developments in their business objectives would find this planning method to be useful. For those which do, this model would ensure a higher level of linkage than the other four since IT would receive separate advance treatment and would have more potential to influence business strategy.
Table III.5  
A Comparison of IT Planning Typologies

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ISOLATED</td>
<td>ISOLATED</td>
<td>isolated</td>
<td>pre-planning</td>
<td>technology implementation</td>
</tr>
<tr>
<td></td>
<td>ITP is performed in response to known IT or business process issues, a bottom-up approach.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 ARCHITECTED</td>
<td>ARCHITECTED</td>
<td>integrated</td>
<td>separate</td>
<td>strategy implementation</td>
</tr>
<tr>
<td></td>
<td>ITP creates architectures which would support a top-down approach, but the IT plans are created from known IS or business process issues.</td>
<td>(architected)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 DERIVED</td>
<td>DERIVED</td>
<td>derived</td>
<td>linked</td>
<td>technology leverage</td>
</tr>
<tr>
<td></td>
<td>ITP occurs after business planning and the contents of the IT plan are derived from the business plan. Items in the IT plan are based on business objectives.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 INTEGRATED</td>
<td>INTEGRATED</td>
<td>participative</td>
<td>&quot;ISP is part and parcel of BP&quot;</td>
<td>integrated</td>
</tr>
<tr>
<td></td>
<td>ITP is done at the same time as business planning and each plan can influence the other.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 PROACTIVE</td>
<td>PROACTIVE</td>
<td>&quot;ISP is the impetus for BP&quot;</td>
<td></td>
<td>technology exploitation</td>
</tr>
<tr>
<td></td>
<td>IT opportunities are identified in advance of business planning. Then integrated IT and business planning is done.</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

The data collection was organized to capture the inputs, the process and the outputs of the latest IT plan. This comprehensive approach allowed us to 1) describe the planning process, 2) to reveal the presence of factors which have been previously identified as being influential (e.g. availability/communication of the business plan, timing between
IS and business planning, involvement of senior management & business planners in ISP, and particular ISP methodologies which create linkage) and thereby to 3) classify the ITP process based on our typology in Table III.5.

Specific data was collected concerning:

Inputs to ITP: format and type (written/verbal, formal/informal), sources of information (industry, executives, middle management, IS managers).

Process of ITP: participants (individuals, committees), timing (with respect to business planning), methodology used, events

Outputs of ITP (intermediate and final): format and type of outputs, communication of the results.

F. Data Gathering and Analysis

1. Data Gathering Protocol

In this research project, the doctoral student, as "primary researcher", conducted all interviews and performed the data analysis. Her advisor, acting as "second researcher", reviewed the site reports, delving into the raw data as necessary to ensure consistency across the findings.

The data collection process in each organization proceeded such that the least intrusive methods are first and the most intrusive methods last. There were 7 steps to the data gathering process:

a) Preliminary interviews were held with the key informant to assess the suitability of the site and its willingness to participate. Evidence of strategic reliance on IT and general maturity of the IT function was gathered.

b) Written documents, including annual reports, procedure manuals, organization charts were gathered as background material for the interviews.

c) Interviews were conducted. Audio tapes were created during interviews.

d) Other written documents (strategic plans, minutes of meetings) were gathered and
analyzed to verify the interview data.

e) Any discrepancies between the interview data and the written documentation was examined in follow-up interviews or in additional interviews.

f) After the within-site data analysis, site reports was sent to all 3 corporate units and 8 of the business units and the key informants in each were asked to verify or challenge the descriptive and interpreted data.

g) The primary researcher gave presentations at 2 sites (to 2 corporate and 4 business units) to summarize the findings and gain additional verification that the interpretation had validity for the informants.

2. Within-Site Data Analysis

After the interview and written documents were collected, the researcher had the tapes transcribed. From these data, a long (20-30 single-spaced page) site report was created by the first researcher which described the unit using the factors from the model as headings. After each descriptive passage, the researcher assessed the factors using ordinal scales. A description of the ordinal scales is contained in Appendix D.

At the end of the report, the researcher summarized the factors which seemed, by accounts from participants and from interpretations by the researcher, to be influential with respect to linkage. Several examples follow:

a) "A history of late, over-budget, implementations coupled with an inability to capture benefits from the systems once they are implemented."

b) "A low level of communication between IS and line managers due to the infrequency of management meetings and the lack of a strong informal network tying the IS manager to the executives."

c) "A high level of connection between IT and business planning - planning is done for all projects simultaneously."

The draft of each site report was read by the second researcher to identify any weak spots in the analysis and to ensure that the analysis was done to the same level of
completeness and consistency for each unit. Changes were suggested and made by the primary researcher.

The updated report was circulated (minus any direct quotes taken from the interviews) back to the units for their verification. Half of the reports were returned back to the researcher with comments from the informant. In all but one case, the informants approved the analysis and the reasoning. In the one case where there was a discrepancy between the report and the informant's understanding of events, the researcher returned to the site and interviewed the informant, who had not been available at the time of the first visit.

3. Across-Site Data Analysis

The inputs for this phase of analysis were the corrected site reports for each of the units of analysis. These site reports are not contained within this dissertation document.

The first step was to take each report and separate out the analysis of linkage from the analysis of the factors which had influenced it. This rather drastic action was taken, rather than going directly to a holistic look at the factors which influence linkage:

a) to assure ourselves that the scales for each linkage measure and each factor had been applied consistently. This was important in linkage, especially, since we had altered the linkage measures during the analysis and had added a new measure.

b) to be able to rank the sites on the dependent variable - linkage - without fear that the factors data would confound the ranking.

c) To assess the importance of each factor, both hypothesized and emergent.

This step, which consumed at least four months of time, would not have been necessary had we started with reliable scales. However, this was an exploratory study and we had no illusions that the scales we created from literature studies and from experience would stay completely intact when confronted with real data. Furthermore, one of the
primary research questions was to identify appropriate ways to measure linkage.

Four new reports were created and incorporated in this dissertation:

a) corporate level linkage in the 3 corporate units (Chapter 4),
b) influential factors in each of the corporate units (Chapter 5),
c) business unit linkage found in each of the business units (Chapter 6),
d) influential factors in each of the business units (Chapter 7)

Each report contained one section for each unit of analysis, a section summarizing the across-site findings, and a section ranking each unit on the relevant scales. Chapter 5 and 7 contained revised models based on the data from the study.

The last step (results are shown in Chapter VIII) was to combine the findings at a higher level of abstraction and to put them into the context of current research and practice.

G. Issues in Reliability and Validity

Several steps were taken in a deliberate attempt to increase the reliability and validity of this study. These will be discussed below.

1. Reliability

Four aspects of the research design directly affect the reliability of the data collected and the interpretation of this data. They will be outlined below.

For each organizational unit being analyzed, multiple respondents were used to provide reliable data about the factors. Having multiple informants allowed the researcher to learn about a process or event in the first interview and to follow it up and verify it in subsequent interviews. Also, multiple perspectives (SVP, line manager, IS manager) were identified on the topics.
Data from multiple sources, documents and interviews, was collected. As mentioned earlier, written data was used to customize the interviews and use the time much more efficiently. It was also used to verify other details such as the exact attendance at meetings and the frequency of meetings. For example, the IT Steering Committee of one unit was designated to meet monthly but in fact met only three times over the course of an eight month period.

After the site report was drafted by the primary researcher, the second researcher read and annotated it and looked for inconsistencies in the application of the model or the assessment of the factors. These reports were filled with anecdotes, quotes from written documents, and interpretive notes in order that the researcher was exposed to as much raw data as practical and could form an unbiased conclusions (Yin, 1989; Sviokla, 1986). After comments were received, the report was subsequently modified to eliminate inconsistencies.

The modified report was sent to the main informant of each unit in order to check for correctness and completeness of the data. The informant was asked to annotate and return the descriptive analysis. Eleven of the informants returned their write-ups and only one requested significant changes based on new information. A follow-up phone interview and meeting was held to correct this situation.

A very important step in improving the reliability of the research occurred after the site reports were completed and verified. In order to ensure that scales were consistently applied across each site, the reports were taken apart and each factor was rescaled across all units. This resulted in a few adjustments in ratings, expansions to two of the scales (i.e. vision for IT and congruence in written documents) and a higher level of confidence that future researchers would be able to follow the reasoning and would generally support the interpretation.

A more indirect influence on the reliability of the interpretation was the history of
two decades of IT work, including five years in strategic IT planning, brought to the project by the primary researcher. The SVP in one unit remarked that, at the end of the project, "she knew more about us than we did ourselves".

2. Internal Validity

*Content validity* in the overall study was addressed by 1) making a wide survey of the IT literature, 2) by using the strategic management literature to expand on the IT perspective, and 3) by drawing on the experience of the researcher, who has conducted several strategic IT planning projects.

*Construct validity* is more difficult to demonstrate, since one of the objectives of the study was to develop and define the linkage construct. However, the linkage construct was given a-priori dimensions which did not bias against companies which do not conduct formal business planning. We separated the outcomes of linkage from its antecedents and used information from the respondents to reconcile our theoretically based measures with documents and perceptions from the field.

A weak form of *predictive validity* was a goal of this research design. This was a difficult objective for interpretive research, but several steps were taken towards it. As Emory (1985) points out, causal hypotheses can be created only if covariation and temporal relationships are shown and alternative explanations are refuted. Our design permitted the creation of "stories" which clearly outlined the sequence of events in each unit of analysis. Across units, we identified patterns of covariation between the factors and the dimensions of linkage. Being able to refute alternative hypotheses was a matter of serendipity, however, since it depended on the presence of certain patterns of factors in different units and different linkage outcomes.

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29 This is a paraphrase of comments made by both the IS manager and the President in one of the sites.
3. External Validity

The objectives of case research study differ significantly from survey-based approaches. For each unit of analysis, we tried to understand "why" and "how" linkage was enabled and blocked. By aggregating our findings over a few selected organizational units, we have created a preliminary theory about the influence of certain factors. We are using our data to "generalize to theory" (Yin, 1989), rather than to a specific population. Subsequent studies will be required to test the relevance of the theory in different settings and to identify additional elements in the framework.

However, we believe that the findings will be relatively robust over the populations of multi-divisional organizations which believe and act as if IT is crucial to the attainment of their goals and which are operating in a turbulent, competitive environment.

H. Potential Contribution of the Research Methodology

There are many research approaches which have the potential to shed light on the linkage question. Our design - a small sample of theoretically homogeneous units - coupled with a comprehensive data collection protocol, enabled us to produce some new insights. A few examples are:

a) Because of its holistic approach to data gathering, the research project surfaced additional factors of interest to researchers and practitioners.

b) Because it involved participants from several roles (CEO, Executives, IS manager), the project identified and documented conflicting sets of objectives and beliefs which influence the attainment of linkage. The existence of these conflicts had been suggested in previous literature (Galliers, 1987B) but not confirmed.

c) Collecting data covering a two year time period enabled us to construct causal models at the organizational and business unit level. Previous cross-sectional approaches did not have this potential.
IV. FINDINGS CONCERNING LINKAGE
and the MEASUREMENT OF LINKAGE at the CORPORATE LEVEL

To summarize the discussion on linkage from chapter III, this project measured the social dimensions of linkage at two levels (the corporate and the business unit), using the executives' subjective and the researcher's interpretive assessments based on data from 1) interviews, and 2) written strategic business and IT plans. The social dimension of linkage was defined as "the mutual understanding between IS and business executives regarding business and IT mission, objectives and plans".

We identified four possible ways to measure the social dimension of linkage: 1) the degree to which written IT and business plans referenced each other, 2) the degree to which IS and business executives could articulate each others' current objectives, 3) the degree of congruence between the visions for IT from IS and business executives and 4) the subjective assessments of linkage by IS and business executives.

An objective in this research project was to explore the effectiveness of these measures of linkage and to identify others as the study proceeded. We captured the four measures throughout the project and then examined the convergence/divergence between them during the data analysis phase of the study.

This chapter reports the results of our assessment of corporate level linkage at the three organizations. The next chapter reports on the factors which were hypothesized to affect this linkage.

At the corporate level, we focused on the Corporate IT objectives and assessed whether or not they were "linked" with the organizational objectives. These corporate IT objectives are the responsibility of the Corporate IS departments, whose role within the organization typically includes provision of technology infrastructures (processors, networks, system software), specialized technical services for application developers, and
support services for end-users. Because the companies in our study had several product-oriented business units, we expected that Corporate IT objectives would be created in conjunction with both corporate business objectives and business unit (BU) business objectives. Therefore, we interviewed both corporate executives (CEO; SVP, Finance; SVP, Investments) and business unit executives (SVP, Individual Insurance; SVP, Group Insurance, etc.)

Several of the linkage measures are portrayed in a diagram of "ideal" corporate linkage in Figure IV.1. Because corporate IT objectives include goals and strategies that directly impact both corporate departments and business units, "corporate linkage" has been interpreted within this project to mean that the Corporate IT objectives are understood by senior company executives (as shown by lines 1, 2 and 3 in the diagram), and that Corporate IS executives understand both corporate and BU objectives (as represented by lines 4 and 5). We also expected to find a high degree of cross referencing between corporate IT plans and both corporate business plans and BU business plans (as represented by lines 6 and 7). The other two measures, presence of a shared vision, and subjective assessments, are not shown in this diagram.

Our data collection measures and analysis procedures were designed to test the definition of corporate linkage and to assess the success of the three companies in achieving it. As mentioned earlier, these companies were chosen because they had demonstrated that IT was a critical success factor for their businesses, so the achievement

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30 In this context, "Corporate Executives" include the CEO/President, the Chief Financial Officer and the Chief Investment Officer and "Business Unit executives" are the Senior Vice Presidents of each of the product-oriented business units. In all three companies, the senior management team included both "corporate" and "business unit" executives.

31 We also included business unit IS executives in our interviewing since early results indicated that business unit executives often delegated the interface with corporate IS to their own IS people. Instead of automatically rating linkage as LOW in these cases, we widened our interviewing to gain as many perspectives as possible on the subject of corporate level linkage.
of linkage was an important goal for each of them.

In the next three sections, the findings associated with corporate level linkage for the three companies are discussed. Then two summary sections are presented - one describing the across-site findings on linkage and the other discussing the issues in measuring linkage. Appendix C contains the scales used to rate the various aspects of linkage.
A. Company A

The Corporate IS department within Company A had embarked on a number of initiatives in the past two years (1989, 1990). They had upgraded the mainframe computer, identified a preferred mainframe technology platform (hardware and software), and coordinated a comprehensive study into rapid application development using CASE tools. They had established many corporate standards and guidelines on hardware and software in an effort to streamline the technology offerings. They had reduced operating expenses (and chargeout rates) in the previous year and were committed to a further 5% reduction in each of the next few years. A more complete description of Company A and its corporate IT initiatives is contained in Appendix B.

1. Cross-references in Written Objectives

In Company A, one and five year business plans were available to peruse. There were several IT objectives mentioned in the Key Programs section of the Strategic Business Plan, 1991-1995:

1) ensuring that management participates fully in systems decision making similar to their involvement in other business issues,
2) reducing the range and age of technologies managed,
3) examination and implementation of rapid application development techniques to redevelop application systems and to standardize development methodologies.

In the Annual Business Plan, 1991, it is stated that:

Special emphasis will be placed on systems enhancements where productivity gains and cost reductions can be realized. We will, through our Systems Steering Committee structure, continue to develop operational management who understand and can use information technology to achieve business goals. Similarly we will continue to develop information technology management with requisite understanding and knowledge of business environment.. to work with operational management as a team...
These plans suggest that corporate management is committed to improving the understanding of business managers so they can make more effective IT decisions and improving the business knowledge of IS managers. It is also directing business units to use IT to control costs and to control the costs of IT by standardizing technology.

There was no separate, written, 5 year IT plan within Company A. The 1991 Plan for Information Services is organized in such a way that all of the initiatives are listed under Key Programs headings taken from the business plan. There are IT projects (e.g. responsible involved management, technology leadership, rapid application development) for all the key corporate objectives and the two major corporate thrusts (i.e. value for money, quality first). Therefore, linkage as exhibited by the written corporate business and IT plans is rated as HIGH.

There was no mention made of any business unit objectives in the corporate IT plan. In the BU business plans, there was no mention of the corporate IT strategy of using Steering Committees to raise the knowledge and skills of business and IS managers. There was no explicit recognition of the corporate emphasis on using technology only to lower costs. The two current IT projects, rapid application development, and elimination of old technology, were mentioned in several of the BU plans. Overall, there was LOW - MODERATE linkage exhibited between the written corporate IT and business unit objectives.

2. Mutual Understanding of Objectives

In Company A, the CEO and four SVPs - two from corporate divisions, and two from the business units were interviewed.

Most of these executives could identify the corporate IT objectives. For example, the SVP of Finance remarked that the thrust was to "shorten the train" (i.e. rewrite old systems) and to "narrow the path" (i.e. standardize on a subset of technology for all
users). The SVP of one of the business units correctly identified the corporate IT objectives as "reduction of the technology set, control of the mainframe costs, and evaluation of the rapid application development concept".

Three corporate IS executives were interviewed. The VP of Corporate IS could articulate the corporate business objectives, however, neither he nor his two Directors knew the specific objectives of the business units.

On this measure of linkage, the mutual understanding of objectives, Company A ranked HIGH on most aspects: senior executives (corporate and business unit) understood corporate IT objectives and corporate IS executives understood corporate objectives. However, the company ranks LOW in the corporate IS understanding of business unit objectives.

3. Congruence in Vision for IT

To assess the level of congruence in the vision of IT, the CEO, the SVP of Finance and the VP, Corporate IS were interviewed. The CEO stated:

"I am not terribly excited about great innovative roles (for systems). I'm very anxious to have low cost and I'm very anxious to have efficient services. I think that efficiency is more important than anything else. I'm telling my people to concentrate on those things we do with the computer where you can cut costs."

The VP of IS was more specific in his thinking about corporate IT, suggesting that his staff will be halved in the years ahead as users did more of the applications development and only a core of highly technical people remained. The role of central IS would be to "optimize an expensive resource" and "act as a purchasing agent" for information technology within the company. "The real linkage and synergy will occur through the application system areas in the business units."

The SVP of Finance was focused more on the short term objectives of IT in
reducing costs and questioned whether the decentralization of IS personnel was supportive of that goal. He suggested that a reorganization to centralize IS people might occur in the future.

Each executive had his own view of the future of IT in Company A reflecting his individual perspective. For example, the CEO was focused on the issue of overall corporate viability and the VP of IS on the structure and size of his staff. Therefore, congruence in their articulated statements of vision was rated as LOW.

4. Subjective Assessment of Linkage

Two corporate executives rated linkage between corporate business and corporate IT objectives as HIGH since corporate IS was aggressively pursuing cost reductions and efficiencies. The VP of Corporate IS rated linkage with corporate objectives as MODERATE to HIGH. He had no specific examples of poor linkage but felt that he might contribute more to the company if he reported to the CEO. The rating on this measure is HIGH, to favour the assessments of the non-IS executives.

The VP of Corporate IS rated the linkage between corporate IT and the business units as HIGH...

"In terms of what business unit management want from a central IS, I think the linkage is there, because I listen to what they want and I’m delivering what they want... in the sense of low cost, good service and application development... we’re continually working towards delivering that and as long as we keep going in the right direction, then all we’re talking about is the rate".

However, the business unit executives did not agree with his assessment. One business unit SVP rated linkage with corporate IT objectives as MODERATE or lower. His perception was that a healthy tension existed between corporate IS people and

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32 This finding might be an artifact of our interviewing methods. This will be discussed further in the Across-Site Findings section.
business unit IS people and that this was not only good but effectively limited the linkage that could ever be attained. Another SVP rated linkage with Corporate IT as LOW because the corporate IS group did not play a strategic role with respect to his business units.

"you have a central IS department acting more in the nature of a control department.. in terms of leadership and moving people's IS strategies in coordination with strategic goals... I would really look to my own systems people for that.."

Another business unit executive rated linkage as LOW or MODERATE because the specific technology that she perceived to be critical to her unit's success was not supported by corporate IS and it might take a two year study to get it included on the preferred technology list. Another VP wondered what connection the rapid application development initiative had with his business unit. He rated linkage as UNKNOWN or LOW.

The IS executives in the business units were slightly more positive in their assessment of linkage between the BU objectives and Corporate IT objectives. One reported "we make sure that corporate IS programs are aligned with our needs". However, she felt that corporate IS was abdicating responsibility for vision and direction in favour of standards and procedures and rated linkage as MODERATE. For example, the business units were exploring the ideas of cooperative processing, PC-based expert systems and LANs at the same time as corporate IS, having just upgraded the mainframe, was trying to fully recover the mainframe costs and was not interested in alternative sources of processing cycles.33

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33 In Company A, the president asked to have the decision to upgrade the mainframe justified to him. This was one of the first acts of the newly created Steering Committee. The justification for more computing power was obviously compelling but what may have been missing was an examination of alternative ways to provide that power and/or an understanding that upgrading the mainframe would preclude the business units from obtaining other sources of computing power in the foreseeable future. This decision was
Another BU IS executive noted that the limit of $1000 to purchase non-standard technology without corporate IS approval was unnecessarily limiting. "The thousand dollar limit is a real bone of contention with me.. My budget is $6 million."

The average of the subjective assessments of linkage between corporate IS and the business units is LOW - MODERATE. The important point to note here is that the BU executives indicated that corporate IS may not be able to contribute strategically to their objectives, that the best they could do was to support them. They complained, however, that corporate IS often "got in the way", rather than supported them. Corporate IS, on the other hand, is marching to the "cost reduction" tune played by the CEO and SVP of Finance. They have concentrated on a few technologies and put many standards and procedures in place to restrict individual initiatives.

5. Summary

A summary of the corporate level linkage found in Company A is contained in Figure IV.2. In Company A, we see that linkage between corporate IT and corporate business objectives is very HIGH, revolving around efficiency and standardization. However, there is no shared long-term vision for IT within the company.

The linkage between corporate IT and business unit objectives is LOW or MODERATE based on 1) subjective assessments by BU executives, 2) lack of understanding by corporate IS of BU objectives, and 3) lack of cross-references between written corporate IT and BU plans. Corporate IS is seen to be bureaucratic and slow moving by the business units.

In summary, Corporate IT objectives are strongly based on corporate objectives and weakly based on BU objectives.

treated "tactically" rather than "strategically".
B. Company B

Within Company B, Corporate IS has developed three initiatives in the last 18 months. First, the corporate IS unit has been reorganized to make it more responsive and accountable to the business units. Second, two studies have been undertaken - one to define a common Distributed Computing Environment and the other to define a common Application Development Environment. If adopted, both would significantly influence the way in which applications are developed and delivered within the business units. Third, corporate IS is committed to a 5% reduction in its operating expenses each year for the
foreseeable future. A more comprehensive discussion of Company B is contained in Appendix B.

1. Cross-references in Written Objectives

In company B, there is no written corporate-level strategic plan other than a set of financial targets. Business units and corporate departments create separate five year plans based on their own projections and assumptions.

The Corporate five year IT plan contains a set of critical success factors for the business and a set of technological objectives. This document clearly outlines the ways in which corporate IT will support what it perceives to be the highest priority business objective - the reduction in unit costs - by encouraging system units to limit variations in technology, improve productivity, and recognize the 80/20\textsuperscript{34} rule in system development. This document exhibits high internal consistency (i.e. the technological objectives fit with the analysis of the critical success factors and the business objectives). However, because there is no written corporate plan and the IT plan references corporate objectives, this written dimension of linkage is assessed as MODERATE.

The Corporate five year IT plan does not contain any references to the business objectives of the business units, thus the rating for this aspect of linkage is LOW.

2. Mutual Understanding of Objectives

Within Company B, the CEO and the SVP of Corporate Services understood that corporate IS was pursuing a cost containment goal by proposing common technology platforms and common application development approaches. They both mentioned the need for corporate IS to bring the business unit IS groups "in line". The CEO remarked:

\textsuperscript{34} Known as "Pareto principle", this rule of thumb suggests that 80\% of the benefits result from 20\% of the work effort. After this point, the marginal benefit of additional effort declines rapidly.
"They (corporate IS) know their role... they are the policemen... to keep everything running on the same track. There are major disadvantages in allowing people to diverge, even though it might be the right answer for a business area and the cheapest way to go. We have to say "no, you can't do that" because there are other disadvantages down the road."

In the interviews, the business unit executives could identify the corporate IS mission, namely technical leadership, research, efficient use of the CPU, and efficient support for user departments. They could not identify the strategies of corporate IS but recognized that they were committed to reducing the chargeout rates. No business executives mentioned any of the three recent corporate IT initiatives when asked about corporate IT direction. This suggests strongly that the issue of commonality in aspects of application development, which is being resisted by most of the business unit IS departments, has not been raised to the senior business unit management level in the company. It is still being negotiated between the corporate and business unit IS departments. In effect, the President has unofficially mandated the corporate IS group to "be the policeman" but has not signalled this intention to his business unit executives.

This aspect of linkage had mixed ratings: corporate executives had a HIGH understanding of corporate IT objectives and business unit executives had a MODERATE understanding of corporate IT objectives. The rating of corporate IS understanding of corporate objectives is rated as UNKNOWN because there are no corporate objectives, and corporate IS had a LOW understanding of business unit objectives.

3. Congruence in Vision for IT

Within Corporate IS, the vision for the future as expressed by the Corporate IS Director was

"an open systems, standards-based approach which is quite a radical departure for an insurance company. We will be going with UNIX and RISC
processors for our distributed computing platform."

The corporate IS Director had been trying to give the business units control over research projects.

The CEO's goal for Corporate IT is to build up the strength of the role so that it can effectively keep the business units "in line". He favoured this strategy over the alternate one of disbanding the unit as their U.S. company has done.

The VP of Corporate IS sees the role of the Corporate IS group as diminishing over time as the business units can provide their own services. In the future, they would be limited to the provision of the communications network and mainframe computing.

There was very little in common between these vision statements and this measure of congruence in vision is rated as LOW.

4. Subjective Assessment of Linkage

Two corporate IS executives were interviewed: the VP of Corporate IS and one of his direct reports, the IS Director.

The VP of Corporate IS remarked:

"I'd rate it (linkage with corporate objectives) as GOOD ENOUGH. I view the real decision making at the line of business level. Unless I'm missing some real problems arising out of corporate thrusts, I don't care (about linking with corporate thrusts) any more. What I'm much more concerned with is getting ourselves more aligned properly across the divisions".

"I would rate our linkage (with the business units) as MEDIUM. I would really like to find better ways of getting a more effective appreciation of the business (unit) objectives."

Because the VP of Corporate IS does not have strong corporate objectives to tie the unit to, he is more interested in identifying and linking with business unit objectives. In another interview, the VP of Corporate IS made the statement that "linkage happens
basically around projects. Either those we initiate or those that are business applications that are being developed." He believed that the "technical support" provided to clients was as important as the "IT leadership".

The Director of IS rated linkage as LOW because there were no corporate business strategies and no way for corporate IT strategies to link to the general problems that are known. He rated the linkage with the business units as varying, depending on the unit. Linkage with two of the units were rated LOW and two were rated MODERATE-HIGH.

The CEO had another view - that the linkage was HIGH because Corporate IS "must" be highly linked to the organization. In his opinion, there are no Corporate IT objectives ("I don't see that we have system objectives - any more than we have telephone objectives"), the Corporate IS group exists only to serve their clients (by providing scarce resources as a reasonable cost) and acting in a watchdog role, to protect the corporate interests.

One of the senior business unit executives rated linkage as UNKNOWN, having delegated all contact with corporate IS to his IS managers. Another executive suggests that linkage may be LOW since he hasn’t seen any evidence of leadership in technology in the past five years. He discussed the potential difference between the objectives of Corporate IS, which is trying to charge out all of their mainframe and people costs, and a business unit which is trying to find the cheapest way to get things done. Another SVP rated linkage as MEDIUM and remarked that:

"I don’t think that the Corporate systems area is leading. They are more of a watchdog as opposed to a leader. There are a lot of funny people running around doing a lot of funny things ... what business sense does any of this stuff have? So I’ve got some credibility problems with that area."

The business unit IS managers had varying assessments of linkage. One rated linkage as HIGH - he said that Corporate IS knows what he is trying to achieve in the business unit. In general, however, the initiatives from Corporate IS towards
standardization of technology and common application development environments had not been well received by the business units. It appeared to one IS manager in a business unit that corporate IS was trying to create a "one best way" approach and thus rated linkage as LOW. Another VP of Corporate IS rated linkage as only MODERATE because corporate IS people "have a religious commitment to new technology. They think they know the business and that is not true."

5. Summary

A summary of the linkage findings is presented in Figure IV.3. Linkage between corporate business and corporate IT objectives is difficult to rate. Two measures, cross references in written documents and IS understanding of corporate and objectives, are influenced by the lack of corporate objectives within Company B and rate UNKNOWN. Two other measures, executive understanding of IT objectives and a shared vision for IT were rated HIGH and LOW, respectively. Company B’s CEO rated linkage as HIGH and its corporate IS executives rated it as MEDIUM and LOW, respectively. These measures do not show convergence and we do not assign any overall rating for linkage between corporate business and corporate IT objectives. The issue of a lack of corporate objectives is discussed further in chapter 5.

Linkage between the business units and Corporate IS is rated as LOW - MODERATE. Most business unit executives are not involved in any way with Corporate IS, having delegated contact with corporate IS to their internal IS people. However, corporate IS does not have a detailed knowledge of the business unit objectives and is concentrating on producing generic computing platforms and methodologies, which do not satisfy the IS managers in the business units.
C. Company C

In Company C, the corporate IS department is concentrating its efforts during the last two years in helping the last two business units convert and upgrade their applications to the new IBM mainframe. It has been investigating new software and an upgrade to the mainframe, but has not proposed or taken any strategic initiatives recently. Appendix B contains a more complete discussion of Company C.

1. Cross-references in Written Objectives

In Company C, there were no written corporate plans, either long-term or annual.
There were only five year and one year budgets. The Corporate IS department created a written 1991 plan which contained several IT objectives, including administrative efficiency through computerization, displacement of consultants, and a conversion from one computing platform to another. None of these related to any specific business objectives. The rating on this aspect of linkage is LOW.

The corporate IT plan did not reference any of the business unit objectives. Therefore, rating on this aspect of linkage is also LOW.

2. Mutual Understanding of Objectives

In interviews, the senior IS manager was able to articulate several of the overall company objectives (growth, presence in the U.S.) but his knowledge of the business unit plans was out of date by at least one year. For example, through discussions with business unit executives, it was learned that several of the business units were planning a major expense control and profitability focus for the next few years, a distinct departure from the "larger market share" approach taken in the latter half of the 80's. The Corporate IS manager was only aware of the previous strategies of growth and market share and had not factored these new strategies into corporate IT objectives.

The senior executives, both corporate and business unit, could articulate several of the current IT objectives (better programmer productivity, higher levels of business knowledge in IS people, changing technology platforms). Mutual understanding of objectives was rated as follows:

a) Corporate IS understanding of Corporate objectives - UNKNOWN since there was no corporate objectives

b) Corporate IS understanding of BU objectives - LOW.

c) Corporate and BU executives’ understanding of Corporate IS objectives - HIGH.
3. Congruence in Vision for IT

Company C was engaged in an internal debate concerning decentralizing responsibility for programmers and analysts. Many of the visions for IT expressed by business unit executives revolved around this topic.

"I see all layers going... all programmers might report to the business unit who needed them. Programming done by people who understand the business. The analogy I draw for Corporate IS is the personnel function - interview people, train them."

These managers expressed no views about how IT would be deployed in the company in future years. Other comments included: "I don't think Corporate IS has a long term vision", "I don't see the company's total IS plan yet", "IT objectives are not really clear". One SVP said

"I don't see IS taking a leadership role in the company....Ideas are always going to be developed by the business unit and then acted upon by the IS group."

The CEO, on the other hand, stated his vision as

"To use IS technology in every possible area which is cost effective and helps marketing goals. You can't treat IS as a little department. To me there are three areas of the company - the investment area, the marketing area and the administration area. And administration is the computer."

There is LOW linkage as measured by congruence in vision.

4. Subjective Assessment of Linkage

There was agreement that linkage was LOW or MODERATE at best. Some comments included:

"We are not connected to business decisions. The IT objectives were not developed in response to business strategies. They represent an attempt to get IS cleaned up internally during the next two years. After that is done, we can focus on the users. Our current linkage strategy is to do whatever the users want to do."
"At the moment, we (corporate IS and the business units) don't talk the same language to any depth...I don't know if we know our corporate technology direction."

"Some of the problem is that IS is separated from the company."

"If you looked into the Corporate IT plan, I don't think you could see the business unit plans."

Most business unit executives expressed frustration that they were not able to influence the Corporate IT plans and did not feel that these plans would benefit their divisions. The average rating on this aspect of linkage is LOW.

5. Summary

A summary of the linkage found in Company C is presented in Figure IV.4. In Company C, there are no written corporate objectives, resulting in UNKNOWN linkage dimensions which relate to corporate objectives. Linkage with Business units was generally LOW, although the BU executives did understand corporate IT objectives.
D. Across-Site Findings

This research project set out to assess the linkage that had been attained between corporate IT objectives and business objectives in three organizations. The first finding is that there are two loci of corporate-level linkage within these multi-divisional organizations: linkage between corporate IT objectives and corporate business objectives and linkage between corporate IT objectives and business unit objectives. The across-site
findings will be presented in three parts: findings relating to linkage between corporate IT and corporate business objectives, findings relating to linkage between corporate IT and BU objectives, and overall conclusions.

The discussion of corporate level linkage is continued in Chapter V, where the data on factors which influence linkage are presented and conclusions are drawn concerning the enablers and inhibitors of linkage.

1. Linkage between Corporate IT and Corporate Business Objectives

Table IV.1 displays linkage measures for the three companies. The findings on each measure are discussed below.

| TABLE IV.1 Summary of Linkage Ratings between Corporate IT and Corporate Business Objectives |
|-------------------------------|-----------------|-----------------|-----------------|
| Measures                       | Company A       | Company B       | Company C       |
| Cross-references in Written Documents | HIGH | MODERATE | LOW |
| - between corporate business and corporate IT objectives | | | |
| Mutual Understanding of Objectives | HIGH | HIGH | HIGH |
| - Corporate executives understanding of Corporate IT objectives | | | |
| - Corporate IS understanding of Corporate Objectives | HIGH | UNKNOWN | UNKNOWN |
| Shared Vision for the role of IT | LOW | LOW | LOW |
| Subjective Assessment of linkage | MODERATE | LOW-MOD | LOW |
| - by Corporate IS | | | |
| - by corporate executives | HIGH | HIGH | LOW |
| OVERALL LINKAGE RATING         | HIGH | ???  | LOW |
| - between Corporate IT and Corporate Business Objectives | | | |
a) **Linkage as exhibited by cross-references in written documents** exhibited wide differences among the companies. Company A had clearly written corporate objectives and the Corporate IT plan had identified the connections between IT projects and the corporate objectives. Company C had no written corporate objectives and Corporate IT objectives were included based on perceived needs of individual departments and technological innovation. In Company B, the corporate IS group had "developed" corporate objectives and tied the IT objectives to them in their planning document. The linkage as exhibited in these documents was a good predictor of overall linkage in the three companies.

b) **Linkage measures relating to mutual understanding of objectives** revealed a one-way understanding. Business executives in all three companies had a high level of understanding of Corporate IT objectives, but corporate IS executives in company B and C did not understand corporate objectives, largely because these objectives were not formulated and communicated within these companies.

c) **No company had created a vision for the future role of IT** which was shared by business and IS executives.

d) **Subjective assessments of linkage revealed a difference between ratings given by Corporate IS executives and corporate business executives** in two companies. IS executives were more dissatisfied with their linkage achievements than were their superiors. They felt relatively powerless in influencing corporate direction and wanted to contribute more directly and more effectively.

Chapter V will explore the effect that various factors had on producing these
findings. However, one conclusion can be drawn from this measurement exercise - the presence of corporate business objectives is important in the creation of linkage. Company A outperformed companies B and C on three indices of linkage: mutual understanding, written cross references and subjective assessments. One important difference which set Company A apart from the other two was the presence of clearly defined corporate business objectives. Company B and C had deliberately chosen not to create corporate objectives - they preferred to let the business units independently develop goals and strategies which satisfied corporate financial and regulatory requirements.\footnote{The VP of IS from Company B wrote to the researcher: "What is a Corporate Objective (Business or IT)?" The only non-financial corporate business objective at Company B was the Canadian/U.S. organizational separation.}

Why Company A decided to formulate corporate objectives and how they went about creating and communicating them is discussed in Chapter V. However, the very fact that they had them made high levels of this aspect of linkage possible to achieve.

2. Linkage between Corporate IT and Business Unit Objectives

Table IV.2 summarizes the linkage findings for each company. They are discussed below.

a) There was very little cross-referencing between written corporate IT and business unit plans. One could not identify, by reading the Corporate IT plans, what lines of business or what strategic business units were being supported. Discussions revolved around technology, both installed and new, rather than around business unit objectives. The fact that different lines of business required different technology platforms or were at different stages of growth in their use of IT was not discussed.
### TABLE IV.2
Summary of Linkage Ratings between Corporate IT and Business Unit Objectives

<table>
<thead>
<tr>
<th>Measures</th>
<th>Company A</th>
<th>Company B</th>
<th>Company C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-references in Written Documents</td>
<td>LOW - MODERATE</td>
<td>LOW</td>
<td>LOW</td>
</tr>
<tr>
<td>- between BU and corporate IT objectives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mutual Understanding of Objectives</td>
<td>HIGH</td>
<td>MODERATE</td>
<td>HIGH</td>
</tr>
<tr>
<td>- BU executives understanding of Corporate IT objectives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Corporate IS understanding of BU objectives</td>
<td>LOW</td>
<td>LOW</td>
<td>LOW</td>
</tr>
<tr>
<td>Subjective Assessment of linkage</td>
<td>LOW - MODERATE</td>
<td>LOW - MODERATE</td>
<td>LOW</td>
</tr>
<tr>
<td>- by BU executives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- by corporate IS executives</td>
<td>HIGH</td>
<td>LOW - HIGH</td>
<td>LOW</td>
</tr>
<tr>
<td><strong>OVERALL LINKAGE RATING</strong></td>
<td>LOW - MODERATE</td>
<td>LOW - MODERATE</td>
<td>LOW</td>
</tr>
<tr>
<td>- between corporate IT and BU objectives</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) Mutual Understanding of Objectives was markedly different between BU executives and corporate IS executives. In companies A and C, business unit executives exhibited high levels of understanding of corporate IT objectives, with company B executives exhibiting a moderate understanding. In all companies, corporate IS executives exhibited a low level of understanding of BU objectives. For some reasons, which will be explored in chapter V, corporate IS executives had no access to information or were not interested in learning about the objectives of individual business units.

c) Unlike the finding of the previous section, Corporate IS executives rated linkage higher than the BU executives did in Company A and B. They were, for the most part, satisfied with their support of business units. Business unit executives demurred, rating linkage
much lower. Although the business unit executives in all companies understood the corporate IT objectives, they rated linkage as being low or moderate.

Overall, none of the companies achieved a very high level of linkage between their corporate IT and business unit objectives. Our measures provide two clues which were explored. The first indicator of problems was the lack of understanding of BU objectives by IS executives. In Chapter V, the factors data is used to explain this finding. The second indicator is the difference in subjective assessments between IS and BU executives. Our examination of the data collected during the interview questions on subjective assessment revealed a difference of opinion between IS and business unit executives about the role of the corporate IS department. In interviews, corporate IS executives and business unit executives, discussed two aspects of linkage: support and leadership. Support encompassed activities such as provision of technical specialists, writing generic programs, and participation in business unit projects. Leadership included identifying and researching new technologies of interest to the business units, and designing technology platforms and methodologies to support the strategies of the business units.

The Corporate IS executives acknowledged that they provided better support than leadership, but they favoured the support activities in assessing their level of linkage. For example, the VP of IS in Company A summarized: "in the sense of low cost, good service and application development…. we’re continually working towards delivering that and as long as we keep going in the right direction, then all we’re talking about is the rate". In fact, the "rate" was a dominant theme in Company A - the fact that the company was required to buy IBM PCs was seen by BU executives as an anachronism since many other good quality, lower-priced, products had been available for several years and the company was trying to significantly cut costs in all areas. However,
Corporate IS was still studying the possibility of buying PCs from other manufacturers. This exact situation also existed in Company C - where only IBM PCs were allowed to be purchased although each business unit was a profit centre and wished to control expenses. Corporate IS executives seemed to be rating themselves on criteria they set rather than understanding where the business units needed leadership.

Business unit executives first mentioned the good support they were receiving from corporate IS but they followed this praise with criticism, either that

1) corporate IT initiatives lacked relevance to their business units (e.g. the 4GL project in Company C) or

2) corporate IT initiatives were counter-productive in their business units (e.g. the RFP proposal and the application development environment in company B) or

3) corporate IS was showing no leadership (e.g. no new technologies in company C).

The support dimension is not the type of linkage this project was investigating. Linkage as defined in this project revolved around "objectives", which are a combination of mission, goals and strategies. Support is at a lower level, i.e. the operational and tactical level. Furthermore, commenting positively on the support dimension seemed to be a tactic that the business executives used to balance their criticism of corporate IS initiatives. Therefore, other than to note the difference in meanings about linkage, we will not rate the quality of corporate IT "support" as an aspect of linkage.

This finding of a difference in perception about roles led us to a speculation that a complex "catch-22\textsuperscript{36}" affects the linkage between corporate IT and business unit objectives in the companies, precluding the corporate IS department from achieving a high level of linkage at this location. This is discussed in Chapter VIII.

\textsuperscript{36} This term is taken from the novel "Catch-22" by Joseph Heller. Broadly speaking, it is a situation in which you one cannot achieve a goal because the act of moving towards it causes it to recede.
3. Overall Conclusions

We concluded that the simultaneous achievement of linkage between 1) corporate IT and corporate objectives, and 2) corporate IT and business unit objectives was difficult and, possibly, unattainable. Several executives opined that it could never be achieved since the tension between independent business units and the desire for standardization by corporate IT would reduce the attainable linkage. Furthermore, they believed that this tension was healthy and productive.

For example, company A exhibited very high levels of linkage of Corporate IT objectives with corporate business objectives. However, their linkage with the BU objectives was only low to moderate. The very acts that they performed to bring corporate IT into line with corporate objectives (e.g. standardizing technology, lowering discretionary IT spending limits) brought them into conflict with the business units. The same goal, cost reduction, could be pursued by both levels in different ways. Corporate IS was achieving cost reduction goals and full allocation of mainframe costs, but the business units wanted to reduce costs by buying cheaper and more flexible technology platforms. In this case, corporate IT was strongly in line with corporate goals, but was seen to be out of line with BU goals.

The tension between the corporate culture (standardization) and business unit culture (individuality) was very noticeable, especially in Company A and B, in which corporate IS departments had initiated programs to reduce diversity of technology and application development methodologies.

While there may be better measures left to define, there is a strong indication that effecting corporate level linkage is very problematic, given its multiple dimensions (leadership vs. support, corporate vs. BU-centred), and the tensions between them. It may be that achieving high linkage simultaneously on both dimensions is impossible since high achievement on one may preclude high achievement on the other. Perhaps the "perfect"
corporate linkage that may be attained in a multi-divisional organization should be defined as high linkage on one dimension and moderate linkage on the other.
V. FINDINGS CONCERNING FACTORS WHICH POTENTIALLY INFLUENCE LINKAGE at the CORPORATE LEVEL

In chapter IV, the level of corporate-level linkage attained by the three companies in the sample was discussed. In this chapter, data on the factors hypothesized to affect linkage are examined. In addition, through interpretation and by asking informants, additional factors which seemed to be influencing the attainment of linkage in their organizations were identified. This chapter reports on the findings of this investigation for each site and then draws across-site conclusions.

In each within-site analysis, the intention is to create causal inferences from the data although admittedly, all criteria required for causality (Cook and Campbell, 1979, p.31) cannot be satisfied. Although the collection of organizational histories allows us to show temporal precedence, the small sample precludes there being much covariation in the data and the possibility to explore and discount alternative explanations in any rigorous way. However, we did verify our reasoning with those people who were able to confirm or deny it by sending the writeups back to the key informant in each of the sites to solicit their feedback on the analysis and interpretation of events. Their comments are reflected in the data presented in this chapter.

To summarize the discussion on factors from chapter III, this project investigated four major factors which were hypothesized to influence linkage: 1) shared knowledge between business and IS executives, 2) implementation of previous IT plans, 3) communication between business and IS executives, and 4) connections between business

37 Details of the scales used to measure the levels of these factors are included in Appendix D.

38 "From J.S. Mill we take three important criteria for inferring cause: (1) covariation between the presumed cause and effect, (2) the temporal precedence of the cause, and (3) the need to ... rule out alternative interpretations for a possible cause and effect connection."
When preparing a model to guide this study, we developed propositions (Chapter II contains the full set) concerning the expected relationships between these factors and linkage. The connections expected for corporate level linkage are depicted in Figure V.1. Findings from the corporate level data are discussed in light of these propositions in this chapter. In examining the effects of these factors, we distinguish the two loci of linkage at the corporate level: 1) the linkage between corporate business and corporate IT objectives and 2) the linkage between business unit and corporate IT objectives.
A. Factors - Company A

Five business executives and five IS executives were interviewed to gather corporate level data. Company A communicates, to use Pyburn's (1983) typology, in formal, written ways, thus a large number of written documents were made available to us. We examined strategic business and IT plans, minutes from IS steering committees and the technology committee meetings, IT policy documents, and copies of presentations. Details on interviewees and documents were presented in Tables III.2 and III.3. A summary of the company characteristics is contained in Appendix B.

1. Implementation of Previous IT Plans

The VP of corporate IS has been in his current position since 1988. He has been consistent in his efforts to establish more controls in the IS department and to identify ways to improve productivity in the business unit IS departments. He began to rationalize corporate IS by introducing a program called "Value for Money" which was subsequently implemented corporate-wide by the CEO. He also introduced spending guidelines for the corporate IS and the business unit IS people and created mechanisms whereby his people tracked their time against identified projects. Other strategies pursued included: 1) gaining control of and eventually repatriating the data centre, and 2) simplifying the main system software to lower the cost of supporting it. During this process of tightening the controls on corporate IS, several of his senior managers quit, perhaps because they preferred the previous approach which allowed them considerably more autonomy.

In 1989, corporate IS initiated a project investigating ways to achieve standardization in applications development which would facilitate the movement of IS analysts and programmers, minimize support staff and minimize the cost of developing and maintaining application software. The result of this initiative was a project investigating rapid application development technologies. The proposal for a pilot project
was being discussed by the Senior IS Steering Committee when data for this research was being gathered.

One of the goals of the corporation has been to drastically reduce discretionary expenses. Corporate IS has reduced its budget by more than 5% in each of the last two years. No new positions have been added in corporate IS for the last several years; it has been downsized through attrition. This reduction has also had the effect of reducing the chargeout rates for users, thereby making computing power cheaper for the business units.

Company A is very conservative in its approach to technology selection, relying on IBM or IBM-clone hardware and software for all of its mainframe computing needs. It is also conservative with respect to its use of PC and mid-range technology. No minicomputers are in use in Company A and only five local area networks are installed. Most of these were purchased under the previous IS administration; they might not have been approved under the current guidelines. Company A buys only IBM PCs - a project underway was assessing the feasibility of buying clones. No advanced technologies (e.g. expert systems, imaging, RISC processors, distributed databases) are under study within corporate IS.

In summary, corporate IS has been very successful in bringing their technology and, therefore, their costs under control. They exhibit low levels of discretion and innovation within corporate IS and within the business units.

2. Shared Knowledge of IS and Business Executives
   a) Business Executives

   The CEO had some computer project management experience as a young manager but he has spent the last 20 years in very senior positions within various insurance companies. He was rated as having high levels of insurance knowledge, low levels of IT
project management experience and awareness of new technology, and moderate company knowledge.

The CFO has an MBA and a background which includes being a business systems analyst with a consulting company. As the CFO, he helped to computerize a small company and the last 15 years of his career has been in a financial capacity with a bank and then with Company A. He was rated as having moderate levels of IT project management experience, new technology awareness, and company knowledge and low levels of insurance knowledge.

The SVP in charge of two of the business units has had no hands on management experience with IS projects. He was responsible for the IS function within Company A for a year whereby he became aware of some of the problems of managing large IS projects. His rating was high on company and insurance experience and low in IT project management experience and awareness of new technology.

The SVP of another business unit has little experience with or understanding of information technology. His rating were similar to the previous SVP.

In summary, with the exception of the CFO, there are no senior managers at Company A who have had any significant hands-on experience in managing large IS projects or who exhibit a high interest in technology. None of them have sponsored projects which make use of leading edge technology within the insurance industry.

b) IS Executives

The VP of corporate IS has been with Company A almost 30 years. He first joined Company A in the insurance administration area in 1962 and left it to join the IS area as a junior programmer in 1967. In 1987, when application systems was decentralized into the business units, he remained in corporate IS as the Assistant VP, reporting to the Chief
Financial Officer. He holds an insurance designation, the FLMI\textsuperscript{39}. Rating: HIGH in Company A and IS Project Management knowledge, MODERATE in insurance knowledge and new technology awareness.

The Director of Technology Planning and Development, Information Services, joined Company A in 1973 and has been a technical expert and a manager of other technical experts for all of his career. Rating: HIGH in IT awareness, IS project management, Company A knowledge, LOW in insurance knowledge.

The Director of the IS Support Centre, has spent 14 years at Company A in IS, but has eight years of experience developing applications within the Group business unit. He has completed two courses towards the FLMI designation. Rating: HIGH in Company A experience, Technology Awareness, IS Project management, MODERATE in insurance knowledge.

In summary, some of the central Information Services managers have completed insurance courses and others have worked extensively on application systems for business units, but none of them have had any management experience outside the IS area.

At Company A, there is a combination of senior executives with limited IS experience and corporate IS managers with limited business experience. We might predict infrequent, IT-oriented communication between these two groups of people and a low level of IT innovativeness in Company A.

3. Communication between business and IS executives

Although the previous section resulted in a prediction of low levels of communication between business executives and corporate IS, in reality there are many

\textsuperscript{39} The FLMI, or Fellow of the Life Management Institute, is obtained by studying and writing ten exams on insurance concepts. The courses are taken by young administrative insurance personnel so that they can learn about the insurance business and achieve promotions.
channels of communication, most of them recently initiated by the CEO in response to his concern about the lack of value received from IT investments. Using the Galbraith typology, there are two types of lateral relations in Company A - direct contact and permanent teams. While direct contact is infrequently used, there are many examples of permanent teams: the Senior IS Steering Committee, other corporate committees, and the IS Steering Committees within the business units. There is also another permanent team which indirectly affects the communication between corporate IS and business executives, the Technology Committee. Each lateral relations device is discussed below.

a) Direct Contact

Company A is an organization in which hierarchical position is a very important determinant of one’s communication opportunities. The company culture is such that there is very little direct contact between senior corporate IS executives and senior business executives.

The VP of IS interacts very infrequently with the CEO. Every week or two, he books a meeting time to talk with his boss, the CFO, about particular issues. Apart from the committees to which they both belong, they do not see each other outside these meetings. The VP has no meetings with the business unit SVPs other than his committee responsibilities. The IS Directors have little or no direct contact with any company executives.

The senior management team (CEO and SVPs) meets twice a month for four hours but the VP of IS does not attend and there are no minutes published. His boss, the CFO, holds a management meeting with his direct reports every two weeks to pass along the important items from this senior management meeting.
b) Permanent Teams

Senior IS Steering Committee

In May of 1990, the CEO mandated the creation of a Senior IS Steering Committee which included the CEO, the SVPs, and the VP of corporate IS. One of the stated objectives of the committee was to "achieve mutual understanding between business and IS". The committee mandate was to: 1) review and approve IS strategy, plans and budget of the business units, 2) review and approve of IS policies and principles, and 3) review and approve technology platforms.

An analysis of the minutes from the Senior IS Steering Committee produced evidence that the senior management of Company A was becoming actively involved in corporate IT issues because they: 1) requested justification for the CPU upgrade, 2) requested a policy on PC vs mainframe usage, and 3) discussed the extent of data redundancy in Company A. Evidence that cross business unit communication was being fostered by the committee includes: 1) the discussion about a shared system to administer premiums, and 2) the discussion of a joint evaluation of periodic payment systems.

While all respondents felt that the committee was still in its infancy and was not capable of making IT decisions, the discussions being held there reflected a willingness to tackle issues over and above the current development projects.

The Senior IS Steering Committee has had some effect, even though it was newly formed. The CEO remarked "Even the first few meetings we have had in the Senior IS Steering Committee, it's just astonishing what people realized right away. For example, the SVP of BU X hadn't realized that his lovely US pension system was really screwing up corporate's goal of putting stuff together. When I opened his mind was when I gave him Canada pensions and he suddenly discovered that, try as he might, the two systems couldn't talk to each other. They were incompatible. Once we sat around the table and started talking about it... it's a start." We see in this comment how the CEO is
deliberately using the Senior IS Steering Committee to link corporate objectives (lower overall technology cost) to the objectives of the business units.

Other Corporate Committees

The VP of corporate IS sits on the Quality Steering Committee and the Human Resources Policy Committee. These are company-level groups which have been initiated by the CEO to support corporate programs. Both are chaired by the CEO. The Chief Financial Officer, to whom the VP of IS reports, also sits on these committees. They give the VP of IS an excellent opportunity to fully understand corporate-wide programs being pursued within Company A.

IS Steering Committees within the Business Units

In each of the four business units, the CEO has mandated that the senior management will meet together with their IS manager as a IS Steering Committee. He has also appointed a Director from corporate IS as a member on each of these committees. For example, the VP of corporate IS is the "corporate IS member" on the Individual IS Steering Committee. This committee structure is designed to increase internal business unit linkage and to keep corporate IS informed of the objectives of the business units.

These committees have had mixed success to date; meetings are often not held when the company is under stress and Company A has experienced a lot of stress lately. Also, there were regular management meetings already in place in the business units.

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40 The CEO's objective for the steering committees: "so that every issue in systems is discussed in a group at the senior level. So that they don't get this situation where the marketing guy and the product actuary guy work out a product and go and sell it to the boss and then somebody says, by the way we'll need a system. And then the system guy gets called in and by then its too late for him to add any influence whatsoever because this thing has been set in concrete. I don't want anybody to hand the systems people a bunch of specs and go away. I want a process where they sit and talk about it - talk about costs and manhours and all those other things."
before the steering committees were mandated and they often displace the IS Steering Committee meeting. During interviews with business unit executives, many complaints were raised about the redundancy of these committees and also the thought was expressed that committees which only dealt with IT issues actually reduced the linkage that the business units have created with cross-functional management meetings. What was seen by the CEO as a mechanism to increase linkage is seen by the business units to be counter-productive. 41.

Thus far, these steering committees have not been incorporated into the regular communication patterns within the business units.

Technology Steering Committee

One of the older traditions within Company A is a permanent team which includes corporate IS managers and business unit IS managers. Some of corporate IS's communication with senior business unit executives is facilitated through this group. For example, in response to a question of how he managed to persuade the one SVP to give up his highly successful, but nonstandard, application software and move to the preferred technology platform, the VP of IS remarked: "...it is really through the Technology Steering group...we present background position papers and discuss them at our quarterly planning session... and really it is more through peer pressure of that group in terms of coming to an agreement as to what is the best overall strategy for the company. In terms of initiating that migration I haven’t done anything specific. All we have done is identify our standard production platform for future development."

The VP of IS has strengthened the mandate of the Technology Committee (it is now the sponsor of all projects and ratifies the corporate IT plan) while weakening the

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41 Another explanation for the resistance is a power struggle between corporate control and BU control. This is discussed in the across-site findings.
powers of individual IS managers within his own organization and the business units. The only way to get anything done or any budget approved is to go through this committee. By discussing all IT actions at this one forum, the committee keeps the BU IT activities in line with the corporate IT direction; it also keeps the corporate IS people in line with the realities of the BU environment. The VP of IS wields the most power within this committee since he is the most senior person in rank.

c) Summary

In the last few years, the number of communication channels between senior managers and corporate IS have dramatically increased as the CEO implemented a number of permanent committees. These committees embody the "linking pin" strategy (Likert, 1967) of multiple, overlapping, group-interactions. For example, the VP of IS sits on several cross-organizational, cross-functional committees which link him upwards to corporate management and laterally to business unit executives and business unit IS executives.

The VP of IS’s communication with his direct superiors, the CEO and CFO, is rated as moderately frequent and diverse. With the SVPs of the business units, it is rated as infrequent and focused (on IT issues). His strongest communication channel seems to be with his peers in the business units via the Technology Steering Committee. This communication is rated as frequent and focused on IT.

4. Connections between business and IT planning

a) Between corporate business and corporate IT

When the CEO was being recruited, he was given a copy of Company A’s business plan. He decided that "It would never work because ... the whole plan was written by one person and there was no sign of tension, everything tied together. It ought
to look like a candleholder and this one looked like a racehorse... much too good to be practical. Business planning is a messy process. But if you don't get at least 100 managers involved, you haven't got a good business plan".

He revised the planning process and it is now a comprehensive top-down, bottom-up exercise. "In January, I write down what I think the objectives should be for the coming year and what our major programs need to be to achieve those. Then I write down a laundry list of all the issues I think we may have to address if we are going to do that and them I circulate that to all my vice presidents (there are about 30 of them) and ask them to tell me whether they agree, disagree, and want to add or delete things from the list. These are corporate issues such as profitability, persistence, human resources. On a single sheet of paper, they are asked to identify what they would delete, add and where would they disagree. Then I sit with the SVPs and we look at every single idea and try to understand it and debate it. That's the first bottom-up process. When we're through with that process, I rewrite the overview. This one goes to all unit heads and their senior people and they sit down to write unit overviews for their business unit. That has to tie into the major programs of the company that we've already agreed upon. That creates more changes to the corporate programs. Then after the unit plans have been reviewed and adjusted, all second line managers are given the corporate overview and business unit overviews and asked to create their program plans and estimate resources. Then we massage that data. The whole process takes all year, its a continuous process. We have our first strategic plan in July."

After taking over his position in 1988, the VP of IS prepared a strategic plan for his department. This plan was the source of strategies such as repatriation of the data centre and narrowing the technology path. From 1989 to 1991, they have been implementing the previous strategies and no long range strategic plan was prepared. He says "we haven't gone back to rethink. There are a number of components and they show
up each year in our major programs, and basically we build on them.

The VP of IS does his annual planning using Company A’s top-down, bottom up business planning process. He gets overviews from the CFO and from the CEO. He then works out his unit overview with his managers and sends it upwards and discusses it with the Technology Committee.

Another connection between corporate IT and business planning processes occurs three times per year at the variance review meetings chaired by the CEO. At these variance reviews, the CEO and the SVPs ask the VP of IS to explain various initiatives that are happening inside his group and throughout the company and "you're on the hot seat and the other people are sitting there throwing in their questions... its just from that interaction that you sort of assess what their expectations are. And my interpretation of the expectation in these areas is that I'm supposed to be controlling and managing costs."

In summary, the corporate IT planning process is strongly connected with the corporate business planning process through exchange of documents, in timing, and through variance reviews. Using the typology of planning connections developed in chapter III (and summarized in Appendix D), the planning processes are rated as being integrated.

b) Between BU business and corporate IT planning

The connection between corporate IT and business unit planning is weaker than the one between corporate IT and corporate business planning. The VP remarks "Normally we don't get access to business plans.", meaning that he does not see the contents of the plans created by the business units. He does not participate in any way in the creation of these plans. However, the heads of the business units, as participants on the Senior IS Steering Committee, do have access to corporate IT plans and these are discussed during the meetings.
There is a one-way connection between the corporate IS and business unit planning processes because the business unit executives (on the Senior IS Steering Committee and the Technology Council) review the corporate IS plan but corporate IS does not receive or review their plans. The mechanism which might allow corporate IS to view business unit plans, the business unit IS Steering Committees, are not yet effective. Because corporate IS presents its plans both to the Senior IS Steering Committee and to the Technology Committee, the connection between the planning processes is rated as being negotiated.

**B. Summary and Analysis - Company A**

In Table V.1, the findings are summarized for Company A on factors, discussed in this chapter, and linkage, discussed in Chapter IV. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined and the question of why there is no IT vision is explored.
<table>
<thead>
<tr>
<th>FACTORS/ LINKAGE</th>
<th>Linkage between Corporate Business and Corporate IT Objectives</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Implementation of IT Plans</td>
<td>Very good progress was made in reducing IT costs, which is a key corporate goal. Previous implementations are judged to be successful by Corporate executives.</td>
<td>Corporate IT initiatives have resulted in a low level of innovation and autonomy for the BU IS people. Corporate IT rates were reduced, which supports BU objectives to cut costs. BU executives view corporate IS as having had mixed success in their initiatives over the last two years.</td>
</tr>
<tr>
<td>Shared Knowledge between IS and business executives</td>
<td>Corporate IS executives have no line management experience. Corporate executives have some IT management experience. No executive has been in a company with exemplary use of IT. Low - Moderate level of shared knowledge.</td>
<td>Some corporate IS executives have developed applications for business units but none has had line management experience within a business unit. BU executives have very limited IT experience. Low level of shared knowledge.</td>
</tr>
<tr>
<td>FACTORS/LINKAGE</td>
<td>Linkage between Corporate Business and Corporate IT Objectives</td>
<td>Linkage Between Business Unit and Corporate IT Objectives</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Communication between IS and business Executives | Direct contact between Corporate IS and corporate executives is infrequent.  
The CEO, the SVP, Finance, and the VP, IS sit on two corporate committees. (permanent team)  
The Senior IS Steering Committee has met for 10 months. It contains CEO, all SVPs and VP, IS. (permanent team)  
Overall communication is moderately frequent and diverse. | Direct contact between corporate IS and business unit executives is infrequent.  
The SVPs of the business units sit on the Senior IS Steering Committee. (permanent team)  
Corporate IS execs sit on the BU IS Steering Committees, but they have not met regularly yet. (permanent team)  
The BU IS and corporate IS execs sit together on Technology Committee. (permanent team)  
Overall communication is moderately frequent and focused. |
| Connections between IT and business planning | Top-down, bottom-up process connects corporate IT and corporate business plans.  
Planning processes are rated as integrated. | BU execs review the corporate IT objectives through the Senior IS Steering Committee.  
BU IS execs review the corporate IT objectives through the Technology Committee.  
Corporate IS does not participate in planning with or see BU plans.  
Planning processes are rated as negotiated. |
Table V.1
A Summary of the Factors and Linkage Ratings for Company A

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage between Corporate Business and Corporate IT Objectives</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Factors</td>
<td>The CEO is committed to improving communication and decision making about IT in the company.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The company produces corporate objectives which are widely communicated.</td>
<td></td>
</tr>
<tr>
<td>LINKAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- in written documents</td>
<td>HIGH</td>
<td>LOW - MODERATE</td>
</tr>
<tr>
<td>- understanding of objectives (EXECIS/IS)</td>
<td>HIGH/HIGH</td>
<td>HIGH/LOW</td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>LOW</td>
<td>not measured</td>
</tr>
<tr>
<td>- Subjective Assessment (EXECIS/IS)</td>
<td>HIGH/MODERATE</td>
<td>LOW/HIGH</td>
</tr>
<tr>
<td>OVERALL LINKAGE</td>
<td>HIGH</td>
<td>LOW-MODERATE</td>
</tr>
</tbody>
</table>
1. Linkage between corporate business and corporate IT objectives

a) Stage One: The Relationship between Antecedents and Current Practices

In company A, IT implementation success began in 1988 when the VP of IS, working with the SVP of Finance, began to tighten controls over IS decisions. Their programs were strengthened and supported by the new CEO when he joined the company in 1989. Although there was no more than a moderate level of shared knowledge among these three executives, there was consensus on an important point: that centralized control was the way to restore the company to financial health. The CEO and the VP of IS worked together to create the IT committee structure, initiated in 1990, which significantly increased the communication between IS and business executives. Thus, the combination of IT implementation success and shared values contributed to improved communication.

Although shared values and IT success seemed influential, the most important reason for the high levels of communication and connection in planning was the qualities the CEO brought to his position which caused him to promote linkage specifically within the IT function. The CEO brought to Company A a long history of personal frustration with IT based on experiences in several organizations: "There's one part of my career that's been a total failure and that is systems. I've been trying for years and haven't succeeded". This statement led us to believe that this CEO was unique in the intensity of his approach to establishing IT linkage.42

Under his direction, Company A adopted a disciplined top-down, bottom up planning process which tied all corporate departmental plans (including the IT plan) to the corporate objectives. This action resulted in the planning processes being rated as

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42 The CEO deliberately set out to increase mutual understanding of IT issues between IS and business executives. His reason for establishing the steering committees was so that "every issue in systems is discussed in a group at the senior level".
"integrated", which is the highest level of connection we had expected to find in insurance companies.

b) Stage Two: The Relationship between Current Practices and Observed Linkage

In Company A, ratification of the corporate IT objectives, as contained in the IT Plan, is a specific responsibility of the Senior IS Steering Committee. Every SVP in the company is required to attend the meetings of this committee. During seven of the ten meetings for which minutes were made available to us, IT Objectives and Corporate IS services were discussed. The communication in these meetings undoubtedly led to the high levels of understanding of corporate IT objectives which were measured in this project, especially since outside these meetings, there was only a low level of direct (i.e. person to person) contact between IS and corporate executives.

Corporate IS executives exhibited a high level of understanding of corporate objectives. We attribute this finding to the fact that 1) Company A created corporate level objectives (in contrast to Company B and C, who did not) and 2) the planning process required all managers to plan their own objectives in support of the stated corporate objectives. This second factor, plus the culture in Company A of producing written corporate level plans, explains the high level of linkage exhibited in the written plans.

Therefore, communication about IT objectives in steering committee meetings and connections in planning appeared to have a direct, positive influence on the linkage findings.

c) An Alternative Explanation

Another possible explanation of the high levels of linkage exhibited in Company A is the existence of a macro-level influence, survival of the company. Company A is under significant financial stress and it could be argued that this alone accounts for the
changes and for the outcomes, since many companies under stress establish controls and centralize decision making. There is some support for this argument, since other actions were taken which do not specifically relate to IT. For example, the controllers were moved from under the business unit SVPs to report to the corporate SVP of Finance. Managerial discretion in approving purchases was reduced throughout the entire company.

There are many ways that a CEO can consolidate control and rescue a company in distress. The fact that the CEO in Company A chose to concentrate a significant amount of his and his senior executives time on IT seems unusual and we trace it back to his previous unsatisfactory experiences with IT.\(^{43}\) This made him unique in his approach and we conclude that the CEO is the major factor in the high levels of linkage attained by company A.

Figure V.2 shows the influences among factors and between factors and linkage.\(^{44}\)

d) The Absence of a Shared Vision

One measure of linkage was rated LOW in Company A - shared vision for IT. There are several plausible explanations for the lack of an IT vision:

1. the company is under stress and is intent on controlling costs. The CEO has stated that he wishes only to focus on cost-cutting uses of technology. The Corporate IS group is taking a "managerial" rather than a "visionary " approach to its mandate since the VP of IS perceives (correctly, in our view) that this is what the CEO requires.

\(^{43}\) Although IT represents a significant percentage of the discretionary expenses in company A, expenditures were not higher than in the other companies we studied and were not considered by the executives to be abnormal.

\(^{44}\) The relationships between the factors and linkage are shown by arrows. The size of the arrow denotes the importance of the influence. Factors which emerged from the data are shown inside dotted-line boxes.
of him. Therefore, the "climate" does not support visionary thinking or deviations from the strong top-down control.

2. visions are not appropriate at the corporate level of a multi-divisional organization. The visions need only to be forged at the BU level where IT applications provide realizable benefits.

3. no corporate IS executive or corporate business executive has ever worked in a company which has been an exemplary user of IT. Therefore, they are unable individually to create an IT vision.
4. The Senior IS Steering Committee, which could be the mechanism within which a vision is created, is too new. There has not been enough shared knowledge created within this group to support the creation of a vision. Therefore, they are unable collectively to create an IT vision.

All of these explanations are plausible in Company A. In the next sections on company B and C, we create similar conjectures and then synthesize them under the across-site findings.

2. Linkage between corporate IT and BU business objectives

a) Stage One - The Relationship between Antecedents and Current Practices

Based on the low level of shared knowledge, we hypothesized that there would be a low level of communication between corporate IS and business unit executives. Levels of communication were higher than expected, but only because the CEO had decreed the existence of the Senior IS Steering Committee. Outside of these meetings, there was no communication.

Implementation of IT initiatives has had a mixed response in the business units. On one hand, the reductions in computer chargeout rates have allowed BU IS people to keep up their level of activity for the current year while still cutting their IT budget as required by corporate guidelines. However the policies which allowed corporate IS to reduce chargeout rates are being resisted since they limit BU discretion. It is unclear if these mixed reactions have directly affected any current practices.

b) Stage Two - The Relationship between Current Practices and Linkage

BU executives exhibit a high level of understanding of corporate IT objectives because they sit on the Senior IS Steering Committee. As mentioned previously, they have discussed corporate IT plans and policies at several meetings. Thus, even this
A factor which emerged from the data was a disagreement concerning IT objectives between the corporate and the BU IS people. The BU IS managers chafed under the restrictive policies regarding acquisition of technology, believing that they could use alternative technologies to reduce their IT costs. The CEO recognized the value in discussing objectives and mandated IS Steering Committees in each BU which would contain a member from corporate IS. These committees were not meeting regularly. The Technology Committee provided a good communication channel between BU IS and corporate IS executives but it could not influence the overall corporate IT objectives, which were to standardize technology, reduce discretion, and cut costs. These goals were, of course, contrary to the wishes of individual business units, each of whom saw themselves as needing unique solutions. This disagreement has affected the subjective linkage ratings of BU executives, which ranged from LOW to MODERATE.

Can these conflicting objectives ever be reconciled? The CEO is hoping that effective steering committees in the business units will help and he is still committed to enforcing their existence. They may indeed raise the awareness of corporate IS people about the unique business unit situations which may be addressed by non-standard

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45 This CEO has not been successful at achieving one of the stated objectives of the Senior IS Steering Committee, which was to "review and approve the IS strategy, plans and budgets of the business units". If they had achieved this objective, the understanding of the corporate IS people about BU objectives would have been much higher.
technology. They also may raise awareness of the costs of non-standard technology among the BU managers. To some extent, however, the fault and, therefore, the solution may lie with the Senior IS Steering Committee. For example, this committee recently ratified a decision to upgrade the mainframe. This decision was discussed by senior executives because of the amount of capital it required but was not treated as a strategic decision, meaning that a wide search for alternatives and many interested parties were not involved in the decision making process. For example, IS executives from the business units were not involved and alternative ways to provide additional computing power were not explored. The BU executives on the Steering Committee did not realize that the computer upgrade would make it difficult to achieve some of their IT objectives since they would be prohibited from bringing in any new technology until the mainframe needed another upgrade. Therefore, the lack of discussion of BU IT objectives lost them the opportunity to move to other (possibly cheaper) solutions such as localized platforms, 4GL languages, and cooperative processing.

Figure V.3 portrays the connections between factors and linkage.  

\[\text{Figure V.3 portrays the connections between factors and linkage.}\]

c) Why is there disagreement between corporate and BU IT objectives?

We have identified four plausible explanations for this finding. The first is the existence of a systematic factor which was hinted at by an SVP in Company A - that disagreements between corporate and business unit groups should be expected and viewed positively. In his opinion, no matter how much communication, connection in planning, or goodwill exists between corporate and business units, there will always be tension and there will never be high levels of linkage. In other words, the disagreement described above is predictable, useful, enduring, and not unique to Company A.

\[\text{\footnote{See previous footnote for the legend.}}\]
The second explanation is an interaction effect between the task of creating mutually acceptable IT objectives and the current people who are trying to do this. It is a complex task to create corporate IT objectives which are linked to the objectives of multiple business units, while adhering to a policy of fiscal restraint. Company A is continuing to provide standard mainframe technology - a technology that has worked well for them in the past but may not be appropriate in the future. The problem may lie in the composition of Corporate IS in which all of the senior managers have been with the company for more than 20 years. Their capacity to embrace new technology might be
very limited. So the combination of a complex task and a hidebound department may explain why no shared IT objectives have been created.

The third explanation is that there is a disagreement about business strategies and a resulting power struggle between corporate executives (including the CEO, the SVP of Finance and the VP, IS) and the business unit executives. In this disagreement, the corporate group wishes to improve the financial health of the company by reducing expenses and concentrating on efficiency. The business units wish to improve the financial health of their units by pursuing revenue and market share goals, as well as by cutting costs. The CEO has stated that IT applications which focus on reducing cost are the only important ones; the business units disagree and are interested in uses of IT which support other goals. In the power struggle, the business units are resisting the incursion of corporate IS into their management processes by not holding IS Steering Committee meetings. The result is a low level of communication, few connections in planning, and therefore, low linkage.

The fourth explanation is a tradeoff between corporate level linkage and BU level linkage. As stated by business unit executives, BU linkage is enhanced by having their management meetings include their IS people, discussing items of business from all functional areas. The CEO is asking them to separate out their IT issues and discuss them within an IS Steering Committee. This request results either in duplicate discussions at both forums, which was reported by some business units, or IT issues not being discussed in regular management meetings. Both outcomes seem counterproductive to BU executives and they resist by not holding the IS Steering Committee meetings very often. Not surprisingly, they chose to increase BU linkage at the expense of corporate
We do not have enough data to choose between these explanations. In fact, they may all contribute to the findings. They are carried forward into the Across Site Findings for further discussion.

C. Factors - Company B

Five business executives, four corporate IS executives, and two SVPs of business units were interviewed within Company B. In addition, the five year strategic plan, minutes from the Technology Committee meetings, corporate IS reports, and a letter from the corporate IS Director to the CEO were reviewed. Details on interviewees and documents were presented in tables III.2 and III.3. A summary of the company characteristics is contained in Appendix B.

1. Implementation of Previous IT Plans

In the last two years there have been four corporate IT initiatives, all spearheaded by the new Director of IS who previously was the IS executive in the largest business unit. Two of these initiatives were organizational changes and two affected the technology platforms.

a) The corporate technology group rearranged themselves internally to simulate a matrix structure between themselves and the business units in order to move away from a pure technology orientation and towards a more client-focused orientation. The group was renamed into a "service" group and they began direct billing for their services to business units. The matrix management portion of the change fits into Galbraith's communication typology as an example of a "liaison role". At the time of data collection, these changes

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47 Viewed a bit more widely, it is not a zero sum game. If the Technology Committee discussed BU objectives, this could be the forum to enhance corporate level linkage, leaving the BU management meetings to enhance BU linkage.
had been in place for six months. Clients in the business units had mixed reviews of the results but were in favour of the overall change.

b) The mandate of the Technology Committee (which is comprised of the senior IS executive from each business unit and several from corporate IS) was changed from information sharing to direction setting. The frequency of the meetings increased and this committee began to sponsor cross-business unit projects. To use Galbraith’s typology, this change is the empowering of a "permanent team". No IS managers in the business units remarked on this change.

c) A business unit, based on the advice of a consultant, proposed that IBM be awarded a large contract. Corporate IS intervened and recommended that another vendor be selected in order to move away from an all-IBM environment. The CEO had to resolve the issue and decided to continue the relationship with IBM. This created bad feelings in the business unit towards corporate IS.

d) The Technology Committee sponsored two projects to define platforms and methodologies which would be shared by all business units. The proposals from these project groups were stalled in the Technology Committee and had not become company policy at the time of data collection. Using Galbraith’s typology, these project groups were examples of "temporary task forces" but did not completely conform to his model since they were staffed entirely by corporate IS people who solicited input from IS people in the business units. These projects have created tensions between corporate IS and the business unit IS people.

All of these changes were designed to improve linkage between corporate IS and the business units and to increase the level of leadership that corporate IS provided within the company. Before that time, corporate IS was regarded as a technology-driven department with little knowledge of or appreciation for the needs of its clients. The technological changes have not been too successful, since they promoted a "one best way" approach which was to be followed by all business units. Therefore, the success of corporate IS in the last two years is seen as being "mixed".

2. Shared Knowledge between IS and Business Executives
The CEO has not had direct experience in managing a large IT project, nor is he a reader of technology literature. Rating: high Company B and insurance experience, low IS project management experience and IT awareness.

With the exception of one business unit SVP, who is known as a PC user and advocate, none of the executive group has shown much interest in IT. Most of them have been senior managers for so long that they have had no direct experience in managing a large IS project. Their ratings are the same as those for the CEO.

All of the executives have a long history with Company B, often in several divisions of the company. With the exception of one SVP, who has been seconded to federal jobs and has taken leaves of absence, most of the management have no significant senior experience beyond Company B.

At the time of data collection, the SVP of Corporate Services had just retired. He had been in charge of the corporate IS department for the last 15 years and formerly held several line management roles in the business units. Rating: high Company B, insurance, and IS Project management experience, low-moderate IT awareness.

The Vice President of IS has spent most of his 30 year career in the IS field. He took insurance courses and received the FLMI designation in the 1960’s but has no line management experience. Rating: high Company B and IS Project management experience, moderate IT technology awareness, low insurance experience.

The Director of IS has worked in both the Individual and Group business units. He became involved with technology as a user manager in 1977 and took responsibility for IT as well as claims in his business unit in 1983. He joined corporate IS in 1990 to provide leadership in technology direction. Rating: high on all scales - Company B, insurance, and IS project management experience and IT awareness.

In summary, there is almost no recent IT experience among the senior business executives in Company B. The Corporate IS group has always had a senior manager with
a significant amount of line experience and the hiring of the new IS Director continues this tradition.

3. Communication between business and IS Executives

a) Direct Contact

The VP of IS meets very infrequently with the executives in Company B other than his direct superior, the SVP of Corporate Services.

The Director of IS meets irregularly with the SVPs of two of the business units when they call him about specific technology initiatives within their division. He is invited to participate in the management meetings within another BU. He does not meet often with the SVP of the fourth BU. He has had several meetings with the president on specific technology issues.

b) Permanent Teams

The CEO and SVPs meet regularly as the Executive Committee. The SVP of Corporate Services sits on this committee and represents Corporate IS. No minutes are published from this meeting.

With the exception of the executive committee, there are no cross-functional committees at the executive level within company B, such as an IS Steering Committee. Therefore, there is no forum within which the VP of IS can interact with the business unit executives.

The Technology Committee has been in existence since 1974. It brings together the head of IS from each business unit and the VP and his Directors within Corporate IS. In the past, they met every quarter and have recently changed the frequency to bi-monthly. This forum existed previously to exchange information and is now taking a more proactive role in setting direction for IT within Company B.
In summary, direct communication between Corporate IS and top management (both corporate and BU executives) was very infrequent before 1990. Since the new IS Director joined corporate IS, the SVPs and the President have shown that they value his advice concerning their projects and communication has increased somewhat. There is no use of liaison roles or permanent teams to foster communication between business executives and corporate IS. Communication between Corporate IS and business executives is infrequent and focused on IT issues.

4. Connections between Business and IT Planning

The corporate five year planning process usually occurs in three rounds between April and August of each year. The package prepared for the process by Corporate Planning includes economic forecasts, valuation and taxation policies and a summary of special issues. All of the material is financial in nature. Business units formulate their business directions, translate them into budgets and forecasts and feed the numbers into Corporate Planning. Only financial information is collected corporately. There is no compilation of a "strategic plan" at the corporate level: strategies are written up by the business units in their preferred format and used internally by them.

The corporate one year planning process, which occurs after the five year process, results in detailed plans and budgets for the following year, using the first year of the five year plan as a starting point. These are presented to the Executive Committee by each business unit.

The Corporate IT planning processes involves Corporate IS and its clients. After a talk from the CEO, corporate IS internally discuss the issues they see as important to the company and the VP of IS drafts a document for discussion. After more talks (up to two or three days in some years), they finalize this draft document and schedule meetings with each of their major clients for discussions of their five year plans. The top four
people in the Corporate IS group will meet with the SVP, the IS Director and other executives of each of the business units and corporate departments and review the Corporate IS direction document. In a given year, they may have up to 10 of these meetings to ratify their direction.

After this process, they prepare tactical one-year plans and strategies identifying the services they are providing for each client and what technology projects they are undertaking. They ratify this document at a single long meeting with all their clients. The attendees at this meeting are usually at the Director and manager level in the business units. Therefore, many executives and managers within the business units have exposure to the corporate IT plan during one or more meetings each year.

The Technology Committee is not involved as a group in ratifying the Corporate IT one or five year plans.

Business unit planning is occurring at the same time as the Corporate IT planning, and there is no crossover of strategic plans from business units to Corporate IS. If Corporate IS does receive a copy of these plans, it is usually late in the process of the five year planning process. Therefore, the plans that Corporate IT formulates are not based on written business unit objectives, they are based on information from their IS and executive contacts in the business units.

In summary, the information being fed into the corporate IT planning process from the CEO is entirely financial. This input does not give any direction to corporate IS on the technology required or the vision for the company.

The Corporate IS group formulates plans internally and then presents them to corporate executives and to the business units in a series of meetings. Corporate IS do not have the benefit of seeing an BU plans or in participating in BU planning before or during this process. We rated the connections between the planning processes as "negotiated", reflecting the fact that although the plan is produced in isolation from the
planning done in the business units, it is subsequently presented to them for approval and/or modification.

5. Other Factors within Company B

Since the Director of IS joined the corporate IS group, he has been very aggressive in trying to influence the overall technology direction of the company to rationalize it and cut costs. He has the private backing of the CEO, who selected him for the job.

We examined the content of a letter written from the IS Director to the CEO. Its purpose was to summarize a recent meeting between them. In it, the IS Director outlined his understanding of the "business issues", the "technology issues" and the expectation of the CEO for him in his new role. On the latter point, he mentioned "standardized technology environment..., not too much technical risk..., enterprise-wide approach to managing information technology". He asked the CEO to "communicate that message clearly to all executives". However, the CEO has not issued any statement regarding IT. Therefore, the IS Director has no "official" mandate from the CEO to make the changes he is initiating. This situation detracts from his effectiveness because business units feel they have the right to "opt-out" of any change they do not agree with.

D. Summary and Analysis - Company B

Table V.2 contains a summary of the findings on the factors and linkage. Relationships between the factors and linkage are discussed after the table.
<table>
<thead>
<tr>
<th>FACTORS/ LINKAGE</th>
<th>Linkage between Corporate Business and Corporate IT Objectives</th>
<th>Linkage between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Implementation of IT Plans</td>
<td>Achieved reduction in budget of 5% last year, which was in line with the company financial objective. Previous implementation was judged to be successful.</td>
<td>The new IS Director has made changes to link corporate IS more tightly to the objectives of the business units. The two technology projects have not been accepted widely within the business units. The organizational changes are viewed favourably, but it is too early to judge the results. Mixed results.</td>
</tr>
<tr>
<td>Shared knowledge</td>
<td>Corporate executives have no recent experience in IT. Corporate IS has a moderate level of business experience. Several corporate executives (CEO, SVP, Corporate Resources, IS Director, Controller) all come from the same BU.</td>
<td>BU executives have very limited experience with IT. The new IS Director Corporate has a high level of business experience and comes from one of the business units.</td>
</tr>
<tr>
<td>Communication between IS and business Executives</td>
<td>No regularly scheduled meetings between corporate IS and corporate business executives. Communication is infrequent, and focused on IT.</td>
<td>Very little direct contact and no permanent team to facilitate communication between corporate IS and BU executives. BU IS and corporate IS execs meet bi-monthly on Technology Committee. (permanent committee) Communication is infrequent and focused on IT.</td>
</tr>
</tbody>
</table>
Table V.2
A Summary of the Factors and Linkage Ratings for Company B

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage between Corporate Business and Corporate IT Objectives</th>
<th>Linkage between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections between IT and business planning</td>
<td>Three rounds of planning produce plans for corporate departments and business units. There are no overall corporate objectives. Corp IT objectives are negotiated in meetings with Corporate executives.</td>
<td>BU execs review Corporate IT plans in individual meetings. Corporate IS does not participate in planning with or see BU plans. Planning processes are rated as negotiated.</td>
</tr>
<tr>
<td>Other Factors</td>
<td>The IS Director has a mandate from the CEO.</td>
<td>The mandate from the CEO to the IS Director is not public and, therefore, is not enforceable.</td>
</tr>
<tr>
<td>LINKAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) written</td>
<td>MODERATE</td>
<td>LOW</td>
</tr>
<tr>
<td>b) underst’g (EXEC/IS)</td>
<td>HIGH/UNKNOWN</td>
<td>MODERATE/LOW</td>
</tr>
<tr>
<td>c) Vision</td>
<td>LOW</td>
<td>not measured</td>
</tr>
<tr>
<td>d) Subj. Ass. (EXEC/IS)</td>
<td>HIGH/UNKNOWN</td>
<td>MODERATE</td>
</tr>
<tr>
<td>OVERALL</td>
<td>???</td>
<td>MODERATE</td>
</tr>
</tbody>
</table>
1. Linkage between corporate objectives and corporate IT objectives.

In Chapter IV, we concluded that the mixed ratings on the linkage measures made it difficult to assign an overall linkage rating for Company B. An examination of the relationships between factors and linkage resulted in a re-examination of these findings and a modified linkage rating. Both are discussed below.

a) Stage One: The Relationship between Antecedents and Current Practices

The new Director of IS has increased the amount of shared knowledge within Company B. This factor alone might have marginally increased the communication from previous levels. However, there is another connection between many of the corporate executives, which we believe has had a similar, but stronger affect on current practices. The CEO has moved members of his previous business unit to positions of influence beneath him. These moves include the SVP of Corporate Resources (who is in charge of corporate IS), the IS Director, and the Controller. These people have all worked together in a highly successful business unit and we hypothesize that they have high levels of trust which effect linkage in two important ways. First, the CEO is talking directly to the IS Director, which is unusual since they are separated by two levels of hierarchy. Although their communication is infrequent, they are able to discuss strategic issues and have come to a shared understanding of IT objectives (the CEO says "they know their role... they are the policemen").

Second, although there are no written corporate objectives, the SVP of Corporate resources acts as a "linking pin" between the executive committee and corporate IS. Because this person is closely aligned with the CEO, he assists the VP of IS in putting IT objectives together which meet corporate approval. Therefore, the shared experience of the corporate executives seemed to influence both the effectiveness of the
communication and the connections between planning. As Pyburn (1983) showed, in a company without written objectives, the IS executive needs to have proximity to the corporate executives to be judged successful.

b) Stage Two: The Relationship between Current Practices and Observed Linkage

Company B lacks two of the hypothesized prerequisites for linkage: corporate objectives and frequent communication. The corporate IT planning process does not receive any direction from corporate executives. However, the executives rated HIGH on their understanding of IT objectives and their rating of linkage. This is due to the planning process developed by the VP of IS. Each year, the VP of IS, with the IS Directors, created statements of "corporate objectives" as part of the IT planning process and developed corporate IT objectives which were derived from these statements. The IT plans were then reviewed by the Corporate SVP, who, as mentioned earlier, is closely connected to the CEO.

The VP of IS created a connection in planning when he took this plan "on the road" to the executives so they could correct his assumptions about corporate objectives and alter the IT objectives as required. The IT plans were reviewed by the controller and other corporate departments. In this way, the planning process transcended the lack of corporate objectives and influenced linkage.

We have re-rated the linkage between corporate objectives and IT objectives as MODERATE to HIGH\(^4\) based on this analysis and suggest that Company B is evidence that, as we suspected, the lack of formally stated corporate objectives does not preclude linkage.

\(^4\) The reason it is not HIGH is that the CEO stated that he could not see why corporate IT objectives are needed "any more than we need objectives for the telephone." This opinion may be one reason for a lack of corporate IT vision.
Figure V.4 shows the relationships discovered between the factors and linkage.

2. Linkage between BU objectives and corporate IT objectives

a) Stage One: The Relationship between Antecedents and Current Practices

In many interviews with BU executives, they mentioned the IS Director, who joined corporate IS from one of the business units eighteen months ago. His wealth of line experience has increased the level of shared knowledge and has improved the
communication between the business units and corporate IS. He has been asked for advice by two of the SVPs and a third extends an open invitation to him to attend project meetings.

On the negative side, many executives in the business units still believe that most of the people in corporate IS are technology focused, not business focused. This makes the business units reluctant to include them in any meaningful way in their planning. Corporate IS is thus isolated from business unit planning.

b) Stage Two: The Relationship between Current Practices and Observed Linkage

There are no formal communication channels between corporate IS and BU executives and very little direct contact between them. Most communication between corporate IS and business units happens at the IS level, between corporate IS and BU IS people. They meet informally based on old friendships and formally in the Technology Committee. Unfortunately, no BU objectives are discussed in this forum and so this rich communication channel has no effect on increasing the connections in planning processes.

The lack of involvement in BU planning has resulted in low levels of understanding of BU objectives exhibited by Corporate IS executives. Because the Corporate IT planning process is isolated from BU planning, the corporate IT plan consists of generalities and is not of much interest to the business unit executives.

The annual process of taking the corporate IT plans to the business units for ratification has resulted in some understanding of IT objectives exhibited by BU executives although, as noted above, not much excitement.

Another factor which emerged from the data is a disagreement about corporate IT objectives. As mentioned in the detailed writeup, the IS Director has introduced several initiatives designed to standardize technology and methodology within the company.
These initiatives are being resisted by BU IS executives and have resulted in low ratings on linkage from them. This disagreement is occurring at the IS level in the company and has not yet been raised to the executive level, which is why the BU executives, in interviews, exhibited no understanding of the corporate IT projects.

Figure V.5 shows the connection between factors and linkage.

![Diagram showing causal relationships between factors leading to linkage]

Figure V.5
Corporate IT to Business Unit Objectives: Causal Relationships in Company B
c) Why is there disagreement about Corporate IT objectives?

This disagreement is similar to that discussed in Company A, although the BU IT objectives in Company B are not as clearly defined. There are several explanations for this disagreement.

First, this is a power struggle between corporate and BU IS groups. There are two large business units in Company B, each with over 100 people in them. They have significant technical and applications development expertise and have been free for the past several years to create their own environments. Both groups naturally resent enterprise-wide corporate IT initiatives which limit their freedom to act.

Second, this is rivalry between two business units. The IS Director, who is masterminding the IT initiatives, comes from one of the big business units. It is the VP of IS from the other unit who is resisting the initiatives most strenuously. In interviews, he explained that the new IS Director came from the other business unit and therefore does not have an understanding of their needs and cannot create enterprise-wide solutions. In practice, he has made little attempt to influence the direction of the initiatives (e.g. he refused to put his people on the project teams), and relied on his considerable organizational power to combat them after they were introduced. There is a long history of rivalry between these two business units, possibly exacerbated by the actions of the CEO to surround himself with people from his previous business unit.

The third explanation is an interaction between a lack of mandate for corporate IS and a power struggle between business units and corporate IS. The IS Director is acting as if he has the right to create enterprise-wide solutions. The business unit IS people do not agree that there are any "shared" problems. The CEO has provided the IS Director with a private mandate to make the necessary changes promoting organizational efficiency but has not signalled this intention to any other executives. Therefore, the BU IS people feel justified in resisting these changes. This explanation is consistent with the finding that
mandate from the CEO is an important factor in attaining linkage (Lederer and Mendelow, 1989).

These explanations will be analyzed with those from Company A in the Across Site Findings section of this chapter.

d) Why is there no vision for IT within Company B?

In company B, there was a vision for IT expressed by the IS Director but not shared by others. There were no other strong visions expressed by the executives or by other corporate IS executives. The reasons for this might include:
1) There were no corporate objectives to tie a vision to.
2) The IS Director’s vision was very technology-based, and did not capture the imagination of the executives.
3) There was a low level of recent IT experience or IT awareness at the senior level in Company B and the executives were not capable individually of creating an IT vision for the company.
4) There were no lateral relationships (e.g. an IS steering committee) in place within which executives in Company B could communicate among themselves and create an IT vision.

These explanations will be compared with those from Company A in the Across Site Findings.

E. Factors - Company C

Two corporate business executives, two corporate IS executives and three SVPs of business units were interviewed within Company C. In addition, the annual IT Plan,

49 "an open systems, standards-based approach ..."
minutes from the Senior IS Steering Committee meetings, and corporate IS reports were reviewed. Details on interviewees and documents were presented in tables III.2 and III.3. A summary of the company characteristics is contained in Appendix B.

1. Implementation of Previous IT Plans

In the mid 1980's, Company C aggressively purchased personal computers and installed an organization-wide office automation package which is widely used and considered to be very integral to the functioning of the company. It decided to consolidate the two mainframes in 1986 and began the migration to a new mainframe in 1988. Since then, no written IT Plans have been created. Programmers and analysts have moved from project to project as one business unit after converted their applications to the new mainframe.

The opinion of senior management at Company C is that IT activity over the past few years has not been very productive. As the CEO said "after we installed Office Automation in 1986, we have done nothing important. We have essentially stood still with respect to new technologies because we have been implementing mainframe software packages and transferring to the IBM." The SVP of Corporate Services agrees "I think we were better positioned three years ago. We were very aggressive in introducing PCs in to the company. Then in 1988, we took delivery of the IBM and spent the last few years doing this absolutely useless work of conversion."

2. Shared Knowledge of IS and Business Executives

Because the managers who influence IT objectives within Company C are not all SVPs, table V.3 has been created to show the level of shared experience of each executive who sits on the Senior IS Steering Committee or who is an SVP of a BU. See Appendix D for an explanation of the ratings.
The IS Director is a career IS professional and has been with Company C, first as a consultant, and then as an IS employee, for two years. He has held no non-IT positions within Company C and has no other insurance business experience. We classify his knowledge of the insurance business in general and of Company C specifically as "low".

The SVP of Corporate Services, an actuary, has no formal IT management training or experience beyond actuarial programming. He has, however, had the IT function reporting to him since 1985 and wrote the major IT direction report after the merger in 1986. His knowledge of the general insurance business and Company C's business in particular is extensive. His understanding of IT management is rated as "moderate" and his knowledge of current technology as "moderate".

The CEO, an actuary, has no formal training in IT other than a course in BASIC and has no line experience managing the IT function or an IT project. He is however, interested in computers "from both a strategic and an efficiency perspective". He is a sophisticated self-taught user of several PC packages and regularly reads PC periodicals as well as articles on technology in the general business literature. The CEO is an enthusiastic supporter of OA and in a recent usage survey, was rated as the most frequent user. His understanding of IT management is rated as "low" and his knowledge of current technology as "high".

The SVP of one of the business units has a Masters degree in Computer Science and has spent several years with previous employers as an IT professional - a systems analyst, project leader and manager of the IS function. At Company C, he acted as the executive sponsor for the major conversion project. His understanding of IT management is rated as "high" and his knowledge of current technology as "moderate".

The SVPs of the other two business units have had no previous IT experience. Neither of these executives sit on the IS Steering Committee. Their knowledge of both IT management and IT technology are rated as "low".
The Director of Finance for a business unit is a current member of the IS Steering Committee. He has a Computer Science degree, five years technical IS experience, 5 years marketing IS products, several years experience as an IS consultant. His understanding of IT management is rated as "high" and his knowledge of current technology as "high".

The VP of another business unit is a current member of the IS Steering Committee. He has no previous experience with the management of IT. For the past year, he has been extensively involved as manager of the major conversion project. His understanding of IT management is rated as "moderate" and his knowledge of current technology as "low".

<table>
<thead>
<tr>
<th>Table V.3</th>
<th>A Summary of the Shared Business and IT Experience at Company C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Position</strong></td>
<td><strong>Insurance Experience</strong></td>
</tr>
<tr>
<td>CEO *</td>
<td>High</td>
</tr>
<tr>
<td>SVP, Corporate Services *</td>
<td>High</td>
</tr>
<tr>
<td>Director, Corporate IS *</td>
<td>Low</td>
</tr>
<tr>
<td>SVP, BU 1 *</td>
<td>High</td>
</tr>
<tr>
<td>SVP, BU 2</td>
<td>High</td>
</tr>
<tr>
<td>VP, BU 2 *</td>
<td>High</td>
</tr>
<tr>
<td>SVP, BU 3</td>
<td>High</td>
</tr>
<tr>
<td>Finance Director, BU 3 *</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

There are members of the Senior IS Steering Committee who have had extensive experience with IT in their working careers. The VP of Corporate IS has a low level of knowledge, both of the company and of the insurance business.
3. Communication between business and IS executives

Communication relating to IT objectives should occur between the executives who set business objectives (i.e. the SVPs and the CEO) and the VP of Corporate IS. As noted in the previous section, however, there are two individuals who act as agents for the SVPs at IS Steering Committee meetings. For the purposes of this analysis, the group with which the VP of IS should be communicating will include all SVPs, the CEO, plus the two extra members of the IS Steering Committee - seven people in total. This logical group will be called "senior management" in this section, since individually and collectively they have the power to affect corporate IT strategy.

Communication will be analyzed using two of the elements in the Galbraith lateral relations typology: direct contact and permanent teams. None of the other elements are present in Company C.

a) Direct Contact

There is frequent contact (two or three times per week) between the VP of IS and his two superiors, the SVP of Corporate Services and the CEO. Discussions between the IS Director and senior management, when they occur, are largely operational in nature, revolving around projects on which IS staff are deployed. Discussions between the CEO and the VP of IS have the characteristics (future-orientation) necessary to create or evolve into IT strategy.

There is little direct communication between the IS Director and any of the business unit SVPs.

b) Permanent Teams

There is no committee within which the VP of IS can communicate with all members of the senior management group. There are two committees which contain
various members of this group, but no committee contains the SVPs, the CEO and the VP of IS.

The Executive Committee consists of the Senior Vice Presidents and the CEO. It excludes the VP of IS, since he does not report to the CEO. They meet to discuss items of corporate interest and to prepare the annual budget submission to the Board. No minutes are taken at this meeting.

The regular members of the IS Steering Committee are the CEO, two Senior Vice Presidents, one Vice President, and one Finance Director. They meet monthly to discuss IT issues - both future and current. These meetings are the most important vehicle for making IT decisions, creating IT objectives and for the VP of IS to understand corporate objectives. They are held monthly and last approximately two hours. The agenda is prepared and the meetings are minuted by the VP of corporate IS under the guidance of the CEO. The CEO chairs the meetings.

An analysis of the minutes from the steering committees show that most of the discussion revolves around ongoing large projects within the business units. Although the time of the Steering Committee is largely taken up by the progress reports on these projects, IT issues and strategies are discussed from time to time. Not all business units participate equally at these meetings, and the representative from the business unit which makes the most sophisticated use of technology rarely tables any items for discussion.

In summary, the existence of the IS Steering Committee and the regularity of its meetings are very beneficial to the communication between the VP of IS and certain executives within Company C. Without it, the VP would have little access to business units. The committee, however, tends to focus on tactical issues and avoid the strategic direction-setting work which might lead to corporate IT objectives.

Decisions made about the budget, which influences to a great extent which IT projects are approved, are made by the Executive Committee. Two out of five of the
executives on this committee have not been directly involved in IS Steering Committee discussions. This has caused mis-communication between the VP of corporate IS and the Executives. Two examples illustrate this point.

1. The Executive Committee cut the provision for database management software out of the budget in December 1989 and then had to petition the Board of Directors to put it back in in January 1990 after the project manager refused to begin the project without it. The Steering Committee representative from the affected business unit does not sit on the Executive Committee.

2. In the 1991 budget discussions at the Executive Committee, one SVP, who does not sit on the IS Steering Committee, supported a project to rewrite the accounting system after he and others had blocked the project for several years. The VP of corporate IS, not being privy to the discussions within the Executive Committee, did not understand that this change of decision signalled a significant change of direction for the whole company - from aggressive expansion to cost-cutting measures - and did not change the IT objective accordingly.

In summary, the communication between the VP of IS and corporate executives is frequent and diverse. The communication between the VP of IS and BU executives is infrequent and focused on IT topics.

4. Connections between Business and IS Planning

Business planning within Company C is a process whereby the financial objectives set by the parent company and by regulatory bodies are used by the Business Units as input in their strategic planning process. They create product/market and administrative support plans and then create a budget. These budgets are then amalgamated at the corporate level and reviewed by the Executive Committee.

Company C does not create an overall corporate strategy. As the CEO remarked, "My job as far as I am concerned is to make sure that the strategy of the three independent units mesh together and one isn't going to draw more from the company than we can afford." One SVP said "There is no strategic planning at the corporate level. We
feed our numbers into the financial projections, not our strategies."

The strategic direction of the company is effectively set by the business units rather than by corporate management.

Because of the large conversion projects, Company C’s efforts at IT planning over the past five years have been primarily tactical and operational. As the time approached for the corporate budgeting process for 1991, the SVP of Corporate Services felt that, with the conversions being nearly completed, it was time to plan ahead. The 1991 IT plan describes and discusses the current IT scenario and makes recommendations for the 1991 fiscal year. The steps taken to formulate this plan were as follows:

a) The corporate systems (e.g. claims, general ledger, personnel) and mainframe capacity were assessed by IS people and recommendations concerning the need to upgrade them were prepared.

b) The idea of procuring a 4GL to improve programmer productivity was raised by the SVP of Corporate Services and the VP of IS and recommendations to this effect were included in the plan. This idea was not discussed with the business units.

c) The business units were canvassed by the SVP and the VP of IS to determine their IS activities planned for next year and these were listed in the IT plan.

This plan was discussed and approved at a Senior IS Steering Committee meeting with very few comments from Company C management or the steering committee. In part this was because the activities suggested were tactical (hardware additions) and internal to IS (addition of a database support person). Another reason was that the plans laid out for the business units were not seen by them to be binding in any way. Comments made during the interviews indicate that the connection between business unit plans and what was written in the 1991 IT plans was very tenuous.

"I don’t know how all of the individual projects got into the IT plan. We haven’t discussed it inside the business unit yet."

"We would not want to be held to what’s in the current version of the IT plan, it
doesn't reflect exactly what we would like to happen."
"There is not a lot of commitment from the business units to keep to this plan."

Business units have their own agenda for product introduction and product changes and these plans will determine, to a large extent, the nature of the development work carried out on their behalf in 1991. As long as the hardware platforms that they are working on remain stable, the 1991 report is of little consequence to them. The only effect on them will be the allocated costs of the IS department and these are approximately the same as 1990.

Corporate IT Planning is a combination of 1) bottom-up issue resolution for corporate systems and the mainframe (e.g. rewriting old systems, mainframe capacity, computer security), 2) introduction of new methods of systems development and delivery (e.g. 4GL), and 3) acknowledging business unit plans. Since there are no corporate objectives, the IT plans have nothing to link to and the corporate IT planning practices are isolated from corporate planning. Because the corporate IS people are not involved in any way with BU planning, corporate IT planning practices were ranked as being isolated from the BU planning practices.

5. Other Factors

There are several other factors which seem to have affected the attainment of linkage within Company C.

a) Differences of Opinion about the Role for IT

The two people who are the direct superiors to the VP of IS at Company C differ about the future role of IT. The CEO, judging by the number of times technology was mentioned in the Annual Report and by statements he made in interviews, believes that
IT is crucial to the success of the firm and that "total computerization" is the goal. The SVP of Corporate Services seems to take a more fiscally conservative, low profile approach to IT, allowing the "cost-effective" use of IT to dominate all other views. Both executives have enough interest in and experience with IT to believe in the correctness of their personal view. However, neither has worked in a company which has successfully implemented IT in support of corporate strategies. Neither seems to be able to create a plausible vision of the future and a set of strategies that will convince the other to abandon his position.

A simple difference of opinion between two senior executives would not be too important except that these two people are both very influential leaders with respect to setting the strategy for IT. The CEO chairs the IS steering committee meetings and dominates them. The SVP of Corporate Services prepared the 1991 IT Plan which contained proposals for major new corporate software and hardware acquisitions as well as corporate application projects.

There are two parties who could potentially mediate between these polarized positions and resolve the issue: the VP of IS and the IS Steering Committee. Neither has been effective, however, probably because of the high rank of the two executives.

b) Ineffective IS Steering Committee

The Steering Committee is not functioning as a forum for sharing ideas and dealing with conflict. Potentially, it could mediate between the visions of the top two executives and choose the IT strategy for Company C but it seems to avoid any "process" role - focusing instead on the contents of IT budgets and the progress of projects. How the IS function is to be managed is not discussed. Perhaps this is because the views of the business units would add another dimension since they want to control systems development and both the CEO and the SVP would not favour that approach. So the
differences do not get aired.

The Steering Committee also does not impose any management control on the corporate IS department. For example, many interviewees have suggested that the lack of a report writer is a significant problem, leaving them with virtually no management information. It was raised at a March 1990 Steering Committee meeting and is minuted as follows: "A request for a report writer tool to access data on the mainframe systems has been supported by all Divisions... IS will develop a recommendation .... for user reporting". Twelve months later, this had not been done.

F. Summary and Analysis - Company C

A summary of the factors and linkage within Company C is shown in Table V.4. An analysis follows.
<table>
<thead>
<tr>
<th>FACTORS/ LINKAGE</th>
<th>Linkage between Corporate Business and Corporate IT Objectives</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Implementation of IT Plans</td>
<td>Very little IT progress achieved in the past 3 years due to the conversions. Unsuccessful.</td>
<td>The conversion projects in the last three years have been very unsuccessful.</td>
</tr>
<tr>
<td>Shared knowledge</td>
<td>Many corporate business executives have IT background and interests.</td>
<td>Two of three SVPs have no IT experience at all.</td>
</tr>
<tr>
<td></td>
<td>The VP of IS has no business experience.</td>
<td>The VP of IS has no business experience.</td>
</tr>
<tr>
<td>Communication between IS and business Executives</td>
<td>Frequent direct communication between CEO, SVP of Corporate Services and the VP of IS.</td>
<td>There is very little direct contact between corporate IS and BU executives.</td>
</tr>
<tr>
<td></td>
<td>IS Steering Committee meets monthly (permanent team).</td>
<td>Only one SVP sits on the IS Steering Committee, the other two send delegates.</td>
</tr>
<tr>
<td></td>
<td>Communication is frequent, and diverse.</td>
<td>Communication is infrequent, focused.</td>
</tr>
<tr>
<td>Connections between IT and business planning</td>
<td>There is no corporate level strategic planning process at all.</td>
<td>BU execs review Corporate IT plans only if they sit on the IS Steering Committee.</td>
</tr>
<tr>
<td></td>
<td>Corporate IT plans are prepared internally and then presented upwards.</td>
<td>Corporate IS does not participate in planning with the business units or see the BU plans.</td>
</tr>
<tr>
<td></td>
<td>Planning processes are rated as isolated, since there are no corporate objectives.</td>
<td>Corporate IT planning processes are rated as isolated from BU business planning.</td>
</tr>
<tr>
<td>FACTORS/ LINKAGE</td>
<td>Linkage between Corporate Business and Corporate IT Objectives</td>
<td>Linkage Between Business Unit and Corporate IT Objectives</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Other Factors</td>
<td>Difference of opinion about the role of IT between CEO and SVP of Corporate Services. Ineffective IS Steering Committee.</td>
<td></td>
</tr>
<tr>
<td>LINKAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) in written documents</td>
<td>UNKNOWN - no corporate objectives</td>
<td>LOW</td>
</tr>
<tr>
<td>b) understanding of objectives (EXECYS/IS)</td>
<td>HIGH/UNKNOWN</td>
<td>HIGH/LOW</td>
</tr>
<tr>
<td>c) Shared Vision</td>
<td>LOW</td>
<td>not applicable</td>
</tr>
<tr>
<td>d) Subjective Assessment (EXECYS/IS)</td>
<td>LOW/LOW</td>
<td>LOW</td>
</tr>
<tr>
<td>OVERALL LINKAGE RATING</td>
<td>UNKNOWN</td>
<td>LOW</td>
</tr>
</tbody>
</table>
1. Linkage between corporate business and corporate IT objectives
   a) Stage One: The Relationship between Antecedents and Current Practices

   Company C is smaller and less formal than company A or B. The high level of knowledge about and interest in IT among the corporate executives has led to a high level of communication. The VP of IS regularly talks to the CEO and the SVP of Finance and the Steering Committee meets regularly.

   This high level of communication has not produced a high level of connection in planning practices. The IT history has been very unsuccessful in the past two years, with major overruns in project budgets and timeliness. One major result of this history is that the Steering Committee spends almost all of its time discussing current projects in order to prevent similar disasters. Therefore, the potential of this permanent team is diminished because past history of IT initiatives appears to have influenced the level of the communication and an opportunity to turn communication into a discussion of shared objectives is missed.

   Another reason for the low level of connection between planning processes is the complete lack of corporate objectives. The CEO has decided to run the organization as a loose coalition of business units and no discussion of objectives takes place at the Executive Committee.

   b) Stage Two: The Relationship between Current Practices and Observed Linkage

   Although communication is frequent within Company C, most of the indicators of linkage were rated LOW. The only high one, executive understanding of the IT objectives, is explained by the presence and the regularity of meetings of the Steering Committee. Both the SVP of Finance and the CEO sit on this committee.

   Although the CEO and the VP of IS have many discussions about the future of IT within the company, the CEO’s vision for IT has not been implemented or even planned.
There is a serious disagreement (about the value of IT for the company) between the CEO and the SVP of Finance which has prevented the VP of IS from proceeding. The CEO and the SVP of Finance are his two superiors and he has not been able to formulate IT objectives which will satisfy both executives simultaneously.

The difference of opinion may have influenced the company’s ability to produce meaningful IT objectives as reflected in the low subjective assessments of linkage.

c) Why is there a difference of Opinion about the value of IT within Company C?

We can interpret the difference of opinion between the CEO and the SVP of Finance in two ways: as a power struggle or as a difference in vision. Both explanations are plausible: the two individuals are very different in their styles and it is quite possible that the SVP believes he would be the better person to run the company. This might lead him to block all of the CEO’s initiatives, including those in IT.

On the other hand, the two positions they take (one believes IT is as important as the marketing or investment function, the other believes IT is useful only in selected ways to reduce costs), are both prevalent among their peers. There is little data which proves that IT does or does not make a significant difference to the bottom line in insurance companies.

Regardless of cause, this disagreement between the two individuals who collectively have control over the direction for IT has hampered the forging of linkage within Company C.

Figure V.6 shows the connections between factors and linkage.

d) Why is there no shared vision in Company C?

There seems to be only two explanations, apart from the structural one that denies the possibility of an IT vision at the corporate level.
In company C, the CEO had a vision for IT. His view was strongly challenged by the SVP of Finance. Both were struggling for control of this issue and neither prevailed. The VP of IS was too junior, both within Company C and in experience, to mediate between them. Therefore, no progress was made towards a vision.

Contrary to the high expectations generated with the office automation project in 1986, the history of recent IT initiatives has been dismal and disheartening. While by rank, the CEO's vision of IT as an engine of prosperity should prevail, the SVP's limited IT vision seems to match their recent accomplishments. These three years of failures may
be severely limiting their vision and allowing the SVPs vision to counteract his superior's.

These explanations are discussed in the Across Site findings.

2. Linkage between corporate IT and BU business objectives
   a) Stage One: The Relationship between Antecedents and Current Practices

   The factors in the model all contribute to the findings.

   The IS VP has a low level of knowledge about the company and about insurance and this results in low levels of communication between him and the BU executives.

   The unsuccessful history of IT in company C has resulted in each business unit creating its own small IS department after its respective conversion project. These developments have led to a significant reduction in the communication between corporate IS and business unit executives. Communication with most business units happens only at steering committee meetings.

   The low level of shared knowledge and the IS departments in the business units resulted in very low connections between the corporate IT and BU planning processes. As was discussed earlier, BU IS activities shown in the corporate IT plan were the result of a phone call from corporate IS to the Steering Committee representative. There was no understanding of BU objectives within corporate IS.

   The one regular communication channel, the Steering Committee, never discusses BU objectives and so does not contribute to connecting the planning processes.

   b) Stage Two: The Relationship between Current Practices and Observed Linkage

   Business units within company C are run very autonomously. Therefore, there are significant hurdles to overcome if linkage is to occur. Infrequent communication between IS and business unit executives results in a low level of understanding of BU objectives exhibited by the IS executive.
The Steering committee does discuss current IT projects and plans and so the Executives who are members of it exhibit high understanding of corporate IT objectives. However, only one of the three BU SVPs are members of this committee.

The low level of connection in planning processes leads to low subjective rating on linkage. Business unit executives regard the IT plan as being irrelevant and do not feel obligated in any way to follow it.

Figure V.7 shows the connections between factors and linkage in Company C.
Figure V.7
Corporate IT to Business Unit Linkage: Causal Relationships in Company C
G. Across-Site Findings

In this section, the findings from each individual company are compared and contrasted. For each of the two linkage locations, we discuss both the hypothesized relationships and the emergent factors and relationships. More generalized findings are developed in Chapter VIII.

1. Linkage from Corporate IT to Corporate Business Objectives

In the three companies, linkage between corporate business and corporate IT objectives was initially rated HIGH, ???, and UNKNOWN, respectively. The ratings for company B and C reflected our uncertainty about measuring linkage when no corporate objectives were created or communicated by the executives of these companies. In this chapter, company B’s linkage measures have been investigated more carefully, and it was demonstrated that corporate objectives had been formulated and indirectly ratified during the IT planning process. The linkage rating for Company B was therefore changed to MODERATE. Company C’s rating of UNKNOWN remains since there was no evidence of corporate objectives during 1989, 1990 or early 1991, the period of data collection.

a) Hypothesized Relationships

We had hypothesized that the level of shared knowledge between IS and business executives would affect the frequency of communication between them. We found evidence of this relationship in Company C, where both senior company executives talked often with the VP of IS and the steering committee met regularly. However, as we have indicated, there was a disagreement between the senior executives concerning the IT contribution to the company and this factor may have explained the high levels of communication and interest shown by at least one of the executives. There was a weaker relationship between shared knowledge and communication exhibited in company B and
no evidence of such a relationship in Company A, where the level of shared knowledge was the lowest among the three companies. In general, shared knowledge did not seem to be a very influential factor among our companies.

We had hypothesized that successfully implemented IT plans would positively influence connections between business and IT planning. In companies A and C, this factor was influential, but it affected communication, rather than connections in planning. In company A, which had a very successful history of IT implementations, communication between the VP of IS and the CEO was very effective and resulted in the implementation of two levels of steering committees. In company C, which exhibited very unsuccessful IT implementations, the frequency of communication was increased (e.g. they began regular Steering Committee meetings) but more importantly the level\textsuperscript{50} of the communication was decreased and became more tactical. The Steering Committee met regularly, but they spent most of their time tracking the progress of development projects in order to avoid future disasters. Their discussion was very operational and tactical as opposed to the strategic level of discussion in the Senior IS Steering Committee in Company A. We now suggest the presence of two relationships between IT implementation and communication. First, very high or very low levels of success in IT implementation will increase the frequency of communication between corporate business and IS executives. Second, the level of IT implementation success will directly affect the level of the communication (i.e. high success leads to strategic discussion, low success leads to tactical discussion).

We had hypothesized that communication would influence connections between business and IT planning. We found no evidence of such a relationship. Company C, which exhibited the highest frequency of communication, had the lowest level of

\textsuperscript{50} The "level" of communication refers to the managerial level of the discussion being held between two executives or in committee meetings - operational, tactical or strategic.
connections in planning. There may be a weak inverse relationship, as found in company B. In that company, because of a lack of communication with senior executives, the VP of IS convenes many meetings to discuss his IT plans with all affected departments. Our conclusion is that frequency of communication does not predict the level of connections in planning.

We had hypothesized that high frequency in communication would lead to high levels of mutual understanding and shared visions for IT. Support for the first prediction was found in companies A and C. However, it was the level of communication that was important, not the frequency of communication. In company A, the Steering committee’s mandate was to review and approve IT objectives and so every executive knew what those objectives were, when interviewed. In company C, the steering committee had no clear mandate and discussion of objectives was ad-hoc. Therefore, a higher frequency of communication did not result in a higher level of linkage. In general, however, the level of communication was associated with Linkage.

The frequency of communication seemed to have no influence on the presence of an IT vision. The three companies differed in the frequency of their communication but none exhibited a shared IT vision. The topic of shared vision is discussed separately in Chapter VIII.

We had hypothesized that high levels of connections in planning would result in high levels of linkage. This proposition was supported in all cases as there was a direct correlation between the level of connections in planning and the measures of linkage (with the exception of vision).

To summarize, the factors from the model which seemed influential were:

1. IT implementation history, which was associated with the frequency and the level of communication.

2. Higher levels of communication, rather than higher frequency of
communication, influenced linkage.

3. Levels of connection in planning, which directly correlated with levels of observed linkage.

b) Emergent factors which influenced current practices or observed linkage.

A factor in Company B was identified which increased communication between IS and business executives. This factor, called shared experience in a business unit, opened up a direct channel to the CEO from corporate IS and enabled two important strategic discussions to be held. Based on this finding, we renamed the shared knowledge factor to shared experience. Under this factor, we would include a wider conceptualization of shared experience including shared experience in a work group, in a profession (e.g. actuary), and a shared interest in IT.

A factor, called shared values, was exhibited in Company A. It strengthened the relationship between the VP of IS and the CEO and enabled them to create the IS Steering Committee framework. This shared values factor from Company A encompassed more than a recognition that centralized control over IT was preferable to decentralized control. The CEO in company A had decided that IT was non-strategic and was to be treated as an overhead expense to be minimized\textsuperscript{51}. The VP of IS and his boss agreed and all three executives - the CEO, the SVP of Finance, and the VP of IS - worked together to implement that strategy. In Company C, the SVP of Finance also believed that IT was non-strategic but the CEO directly challenged this view. This clash of values in Company C, called disagreement about IT objectives in our findings, was closely associated with low levels of linkage. We have combined these two emergent factors into a new factor

\textsuperscript{51} Using Parson's (1983) typology, he believed that IT should be managed as a "scarce resource" or a "necessary evil".
called Shared Expectation about the Contribution of IT. We hypothesise that this factor will influence Current Practices and Linkage.

Another factor, which was identified only in Company A, was the characteristics of the CEO. The CEO of company A was committed to increasing linkage, although he did not assign a label to what he was doing. He recognized clearly that a strategic level of communication would increase the quality of decision making about IT. In his words and actions, he gave corporate IS a clear mandate to create standardized policies and procedures in order to lower IT costs. It was his commitment to implementation of a strategy to increase communication and connections in planning which, to a large extent, differentiated company A’s results from its peers in the sample. We have added this factor to the model and called it CEO Involvement in Strategic IT Management.

The presence of clearly articulated corporate objectives is not a necessary condition for linkage. Company B created a moderate level of linkage in the absence of formal corporate objectives. As demonstrated, however, it took considerable extra effort on the part of the VP of IS and the IS Director just to obtain this moderate rating. In Company C, however, this lack of corporate objectives limited the effectiveness of the VP of IS in constructing viable IT objectives. In company A, corporate objectives were the focus of all planning efforts. Our conclusion is that the presence of corporate objectives influence the ease with which connections in planning can be created.

Based on these findings, a new model of the factors influencing the linkage between corporate IT and corporate business objectives is shown in Figure V.8. This and other models constructed throughout this analysis are consolidated in chapter VIII.

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52 This factor can be differentiated from shared vision. Shared vision relates to the question of "how" IT is to be used - what business processes are best leveraged. "Shared expectations" refers to the question of what is expected from IT - from marginal differences in efficiency to major differences in competitiveness. It is our belief that shared expectations will affect shared vision.
2. Corporate IT to Business Unit Linkage

None of the companies achieved a high level of linkage between corporate IT and business unit objectives. Company A and B achieved a LOW-MODERATE overall rating and Company C achieved a LOW rating. In this next section, the factors hypothesized to influence linkage are examined first, followed by the emergent factors.
a) Hypothesised Relationships

We had hypothesized that the level of shared knowledge between IS and business unit executives would affect the frequency of communication between them. This relationship was present in all three companies. In Company A and C, in which the IS executive had no line experience, there was no direct communication, the only communication occurred at the Steering Committee meetings which were required by the CEO. In Company B, in which the IS Director has many years of line experience, we observed direct communication between himself and two of the business unit SVPs and an invitation from his previous business unit to attend their management meetings. Therefore, the frequency of communication in these three companies was directly related to the amount of shared knowledge, or, as the factor has been re-named, shared experience.

We had hypothesized that successfully implemented corporate IT plans would positively influence connections between business unit and corporate IT planning. This relationship was supported by the ratings since the two companies which reported mixed implementation success also reported a "negotiated" level of connection in planning and the company which reported low success also reported an "isolated" level of connection in planning. Therefore, there was a high correlation between level of implementation success and level of connection in planning.

There was evidence of a relationship between implementation success and communications in planning in Company C. Their low level of success in implementing development projects managed by corporate IS had led each business unit to form their own IS department, thus reducing their dependence on and their communication with Corporate IS. The other companies had had their own IS departments for several years and were more insulated from corporate IS failure or success, as long as the basic technology platforms were stable.
We had hypothesized that communication would influence connections between business and IT planning. We found no evidence of such a relationship.

We had hypothesized that high frequency in communication would lead to high levels of mutual understanding and shared visions for IT. Support for the first prediction was found all companies. In companies A and C, which had steering committees attended by business unit SVPs, these SVPs exhibited high levels of understanding of corporate IT objectives. Company B, which had no regular contact between Corporate IS and business unit executives, rated lower on mutual understanding.

All of the Corporate IS executives rated LOW on understanding of BU objectives, leading us to believe that factors other than communication might influence this aspect of linkage.

We had hypothesized that high levels of connections in planning would result in high levels of linkage. This proposition was supported in all cases as there was a direct correlation between the level of connections in planning and the measures of linkage (with the exception of vision). The strongest connections in planning were found in Company B in which the IT plan was "taken on the road" for ratification in the business units. Company B received the highest subjective ratings on linkage from business unit executives.

To summarize, the factors from the model which seemed influential were:
1. IT implementation history, which correlated with connections in planning.
2. IT implementation history, which showed an inverse relationship with communication.
3. Shared knowledge, which correlated with frequency in communication.
4. Frequency of communication, which directly correlated with levels of linkage.
5. Levels of connection in planning, which directly correlated with levels of observed linkage.
b) Emergent factors which may have influenced current practices or observed linkage.

There was one factor, called disagreement about corporate IT objectives, which emerged as an important influence on linkage in Company A and B. Most of the disagreement occurred between the two IS groups - those in the business unit and corporate IS, not between business unit executives and corporate IS. However, it affected the working relationship between business units and corporate IS and may be the explanation for the low level of connections in planning between them. In this study, the effect was measured on the subjective ratings of linkage by business unit executives, most of which were LOW or MODERATE.

Corporate objectives for IT in the three companies consisted of technology platforms and application methodologies that all business units were expected to use. From a global perspective, these approaches may be the most cost-effective solutions\(^53\). However, from a business unit perspective, their environment and needs are unique and generic solutions are not seen as locally efficient or effective. This is a basic point around which conflict arises within multi-divisional organizations and the three companies in this sample are all trying to create policies which solve this issue. It is interesting, however, that no company seems to have explicitly recognized the conflict in any of its planning documents. It is always just below the surface, getting in the way of productive dialogue and it is often the first thing that emerges in private conversations with executives.

One prescient executive opined that the basic conflict between business units and corporate divisions will never be resolved and, indeed, is essential to have in a healthy organization. If this is indeed the case, then the linkage between the corporate IT and the business unit objectives may never reach high levels.

Based on these findings, a new model of the factors influencing the linkage

\(^{53}\) However, in companies like company A which are almost totally reliant on mainframes for computing power, this may not be the case.
between corporate IT and business unit objectives is shown in Figure V.9. This and other models constructed throughout this analysis are consolidated in chapter VIII.

Figure V.9
Corporate IT to Business Unit Linkage: Across-Site Causal Relationships
VI. FINDINGS CONCERNING LINKAGE and the MEASUREMENT of LINKAGE at the BUSINESS UNIT LEVEL

At the business unit (BU) level, the focus in this study was on assessing whether the IT objectives and the business objectives of the business unit were "linked". IT objectives for business units were defined as those objectives formulated by the BU IS departments, whose role within the organization typically included design and implementation of application systems, training and support of users within the business unit, and, in some business units, provision of desktop and workgroup technology infrastructure.

It was unclear to us at the outset of this research project whether to portray BU IT objectives as being "ideally" linked both to BU business objectives and to corporate objectives (both business and IT) or solely to BU business objectives. Our decision was been to define the "ideal" linkage to that obtained within the BU, for the following reasons:

1) BU IT objectives are designed to support the business unit, not the entire company. We assumed that the BU business objectives had been rationalized within a corporate framework. Therefore, BU IT objectives which are "linked" with them would also indirectly support corporate business objectives.

2) Corporate IT objectives are perhaps more properly viewed as a potential factor for enhancing or inhibiting BU linkage. Corporate IT policies can restrict or support the establishment and/or implementation of BU IT objectives and hence influence the linkage between the BU IT objectives and BU business objectives.

Therefore, Corporate IT objectives will be discussed with respect to a particular business unit if they are perceived to inhibit or enhance linkage for that business unit.

For the purposes of this project, "linkage at the business unit level" has been interpreted to mean that 1) BU IT objectives are understood by BU executives (the SVP and the other BU Executives), 2) BU IS executives understand the BU business
objectives, 3) IS and BU business executives share a common vision for IT, and 4) written business and IT plans within the BU reference each other. These measures (except for common vision) are portrayed in a diagram of "ideal" BU linkage in Figure VI.1. In comparing this diagram with that of the "ideal" corporate linkage portrayed in Figure VI.1, we see that BU linkage is conceptually much simpler than corporate linkage, since it is contained within a single organizational unit.

Figure VI.1
"Ideal" Linkage at the Business Unit Level

Emergence of a new Measure - Involvement in New Product Development
Early on in the study, a new measure of linkage was suggested by several interviewees. This new measure is "the time IS people are involved in the new product/service development cycle". If they are involved very early - when the product is being conceptualized- it would signal a HIGH level of linkage. If they are involved late - when the product is fully specified - it would indicate a LOW level of linkage. This suggestion was made at the beginning of the data collection phase, and throughout the remainder of this project, we collected data on this measure.

Before interviewing commenced, we had constructed ordinal scales for each of the measures of linkage. Data collected from the sites led to some refinement of these scales and the development of a new scale for IS Involvement in New Product Development, described above. The changes to the scales is discussed in the "Across Site Findings" section of this chapter. Appendix C provides definitions of the resulting scales used to measure linkage within the business units.

There were 10 business units in the sample, four taken from each of two companies and two from a third. Of the 10, three business units market insurance products to individuals, two market insurance products to groups, two market retirement assets, and the three remaining units are responsible for investments, special insurance products, and reinsurance, respectively.

Within each business unit, the Senior Vice President, the Vice Presidents in charge of one or more of the major functions (marketing, administration, IT) and managers within the IS department were interviewed. We also analyzed the strategic business and IT plans. A list of the interviewees and the written documents are provided in Tables 1 and 2 of chapter III.

Summaries of the results of measuring linkage within our 10 business units are presented below. In each of the first 10 sections, the business unit is described and findings on the four original measures and the emergent one - "IS Involvement in New
Product Development" - are discussed. The penultimate section contains the across-site findings and the last section discusses overall linkage ratings.

A. Business Unit 1

This business unit sells life and health insurance to individuals in Canada. The primary distribution channel is the independent life insurance agent. In this business unit, there are 700 agents managed out of 20 agency offices.

According to the 1990 Annual Report, the performance of this business unit was as follows: New sales and retention of clients resulted in increased business over 1989 between 7% and 19% for various product lines. Despite expenditures on systems development, expense ratios in the individual insurance product lines remained at satisfactory levels. Persistency in individual insurance was satisfactory. In the first quarter of 1991, however, the first indications of a downturn were evident. As the President reported in his Annual Meeting speech "lower levels of sales, higher levels of mortality and morbidity experience and higher levels of asset writedowns all contributed to the lower Canadian earnings. Earnings per share were down to $0.295 from $0.342 in the first quarter of 1990. At the time of the interviews in mid 1991, this business unit was starting to feel the effects of the recession in Canada.

In BU 1, there are five Vice Presidents (VPs) in the Canadian operations - one in charge of New Business, three in charge of the Agency offices (the distribution channel), and one in charge of both Client Services (administration) and IS. Therefore, the senior person in charge of IS is also in charge of administration, a major function in the business unit.

The IS department in BU 1 is quite large - approximately 100 professionals are involved in building and maintaining application systems. It has been a department since 1982 when the present VP was moved from Corporate IS to head up the new BU IS
department. There are two IS directors - a manager in charge of the administrative systems and a manager in charge of the marketing and sales systems.

On the administrative side, it has a large, stable database system to support policy creation and maintenance. On the marketing side, they are involved in a major redevelopment of their agent support system in order to decentralize many of the business processes to the agent. 500 of their 700 agents already own and operate laptop PCs for making presentations to clients concerning their products.

1. Cross-references in Written Objectives

We examined the five year strategic and operating business plans and the one year business plan. There was no short or long term written IT plan.

The Five Year Strategic Plan document is quite short - five pages in total. It contains a set of measurement criteria for the unit, a set of Areas of Excellence (Critical Success Factors) which are broad in nature, and, under each of the Areas of Excellence, a few directional focus statements (e.g. More emphasis on development of full-time sales management). There are goal statements for Products/Markets, Service, Distribution and Operational Effectiveness. There are no specific directional statements for the IS department. It is important to note that the large IT initiative underway is not mentioned in this document as a focus for the Distribution function since this system, when implemented, will radically change the way new business is written. The cross referencing in long range plans is rated as LOW.

The 1991 Strategic Plan document contains a list of all scheduled projects under the following headings: Product, Service, Sales, Operational Effectiveness, Financial Management. Many IT projects are listed under these headings, especially under Service and Operational effectiveness. There is no separate IT section. In many of the task statements which reference IT projects, the language used is that of the business and the
business objective.

e.g. "develop a facility for the PC so that branches or agents can generate printed forms as required, rather than keeping an inventory."

There is no active strategic IT document which is separate from the ones used for the entire business unit. The linkage exhibited by the short term plans was rated HIGH because the IT projects were embedded in the business plan.

In summary, cross references in written IT and business planning documents is rated as LOW for the five year plans and HIGH for the one year plans.

2. Mutual Understanding of Objectives

The VP of IS, when asked to identify the BU objectives, suggested that "recruiting new agents" and "being preeminent in product" were important goals. This short list is fully congruent with stated directions in the Strategic Planning document. He also named customer satisfaction, getting the new distribution system in, and reducing IT costs by moving applications off the mainframe as major IT objectives. He said that the IT application strategy was in the Five Year Strategic Plan document (this was not evident from the plan) and that he kept the internal strategies of IT in his head.

The SVP was asked to identify IT objectives other than the current projects. He identified providing support for business, improving efficiencies of business operation, and the new distribution system. The SVP did not appear to know about any internal IT strategies, such as moving applications off the mainframe to save processing costs. He was only aware of the current projects that are underway. The rating for this dimension of linkage is HIGH for the IS Executive and MODERATE for the business Executives, since the IS executive is aware of business objectives but the SVP is only aware of IT projects, not internal IT objectives.
3. Congruence in Vision for IT

The VP of IS made the following statements about vision for IT: 1) The new distribution system will change many things - many internal functions will disappear as they are replaced by the system or moved to the agent, 2) distributed computing platforms will support the new business operation, 3) communication costs/effectiveness problems will be solved, and 4) inquiry into mainframe databases from the PC will be enabled.

The SVP suggested that the new distribution system would change many aspects of his operation: - putting new business function out to the agent, cutting the cost of acquiring new business, providing a hassle-free environment to do business, and centralizing the service function.

There is strong congruence within BU 1 that the new distribution system is the IT theme of primary importance to them. This theme dominates their vision statements and their expectations of it are fairly uniform. Linkage in this dimension is rated as HIGH.

4. Subjective Ratings of Linkage

Four executives in BU 1, (the SVP, the VP of Marketing, the VP of Administration and IS, and the Director of Administrative Systems) were asked to rate the level of linkage attained in their business unit.

All executives rated linkage as being HIGH, citing evidence of: a) very good understanding of the business by IS people, b) strong cross-Divisional communication at VP and Director level, and c) wide distribution of information from planning meetings.

5. Involvement in New Product Development

The VP of Marketing reported that IS people are in the product development process very early since the BU needs IS people to understand the issues and the priorities. The VP of Administration and IS recounted an anecdote in which one of his
IS Directors was at the first meeting and was able to make a valuable contribution in shaping the product in order to develop it faster and to make it cheaper to support. The other IS Director agreed that Systems people are in the new product development cycle fairly early. The rating for involvement in New Product Development (NPD) for BU 1 is EARLY.

6. Summary

BU 1 is focused on developing a large application system which will support their long term business strategies and will radically alter the way they conduct business. Other IT objectives (such as lower cost, distributed platforms) have been discussed in the IS department but not shared with other executives in the BU. On other dimensions, notably Vision and Subjective ratings, the linkage is HIGH.

B. Business Unit 2

This business unit markets insurance to groups within Canada. Their customer is the company or association, rather than the individual. It has the largest market share in Canada and is the largest business unit within its parent company. It has a long history of innovation with high levels of profitability. It has weathered the recent recession with relative ease, although it is now experiencing a drop in growth in new clients and a large and increasing expense gap (i.e. the difference between premium income and expenses). Management does not expect the difficulties to cease in the near future and is trying to adjust itself to a long term downturn in business.

In mid 1991, all management positions were rearranged significantly and there were three Vice Presidents reporting to the SVP. The first was responsible for disability benefits, underwriting, financial analysis, and a major product. The second was responsible for administration and marketing of all products. The third was responsible
for benefits and information systems. The Director of IS reported to him. Previously, the IS Director reported directly to the SVP.

The IS Department was decentralized from Corporate IS in 1983. It has a staff of approximately 100 people. Since 1985, the IS department has concentrated on implementing an integrated database to administer all of the business unit’s products. This work has not been successful to date because the first subsystems have been over budget and have not produced identifiable improvements in business results.

1. Cross-References in Written Plans

The five year Strategic Plan and the business plan for the current year were examined, as well as the one year IT Plan. There was no separate five year IT plan.

This business unit was very cognizant of the opportunities and costs of information technology. This interest was reflected in the five year plan, which listed technology as one of the four general strategies of the business unit. Under the Technology heading, several projects, including specific applications and general functions (e.g. new technological developments) were listed. These technology projects in the five year plan were separated into a category of their own, rather than being connected to general business goals (such as expense management or improving service levels). Two of the projects were justified on productivity and strategic grounds, but the remainder were not justified at all. The rating of congruence on long terms plans was MODERATE since there was no IT plan.

In the one year business plan, the general strategies are translated into critical issues (which include Technology) and six projects are described. In the one year IT Plan, these six projects are restated along with their business impacts. There are also several infrastructure goals for IS (e.g. development productivity) stated in the plan. The level of cross referencing between the business and IT plan is HIGH.
2. Mutual Understanding of Objectives

Four BU executives (the SVP, and his three VPS) as well as the Director of IS were interviewed. All of the interviewees mentioned one or both of the two high priority application projects and the issue of development productivity within IS. When discussing the business objectives of the business unit, the congruence was not as high, since the Director of IS mentioned growth and return on investment and the executives mentioned quality, service and expense control. The rating of linkage on this dimension was HIGH for business executives and MODERATE for IS executives.

3. Congruence in Vision for IT

One VP opined that IT will help keep unit costs down in the front-end of the business (policy creation). The SVP suggested that IT would help them get "electronic hooks into the customer", partly by putting policy administration capability in the hands of larger customers. Another VP mentioned the new ways of selling insurance through IT - through terminals and point of sale. There is a HIGH degree of congruence exhibited in these views about IT.

4. Subjective Assessments of Linkage

Of the five executives interviewed, three rated linkage as HIGH and two, including the Director of IS, as MODERATE. The reason for the moderate ratings was that IS was not seen as providing any leadership to the business unit - just executing the tactics that had been developed by the senior executives. This issue of "leadership" versus "support" was mentioned in subsequent business units and will be explored more fully in the across-site findings section.

5. Involvement in New Product Development
The VP of Marketing and Administration outlined the steps in the new product development process: 1) ideas from the field (customers and reps) are formed into product concepts in Marketing, 2) subjected to focus groups and market research, 3) refined within Development, 3) assessed by IS, 4) sent back to Development and then 5) to Marketing. He admitted that IS was involved very late in the process.

The SVP said that IS was in very early on new product development. "You plan something without the systems people there and you might as well forget it."

The VP of Finance said they usually look at the new product initiatives in the fall of the year and figure out which ones they are going to pursue and put them in the one year budget. At that time they are prioritized and IS would be involved in the prioritization process. He felt that IS was aware from the beginning which initiatives are underway and understands the importance of having systems people in very early on the design since they are usually the constraint.

The discrepancy in these views can probably be explained by understanding the differences in the respondents' perspectives. The VP of Marketing is directly responsible for creating new ideas based on field input. So he is the first manager to be involved in most initiatives. The other managers are themselves involved later, but from their perspective, IS is involved right after they are and therefore is involved early in the process. We might conclude that IS is involved early for a support function but late if they are expected to provide the business unit with leadership through technology. IS involvement was rated as being in the MIDDLE of the new product development process.

6. Summary

In this business unit, there was a MODERATE to HIGH rating on all of the measures. In the absence of other data, we would have concluded that linkage was being attained. However, there was a significant anomaly between the vision statements of the
executives, which identified front-end support for the business as being critical, and the current project priorities, which focused on high quality systems to support administrative functions. So, although each individual measure rated linkage as being satisfactory, the business unit lacked internal consistency between short term IT goals and long-term IT vision. This issue will be discussed further in the Across-site Findings section.

C. Business Unit 3

This business unit was formed in 1990 through the merger of the retirement savings and annuity functions of the individual and group business units. This new unit combines what are essentially asset generating lines of business: retirement savings and income products for individuals and groups. Growth in the individual assets in 1990 was substantial - individual annuity lines grew 20%, retention of funds improved and the number of participants increased by 10%. Sales of group RRSPs did not fare so well: although 2% additional new cases were written, there was an 8% decline in premium income due to a drop in average case size. Nevertheless, group annuity assets grew by 4% and group RRSP assets grew by 2%.

The new division is undertaking a complete review of the markets, products, services, distribution channels and systems in order to establish a clear sense of direction. In early 1991, they retained a consulting firm to assist them in strategic planning and this exercise was underway when the interviews for this study were conducted.

The SVP has organized the new unit along functional rather than product lines. His four top people are a VP of Finance, a Director of IS, a Director of Marketing and a Director of Administration.

The IS department within BU 3 is comprised of approximately 45 people - 21 support marketing systems, 12 each support the administration and management information departments. The IS department has several large projects underway - a
marketing support application and an asset matching application. Progress on both projects has been slow.

1. Cross-References in Written Objectives

At the time of data collection, there was no written long-range strategic plan completed for BU 3. There were three background papers for the strategic business plan (Competition, Markets and Products) and a 1991 Business Plan. There were no long range or one year business plans.

The three background documents were examined to see if they reflected an appreciation of the impact of IT on the success of the unit. The "Competition" paper ties business objectives to IT as follows:\(^{54}\):

"efficiency will have to be combined with more timely and responsive transaction activity. The introduction of the Marketing Support system to allow agents to ............. will be a real enhancement to compete at lower unit cost".

The "Products" paper includes the following comments about IT:

"the use of software for agents ........ will be important. There are short term product limitations as the .... project will not be complete until mid 1992. ...... software will arrive in our group offices and ultimately be available to brokers or consultants to use. We have created specialized software to assist in the .............. There are several brokers who very much appreciate this software as it essentially becomes the product."

We rated linkage in long term plans as MODERATE - there was no IT plan but there was a high level of direction given in the background papers for the strategic plan.

The 1991 Business Plan is divided into five sections - Product, Service, Marketing, Management Information and Operational Effectiveness. There are 33 scheduled activities

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\(^{54}\) These have been abbreviated in the interests of anonymity.
listed with descriptions of the objectives of each plus a senior manager designated as the owner. There are several IT projects in the list, and each of them is "owned" by one of the other senior line managers. It is quite obvious from this document how systems projects fit into the 1991 activities planned within the division. It clearly states both the opportunity offered and the constraints imposed by IT efforts in the BU. Although there is no short term written IT plan, the projects are imbedded in the 1991 Business Plan. The rating on the congruence exhibited by short term plans is HIGH.

2. Mutual Understanding of Objectives

Three line executives and two IS executives were interviewed in BU 3.

The IS Development Manager’s perception of operational goals were reduction in operational costs and client service, generic goals for any insurance unit. One VP stated the goals of the business unit as: putting the unit on a profitable footing through the Marketing Support system for individual products and in group products by changing the business they were writing. Another said that the business goals are in flux at the moment and are not widely shared. There is not a high level of congruence in these perceptions of objectives because they were going through the process of formulating plans.

With respect to IT objectives, one VP suggested that the main objectives was the Marketing Support System. Another said he could not identify IT goals and strategies. A third VP’s perception of IS goals included: ongoing team development, putting technology into the field, and the Marketing Support System. The IS Development Manager reported that IS did not have any formal goals, just a list of systems to be delivered in the coming year. This reflects the fact that the one year plan contains only deliverables such as the Marketing System.

Mutual understanding of objectives was rated as MODERATE.
3. Congruence in Vision for IT

One VP's vision for the future of IT in the business unit: pushing technology out to Group agents, and providing software to support self managed groups. Another VP remarked that in the long term,

"IT will have more of an impact in the way we deal with our customers - for example, the Marketing Support System and "software for our group clients so they can deliver contribution records and employee updates. These systems will be critical competitively because they will help get business and keep the business that we get. We also want to get the management information in DB/2 tables for easy access."

The IS Director said long term directions in IT involve moving technology out to the individual agents and the group reps.

There was a HIGH level of congruence in these vision statements: they all involve focusing on the agents and clients as users of the new application systems.

4. Subjective Assessments of Linkage

The IS Development Manager rated linkage as HIGH, since there was a close relationship between the Director of IS and the other members of the management team and they were involved early in developing new ideas.

The three BU executives rated linkage as HIGH or MODERATE, but used different rationale for their ratings. A VP rated linkage as HIGH, citing IS responsiveness to changing priorities and a close working relationship with the VP of IS. A Director rated linkage as MODERATE since there were no goals and strategies in place yet and slow delivery on IT targets. Another Director rated linkage as HIGH.

This almost unanimous rating of HIGH linkage between business and IT objectives is quite surprising since they did not have any decided long or short term business strategy. However, the comments show they believed the "process" of linkage to be in
place and working well. The fact that the "content" was missing was ignored, especially because it was missing from both the business and the IT side. The rationale for their ratings question our choice of measuring linkage as an outcome state (i.e. as a function of written or articulated business and IT objectives). This issue will be discussed in the cross-site analysis section.

5. Involvement in New Product Development

The Director of Administration felt that IS was involved early in the development of new products. The Marketing Director said that within BU 3, the IS Director is involved very early, as soon as a new product is defined as a project. The IS Development Manager also remarked at how early the IS people were brought into the process - much earlier than she was used to in a previous business unit.

This is evidence that IS people were brought into the new product development process EARLY.

6. Summary

In this newly formed business unit, we see a low level of linkage in mutual understanding of current objectives. However, they exhibit high congruence in IT Vision and rate themselves as having HIGH linkage. They know where they are headed, but have not yet worked out the exact strategies that will get them to their visualized destination, which is a high level of support for clients and agents.

D. Business Unit 4

This business unit is responsible for investing the monies that are generated by the
life and health insurance product lines within the entire company. Insurance companies rely on investment profits to cover the gap between the cost of doing business (operating expenses, commissions and benefits paid on policies) and the premiums that are generated. In 1990, this business unit generated $1.8 billion in net investment income, an increase of $150 million, or 8.8%, over 1989 results. The business unit also manages portfolios of investments for the retirement assets purchased by the clients.

The unit is structured so that the various types of investments are headed up by vice presidents and the "service" functions of accounting and IS report to the Senior Vice President (SVP). The IS department contains 25 people.

Investment business units are concerned with the investment and management of money, securities and real property and their need for IT is very different from that of the insurance business units. They do not have the high volume transaction processing requirements, but need specialized databases with valuation and accounting capabilities. They also require strong analytic support for decision making and scenario building.

In recent years, the IS department has been heavily committed to one large application development which will match assets and liabilities for the entire company. For various reasons, progress has been exceedingly slow and no programs have been implemented.

1. Cross-References in Written Objectives

The unit has engaged a consulting company to create a strategic plan for 1991 and beyond. A draft of a subset of this strategic plan provided to us did not mention the IT function at all; it was solely focused on identifying investment strategies. There is no current long range plan for IT within the business unit. The rating for congruence in long term plans is that NO PLANS are available.

In the 1990 Business Plan, the primary objectives for the business unit relate to
yield on investments and unit costs. Each Vice President had a separate section in the plan and several of them include systems initiatives. There was support for continued development of ongoing projects: the database and the asset-liability matching application. There is also mention of several new initiatives (e.g. develop on-line applications to provide economic, demographic and real estate projections.). This is an integrated business and IT plan and the rating on congruence in short term plans is HIGH.

2. Mutual Understanding of Objectives

The unit as a whole has few shared objectives other than a total return on its investments. Similarly, the IS unit is concentrating on delivering projects but has no overall objectives. As the VP put it "Even when they're (the IS objectives and budgets) laid out, everybody just glosses over them. ...one of the greatest ways to cut expenses is to lop off part of the systems budget... because no one knows what it is there for in the first place." We rated the BU as LOW on this linkage measure.

3. Congruence in Vision for IT

None of the executives interviewed had a long-term vision for IT. This dimension was rated as having NO VISION.

4. Subjective Assessments of Linkage

The VP rates the linkage as LOW because the Systems people are working in a vacuum, they have no sponsorship, there is no business input into their activities, they are spending a lot of money, and there is no acceptance of line management responsibility. The Director of IS also rates it as LOW. "I have had complete control for four years - it scares the hell out of me. I am spending a lot of money and it smacks of
having no business direction by the IS group.

In summary, perceptions are that the linkage is LOW.

5. Involvement in New Product Development

This business unit does not create new products and data on this factor was not collected.

6. Summary

This business unit does not exhibit any evidence of linkage, except that its one year business plan reflects the current IT projects. They are struggling to deliver a large application and have no shared objectives or vision for the IT function.

E. Business Unit 5

This business unit markets individual life insurance products, including whole life, term insurance, and retirement savings plans. Its product line includes 15 products, sold by 3500 independent agents who work out of nine regional offices across Canada.

The Senior Vice President of BU 5 has created a very flat organization structure, with 13 vice presidents and managers reporting directly to him, including a Vice President of Marketing, a Director of Administration, a Director of IS, and nine regional office managers. The IS Director is responsible only for the mainframe-based systems. The PC-based systems, which are primarily for agents, are the responsibility of the Director of Marketing Administration, who reports to the VP of Marketing.

The computer application which supports the administrative functions is the largest one within this business unit. It was recently converted to run on a new mainframe. The conversion effort was very time consuming and few products were introduced for three years. During this time, the IS project manager was transferred from central IS to the
business unit to become the Director of IS. There are a total of 17 people looking after both the mainframe and PC systems in this business unit.

1. Cross-References in Written Objectives

There was no long term IT or business plan available for BU 5. Linkage as exhibited by written plans was rated as NO PLANS.

We examined the only written plan available - the 1991 Strategic Marketing Plan. The plan is quite clear on goals and strategies. Using IT to support objectives is mentioned in several places: "Expense objectives... will be achieved..... through technological improvements in the underwriting and policy issue departments...updating and enhancing agent software to maintain our position in the forefront of product oriented software in the industry. We will introduce a data based agency management software package later this year...continue to upgrade the front-end systems with the long term objective of producing a range of products from it". This is strong evidence that IT is used to further business objectives and that the explicit linkage between business objectives and IT is recognized by senior management.

There is no comprehensive written IT Plan. The list of prioritized projects which is used by the IS Director to prioritize the work of her people exhibits no understanding of business unit objectives other than knowledge of the new products. Linkage as exhibited by short term plans is rated as MODERATE.

2. Mutual Understanding of Objectives

The Senior Vice President, the Director of Marketing Administration and the Director of IS were interviewed.

The SVP remarks on their change in direction for 1991:

"We are going to concentrate on expense control - new measurements and
new controls on expenses. We are looking to change our regional offices to profit centres. This is where reporting (from computer systems) will come in. We are targeting on older age group in the future. We develop target products that agents suggest. Our idea is to hook agents up is part of our partnership strategy. It’s all part of the strategy - using special quotes, direct marketing and information systems."

The IS Director identified the business unit objectives as follows: new priorities include 1) expense control through automation, 2) improving service to the "good agents", 3) specific new products, and 4) improving their professional image. Of the four objectives mentioned by the IS Director, three were mentioned in the written plans or in interviews with the SVP. The objective that the IS Director did not mention revolves around marketing strategies that her unit is not responsible for supporting. So, within her own area of responsibility, the IS Director exhibits HIGH understanding of business objectives.

The IS Director states the IT objectives and plans: "to get the users to a position to where they will identify opportunities for improvements in service and productivity", to get into the departments and help them streamline their operations, to implement three new products this year. The focus of her objectives is reengineering the business processes within the administrative functions.

The SVP of the business unit says that the current IS priorities are to decide on the processing environment for the U.S. division, implement the new products, provide technological support for the agents, improve the responsiveness of the programmers, assist in creating a blueprint for reengineering work within the administrative departments. His list of objective encompass both marketing and administrative and communications issues.

Their mutual understanding is rated as MODERATE since the IS Director did not mention many of the marketing issues within the business unit, either from a business or
an IT perspective.

3. Congruence in Vision for IT

The SVP remarked:

"I think the key strategy for expense control is systems, in policy administration more so than marketing administration. On the marketing side, as in illustration software, it does not help us in processing our business, it gets us the business. I see the biggest hit being on the policy administration side for expense control."

According to the Director of Marketing Administration, "we are terribly overstaffed on the policy issue and service area. Too many people for the amount of business we do."

The IS Director stated that her long term goals was to move into each administrative area and conduct reengineering studies in an effort to meet the SVP's target of "doing twice the business with the same staff complement."

These executives are all saying the same thing - streamline the administrative functions of the business in order to lower costs.

When questioned about specific strategies for the future of IT, the SVP mentioned control over programmers (which currently rests with corporate IS), use of a 4GL to reduce the number of IS people in his business unit, better business knowledge in IS people and vice versa, access by agents to the computer systems. The Director of IS mentioned using a 4GL to reduce the size of her group, training users to take a more direct role in IT applications.

There was a high degree of congruence expressed in these views: at least two out of the three unit executives agree that: 1) in future, programmers must understand the insurance business, 2) higher level tools (i.e. 4GL) will be used, 3) less IS people will be needed to support the unit because users or business analysts will do their own
programming, 4) programmers will report to the business unit, 5) rule-based systems will be in use.

Linkage on this dimension was rated as HIGH.

4. Subjective Assessments of Linkage

The SVP rated linkage as MODERATE. He mentioned the current 3GL environment, the lack of insurance knowledge in IS people, and the reporting issues as blocking linkage.

The Director of IS also rated linkage as MODERATE. "If we were involved a little earlier in product design, we might be able to give some input as to various ways the product design could be shaped to work with existing systems".

The perception within the business unit seems to be that the linkage is quite good. There is room for improvement and no insurmountable difficulties. Their rating of linkage is MODERATE.

5. Involvement in New Product Development

The SVP described the NPD process as follows:

"The marketing strategy is done by the VP of marketing and myself. Then we get a lot of input from other people in the business unit. The Director of IS is involved in this next loop. And then our plan is developed based on this input."

From this description, we rate the involvement of IS in NPD as being in the MIDDLE of the new product development cycle.

6. Summary
In general, this business unit displays MODERATE-HIGH linkage on all scales. One interesting finding is that although they have no written long term plans, either business or IT, they exhibit a high degree on congruence in vision for IT in the future. This findings confirms the value of the choice made in this research project to delve into the "minds" of the executives to find evidence for linkage rather than only looking for written artifacts.

**F. Business Unit 6**

BU 6 serves the niche market of Canadian automobile dealers. It is a small business unit, with just over 100 people. It supports a variety of products including lease insurance and accident and health plans. It also provides training courses and personnel evaluation services. The unit has focused on this narrow market for many years and its persistence and innovation have been very successful. It is the industry leader and the most profitable division within the parent company.

There are four regional and two district offices across Canada and all products are sold by company employees or automobile dealers. The SVP has four direct reports: the Vice Presidents of Sales, Marketing, Finance and IS & Administration.

BU 6 has three kinds of information systems in place: administrative systems which support the insurance products, the integrated software package which it sells to dealers, and systems to train and evaluate dealers staff. The integrated software system has assisted significantly in helping the business unit reach its level of prominence in the market over the previous eight years because it has generated a high degree of loyalty among the dealers and has proved to be important in attracting new dealers.

Within IS & Administration, there are 20 people supporting the integrated software package and six people supporting the administrative and training applications. The administrative systems and training systems reside on the mainframe, the dealers'
software is supported on a local area network.

1. Cross-References in Written Objectives

There is no written long range plan for either the business unit or for the IT function and this dimension was rated as NO PLANS.

There is also no overall one year written plan for the business unit. Two 1991 plans were examined, one for the administration functions and one for IT. These were both prepared under the direction of the VP of Administration and IS.

The IT plan begins with a section stating its mission and objectives. Most of the objectives are focused on improvements in the IT tasks rather than on business unit goals such as market share, profitability or expense ratios. However, within the plan itself, some evidence of business unit objectives is embedded in the text. For example "Developing our current staff to aspire to take on greater responsibility is one of our key objectives for 1991", and "communicating with our customers is a key mandate for 1991". The list of major IT development activities is prefaced by the following statement: "all the projects scheduled for completion in 1991 are targeted at achieving better service delivery to our customers". This statement provides some linkage to overall business unit objectives, although we have no way of verifying that service delivery is a high priority goal for 1991, since there is no marketing or consolidated business plan.

The Administration Plan contains no mention of overall business unit objectives and is strictly a tactical/operational document. The objectives of the administrative group are largely internal, focusing on staff development and motivation. The IS activities, however, are linked with objectives in statements such as: "the enhancements...are essential to achieving an improved level of service", and "the objective will be to increase turnaround time by streamlining procedures...".

These statements make explicit the linkage between IT plans and departmental
goals and we would rate the linkage exhibited by these written plans as HIGH. However, there is no overall business unit plan and these two documents are likely to be linked due to the fact that they were prepared by the same VP. The rating on congruence in short term plans is MODERATE.

2. Mutual Understanding of Objectives

The SVP, the VP of Administration and IS and the VP of Finance were interviewed to gather the following information.

The objectives of Business Unit 6, as described by the VP of Finance, included: lowering the level of reporting and accountability to the district level to improve profitability, providing better service to customers, focusing on expense control, not market share, and expansion into the U.S. market.

The VP of IS and Administration discussed the IS objectives as follows:

"I am not 100% sure of where it is going to go. There are a variety of options open to us as this point - shifting of resources, reorganizations. We have to deal with the issue that people find it difficult to phone through to our support group because the lines are always busy. We may outsource support for our integrated software system. We need to get all the dealers onto modems so that we can communicate electronically with them. From the network perspective, that is the key focus for this year. In the next few months we have to get everybody hooked up.

The VP of Finance identified the IS objectives as continuing enhancements to the integrated software system, upgrades to the administrative system, and modifications to the Claims system.

The VP of IS and Administration remarked about the SVP:

"He would have a copy of my Department Plan but might not be able to find it. As to whether he would know what I am going to do - at some levels yes, at other levels, no. Generally speaking, not in any level of detail. He has probably read the plan and then gone on to other things".
These comments indicate a lack of commonly understood IT objectives and thus mutual understanding was rated as LOW.

3. Congruence in Vision for IT

The VP of Finance stated:

"I don't like the model of IS people working within an IS Division. In many companies, analysts and even the programmers are moving back to the Divisions and central IS is providing technical support and a pool of IS programmers for major projects. We need to bring user analysts up to speed within the Divisions and have them report to the Divisions".

The VP of IS and Administration agreed that decentralisation of IS resources (from central IS) would be a worthwhile change to look into.

At the moment, the business unit has not formulated any shared vision of how to use technology to support its objectives. In conversation, they focus on the structural changes they would like to see, rather than the influence of, or goals for IT.

On this dimension, the business unit rates as having NO VISION.

4. Subjective Assessments of Linkage

The SVP says:

"We have done a good job on that score. - we have the best software in North America, we started 4 years ago with one person in that job. We have the best help desk and provide good service. We have really good communication within the business unit. The electronic connection with dealers is part of a comprehensive strategy to give them good service. Fits right in."

He rates linkage as HIGH.

5. Involvement in New Product Development

The VP of IS and Administration states:
"I would usually be at the table when new products are discussed. When we introduced variable term plans, I wasn’t so much involved in the original (why don’t we try this?) meeting but right thereafter, because they realized that it would involve all our systems. The background to that product could have been quite informal…. That’s usually the way I start to hear about things - a lot of informal stuff that happens. Then the meeting gets called. ..I can bring to the meeting the people that have the detail. They can say how it would affect the systems... for example, that we would need a three month window before you can go to the market. Once the decision is made to explore something, we tend to be pretty good in getting everybody involved. During the last year or so we have been much better at making sure that everybody is involved.

The rating on this dimension is HIGH.

6. Summary

In general, there is a lack of strategic direction in this business unit, both at the business and the IT level. Although they understand each other’s short term objectives, they have no shared vision for the future. They rate linkage as HIGH based on past successes.

G. Business Unit 7

This business unit is responsible for marketing insurance to individuals, both in Canada and the U.S. Only the Canadian operations were examined. The Canadian business has been relatively stable and profitable over the past few years marketing two main product lines: individual life insurance and individual disability insurance.

The business unit is organized with three Vice Presidents reporting to the SVP: the VP of Administrative Services, the VP of Sales (Canada) and the VP of Sales and Marketing (U.S.). The Assistant VP of IS reports to the VP of Administrative Services and has responsibility for all IS personnel within the business unit. Her staff complement
is 40 supporting the Canadian business and 56 supporting the U.S. business.

The IS unit has been decentralized from central IS for the past three years. They have many IS projects underway, but the largest is a project to recombine the Canadian and U.S. administrative systems which were split under a different organizational structure.

1. Cross-References in Written Objectives

The strategic direction of the business unit, as stated in the strategic Plan 1991-1995 includes a single statement about IT: "To continue to build our quality culture and to continue to upgrade our technology." In the analysis portion of the document, Systems are mentioned as a weakness of the unit: "Our strategy requires the efficient processing of large number of small to medium sized insurance applications. Our systems require enhancement to support this requirement." The direction given to the Information Services area is minimal in this document and the implication is that systems are not an important ingredient of business unit success.

This business unit contains the only written five year IT plan among the ten business units. The IT Strategy (1990-1994) document reports on a planning process based on interviews with managers. The key issues which arose out of the data gathering included product implementation, productivity, customer service, agent compensation, training, management information, and programmer productivity. Each issue is related to a deficiency in Information Services methodologies, current systems or technologies.

Because the business plan gives weak direction and the IT strategy does not explicitly reference the business plan, we rated linkage as exhibited by the written plans as MODERATE.
There is a stronger role for IT expressed in the one-year operational plan. The four major programs in the 1991 business plan were: quality, distribution, IT, and profitability. Under the IT heading, the plan reads: *Efficient use of information technology is one of the keys to successful implementation of our strategy.* The following programs are mentioned: strategic systems plan, new development methodology and tools, enhancements and revisions to existing systems. There are other systems activities in the plan, and these are directly tied to specific business programs. There are very strong connections between the 1991 business plan and the 1991 IT plan.

In this business unit, we see a mixed level of congruence in long term plans and have rated them as MODERATE in linkage. The one year plans exhibit a much higher level of congruence and are rated as having HIGH linkage.

### 2. Mutual Understanding of Objectives

The VP of Administration, the AVP of IS, and the AVP of Marketing (Canada) were interviewed.

The AVP of IS was in the process of putting together the presentation for a strategy meeting and was very well prepared to list the eight objectives of the business unit when interviewed. One was an IT objective and the rest were business unit (e.g. increase sales, new product developments, decrease service time, change field compensation) or corporate-wide objectives (e.g. quality).

The AVP of Information Services listed the IT objectives as: 1) Strategic IS Planning, 2) conversion to DB2, 3) rapid application development projects, 4) elimination

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55It is quite possible that different people wrote the statements on IT in the five year plan and the one year operational plan. Most likely, the SVP wrote the five year plan and the AVP wrote the 1 year plan sections. The differences reveal the differences in their beliefs about the importance of IT to business success.
of Autocoder (an older technology), and 5) product/collections projects.

The VP of Administration said that the three goals of Information Services were 1) establish the infrastructure, 2) work on special projects, and 3) get rid of the paper in insurance offices. The VP exhibits some understanding of the IT objectives, but is biased towards his personal objectives (e.g. getting rid of paper) rather than being inclusive of the marketing and strategic business goals. He does not highlight the need for a Strategic IT plan (which the AVP feels is necessary if the product mix is significantly altered by the current strategic business planning process).

In summary, the AVP of IS exhibits a HIGH understanding of the objectives of the business unit. The VP exhibits MODERATE understanding of IT objectives.

3. Congruence in Vision for IT

The AVP of IS commented that she and the SVP "have conflicting opinions as to whether IT is a strategic goal". According to her, the SVP is not convinced that IT can really make a difference to the business unit. The SVP declined to be interviewed for this study. Other than one SVP who was out of the country, he was the only SVP the researcher did not interview.

One of the visions of the VP of Administration is a "paperless policy issue process by 1993". He is arguing with the President who wants incremental changes to existing practices rather than radical change. The VP says "No, our vision is to have no paper". He predicts that the next generation of new hires will be computer literate through their interaction with video games and will make a significant impact on the way IT is used in the organization. This is a very long term strategy especially when there is downsizing, not expansion, in insurance organizations.

The AVP of Marketing, who is new to the company, is confident of the ability of IT to contribute to success. He feels that competitive advantage can be gained through
two strategies: 1) from paying agents early and 2) issuing the policy at the customer’s site. Both of these strategies need significant IT support. He suggested that the IT development needed to use a "wind tunnel" approach - rapid prototype - to keep up with needs.

All three executives have visions of the IT future for the business unit. Each one focuses on the functional area of the speaker and each one is rich and far-reaching. It is difficult to rate the congruence of these visions since none of them seem to be in contradiction with the others. At the moment in BU 7, all IT visions are operative. There have been no hard choices to reject any of them.

The rating for the congruence in IT vision is LOW.

4. Subjective Assessments of Linkage

The AVP of Information Services rated linkage as MODERATE, because "it can become a whole lot better. I think I’ve got linkage. There’s not the trust yet between first line managers on the users’ side and first line managers in IS. At my level, the linkage is good - not perfect but good."

The VP of Administration rated linkage as HIGH.

The AVP of Marketing felt linkage was HIGH, evidenced by the weekly meetings, the IS manager on the new product team, the Systems Steering Committee, and the IS presence at the offsite strategy meetings. He also said that the Operating plan is tied closely to the strategy for cost reduction purposes.

The rating on this dimension reflects the HIGH rating of the business executives.

5. Involvement in New Product Development

BU 7 is re-strategizing their product set at the moment and the AVP of IS is on the steering committee for the universal life/variable life products. This committee
performs the "second round" of thinking on product strategy, the first round being the decision to focus on these products as a way to increase market share. According to the AVP of Marketing, after the conceptual design of products is done, the IS people are brought in to tell them what is feasible in the way of features and timing of release. Thus, the IS AVP is involved EARLY in the new product development process.

6. Summary

On most of the linkage measures, this business unit scored HIGH or MODERATE. They lack congruence about the future value of or role for IT. Vice Presidents each have their own IT visions, but no shared expectations of how IT will support the unit have been formed.

H. Business Unit 8

BU 8 markets a full line of group life and health products in Canada. Although it is located within a company which was struggling on many fronts, BU 8 has had a prosperous history and continued strong results in 1989 and 1990. Excerpts from the 1989 and 1990 annual reports: In 1989, the core businesses exceeded all key sales objectives ...significantly improved its retention of existing business while effectively controlling expenses.... strong sales growth and continued good profitability (in 1990).

Within the parent company, an SVP is responsible for this and one other business unit. The operational head of the business unit is the Vice President, who has six senior line managers reporting to him - one each in charge of actuarial services, sales and marketing, underwriting, client services, health claims, and disability claims. The Assistant VP of IS also reports to him and to the VP of the other business unit headed by the Senior Vice President.

The Information Services organization for this business unit is comprised of 24
people. It has been in existence since 1983, when it was decentralized from central IS. It is considered by many managers in the company to have the best set of systems of all of the operating groups. Information systems within the business unit are described in the 1990 Annual report as follows: *strong systems enhance customer services and assist in keeping expenses tightly controlled.*

1. **Cross-References in Written Objectives**

There are two documents which outline the goals and strategies for the business unit. In the Strategic Business Plan for 1991-1995, there is no specific direction given to Information Services, although there is a comment about the high quality of the systems in place. The Trends section contains the following: "Technology will continue to improve and we anticipate that there will be a much greater clients/provider interface. There will be greater contact between the client and the insurance company and less between the insurance company and the distributor (broker, consultant)". A new administrative business process involving point of service claims payment is anticipated - and the changes that the business unit will make are outlined. Completing the "automatic adjudication" systems project is also noted. There is no strategic plan document prepared by the IS department and the rating for congruence in long term plans is MODERATE.

In the 1991 Operating Plan, the issues and strategies mentioned are similar to those found in the longer-range plans. Information technology is a major program area and two directions are given to IS: 1) *continue systems developments and enhancements to improve productivity and reduce expense requirements*, 2) *educate insurance management on the use of technology to maximize return on MIS developments.* These are very general statements but they do recognize the contribution of IT and do provide some direction.

In the 1991 business plans, IT projects are embedded with other business unit projects. Shared ownership of these projects is evident. In the 1991 IT Plan, three overall
objectives are noted: *major system project requirements, critical systems enhancements/ongoing productions support, and improvements in overall effectiveness of systems effort.* Of the 17 key 1991 Programs discussed, 10 are systems projects, six are internal productivity programs and one pertains to user participation in systems projects. This IT plans exhibit little knowledge of business objectives and the overall rating for congruence between short term IT and business plans is MODERATE.

2. Mutual Understanding of Objectives

The SVP, the VP of the business unit, and the AVP of IS were interviewed.

The Vice President of the business unit remarks:

"He (the AVP of Information Services) has his own strategies. I haven't seen the detailed ones yet. I probably haven't gotten around to reading them yet and I would probably think they are in support of the ones we are looking at. Once you see his programs ... hopefully they will fit in".

The AVP of IS says he wants to move to a "broader technical platform..., we need to get more effective use of personal computers and to get into local area networks." He wants to create spin-off databases and let users access them. He also has some internal objectives to raise his people's productivity.

There is LOW linkage between objectives. The VP does not know the IT objectives. Information Services has no plans to support the business objective of "educate management on the use of technology".

3. Congruence in Vision for IT

The VP said the business unit used IT for infrastructure efficiencies. He could not see any advantage in a marketing sense, only a disadvantage if you don’t have it.

"You sort of have to be as good as your competitor but you don’t gain anything extra. You lose if you don’t do it." Management reporting
information will help us analyze our business better and get to see where
were are going and whether we are actually getting the target loss ratios we
are charting for this line of business or this market segment..

The AVP of IS remarked:

"I happen to believe that technology is a thing that will support
decentralization. The VP and I have had some interesting conversations
about that and I know he more or less puts up with that. We might not be
in agreement yet that you can effectively use technology to restructure the
way Group does business and achieve efficiencies"...

It seems that their visions for the potential of IT are dramatically different, with
the business unit manager being much more conservative than the IS manager. Thus,
there is LOW congruence in IT vision.

4. Subjective Assessments of Linkage

The SVP rated linkage as UNKNOWN since the AVP of IS had not been in his
present job long enough to influence the strategies of the department.

The VP remarked:

"I think that the system areas are supporting our main business strategies.
One of our main strategic focus areas is quality service to our customers
and that goes through our admin area and our claims area. And now
systems is supporting the claims process. Another focus is long term
disability and they are working on the claims side .... so that I see them
fitting in pretty well."

He rated linkage as MODERATE because IS performance did not meet the targets
set by him and the AVP of IS in the last two years.

The AVP of IS also rated the linkage as MODERATE. He felt that linkage was
supported by communication processes but that the strategic planning process was weak.
He felt that IT was better linked at the level of plans rather than strategies.

The overall rating for this dimension is MODERATE.
5. Involvement in New Product Development

Product development is handled within the Marketing area and the VP stated that "they involve whoever they feel they should involve. They always involve an underwriter and some administrative personnel and I think that one of the things we have changed is that they are now starting to bring the systems people in before the thing is finalized." Information Services is involved LATE in the new product development process.

6. Summary

In general, BU 8 exhibits low levels of linkage on vision and mutual understanding of objectives. There are no agreed-upon goals for IT and the linkage that is present revolves around the shorter term projects, rather than business objectives.

I. Business Unit 9

This business unit markets a broad range of retirement products, such as pooled investment funds and GICs. There are four regional offices in Canada. The unit is not currently meeting its return on capital targets. Its unit costs are very high compared with its competitors, its market share is low and the customer service it provides is considered inadequate. Its investment activities have been its strength.

The unit is headed by an SVP who has overall responsibility for this and one other unit. Reporting to him is the Assistant Vice President of IS and the chief executive of the business unit, the Vice President. There are 13 IS people supporting the application development for business unit and a small technical support group shared with other business units. These IS people report to the AVP of IS in a solid line relationship with a dotted line to the Vice President.

The IT history in the business unit is one of underfunding and failed initiatives. No infrastructure has been built and no management information is available to support the
pension business. Half of its business is on an outsourced system and the other half is in-house on the mainframe.

1. Cross-References in Written Objectives

In the Strategic Plans (1990-1994 and 1991-1995), there is evidence that the business unit believes in the strategic value of information systems:

\[\text{the strategy to close the earning gap is... to realize major productivity gains in administration and to reduce the unit costs of administration through better systems.}\]

The plan makes several general statements of direction with regards to the areas for IT (e.g. MIS, fund valuation, administrative systems). There is no five year IT plan and the rating on congruence in long term plans is MODERATE.

In the 1991 business plan there are two types of IT activities - enhancements to existing systems to get unit costs down and completion of a strategic IS plan and business architecture to plan for the future. All activities have both a line business and an IS manager given responsibility for the activity.

The 1991 IT Strategy Plan is focused on technology, although it does describe a long term implementation strategy for the systems architecture developed in the ISP. The recommendations are to develop the base administrative systems in the first four years, and then to develop the higher business function applications. This approach does support the strategy identified in the business strategic plan. An presentation made by the VP of IS in early 1991 also showed a moderate degree of linkage with the business. The two page overview first addresses the characteristics of the business and then outlines the IT plans for the year. While there is no explicit correlation between the two sections, the fact that the business was profiled suggests that the IS executive is well aware of the business implications of systems work.
The level of cross referencing is MODERATE for the five year plans and HIGH for the one year plans.

2. Mutual Understanding of Objectives

The SVP listed his IT objectives for the business unit: 1) the IS strategic plan (ISP), 2) looking for economies of scale in merging two large systems.

The VP of the business unit, when asked about IT objectives for 1991, named five:

"one objective I promised the SVP was a breakthrough by the third quarter of 1991 in administration. So as far as I'm concerned, that's one of the AVP of IS's objectives. It is a notion that something, either cost or speed, takes a quantum leap forward. We know from our audit review that we've got to have reconciliations, that's one objective. The other objective would be to get the outsourced system upgrade done. We have a huge requirement to improve the client reporting. And doing the ISP."

The AVP's list of IT priorities for 1991 included the following items: 1) the ISP, 2) Business area analysis, 3) reconciliations, 4) enhancements to the outsourced system, and 5) project control mechanisms.

The only discrepancy between the VP and the AVP of IS is the lack of a "quantum leap forward in administrative productivity" on the IT list, and that may have been covered in the business area analysis.

In summary, there is a very HIGH correlation between the short-term IT objectives stated by the VP of the business unit and the ones stated by the AVP of IS.

3. Congruence in Vision for IT

The SVP wants the business unit to be a "centre of excellence" in using information technology in the hope that it will give the business unit economies of scale and efficiency.
The VP of the business unit is personally convinced that technology is the only way to break through the high cost structure in the fixed assets industry. She does not have a vision or strategy of how that will be done, but believes that IT will permit her to be competitive in an extremely tight market.

The AVP of IS thinks that the US and Canada systems will be integrated to some extent since there are opportunities for systems synergies. "Over time, if we use common tools, we will have opportunities to share ideas or systems."

Overall, there is a moderate level of congruence in vision between the senior managers in the business unit. There is a lot of enthusiasm about the value of IT, and a shared understanding that the focus will be to reduce unit costs, but only vague views as to how the business will operate in the future with more IT support.

4. Subjective Assessments of Linkage

The AVP of Information Services rated the linkage achieved within the business unit as MODERATE.

The SVP rated the linkage within the business unit as MODERATE, stating a lack of familiarity with and connection to the business on the part of IS people as part of the problem.

The VP of the business unit rated the linkage between her business unit and IS as HIGH -

"very much in synch at this point. I would say that everyone's very much focused on fixing the business. The IS Director has set up a lot of good process stuff - prioritization etc. Now what I want from him is deliverables. He's the one who leapt at the ISP idea."

She notes that the proximity of the IS people is an aid to linkage
"they get tracked down by business people when things go wrong and there is more communication. What I’ve told the Director of IS is, we need an express lane within the project schedule - they can schedule the longer term and the bigger things but they’ve got to keep a certain amount of resource available to pick up on these quick wins, because they’re very good for employee morale."

In summary, the VP feels that the IS people are working hard on her behalf and rates linkage as HIGH. The SVP and AVP see a lack of a strategic plan and rate it MODERATE.

5. Involvement in New Product Development

The SVP related his learning on the value of having IS people in early on product design in another BU he was responsible for:

"what the systems guy said is not only do we want to know the product you want to build, we want to know the product that you decided not to build so that when we build this system, we could put in the options to improve it less expensively. We didn’t do it the first time we did some products a couple of years ago and so when we wanted to make these enhancements these guys said, had we known you thought about these enhancements two years ago, we would have designed the system a little differently and it would have been easier to make the changes. That’s what we learnt.

This business unit has not had many new products lately and it was the VP’s intention to get the IS people involved in the second round of talks - after the product has been fleshed out and they are talking about supporting it. So, it appears as if they would bring IS people in the MIDDLE of the new product development cycle when the chance arises.

6. Summary

This business unit seemed to have high day-to-day linkage and only moderate long
term linkage due to the fact that business strategies were not firmly in place. There was a shared understanding about the value of IT but only vague notions of how it would be used to further the business goals of reducing unit costs. Mutual understanding of current objectives was high.

**J. Business Unit 10**

Reinsurance is the business whereby one insurance company will insure the policies written by another insurance company. BU 10 markets a full line of reinsurance products and services to other insurance companies in major international markets. This unit ranks in size among the top 10 reinsurers in North America with 4% of the total market share. In the 1989 Annual report, the business unit was described as *having excellent profitability and return on capital*.

Two separate business units (BU 10 and 9) have been combined under a senior vice-president. Reporting to the SVP are the vice presidents of the business units. The AVP of Information Services is responsible for IT in both business units and report to both Vice Presidents. BU 10 is a division of 60 people with five senior line managers: Actuarial services, Claims, Administration, Marketing & Sales, and Special Risk. The IS organization for BU 10 includes 9 people headed by a Director who reports to the AVP.

This business unit makes the most sophisticated usage of local area networks in the company with both production systems, electronic mail, and device sharing being supported. They are now implementing a new administration system to support one of their major product lines.

**1. Cross-References in Written Objectives**

The Strategic Business Plan (1991-1995) identifies the current state of technology as a weakness in the business unit, since *current systems need replacement*. It is one of
the five key strategic thrusts. No details are provided, other than stating the need for *computer systems which will help curb our cost increases while at the same time providing quality service to our customers*. There is no long range IT plan and the rating on congruence in long term plans is MODERATE.

In the 1991 Business Plan, two new systems are mentioned, one each for two separate product lines. It also mentions a strategic IS planning initiative which utilizes the new rapid application development tools that are being investigated. In the IT strategy section of the 1991 business plan, the following objectives are noted: 1) developing new received and ceded administrative systems, 2) ongoing improvement of the local area network environment, and 3) providing support for existing systems. These were justified by projected productivity increases of 15 to 25% for the two administration departments and improved data availability and disaster recovery capability for local area network users. There is no other IT plan - the IT plan is embedded in the overall 1991 plan.

Rating of linkage in written plans is HIGH for one year plans, MODERATE for five year plans.

2. Mutual Understanding of Objectives

The Director of IS stated that the business goals for the business unit in 1991 are growth, flexibility of pricing, and cost control. The VP mentioned that the key areas for the next few years were growth and expense control. He identified two IS initiatives for the year.

The rating of mutual understanding of objectives is HIGH.

3. Congruence in Vision for IT

The Director of IS said the business unit did not have a vision for IT. She has put a strategic IS planning project in the 1991 timetable to create a direction.
The VP of the business unit believes that IT is most useful in supporting the infrastructure of the business. A non-homogeneous client mix makes it difficult for him to visualize IT solutions that would fit all clients. However, they are discussing ideas such as an underwriting package to give to their small clients. Whatever vision he identified was tied to emerging technology rather than a view of the business needs.

Our rating for this dimension is that NO VISION exists for IT within the business unit.

4. Subjective Assessments of Linkage

The Director of IS rates her linkage with the BU objectives as HIGH because of the support her area receives from the business executives. The VP of the business unit rates linkage as HIGH, "everything goes hand in hand". The SVP also rates linkage as HIGH - "it is very much in synch there because it is a small unit, easy to get your hands around, simple business to understand." The overall rating for linkage on this dimension is HIGH.

5. Involvement in New Product Development

This BU rarely creates new products and data was not collected on this factor.

6. Summary

In this business unit, there is a closely knit small group with good mutual understanding of objectives but a lack of a strategic vision for IT.
K. Across-Site Findings

Within each business unit, we have measured linkage in five separate ways, looking for evidence of cross-references in written plans, mutual understanding of objectives, shared vision about the future role of IT, early IS involvement in new product development, and subjective assessment of linkage as expressed by executives. In this section, we draw inferences about linkage within business units and the issues involved in measuring this linkage.

It was hoped that there would be some congruence between the five measures of linkage and that one or more of them would emerge as a candidate for a parsimonious, yet robust measure of business unit linkage. We had expected some congruence between our two measures of long term linkage (written five year plans and shared vision for IT) and our two measures of shorter term linkage (written one year plans and mutual understanding of objectives). In the following section, our detailed findings with regards to these issues are reported as well as a discussion about the intra-company similarities in linkage. The next section (Overall Linkage Ratings) contains the conclusions.

A summary of the linkage ratings is provided in Table VI.1. The two ratings in the "mutual understanding of objectives" column reports how well the executives understood the current IT objectives and how well the IS executives understood the current business unit objectives. The scales which were used to create these measures are shown in Appendix C. Each measure is examined to see if it exhibits variance among the business units and if it has congruence with other measures.
<table>
<thead>
<tr>
<th>Business Unit</th>
<th>Mutual Understanding of Objectives</th>
<th>Cross References in Written Plans</th>
<th>Shared Vision for IT</th>
<th>Subjective Assessments</th>
<th>Involvement in NPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>BU 1</td>
<td>LOW - Execs HIGH - IS</td>
<td>LOW - 5 YR HIGH - 1 YR</td>
<td>HIGH</td>
<td>HIGH</td>
<td>EARLY</td>
</tr>
<tr>
<td>BU 2</td>
<td>HIGH - Execs MOD - IS</td>
<td>MOD - 5 YR HIGH - 1 YR</td>
<td>HIGH</td>
<td>HIGH-MOD</td>
<td>MIDDLE</td>
</tr>
<tr>
<td>BU 3</td>
<td>MODERATE - Execs LOW - IS</td>
<td>MOD - 5 YR HIGH - 1 YR</td>
<td>HIGH</td>
<td>HIGH</td>
<td>EARLY</td>
</tr>
<tr>
<td>U 4</td>
<td>LOW - Execs LOW - IS</td>
<td>NO 5 YR PLANS HIGH - 1 YR</td>
<td>NO VISION</td>
<td>LOW</td>
<td>N/A</td>
</tr>
<tr>
<td>BU 5</td>
<td>HIGH - Execs HIGH - IS</td>
<td>NO 5 YR PLANS MOD - 1 YR</td>
<td>HIGH</td>
<td>MODERATE</td>
<td>MIDDLE</td>
</tr>
<tr>
<td>BU 6</td>
<td>MOD - Execs MOD - IS</td>
<td>NO 5 YR PLANS MOD - 1 YR</td>
<td>NO VISION</td>
<td>HIGH</td>
<td>EARLY</td>
</tr>
<tr>
<td>BU 7</td>
<td>MOD - Execs HIGH - IS</td>
<td>MOD - 5 YR HIGH - 1 YR</td>
<td>LOW</td>
<td>HIGH</td>
<td>EARLY</td>
</tr>
<tr>
<td>BU 8</td>
<td>LOW - Execs LOW - IS</td>
<td>MOD - 5 YR MOD - 1 YR</td>
<td>LOW</td>
<td>MODERATE</td>
<td>LATE</td>
</tr>
<tr>
<td>BU 9</td>
<td>HIGH - Execs HIGH - IS</td>
<td>MOD - 5 YR HIGH - 1 YR</td>
<td>MODERATE</td>
<td>MODERATE</td>
<td>MIDDLE</td>
</tr>
<tr>
<td>BU 10</td>
<td>HIGH - Execs HIGH - IS</td>
<td>MOD - 5 YR HIGH - 1 YR</td>
<td>NO VISION</td>
<td>HIGH</td>
<td>N/A</td>
</tr>
</tbody>
</table>
1. Mutual Understanding of Objectives

In seven business units, both business and IS executives exhibited similar levels of understanding. In the three units in which differing levels of understanding were observed, only one of them differs by more than one position on the ordinal scale. In two cases (BU 1, 7), the IS executive exhibited a higher level of understanding of objectives, and in one case (BU 2), a lower. In chapter 7, data on the factors described in Figure III.1 is used to help explain these differences.

The ratings on this measure had high variance within our sample business units.

2. Cross-References in Written Short Term Plans

Seven of the ten business units exhibited high levels of linkage in their one year plans. In three of these units, there were two plans - a business plan and an IT plan, which referenced each other. In the other four units (BU 1, 3, 4 and 10), there was one integrated business plan referring to projects from all departments, including IS.

The high incidence of integrated plans caused us to amend the original scale, which had assumed the existence of separate business and IT plans. Appendix C contains the amended scale. Although we viewed the integrated plans as potentially exhibiting the highest level of linkage possible, because the format of such plans might simply represent the preferences of the senior executive, single, integrated plans were not ranked any higher than separate, mutually referencing, IT and business plans.

For the integrated plans, if the IT projects were listed under the business goals they were associated with (e.g. under a marketing or a service goal) or, if they were listed under an IT heading, but justified with clear business language (e.g. "to help agents write create insurance contracts more quickly and at lower cost"), then a rating of HIGH linkage was assigned. If the IT projects were in a section of their own and not supported by a business rationale, the plans were rated as having MODERATE linkage. It could be
argued that a separate IT section in an integrated plan which does not contain business rationale should be given the same rating as a separate plan which does not reference the business plan. However, since anyone examining the integrated plan would see IT and other business projects together, this warranted a higher rating than separate, non cross-referenced plans.

However, even after revising the scale and re-rating the plans, this measure did not exhibit much variance (7 HIGH, 3 MODERATE) or much congruence with mutual understanding of objectives, the other potential measure for short term linkage. Figure VI. 2 displays the relationship between these two measures. The mutual understanding rating is an average of the IS and business executives rating on this measure. For both ratings of HIGH and MODERATE in linkage exhibited in written plans, there is a wide range of linkage exhibited in mutual understanding of objectives.

This lack of congruence could be explained by considering the delay between the time the plan was written and the time the research interview took place. Plans are created at a specific time during the year, usually as a precursor to budgets. During interviews, which, on average, would have been held 6 months after written plans were produced, executives often could not correctly identify each other's objectives. Since we were interested in measuring the mutual understanding between IS and business executives at the time of the interview, it was concluded that written one-year plans would not be an appropriate measure for short term linkage.

Therefore, since "mutual understanding of objectives" captured linkage at the time of the interview, and since it exhibited higher variance in the sample, and since it exhibited congruence with the subjective assessment of linkage (as discussed in section 5), it seemed to be the better measure for short term linkage.
3. Shared Vision for IT

The Shared Vision measure exhibited high variance within our sample, with four business units scoring HIGH, one MODERATE, two LOW, and three exhibiting NO VISION. Business units rated as having LOW vision had one or more competing visions expressed by the executives. In business units rated as having NO VISION, executives did not have any clear ideas of what role IT would play in the future of the business unit.

This measure embodies the spirit of the long term dimension of linkage - it is a shared understanding of the potential of IT within the business unit, measured at the time
of the interview. Usually within a business unit which exhibited high shared vision for IT, a single theme was present; for example, the use of IT by agents in writing new business or the use of IT to streamline and lower the cost of specific administrative functions.

Therefore, we concluded that "shared vision for IT" was a good potential measure for long term linkage.

4. Cross References in Written Long Term Plans

The other potential measure for long term linkage was the level of cross-referencing in five year business and IT plans. One unexpected finding was that nine out of ten business units did not have written long term IT plans. Most had a list of IT projects that would require longer than a year to complete, but lacked a description of the IT strategy adopted for the business unit. Only one business unit IS group (in BU 7) had created a strategic plan and published it. Another IS group (in BU 1) was in the process of creating a strategic plan, but the draft of the plan which we reviewed was very technology oriented and would not have scored high on the linkage rating.

We found only one long term BU IT plan in our sample. Because we had created the scale for cross references in long term plans anticipating the presence of both business and IT five year plans, the resulting linkage ratings could not exceed MODERATE. One solution would have been to recalibrate the measure to reflect the lower expectations, but this would have sacrificed the intent of the measure, which was to see if written plans referenced each other.

We had expected written plans to correlate highly with the presence of a shared vision for IT because they were different sources and manifestations of the expression of long term thinking. Figure VI.3 shows that there was a very low correlation between these two measures. In the three business units which had no long term written plans, one
business unit exhibited a HIGH level of shared vision. The other two exhibited NO VISION. In the six BUs with moderate linkage in long term plans, two exhibited HIGH levels of shared vision, 3 were LOW and one had NO VISION. So the lack of a written plan did not preclude the possibility that both IS and business executives had shared long term visions for IT. Also, a moderate level of cross-references in the plans did not indicate that the business unit would have a shared vision.

Figure VI.3
Relationship between Two Linkage Measures:
Shared Vision for IT and Cross-References in 5 Year Plans
We were not able in this study to delve into the reasons that business units created (or failed to create) written plans. We continue to believe that business units should create plans which are cross referenced. However we saw enough evidence to convince us that this measure of linkage might not be useful if the absence of long term IT plans is the rule rather than the exception and the absence of a written long term plan IT is not indicative of a lack of shared vision.

5. Subjective Assessments of Linkage

Previous studies that measured linkage (Cresap, McCormick and Paget, 1983; Galliers, 1987B; Lederer and Mendelow, 1989) did so by asking questions about written plans or by asking the IS executive for his/her subjective assessment of linkage. During our interviews, we asked each executive to rate the linkage within their business unit (as HIGH, MODERATE or LOW), and to explain why they assigned a particular rating.

After averaging the subjective ratings over all executives in each business unit, seven units had HIGH or MODERATE-HIGH levels of linkage, two rated themselves as MODERATE, and one as LOW.

Overall, subjective ratings of linkage within the business units were higher than rating of linkage based on the other two measures which showed promise: mutual understanding of objectives and shared vision.

Figure VI.4 shows the ratings on mutual understanding plotted against ratings of subjective assessments. A cluster of seven business units had HIGH or MODERATE ratings on both. Two of the other three business units had LOW or MODERATE ratings on both and the third had a mixed set of ratings. These results indicate a strong congruence between these measures and suggests that a subjective assessment of linkage is a surrogate measure for short term linkage.

Figure VI.5 shows the ratings on shared vision plotted against the subjective
assessments. There seems to be almost no relationship between these two measures. A HIGH rating on Shared vision in four business units was found with subjective assessments from HIGH to LOW. A LOW rating on shared vision in three business units was found with subjective ratings ranging from LOW to HIGH.

In Appendix E we present the raw data taken from the interview questions on linkage. An examination of this data explained why the subjective assessments were more similar to the measures taken on mutual understanding of objectives than those taken on shared vision for IT. In rating linkage within their business unit, executives used both of these concepts and many others relating to "process" issues such as IS knowledge of the
business, IS reporting relationships, existence of communication channels between IS and business executives, and previous IT history.\textsuperscript{56}

In general, executives used reasons reflecting the current situation in the business unit rather than their goals and strategies for the future in rating linkage, thus leading to a higher correlation between subjective assessments and mutual understanding than

\textsuperscript{56} Some of these factors were more prevalent than others in the reasons given by executives. The issues of communication and business knowledge were most often noted. These are key parts of our model, but are portrayed as "factors" influencing linkage rather than as linkage itself. We use this data to verify our rating of these "factors" in chapter 7.
between subjective understanding and shared vision. Therefore, the executives were often responding to the question "how well are you working together with your IS executives today" than "how well linked are your business and IT plans" when they gave their subjective rating of linkage. This finding suggests that researchers must construct questions carefully, bringing the time period of question to the attention of the respondent, if they are to ask about linkage in interviews.

6. Involvement in New Product Development

Executives who mentioned this measure in discussions of attained linkage gave several reasons for its importance:

1) A business executive from BU 1 said if IS people were involved early in new product development, they could understand the business needs and urgencies better (and presumably, respond to them).

2) The IS executive in BU 1 reported a case in which a major contribution was made by an IS person at the first meeting to discuss a potential new product.

3) A business executive from BU 3 that if you don't involve IS early you might as well forget it. IS has the power to constrain most business initiatives within insurance companies.

4) The IS Director in Business Unit 5 mentioned that coming in late to the NPD cycle reduced the linkage by putting the IS people into the role of a "spoiler" since the product as specified might be difficult to support. He felt earlier involvement might allow them to identify ways to change the product slightly and reduce significantly the time to build the supporting systems.

5) The IS and Admin VP in BU 6 mentioned that by bringing the right IS people to the early meetings, they could give a quick idea of the time needed for IT support of new products.

6) The SVP of BU 9 explained that he would bring in IS people early so that they would understand the features that might be added in future versions of the product and would build sufficient flexibility into the systems to accommodate these at lower cost.

This construct can be viewed as a potential measure of linkage or as a factor influencing linkage. As a measure of linkage, it would identify business units which had demonstrated their awareness of the importance of IT by making adjustments to the
traditional new product development cycle to include IS people in it. As a factor which influences linkage, early involvement in the NPD cycle would raise the level of communication between IS and business people and might influence the success of IT projects by raising the business knowledge of IS people.

In Figure VI.6, the ratings for this variable are plotted against Subjective Assessment of Linkage. They exhibit a very high level of congruence. Of the seven business units involved in creating new products, the four who rated themselves as having HIGH levels of linkage also reported that IS people were involved EARLY in new product development. The three who rated themselves as having lower levels of linkage
also reported that IS people came into the new product development cycle later.

Because this measure exhibits high congruence with subjective assessments and subjective assessments seem to be based more on the "factors" which influence linkage, we concluded that it was more appropriate to consider Involvement in New Product Development as a surrogate for one or more of the factors in the model (i.e. communication, business knowledge) rather than as a measure of linkage.57

7. Evidence of Within-Company Similarities

Of the 10 business units, the first four came from the same parent company, the next two came from a second company and the last four from the third. We examined our findings exhibited in Table VI.1 to see if there were any strong within-company similarities.

No pattern is evident in the mutual understanding of objectives or in the cross-references in short term plans. In the latter case, there is little variance within the 10 business units; in the former case, there is wide variance in the within-company findings.

In the cross-references in five year plans measure, company B and C exhibited some intra-company similarity: both business units in the second company had NO PLANS, and all four business units in the third company exhibited MODERATE levels of cross-referencing.

The shared vision measure also exhibits some intra-company similarity. In the first company (BU 1, 2, 3, 4), there are three business units with HIGH ratings and one with a NO VISION rating on this measure. In the third company (BU 7, 8, 9, 10), there is one business unit with a MODERATE rating but the other three rated LOW or NO VISION.

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57 We also examined the congruence between "involvement in new product development" and "mutual understanding", since both of these measures seem highly congruent with "subjective assessments". There did not seem to be any strong relationship between them and so we discarded the idea of having "involvement in new product development" act as a surrogate measure for short term linkage.
Overall, the difference in the shared vision measure seems significant between the first and third company, with the first company having higher levels of shared vision.

There does not seem to be any pattern in the subjective assessment or involvement in new product development measures within individual companies.

In summary, both measures of long range linkage may have been influenced by company characteristics. This is not true for the measures of short term linkage. In Chapter 7, we examine the "factors’ data to see if we can explain why business units in Company A share visions about IT more effectively than they do in Company B and C and why all units in Company C exhibit the same level of cross-references in written long term plans.

8. Need for a measure to identify enacted as well as espoused objectives

In BU 2, we identified a dissonance between espoused and enacted values by a serendipitous examination of IT budget data. Senior executives mentioned that IT was best used at the front end of the business cycle (i.e. in the marketing of products), but the preponderance of IT management activity and IT costs were being spent in building infrastructure systems to support administrative tasks. Using our measurement scheme, they rated HIGH on congruence in vision and HIGH on understanding of current objectives and yet the current objectives did not follow the long term strategic vision.

This is an example of IT plans which are not internally consistent, a measure of the "intellectual content" dimension of linkage (as discussed with respect to the model in Chapter 3). Although this problem was found in only one business unit, it is a reminder that reliable measures of linkage need to include both dimensions.
L. Overall Linkage Ratings for the Business Units

In introducing several ways to potentially measure linkage, we had hoped to identify a set of parsimonious, robust measures for the short and long term dimensions of linkage. Our findings are summarized as follows:

1. Short Term Linkage: Most business unit's written annual business and IT plans showed a high level of cross referencing. However, business and IS executives in several of these business units could not identify each other's objectives, leading us to believe that written plans are often out-dated documents that do not adequately represent the current "mutual understanding" construct, which is the essence of our definition of linkage. Therefore, we use the data taken from interviews concerning mutual understanding of short term objectives to measure this aspect of linkage.

In six business units, both IS and business executives exhibited the same level of understanding of objectives. In the other four units, there were differences in understanding. Data from the factors influencing linkage will be examined to see if they provide explanations for these differences.

2. Longer Term Linkage: Nine business units did not have a long-range strategic IT plan and several were in the process of constructing their business strategic plan. Therefore, examining written documents in order to measure longer term linkage was not particularly fruitful. However, the measure of Shared Vision for IT did allow us to categorize the ten business units into those which exhibited no shared vision, low congruence in shared vision and high congruence in shared vision. Shared Vision for IT will be used to measure long term linkage.

3. Subjective Assessment from executives provided us with very useful data on what factors they believe indicate linkage. This data indicated that an executive's subjective assessment is based on a wide set of perceptions, most of them pertaining to current levels of communication and business knowledge within the business unit. Few of the
executives related their measurement to "objective" evidence such as shared goals or realized benefits from IT. In the business units which did not have a set of long or short range plans, executives reported on the level of trust and confidence they had in the IS department (i.e. in their "potential" for linkage), thus skewing the ratings upward and reducing the variance exhibited by them. The data gathered from executives on what they believe influences linkage will be used to verify our ratings on the factors in the model, not to measure linkage.

4. Involvement in New Product Development correlated highly with Subjective Assessment and may be useful as a surrogate for one or more of the "factors" which influence linkage. However, it was obtained for only eight of the business units since two of them do not introduce new products often.

Figure VI.7 contains a plot of the two measures, mutual understanding and shared vision, which will be used to measure short and long term linkage, respectively. They exhibit very low correlation with one another, providing support for our prediction that there are two distinct aspects of linkage, namely short and long term linkage.

Table VI.2 contains these two measures of linkage for the ten business units. Because they represent different aspects of linkage, they will not be averaged or one favoured over the other. An examination of the two measures leads to the following ranking of business units on multiple aspects of linkage:

BU 1, 2, 5, 9 have HIGH linkage.

BU 4, 6, 8 have LOW linkage.

BU 3, 7, 10 have MIXED levels of short and long term linkage.

In Chapter 7, the factors data are examined to see if they can explain 1) the linkage ratings, 2) the interesting findings relating to linkage, summarized in Table VI.3, and 3) the intra-company similarities, also shown in table VI.3.
Figure VI.7
The Relationship Between Measures of Short and Long Term Linkage: Mutual Understanding of Objectives and Shared Vision for IT
<table>
<thead>
<tr>
<th>BU</th>
<th>MUTUAL UNDERSTANDING OF OBJECTIVES (EXEC'S/IS)</th>
<th>SHARED VISION FOR IT</th>
<th>OVERALL RATING OF LINKAGE</th>
<th>INTERESTING FINDINGS ABOUT THE LINKAGE EXHIBITED IN THE BUSINESS UNIT</th>
<th>INTRA-COMPANY SIMILARITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MED/HIGH</td>
<td>HIGH</td>
<td>HIGH</td>
<td>BU executives do not understand internal IT strategies. However, this fact did not influence their subjective ratings, which were HIGH.</td>
<td>Business Units in this company exhibit high levels of shared vision for IT</td>
</tr>
<tr>
<td>2</td>
<td>HIGH/MOD</td>
<td>HIGH</td>
<td>HIGH</td>
<td>This BU exhibits &quot;linkage schizophrenia&quot; - both measures are HIGH, but the internal consistency in the &quot;content&quot; of the long and short term plans is low.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>MOD/LOW</td>
<td>HIGH</td>
<td>MIXED</td>
<td>The BU exhibited HIGH ratings on vision, HIGH subjective ratings but LOW mutual understanding of objectives. Quite a strange combination.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>LOW/LOW</td>
<td>NO VISION</td>
<td>LOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>HIGH/HIGH</td>
<td>HIGH</td>
<td>HIGH</td>
<td>BU 5 has no written long term plans but exhibit HIGH levels of congruence in long term vision for IT.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>MOD/MOD</td>
<td>NO VISION</td>
<td>LOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU</td>
<td>MUTUAL UNDERSTANDING OF OBJECTIVES (EXECIS)</td>
<td>SHARED VISION FOR IT</td>
<td>OVERALL RATING OF LINKAGE</td>
<td>INTERESTING FINDINGS ABOUT THE LINKAGE EXHIBITED IN THE BUSINESS UNIT</td>
<td>INTRA-COMPANY SIMILARITIES</td>
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<td>-------------------------------------------------------------------</td>
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</tr>
<tr>
<td>7</td>
<td>MOD/HIGH</td>
<td>LOW</td>
<td>MIXED</td>
<td>BU 7 contains the only 5 year IT plan among the business units but exhibits very LOW levels of congruence about IT vision. There are several comprehensive IT visions, but no single one dominates.</td>
<td>Business Units in this Company exhibited low levels of vision.</td>
</tr>
<tr>
<td>8</td>
<td>LOW/LOW</td>
<td>LOW</td>
<td>LOW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>HIGH/HIGH</td>
<td>MODERATE</td>
<td>HIGH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>HIGH/HIGH</td>
<td>NO VISION</td>
<td>MIXED</td>
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</tr>
</tbody>
</table>
VII. FINDINGS CONCERNING FACTORS WHICH POTENTIALLY INFLUENCE LINKAGE at the BUSINESS UNIT LEVEL

In chapter VI, the level of linkage attained by the 10 business units in the sample was discussed. In this chapter, the data on the factors hypothesized to affect linkage are examined. In addition, through interpretation and by asking informants, additional factors which seemed to influence the attainment of linkage in their organizations were identified. This chapter reports on the findings of this investigation for each site and then draws across-site conclusions.

In each within-site analysis, the intention is to create causal inferences from the data although, as discussed previously, not all the criteria required for causality (Cook and Campbell, 1979) can be satisfied. Although the collection of business unit histories allows us to show temporal precedence, and the sample of 10 allows us to qualitatively examine covariation in the data, we were limited in our ability to explore and discount alternative explanations in any rigorous way. However, we did verify our reasoning with those people who were able to confirm or deny it by sending the writeups back to the key informant in each of the sites to solicit their feedback on the analysis and interpretation of events. Their comments are reflected in the data presented in this chapter.

To summarize the discussion on factors from chapter III, this project investigated four factors which were hypothesized to influence linkage: 1) shared knowledge between business and IS executives, 2) implementation of previous IT plans, 3) communication between business and IS executives and 4) connections between business and IT planning.

58 Details of the scales used to measure these factors are included in Appendix D.

59 "From J.S. Mill we take three important criteria for inferring cause: (1) covariation between the presumed cause and effect, (2) the temporal precedence of the cause, and (3) the need to ... rule out alternative interpretations for a possible cause and effect connection."
In chapter V we presented a set of propositions concerning the expected relationships between the factors shown in the model and linkage. The connections expected for corporate level linkage are depicted in Figure VII.1. This model is similar in all but one respect to the model which was used to investigate corporate level linkage. An additional hypothesized relationship between Implementation of Previous IT Plans and Communication is present in this model. This represents our belief that

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60 The connection between Implementation of Previous IT plans and Communication was omitted in the investigation of corporate level linkage because corporate IT implementations rarely result in application systems which directly support the ongoing business (unlike those developed in the business units).
previous success in implementing operational-level systems will increase communication. We also hypothesize that previous success in implementing strategic-level systems will increase the connections between business and IT planning. In this chapter, findings from the business unit level data are discussed in light of these propositions.

Unlike our discussion of corporate-level linkage, linkage at the business unit is defined and therefore examined at only one location - the linkage between the business unit objectives and the business unit IT objectives.

A. Factors - Business Unit 1

Two business executives and two IS executives\(^6\) were interviewed to gather data on this business unit. We examined strategic business plans for one and five year timeframes, minutes from two representative monthly planning meetings, and a draft copy of five-year IT Plans. Details on interviewees and documents were presented in Tables III.2 and III.3. A summary of the company characteristics is contained in Appendix B.

1. Implementation of Previous IT Plans

BU 1 was one of the first insurance companies in Canada to get PCs for its agents. This was done in 1982. The VP of IS and Administration said that laptops were expected to increase the productivity of their agents but this has not materialized. Although they have not achieved increased productivity, these computers were now viewed as a strategic necessity and there were no negative feelings about obtaining them.

The application development function was decentralized in 1982/83, just as the administration system was being redeveloped. This was a very major development

\(^6\) In this BU and in BU 6, there is an executive in charge of both IT and Administration. We have classified these people as IS executives and interviewed them as the head of the IT function for the business unit.
(costing $12 million) which, by all reports, was implemented on time and on budget. It has provided a very stable base for the last nine years of systems application enhancements in support of the administrative side of the business.

BU 1 now has a major strategic IT initiative underway which will affect the way agents write new business.

The VP of IS felt that their work had been very useful to the business unit since they have increased the insurance volume without increasing staff. The SVP indicated that functions which should logically obtain economies of scale from systems (e.g. policy administration) were costing the BU significantly less than they were costing their competitors on a unit cost basis. He did not attribute this result solely to IT support, but he indicated that IT was a major contributor to operational efficiency.

In summary, the business unit has a long history of successful implementation of information technology to support both operational and strategic goals. They are confident about their IT expertise and are embarking on a major strategic system.

2. Shared Knowledge of IS and Business Executives

a) Business Executives

The SVP, who has spent a large proportion of his long career with the company in other business units, joined BU 1 in 1983. He reported no direct responsibility for systems in his career and no participation in a major systems implementation. We rated his company and insurance experience as high, and his IT project management experience and new technology awareness as low. The scales used for these measurements are described in Appendix D.

The V.P. of New Business is an actuary and has spent most of his long insurance career in the product design and marketing end of the business both in the U.S. and Canadian operation. He has had considerable involvement in IS projects, having
sponsored a uniquely innovative product in 1982. His ratings were as follows: company and insurance experience, high; IT project management experience, moderate; new technology awareness, low.

b) IS Executives

The VP of IS and Administration has worked for the company for almost 40 years. The first 10 were spent in administration, the next eight as a business analyst, the next 12 in the corporate IS department and the last nine as head of IS in the business unit. When he joined the business unit as IS manager during decentralization he was given two extra responsibilities: business planning and sales compensation for agents. In this way he was integrated into the business functions. He has managed or overseen all of the IT initiatives in BU 1. Ratings for knowledge - all HIGH.

The IS Director was hired from university into the IS department and has no line management experience. We rated her company, IT project management and new technology awareness as high, and her insurance knowledge as low.

These ratings do not capture the full meaning of the shared experience factor for BU 1. The IS people in this business unit go to unusual lengths to understand the working of the business. The VP of IS spends two weeks a year visiting sales offices and one of the senior managers from the IS department spends several days working in each of the 20 sales offices every year. The IS Director in charge of marketing systems also attends sales conferences.

In addition, four of the seven senior IS managers previously held line management positions. In interviews, both the IS Director and the VP of New Business commented

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62 These actions are unusual as compared with our other business units. According to the SVP, they are also unusual compared with the top 30 individual life insurers of North America. In a meeting of the IS managers from these large companies, the SVP learned that none of them made regular visits to marketing offices.
on the high level of knowledge of the business that IS people have in this business unit.

In summary, there is a very high level of shared knowledge among IS and business people in BU 1. The VPs of the two head office functions, new business and administration, have both had experience in managing IS projects and the IS executives are knowledgeable about the line business operations.

3. Communication between Business and IS Executives

Using Galbraith’s typology, there are three types of lateral relations devices being used in Business Unit 1 - direct contact, a liaison role, and permanent teams. Each is discussed below.

a) Direct Contact

The SVP reported that he meets with the VP of IS approximately once per week. This is less frequent contact than he has with the other head office executives, which he estimated as once per day.

b) Permanent Teams

There are three permanent teams within which much of the communication between IS and business executives takes place. Two of the teams are made up of the managers who report to the SVP and the VP of IS and Administration, respectively. The third team is comprised of all directors in the business unit63.

The senior management meeting is attended by the six top executives in BU 1. They spend 1 1/2 days at the beginning of each month and 1/2 day at the end of each month together - a total of 2 days or approximately 10% of their time. Minutes from

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63 Directors are the managers who are one hierarchical rung below the vice presidents.
these meetings are distributed to all directors, managers, and senior supervisors and are widely read and discussed. The minutes are very detailed\textsuperscript{64} with all attachments needed to keep the reader informed. Both the VP of IS and the IS Director stressed the importance of these meetings and the associated minutes. According to the IS Director, her managers have been encouraged to be very well informed about the business and use these minutes to keep up to date.

The director’s meeting is held once a month for 1-2 hours. The director from New Business who chairs the meetings has been formally appointed as liaison between marketing, product development, and the administration and sales functions. This is his way of keeping everyone in communication with everyone else. The two IS Directors in charge of marketing and administrative systems attend this meeting, along with directors from all other BU functions. This is an interesting committee - it is structured like the senior management group but is one level lower. The agenda is made up of the events and projects that will affect more than one function.

The IS/Administration meetings are held once a month. If it was an IS VP’s meeting, it would not qualify as a permanent team since it would offer the IS directors no access to other functional executives. However, because the VP of IS is also in charge of administration, this meeting brings the IS directors and managers together with their peers in administration. Their agenda is composed mainly of internal items of business, but the VP of IS also discusses items from the senior managers meetings. Therefore, this meeting links the IS directors with the administration managers and also with the senior executives.

In summary, because of the management meetings and the directors meetings, the IS executives have frequent and diverse communication with the business executives in

\textsuperscript{64} We were given two sets of minutes to peruse. The Oct 11/12 meeting had 12 pages of minutes and 21 pages of attachments. The June 3/4 meeting produced 4 pages of minutes and 11 pages of attachments.
4. Connections between Business and IT Planning
a) Business Planning

BU 1 has two short documents that constitute the business plan - the Strategic Profile document and the 1991 Priorities document. Their Strategic Profile document is the key strategy level document, according to the VP of IS. It was first created in 1985 and is updated every two years in an off-site meeting.

BU 1 also has a much longer five year plan, but the 1990-1995 version was not produced until the end of 1990. None of the executives referred to this plan when asked about strategies and plans and we concluded that it was created at the request of the parent company and not as a guideline for action.

Creating the 1991 Priorities document is done by the SVP and VPs within BU 1. After the Strategic Profile document has been updated, each VP puts forward a list of the major activities they wish to undertake in the coming year. Each activity is then assessed against the Areas of Excellence heading defined in the Strategic Profile document. They weed out the ones that don’t fit. Then each VP pair-weights each activity under each heading. This voting method is used to prioritize the activities under each heading. Then IS decides which activities under each heading they can support with current levels of staff. The activities which can be supported are put in the "resourced" list. The rest, which are put in the "non-resourced" list, probably will not get done in the coming year.

The distribution of the Planning documents is very wide, according to the SVP. He sent the 1991 Priorities out to everyone above the clerical level and personally has

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65 Although there is negotiation about which projects IS could and should support, it is clear that IS is a major bottleneck within the BU.
explained the contents of the 1991 Strategic Profile to about 40 officers. He says "it only takes up a few pages, but we can talk about what it means for two hours".

In summary, business planning is done using a relatively short time horizon - one to two years. The five year plan is not used.

b) IT Planning

There is no separate IT planning process. The IT plan is a derivative of the prioritized list of BU activities. The IS VP has put a number of internal systems initiatives under the Operational Effectiveness heading (e.g. Tester’s workbench, PC development environment). Each of these items is accompanied by estimates as to savings and/or effort. They are voted on in the same manner as the other IS projects which would support product/service objectives and other product or market projects which required by other executives. Therefore, the final IT plan is composed of projects that directly support business activities and a few internal projects which support IT cost reduction efforts.

Therefore, the process which creates the 1991 Priorities document constitutes the only officially sanctioned IT planning process. The VP of IS seems that proud of the fact that IS did not have a parallel planning process and could work from the document which outlined every other departments’ important activities.

The IS Director, however, reported that an internal committee of the nine senior IS managers has been meeting for about nine months to draft a strategic IT plan, similar to one which was prepared six years ago. They have completed a draft document for discussion among themselves and are considering making it a subject of discussion with the VP of IS. It is largely a technology direction statement rather than a plan for applications.

c) Summary
The senior IS executive is an active participant in the business strategy setting process which creates the Strategic Profile document. He coordinated the preparation of plans for many years. There is no comparable IS strategic planning exercise which business managers are involved.

There are very strong connections between the process which creates business objectives and IT plans within BU 1 since the VP of IS is present at all meetings which vote on all of the projects suggested and the projects which he suggests are ranked along with all of the other projects of the VPs.

In summary, there is one, not two planning processes, which is the highest form of connection expected in a business unit such as this one. The connection between the systems is rated as integrated.

B. Summary and Analysis - Business Unit 1

In Table VII.1, the findings are summarized for Business Unit 1 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (i.e. shared knowledge and previous implementation of IT plans) and Current Practices (i.e. Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
Table VII.1
A Summary of the Factors and Linkage Ratings for Business Unit 1

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
</table>
| History of Implementation of IT Plans | Operational systems within BU 1 have been very successful in the past. They have a history of being very proactive with strategic uses of technology in support of agents.  
BU executives view IS as being very successful in their initiatives over the last nine years. |
| Shared Knowledge between IS and business executives | Two of the six BU executives have had IT management experience.  
Four of seven IS executives have had line management experience. IS managers regularly visit business offices and attend insurance conferences.  
High level of shared knowledge. |
| Communication between IS and business Executives | Direct contact between the IS VP and the SVP is infrequent compared with other VPs.  
Three permanent teams - senior managers, IS/administration managers, and directors - provide a wealth of opportunity for communication.  
There is a formally named liaison person within BU 1 who works with all functions.  
Overall communication is frequent and diverse. |
# Table VII.1
## A Summary of the Factors and Linkage Ratings for Business Unit 1

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections between IT and business planning</td>
<td>For many years, the VP of IS coordinated all the business planning activities within the BU. Long term business planning is done off-site with the VP of IS participating. No long term IT planning process was reported. One year planning is done by the senior managers in which everyone’s projects are discussed in relation to strategic objectives and then pair-weighted by every one of the senior managers. The planning processes are highly connected and are rated as integrated.</td>
</tr>
<tr>
<td>Other Factors</td>
<td>The VP of IS is uniquely qualified and positioned within BU 1 to enable linkage. He has a strong line management background and is in charge of a line function as well as IS.</td>
</tr>
<tr>
<td>LINKAGE</td>
<td>MODERATE - HIGH. The IT application objectives are understood by executives but the technology objectives or internal IT cost cutting efforts are not known. The IS executives exhibited a high understanding of business objectives.</td>
</tr>
<tr>
<td>- understanding of objectives (EXECS/IS)</td>
<td></td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>HIGH</td>
</tr>
<tr>
<td>OVERALL</td>
<td>HIGH</td>
</tr>
</tbody>
</table>
1. Stage One: The Relationship between Antecedents and Current Practices

The VP of IS, probably because of his experience as a line manager, has instituted a set of practices and expectations about the level of knowledge IS people are required to have about the business. According to the director of IS, if an IS person is not qualified in this regard, he or she will not be put on projects working with the users. All business executives interviewed commented on the high level of knowledge that IS people had about their business. The regular visits made by IS managers and the VP of IS to the sales offices were reported to be very productive. We concluded that the high level of shared knowledge has increased the success of IT projects in previous years and has also increased the current levels of communication between IS and business executives.\(^6\)

It is difficult to find a direct link between success in previous IT implementations and current practices (i.e. communication and connections in planning). One line of reasoning would be that the previous success has allowed them to confidently plan a very strategic IT implementation, one which will radically transform their business. In interviews, business executives expressed no doubt that the IT project would be successful; they were more concerned with the overall management of the change associated with it. Therefore, they are able to create a consensus about strategic objectives without the doubts and mistrust which would be present in an atmosphere characterized by past failure.

Another line of reasoning comes from an examination of the three stage planning process. The last stage, after the VPs prioritize the strategic projects, IS allocated resources to them and their capacity limits the ability of the BU to accomplish all of the projects. There is some grumbling, according to the VP of IS, but no real contention. It

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\(^6\) According to Senge (1990), this is a reinforcing spiral. IS knowledge of the business increases communication between IS and business managers, which increases the level of success of IT projects, which increases communication, which increases knowledge.
is accepted that IS will deliver what they promise on time and are working at full capacity.

From these two lines of reasoning, we conclude that success of IT implementations has supported and improved the connections in planning.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

Observed linkage within BU 1 was rated as being HIGH in shared vision and MODERATE - HIGH in mutual understanding of objectives, with executives being only partly aware of IT objectives.

The influence of planning practices on mutual understanding was quite clear. The BU conducted one overall planning exercise at which both IT and line projects were discussed. This enabled the VP of IS to see the plans of all other units. Because he was in charge of the planning process for many years, he was more exposed to it than any other executive. He also fully participated in off-site strategic planning. Therefore, he rated HIGH on understanding of business objectives.

On the other hand, he did not share his internal IT objectives (e.g. technical platforms, IT productivity improvements) with the other executives, although he had a mental model of them which he communicated in interviews. The executives, therefore, did not have full understanding of the IT objectives.

Therefore, the planning process directly influenced the Mutual Understanding aspect of linkage.

There are very high levels of communication between IS and the marketing organization within BU 1, including regular visits to sales offices and attendance at conferences. This high level of communication (plus business imperatives) has led to a shared IT vision centred around the marketing function.
3. An Alternative Explanation

Although it can be shown that the factors in the model contributed to the observed linkage, it seemed that one thread connected all the findings. This thread is the VP of IS, who has been present since the IS department was created in BU 1 and who has managed the business planning process for many years. His commitment to IS knowledge of the business and to strong communication between IS and business executives has, in our estimation, greatly influenced current practices and therefore observed linkage within the business unit.

The VP of IS had a very high level of knowledge of all aspects of the insurance business and of IS before he joined BU 1. However, he had spent 10 years outside of a business unit developing IS applications. His business knowledge was nurtured by the SVP by making him responsible for planning and for a minor line function. Gradually, his business expertise grew to the point where he now heads the administration function, one of the three business functions (with sales and marketing) in BU 1.

We labelled the VP of IS as a "composite" - a person who contains a significant level of both IT and business experience. It seemed that the presence of a composite in BU 1 has contributed highly to both communication and shared knowledge in BU 1.

Figure VII.2 depicts the causal relationships found in BU 1\textsuperscript{67}.

\textsuperscript{67} In this diagram and the ones following for the other business units, the arrows represent a causal relationship supported by the data in this case. The boxes with dotted lines represent factors which emerged from the data and were not in the original model.
Figure VII.2
Causal Relationships in BU 1
C. Factors - Business Unit 2

1. Implementation of Previous IT Plans

In the early 80's, BU 2 implemented a highly innovative strategic system to support their claims processing function. It required significant management attention to derive the full benefits from it, but it was regarded as being highly successful. In the mid 80's, a line manager, who had become interested in the potential of information technology, took over the IS department in the business unit and commissioned a comprehensive IT strategic planning project. During the last five years, they have tried to implement applications based on the architectures developed in the strategic IT planning project. Unfortunately, they have not yet produced results which are regarded as successful by BU 1 executives. Projects are late, over budget, and do not produce tangible benefits. Executives in this BU, which considered itself an innovator, now believe that they are behind their competitors in information technology.

There have been some small successes in BU 1 recently. PC based systems, designed by units that did not want to wait for mainframe solutions, have been strategically important to BU 1. A strategic system to support dental claims also was recently implemented.

In general, however, the BU executives are not satisfied with the returns from the IT function and do not consider the past few years to have been successful with respect to IT.

2. Shared Knowledge of IS and Business Executives

a) Business Executives

The SVP, has no direct systems experience. He has been the senior manager for several years and was sponsor of the strategic IT plan and the subsequent deliverables.
We rated him as low on IT project management and awareness of new technology and high on insurance and company knowledge.

The VP of Marketing and Administration has never had any systems experience, having always been in a marketing role. He has sponsored the PC-based systems and has seen the support that IT can provide to marketing. His ratings were the same as the SVP’s: low on IT topics, high on company and insurance knowledge.

The VP of Finance said he had no direct responsibility for systems in his 17 year career with the company. He has always been one or two levels away from the projects. He is only a "Fortune" level reader about technology. His ratings were the same as the SVP’s: low on IT topics, high on company and insurance knowledge.

The VP of Benefits and IS, has 22 years with the company in a variety of jobs. He joined BU 2 in 1980 and was in charge of the rollout of the claims system into the sales offices, which took 4 years. His rating are high on company and insurance knowledge, moderate on IT project management experience and low on awareness of new technology.

b) IS Executives

The IS Director has been with the company since 1976 after graduating with Computer Science and Commerce degrees from university. He has been in IS for all of his time in the company and has been in BU 2 for 7 years. He rated low on insurance knowledge and high on company knowledge, IT project management experience, and awareness of new technology.

In summary, there is very low level of shared experience in BU 2. Only the VP of Benefits and IS, who took over responsibility for IS a few months before the interviews, has been involved in a large IT project.
3. Communication between business and IS executives

In response to the poor results from the systems architecture project, BU 2 has instituted a major hierarchical change. The IS Director, who used to report to the SVP, now reports to a VP of Benefits and IS. This person was chosen because he was the only senior member of management with previous experience in managing IT projects, not because there is any logic for an IS Director to report to a functional manager. The executives were very defensive when questioned about this move - they said it would not be a permanent move. The SVP said IS might regain its position in a couple of years.

Using the Galbraith typology, there are two types of lateral relations in Business Unit 2 - direct contact and permanent teams. A third type, a managerial linking role, is being planned for the near future. Each lateral relations device is discussed below.

a) Direct Contact

The SVP had no regularly scheduled meetings with the IS Director and met with him less than once a week. One of the reasons for the change in reporting structure was expressed by the SVP as a reluctance on his part to get involved with IT. "I just didn’t think I could get as interested as I’d like to have." Although the IT function was not performing satisfactorily, the SVP did not take charge. Instead, he moved IT under another Vice President.

The VP of Marketing and Administration had no regularly scheduled meeting with the IS Director. He estimated that he called him twice a month to ask something. He also would talk to specific IS people about certain systems initiatives.

The VP of Finance had no regular meetings with the IS Director nor did he contact him often.

The VP of Benefits and IS, who is the IS Director’s direct superior, said he meets with the IS Director every 2 weeks regarding a new system initiative and meets
informally with him three or four times per week.

b) Permanent Teams

The monthly Planning Committee meeting (VPs and Director level - 12 people) is the most important meeting that the IS Director attends. This is the major formal communication vehicle within the management of BU 2. Ideas for new products are aired, one and five year plan documents are reviewed, and progress towards targets is discussed. It lasts three hours with every director reporting on their area of responsibility.

Another meeting in which the SVP and the IS Director will regularly meet is the monthly project management meeting for the strategic architecture. These have been going for five years and are mainly operational and tactical in their content.

c) Managerial Linking Role

A new position, Director of Quality Business, was being created with two major responsibilities: to create quality initiatives within the BU and to improve the productivity of the IT function. The latter role would entail defining benefits for new applications and setting overall direction for the architecture project. In terms of the Galbraith typology, this Quality Business position is a managerial linking role. This is a sixth level mechanism in his typology - the highest level of connection between the IT function and the business executives that we have seen in any of our business units. The SVP has created this new position at some sacrifice to the organization: *I am prying one of my officer people out of their operation without an increase in officer complement.* This would suggest that IT is a very serious undertaking within BU 2 and that the problems they are having warrant a radical departure from normal organizational structures.
Summary

In summary, the IS Director's communication with senior management in the BU (other than his direct superior) is infrequent. Under the new changes, he will have less access to the SVP and less responsibility for setting IT direction within the business unit.

4. Connections between business and IT planning

a) Business Planning

The company as a whole has five year and one year planning process. The five year process is first and finishes about August, the one year starts next and finishes in December.

The Planning Committee which meets regularly throughout the year, is responsible for producing the strategic plan. In the past, the three senior managers have set the goals at Planning sessions. In September, the whole Planning Committee looks at directions for the next year. All 12 people at Director level and above participate. They reassess strategic goals and look at tactical plans and create budgets. The IS Director is most active in this tactical planning process since he is most often the constraint as to what can be accomplished. The management group prioritizes the work after IS tells them what projects can be supported. The budget is then prepared.

The VP of Finance said that the IS Director did not have much to do with setting the goals but was often the constraint for the tactics.

b) IT Planning

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68 Compared with BU 1, in which six managers meet for two days per month, BU 2 has 12 people meeting for 1/2 day per month. This is one-eighth of the amount of scheduled contact between executives as occurs in BU 2.
The IT projects are prioritized at Planning Committee during a round table discussion. The IS Director takes this input, adds the requests for maintenance coming from the other BU 2 clients, and uses these to create a budget for the coming year.

He distributes his plan internally within the Planning Committee and presents it internally within IS.

The IS department also has internal objectives - productivity initiatives and architecture projects - that they are pursuing. They are discussed informally at Planning Committee meetings.

c) Summary

The Planning Committee process ensures a strong connection between the one year plans of the executives within BU 2. As the SVP says: "technology is a major part of our strategic planning. We’re really building a lot of our plans on the effective use of modern technology and trying to build some competitive advantage or at minimum staying equal with our competitors in terms of improving on the quality of the stuff that we provide and doing it at a lower price. And we think that technology is the horse we’re going to ride on. We don’t think, we are riding on it, we are right on top of it and unfortunately at times technology just almost dictates what we do sometimes - who is riding who, here?"

However, the IS Director is not one of the executives who participates in the "inner circle" which sets overall BU direction and goals. Therefore, the IT function has no opportunity to be considered strategically. The Planning Committee decides on tactics and the IS department is seen as a major constraint on the BU.

The rating for the connection between the planning process is derived since the IT plan is not strategic in nature and the IS Director does not participate in setting overall BU goals.
D. Summary and Analysis - Business Unit 2

In Table VII.2, the findings are summarized for Business Unit 2 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
Table VII.2  
A Summary of the Factors and Linkage Ratings for Business Unit 2

<table>
<thead>
<tr>
<th>FACTORS/ LINKAGE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linkage Between Business Unit and Corporate IT Objectives</td>
<td></td>
</tr>
<tr>
<td>History of Implementation of IT Plans</td>
<td>After an early strategic success with IT in 1983/84, BU 2 has fallen behind. Its architecture project has not produced systems which provide significant business benefit. There have been a few small successes, but overall, the IT implementations in the past two years are considered to be unsuccessful.</td>
</tr>
<tr>
<td>Shared Knowledge between IS and business executives</td>
<td>One of the four BU executives has had IT management experience.</td>
</tr>
<tr>
<td></td>
<td>The IS executives have had no line management experience.</td>
</tr>
<tr>
<td></td>
<td>Low level of shared knowledge.</td>
</tr>
<tr>
<td>Communication between IS and business Executives</td>
<td>Direct contact between the IS executive and the other executives is infrequent except for the direct superior.</td>
</tr>
<tr>
<td></td>
<td>Two permanent teams - the planning committee and the IT project steering committee- provide valuable exposure for the IS Director.</td>
</tr>
<tr>
<td></td>
<td>A managerial linking role was planned for the near future - to take responsibility for IT direction. This action may further reduce communication between IS and senior executives.</td>
</tr>
<tr>
<td></td>
<td>Overall communication is infrequent.</td>
</tr>
<tr>
<td>Connections between IT and business planning</td>
<td>Long term planning is done by the three senior executives and does not include the IS Director.</td>
</tr>
<tr>
<td></td>
<td>One year planning is done by the senior managers in which everyone's projects are discussed in relation to the goals.</td>
</tr>
<tr>
<td></td>
<td>The planning processes are connected in the one year time-frame but not strategically, and are rated as integrated.</td>
</tr>
<tr>
<td>Other Factors</td>
<td>The reporting structure implies less contact between the IS Director and the SVP, although there was not much before the change.</td>
</tr>
</tbody>
</table>
Table VII.2
A Summary of the Factors and Linkage Ratings for Business Unit 2

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINKAGE</td>
<td>HIGH/MODERATE. The BU executives know about the IT projects. IS executive is less informed of overall direction.</td>
</tr>
<tr>
<td>- understanding of objectives (EXECIS/IS)</td>
<td>MIXED. They have an old vision of integrated administrative backbone systems and a new one of marketing support at the front end of the business cycle. These have not yet been rationalized.</td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>MIXED. There is some schizophrenia here - visions and current plans do not coincide.</td>
</tr>
<tr>
<td>OVERALL</td>
<td>MIXED.</td>
</tr>
</tbody>
</table>
1. Stage One: The Relationship between Antecedents and Current Practices

BU 2 has had its confidence shaken in the past five years. It was previously successful with IT implementations and knows it must be successful in the future. However, the recent projects have been disappointments. In response to the project failures, the SVP has changed the reporting hierarchy which will affect the communication patterns within the BU. The IS Director now has less contact with the SVP and more contact with one of the VPs, who is his new boss. Because the IS Director is not part of the "inner circle" any more, his opportunity to influence business strategy or even to participate in setting it is reduced. Therefore previous IT implementation failures have influenced both communication and connections in planning.

BU 2 has a very low level of shared knowledge. The effect of this was demonstrated when the organization change was made. Instead of the IS department reporting to their largest client, the Marketing and Administration department, it reports to the only VP who has some knowledge of IT. When things started to go wrong, the SVP, instead of working more closely with the IS Director to change directions, abdicated his responsibility. The SVP now has less contact with the AVP of IS than he did previously. We concluded that the low level of shared knowledge has affected the communication within BU 2.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

Observed linkage was rated as being HIGH overall, so the disappointments of the previous few years have not yet affected this measure.

The planning practice in which the Planning Committee meets and agrees on annual tactics and priorities has resulted in a high level of mutual understanding of objectives.

The IT vision in BU 2 used to be an integrated set of administrative systems to
lower unit costs. This has proven to be difficult to achieve. Two of the executives expressed the view that the front end of the business held the major IT opportunity now. So there is a shift in progress and the new vision is not yet widely shared. The lack of close strategic level communication between IT and the executives has hindered their ability to create a new vision. Therefore, a low level of congruence between the current objectives and the long term vision was discovered, partially caused by a low level of communication.

3. An Alternative Explanation

Although we attributed causality for the "schizophrenia" between current objectives and vision to planning and communication processes, it is possible that organizations form and reform visions at a very slow rate. If we view a change in IT vision as a paradigm shift, it is possible that the disconfirmation evidence must be quite strong before beliefs are challenged and changed. In BU 2, the evidence has been building since 1987 and in 1991 some changes were made. More will come as the BU turns itself "into the wind" and faces a new strategic future. Although it will not be pursued in this study, a model of organizational change may be the most informative lens to view BU 2 through.

Figure VII.3 depicts the causal relationships found in BU 2.
Figure VII.3
Causal Relationships in BU 2

Shared Knowledge between Business and IS Executives

Implementation of Previous IT Plans

Communication between Business and IS Executives

Connections between Business and IT Planning Processes

(Vision)

(Mutual Understanding)

LINKAGE
1. Implementation of Previous IT Plans

Because BU 3 was formed by a merger of parts of two other business units 18 months prior to the research project, the applications inventory we investigated was a combination of standalone systems and pieces of larger systems. One of the larger problems in planning for the future is deciding whether to combine old systems or build completely new ones to support the new business directions.

The marketing support system is the major initiative underway. It is designed to give the agents access to client and product information in order to support the sales process. It was begun in 1987 to support group pension products but with the new organization its future is unclear. Progress on the system has been slow and 1991 deadlines will be missed. All managers felt that there was very little coming out of this systems development effort in the previous year. There is a feeling among management that the systems are overbuilt within the division.

The administrative systems group had a productive year and implemented an automatic cheque generating system which was termed "a great success" by one VP.

Another large project underway will support the management information needs of the BU. It was reported to have had "reasonable results".

In general, the previous year’s implementation of IT has been partially successful.

2. Shared Knowledge of IS and Business Executives

a) Business Executives

The SVP of BU 3 came from another business unit where he was credited with being the visionary for an innovative IT project which will dramatically alter the way agents write and administer policies. He rated high on company and insurance
knowledge, low in IT project management, and moderate in awareness of new technology.

The Director of Marketing came from the same BU as did the SVP and was the executive sponsor of the aforementioned IT project. In 1988 he was the executive sponsor for Canada for the large asset-matching systems project. Earlier in his career he managed a group of programmers who revamped life insurance and annuities programmes. We rated him high in company, insurance, and IT project management knowledge, and moderate in awareness of new technology.

The VP of Management Information confessed that he was the "idiot who dreamt up the asset-matching project". He had experience with programming as an actuarial student and was responsible for bringing a new programming language into the company. His other exposure to systems came when he was designing and pricing products for the life and health annuity business and most of them went onto the administrative system. His current "vision" for the division is single source data entry and a single master database where everyone can go for consistent data. His rating are: high on company, insurance, and awareness of new technology knowledge, and moderate on IT project management.

The Director of Administration has been with company for 16 years, all of them in one BU. He has No IT experience. We rated him as high on company and insurance knowledge, low in IT project management and awareness of New Technology.

b) IS Executives

The IS Director, who joined the company 15 years ago in the Corporate IS area,

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69 It is interesting to note that the first three executives described, who were transferred from BU 1, are all IT literate; the one executive who was moved from BU 2, is not. The level of IT knowledge in these two business units, which are the largest ones in the company, are very different. These differences affect other business units as executives are transferred.
has a computer science background. She remained in Corporate IS when the developers were decentralized as the senior manager under the VP. Her background is IT architecture development and planning. She has no line experience and has not been involved with the development of any of the systems used in BU 3. She was rated high on company knowledge, IT project management experience, and new technology awareness and low on insurance/business knowledge.

The Development Manager has been in group pensions for her entire 20 year career. She was in the pension administration line area for five years and then moved to Corporate IS 15 years ago after she became interested in systems. When systems developers were decentralized in 1984, she moved back to the group pension area. She was rated high on company knowledge and IT project management experience, moderate on insurance knowledge and awareness of new technology.

c) Summary

As is evident from the descriptions above, all of the managers in the new BU have extensive experience in the company and in their respective fields of expertise. There are several business executives who have a strong history of personal involvement in IT projects to the point where they understand the technical jargon, the dynamics of an IT project and their responsibilities in providing management direction. There is a high level of shared knowledge in BU 3.

3. Communication between Business and IS Executives

Using Galbraith’s typology, there are two types of lateral relations in Business Unit 3 - direct contact and permanent teams.
a) Direct Contact

No information was collected concerning the direct contact within BU 3.

b) Permanent Teams

The IS Director is a member of senior management within BU 3. They meet weekly for half a day. There are five senior managers and, as one manager stated, "there's no use keeping secrets. All managers see the minutes of the senior management meetings."

There are bi-weekly managers meetings which all directors and managers attend. This is a meeting of about 15 people with an open agenda.

There are also biweekly project meetings for the three largest IT initiatives which the IS Director and most of the senior managers attend and a monthly meeting that deals with other systems projects and discusses reprioritization issues.

There is a Task Force for other IT projects which meets every 6 weeks.

In summary, at the senior level, there appears to be many formal opportunities for communication within BU 3. The weekly meeting is the important forum and the IS Director is a full participant at these meetings. Because of the multitude of meetings which IS and business executives attend, we rate the communication between IS and executives as frequent and diverse.

4. Connections between Business and IT planning

a) Business Planning

The BU is undergoing a thorough strategic refocus and has contracted the planning duties out to a consulting firm. The IS involvement in that process has been minimal to date. The consultant is concentrating on the product-market/distribution mix and not on the systems side of the business.
Input for the strategic planning project is in the form of three lengthy background documents, entitled Market Section, Products Section and Competition Section. They were written by the Director of Marketing, were circulated to senior management for input, and the revised documents have been widely distributed. IS did not play any special role in drafting these documents.

The other major planning process is the creation of annual business plans. The IS Director has an important process role in ensuring that planning meetings are called and that plans are published. This role ensures that she manage the planning dynamics and also is cognizant of the content of the plans. This planning process results in a document called 1991 Business Priorities. It is an action document and is updated as needed through the weekly senior management meetings.

b) IT Planning

In 1990, the IS department examined its alternatives for the marketing support system from a number of angles and was not able to create a clear direction for it, possibly because the business priorities were not firm yet. Currently, there is no strategic planning process for IT within the business unit. IS managers are waiting for clarification of business direction. There are no written systems strategies or goals, only project development plans.

c) Summary

In summary, there is no long-term business or IT planning process in place in BU 3 yet. However, because the weekly meetings include the IS Director and review the Business Priorities document, there is very strong connection between short term IT and

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70 This is the same role that the IS Director in BU 1 used to play. The SVP from BU 1 is now heading up BU 3 and has involved the IS Director as coordinator of business planning as he did before.
Business planning.

IT plans, like business plans, are short term in nature and are integrated.

F. Summary and Analysis - Business Unit 3

In Table VII.3, the findings are summarized for Business Unit 3 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
</table>
| History of Implementation of IT Plans | This new business unit has just over a year of history. The large applications projects lack direction and have not progressed. Some smaller initiatives were successful.  
Generally a mixed success for IT implementation. |
| Shared Knowledge between IS and business executives | Most of the BU executives have had IT management experience.  
One of the two IS executives have had line management experience.  
High level of shared knowledge. |
| Communication between IS and business Executives | Six permanent teams - weekly senior management, bi-weekly managers, bi-weekly IT project meetings and a Task Force provide a wealth of opportunity for communication.  
Overall communication is frequent and diverse. |
| Connections between IT and business planning | The Director of IS is in charge of the planning processes for the business unit.  
Strategic planning for the BU is being done by an outside consulting firm.  
Ongoing planning processes tightly connected and are integrated. |
<p>| Other Factors | There is no strategic direction for the BU as yet. |</p>
<table>
<thead>
<tr>
<th>FACTORS/ LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINKAGE</td>
<td>MODERATE/LOW. It is not clear what direction the business or the major IT projects will go.</td>
</tr>
<tr>
<td>- understanding</td>
<td>HIGH. Executives are confident that IT will be used successfully in the marketing end of the business cycle.</td>
</tr>
<tr>
<td>of objectives</td>
<td></td>
</tr>
<tr>
<td>(EXEC'S/IS)</td>
<td></td>
</tr>
<tr>
<td>- Shared Vision</td>
<td></td>
</tr>
<tr>
<td>OVERALL</td>
<td>MIXED. Low short term clarity, high long term congruence.</td>
</tr>
</tbody>
</table>
1. Stage One: The Relationship between Antecedents and Current Practices

The IT knowledge of the executives in BU 3 is high. They are comfortable with IT issues. The IS Director, even though she does not have a strong knowledge of the business, is a full member of the senior management team and has very frequent communication with all executives. It seems that shared knowledge has had an influence on communication within BU 3.

The SVP has put the IS Director in charge of coordinating the planning activities for the business unit, with the exception of the strategic planning effort. He is confident that IT will significantly leverage the business and wants to make the IS Director, who has not worked with the other executives before, an integral part of the team. It is the SVP’s high level of shared knowledge which has influenced the planning processes.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

With high levels of communication and connections in planning, one would predict high levels of linkage within BU 3. In fact, the overall rating was MIXED: the level of mutual understanding of objectives was LOW and the shared vision was HIGH. The factors from the model are used to explain the high level of vision. An emergent factor, which will be discussed below, may be responsible for the low levels of mutual understanding.

Although the strategic direction is uncertain at the moment, the executives in BU 3 spend a lot of time together discussing the tactical and operational issues of making their new business unit profitable. This has resulted in a sharing of the ideas that they brought with them from other business units. The vision espoused by most of the executives is a reflection of the vision in the BU that the majority of them came from. The communication within BU 3 has helped the executives create a shared vision.
3. An Alternative Explanation

One of the issues making decision making difficult in BU 3 is the current uncertainty about their strategic direction. They are awaiting a strategic planner's report and for the moment are making only short term decisions. Therefore, when asked to describe each other’s goals, they all said that goals were not decided on yet. The lack of a strategic direction is influencing the mutual understanding aspect of linkage.

Figure VII.4 depicts the causal relationships in BU 3.
1. Implementation of Previous IT Plans

This business unit is responsible for investing the monies that flow into the company from premiums, annuities, and retained earnings. The tasks to be supported by information technology are much more the decision support type than the traditional high-volume transaction-based systems found in insurance companies.

The IS development unit within BU 4 was formed in early 1987. In 1988, it began a major IT initiative, the asset-matching system. Little was accomplished on asset-matching in 1988 because of lack of budget and people.

The IS group developed an executive information system (EIS) in 1989 under the sponsorship of the Vice President of Investment Administration. This system was hampered by a lack of funds and inadequate input from senior managers and was not developed past its initial version. The sponsor left the company and the system is not in use at the present time.

In 1989, the IS Director hired people from other internal IS units and from the external IS community for the asset-matching project. There was a lot of design and not much delivered. In 1990, IS again made little progress towards deliverables. IBM did a risk analysis of the project and concluded that this was an extremely high risk project, not only because of the complexity of the system design but also because of the inexperience of the systems staff. An experienced project manager was hired to manage asset matching. One of the executives said he "didn't see much delivered" in 1990 and he "doesn't understand the delays". By mid 1991, they had completed several pieces of the system. System testing was scheduled to begin. All major parts of the system will "go live" at the same time.

The asset-matching project is a disaster considering the initial expectations of cost
($1 million), the total outlays to-date ($7-8 million) and the projected requirements (up to $15 million, including all management time). It was first proposed on the simple premise that even a 1% increase in the accuracy of matching claims to assets would improve the bottom line. Management still seems to believe in the vision and are continuing to fund it.

In general, previous IT implementations are rated as being unsuccessful.

2. Shared Knowledge of IS and Business Executives

a) Business Executives

The VP of Investment Policy reported that he had very little involvement with Information Technology in the past. He has a long history in the investments side of the business and many years with the company. He was rated high on company and investments knowledge, low on IT project management experience and awareness of new technology.

Both the business executive and the IS executive reported that, with the exception of the SVP, there were no executives in BU 4 with a significant amount of experience in IT project management or awareness of new technology.

b) IS Executives

The IS Director joined the company as a junior programmer in 1969. His IT experience has been gained on the job and from courses taken throughout his working career. From 1974 to 1980, he worked in a technical systems support role. In 1980, he was reassigned to systems development within Corporate IS. His responsibility at that time was the Investment systems and he became the IS Director within BU 4 when the application development function was decentralized in 1987.

In summary, there is no experience with IT project management in the executive
group. The IS Director has no line experience. He was rated as having high company knowledge, IT project management experience, and awareness of new technology, and low business knowledge.

3. Communication between Business and IS Executives

Using the Galbraith typology, there is only one type of lateral relations in Business Unit 4 - direct contact - which connects the IS department and the business executives. There are no permanent teams of executives to which the IS Director belongs.

There are no regularly scheduled meetings between the IS Director and any of the Executives. There are unscheduled meetings between the VP of Investment Policy and the IS Director, which are designed to increase the IS Director’s involvement in and understanding of the business. These meetings developed out of a personal friendship between the two executives as the IS Director would seek the advice of the more experienced BU 4 executive. The VP of Investment Policy is now committed to raise profile of IT within BU 4.  

In summary, there is very infrequent communication between the IS Director and the Executives in BU 4.

4. Connections between business and IT planning

a) Business Planning

There is no history of business strategic planning in BU 4. The executives in BU 4 do not have as much task interdependence as in the traditional insurance units and the senior people are all "stars", each managing a portfolio and getting rated on its

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71 The IS Director has created a mentor for himself. Because of the executives’ attitude towards IT (i.e. IT is a necessary and expensive evil), it was not easy for him to make a contribution in the early years.
performance.

There is currently a strategic planning project which is being done by a consultant. All the deliverables are expected to be strategic plans for the investments business itself, not for the management processes which support the business. The IS Director does not expect to get any assistance in his strategic IT planning from it.

b) IT Planning

There has not been any strategic IT planning since 1989, when IS created the IT mandate and objectives. This document was not ratified with the executives in BU 4. There was no systems plan for 1989 or 1990 because the major asset-matching project consumed most of the resources.

The IS Director has now created an internal document in order to explain his staff's duties and their relationship to the business unit activities. This document has not yet been presented to the executives.

For the last couple of years, the IS Director has planned to do a strategic IT plan for BU 4. He does not yet have a mandate to do one, but is hoping that the strategic planning project will create the climate.

c) Summary

In summary, any strategic thinking or planning that IS has done has been created internally and has not been widely distributed or discussed, due to a definite lack of interest in strategic planning within BU 4. Connections in planning are minimal and IT planning is rated as being isolated from business planning.
H. Summary and Analysis - Business Unit 4

In Table VII.4, the findings are summarized for Business Unit 4 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
Table VII.4
A Summary of the Factors and Linkage Ratings for Business Unit 4

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Implementation of IT Plans</td>
<td>Since 1987, when the IS department was formed within BU 4, there have been no major operational or strategic IT successes. The current asset matching project is now beginning to be implemented but is millions over budget and several years late. IT initiatives managed by the IS department have been unsuccessful during the last four years.</td>
</tr>
<tr>
<td>Shared Knowledge between IS and business executives</td>
<td>Only the SVP has an strong interest in information technology. He programs his own PC-based systems but is not knowledgeable in the mainframe systems which support the business unit. No other executive has wide experience with IT. The IS Director has no line management experience. He had experience on the mainframe systems built for the business unit but not on the PC-based systems widely used by the BU executives to manage their investment portfolios. Very low level of shared knowledge.</td>
</tr>
<tr>
<td>Communication between IS and business Executives</td>
<td>Direct contact between the IS executive and the executives is extremely infrequent. The IS Director is using the VP of Investment Policy as a mentor to help him understand more about the business. There are no permanent teams which include the IS Director and any of the executives. Overall communication is infrequent.</td>
</tr>
</tbody>
</table>
Table VII.4
A Summary of the Factors and Linkage Ratings for Business Unit 4

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections between IT and business planning</td>
<td>There is no history of BU-wide strategic planning. VPs usually create short term independent plans. This year, an external consultant is creating a strategic plan for them. The IS Director is not involved in this process. The IS department has periodically created some strategic plans but these have not been presented to the executives. The planning processes are not connected and are rated as isolated.</td>
</tr>
<tr>
<td>Other Factors</td>
<td>The executives within BU 4 have a low appreciation of the benefits to be gained from the exploitation of IT.</td>
</tr>
<tr>
<td>LINKAGE</td>
<td>LOW - LOW.</td>
</tr>
<tr>
<td>- understanding of objectives (EXECS/IS)</td>
<td></td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>NO VISION</td>
</tr>
<tr>
<td>OVERALL</td>
<td>LOW</td>
</tr>
</tbody>
</table>
1. Stage One: The Relationship between Antecedents and Current Practices

There is a particularly inappropriate match between the IS Director's knowledge and interests and those of the executives in BU 4. He has extensive experience in mainframe systems to support the accounting function and mortgage portfolio of the business unit. The executives are more interested and knowledgeable about PC-based decision support systems to help manage their individual domains. This mismatch seems to have led to an almost complete lack of regular communication between IS and executives. We concluded that low shared knowledge in BU 4 has influenced the communication between IS and business executives.

The asset-matching and EIS applications had the potential to contribute strategically to the business unit. The latter was underfunded and ultimately died; the former is three years late and significantly over budget. These IT failures have no doubt reinforced the lack of communication within BU 4.

We were unable to determine if there was a causal relationship between the Antecedents and the Connections in Planning. BU 4 has never had an integrated strategic business plan, and there are no BU objectives that the IS department could use as input to their planning process. However, if there were to be such a process, it is not clear how involved IS would be in it or whether they would still be isolated because of low shared knowledge and low levels of communication.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

Both the infrequent communication and the low level of connections in planning processes seems to have influenced the low level of mutual understanding exhibited in interviews.

The lack of any vision about IT seems to be caused, at least partially, by the lack of a comprehensive business unit strategy. Each department plans in isolation from each
other and there is no business or IT vision.

3. An Alternative Explanation

Another reason for the observed level of linkage can be found in two characteristics of this business unit. The first one is their lack of strategic planning process and resulting lack of strategic business objectives.

The second one is the lack of a belief in the strategic value of IT among the executives. We speculate that the lack of success on previous IT implementations has strengthened this view and that the view itself is affecting the lack of connection in planning processes. If any of the executives had been convinced that IT was integral to the success of his department, we should have found evidence of involvement in that department's planning. No such evidence was found.

Figure VII.5 depicts the causal relationships found in BU 4.
Figure VII.5
Causal Relationships in BU 4
I. Factors - Business Unit 5

1. Implementation of Previous IT Plans

In early 1988, the decision was made to use a new release of a proven software package to support policy administration. The implementation was a disaster - it was over 6 months late and it immobilized the division. No new products were introduced for approximately 3 years. As one manager said "We were doing a three year conversion in a Marketing Division which was very proactive".

As the conversion was being completed, the project manager was moved from the Corporate IS Department into BU 5 and now holds the position of Systems Development Manager. This move was an unusual one for the company since the policy was for all IS analysts and programmers to report to corporate IS. Since the conversion finished a year ago, she has assembled a team of five business analysts (taken from the various BU 5 departments) and seven programmers to support and enhance the mainframe applications. The programmers report to the corporate IS department.

In mid 1987, a Marketing Administration manager was hired to develop a new product for BU 5. Since it was impossible to access the central mainframe systems to create support for this product ("the mainframe system was off-limits, no changes or upgrades"), the manager instead focused on improving the efficiency of support for another product. He used a consulting firm to create PC front-end systems which were a significant competitive advantage in 1988. The volume of sales of that product increased by 60% over the previous year.

This system, however, was not hooked into the main administrative system since it was undergoing conversion. "The policies were not in force and the agents were not paid. Everything had to be rekeyed into the main system. It was a nightmare. That hurt us in the market." This problem and others were corrected in the following year. Now
the agents are being paid within 24 hours - "the fastest in the business", according to the manager. He has continued to create PC systems to provide service to regional offices and is credited by the SVP and reported in the Annual Report as having produced several systems which allow BU 5 to differentiate itself from competitors. The Marketing Administration manager now directs the work of two PC programmers, one who reports to him and one who reports to corporate IS.

This business unit has, in the past four years, experienced both successful and unsuccessful IT implementations. The executives are very aware of both the value and the disruptive force of IT. The problems experienced during conversion outweighed the successes in the PC-based systems, however, and we rate their experience with information technology as having been mainly unsuccessful.

2. Shared Knowledge of IS and Business Executives

The SVP of BU 5 has a masters degree in Computer Science and has spent several years with previous employers as an IT professional - a systems analyst, project leader, and manager of the IS function. He was the executive sponsor for the major BU 5 conversion project. He is not an active reader of computing literature, neither does he attend IT conferences or courses. He is an active member of the IS Steering Committee, however, and has exposure to the technology topics that are discussed in that forum. Like many company managers, he is a regular electronic mail user and writes his own reports and memos using the office automation software. He has been with the company for at least 7 years and has extensive knowledge of the insurance business. He was rated as having a high level of company, insurance, and IT project management experience and a moderate level of new technology awareness.

The Systems Development Manager was hired from a software vendor by the company in 1988 to manage the conversion project. Prior to that, she held positions with
several small Canadian life insurance companies, mainly in the policy administration function. She has completed several courses towards the insurance diploma.

Her IS training has been acquired on-the-job. She rates her programming skill as "being able to interpret COBOL code but not program in it". She managed the large administrative system project from its start to end, mainly from a user perspective. She is rated as having a high level of insurance knowledge and IT project management experience, and a low level of company knowledge and awareness of new technology.

The Marketing Administration manager has 15 years of experience in all aspects of the mutual funds business. He was hired into the company to create a new equity-based insurance product but has spent the last two years building computer sub-systems to streamline the BU operation. He has managed projects which created front-end interfaces for field personnel and which allowed regional offices to print tax receipts and insurance policies in the field. He has worked with computer consultants in the past and does not hesitate to bring them in when needed.

He is a fearless computer hacker, with no formal training in IS. He has been an active PC user since 1982. He is very proactive, reading technical IT journals and attending IT conferences on topics which interest him and have some potential in the business unit. He recently attended an expert systems conference and brought back a expert systems shell to test. He was rated as having a low level of insurance knowledge, a moderate level of company knowledge and IT project management experience, and a high level of new technology awareness.

Summary

The three people within BU 5 who influence IT most significantly all have a degree of shared knowledge. The SVP has an IT background, the Systems Development manager has an insurance background and the Marketing Administration Manager has
expertise both in financial products and PC technology. Our rating for the shared knowledge in BU 5 is high.

3. Communication between business and IS executives

Using the Galbraith typology, there are two types of lateral relations in Business Unit 5 - direct contact and permanent teams. Each lateral relations device is discussed below.

a) Direct Contact

The Systems Development manager reports directly to the SVP and has bi-weekly progress meetings with him and several ad-hoc meetings per week when he is available.

The Marketing Administration manager reports to the VP of Marketing and works mainly with this manager to support field marketing personnel and to create new insurance products. The VP of Marketing is not knowledgeable about IT and the Marketing Administration manager has unscheduled meetings with the SVP to discuss the progress of his IT projects.

b) Permanent Teams

The Management meeting is the main locus of public discussion within the business unit. The SVP, the Systems Development manager and the Marketing Administration manager are all present. These meetings are held monthly and cover mainly tactical and operational topics. Any significant changes in strategy can be conveyed to all BU participants at these monthly meetings.

c) Summary

The management meetings and the frequent direct contact between BU 5 executives
are evidence of a moderately rich communication process. The management meetings cover a wide variety of topics and allow the Systems Development manager to understand the business unit in its entirety. We rated this communication as moderately frequent and diverse.

4. Connections between Business and IT Planning

a) Business Planning

Since 1987, BU 5 has created a strategic business plan annually. This plan contains goals for profit, production, expenses, persistency and marketing, and discusses the strategies that will help BU 5 achieve the goals. The SVP states "We have a marketing plan for BU 5. We know exactly what we want to do for the next three years. We meet for a few days each year to create our strategic plans. The marketing strategy is done by the vice president of Marketing and myself. We get a lot of input from other BU 5 people. The Systems Development Manager is involved in the next loop. And then our plan is developed based on this input. This process runs from August to November" (when the budgets are sent to the Executive Committee and then to the Board).

From this discussion, we can see that the product and distribution strategy is created by the VP of Marketing and the SVP. Then the proposed new products are taken to the BU 5 management group. "At the meetings, I have a general idea about the new product and we will use it as a springboard to discuss how we will roll out and support the product". It is at these meetings when the IT resources are brought into the picture.

b) IT Planning

There is no overall IT planning done within BU 5. Each of the persons responsible for IT activities has a different planning process. The administrative system support team, managed by the Systems Development Manager, is responsible for two main areas:
support and enhancements for existing BU 5 products and preparation for new products. The IT planning for this part of the job consists of priority-setting sessions at which all the administrative system users are represented and priorities are established for the next six months work. The SVP of BU 5 is present. This planning process has been held twice in the past year. In the most recent meeting, priorities were established using the strategic BU 5 goal of "Service" as one of the ways to decide which tasks should be done first.

The connection between this planning process and the business planning process is rated as derived. Although the timeframe of the planning is short-term, the decisions made are in line with the strategic goals of BU 5. Its input is a combination of BU 5 operating problems and required support for new products.

The Marketing Administration manager provides the SVP with a monthly plan and progress report on all activities underway in his area. There does not seem to be a planning process which involves users or generates alternatives. There are a lot of small but important projects in this area and their existence and priority seems to be driven largely by the current interests of the marketing manager coupled with a business need. To some extent this is technology-driven planning. It seems that business problems which did not fit his technology interests would receive minimal attention. We rated it as being somewhat isolated from business planning since there is no IS planning process in which other business executives could participate.

c) Summary

There are two IT planning processes and one business planning process in BU 5. Overall, we rate the connection between IT and business planning as being mainly derived. Although no overall IT strategy or plan is created since the two IT planning processes do not intersect, the majority of the IT work is prioritized in a meeting in
which all managers participate.

J. Summary and Analysis - Business Unit 5

In Table VII.5, the findings are summarized for Business Unit 5 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Implementation of IT Plans</td>
<td>Administrative systems underwent a long and torturous conversion over the last three years.</td>
</tr>
<tr>
<td></td>
<td>PC-based systems have had a much more successful history but have had to be retro-fitted to the main administrative systems.</td>
</tr>
<tr>
<td></td>
<td>On average, implementation has been mainly unsuccessful during the past few years.</td>
</tr>
<tr>
<td>Shared Knowledge between IS and business executives</td>
<td>The SVP has a strong IT background. The VP of Marketing is not experienced in IT project management.</td>
</tr>
<tr>
<td></td>
<td>The Systems Development Manager has an insurance background. The Marketing Administration Manager has a financial services background and a strong interest in new technology.</td>
</tr>
<tr>
<td></td>
<td>Overall, there is a high level of shared knowledge in BU 5.</td>
</tr>
<tr>
<td>Communication between IS and business Executives</td>
<td>Direct contact between the IS executives and the SVP is frequent.</td>
</tr>
<tr>
<td></td>
<td>One permanent team, the management team, meets monthly and discusses all functional concerns.</td>
</tr>
<tr>
<td></td>
<td>Overall communication is moderately frequent.</td>
</tr>
<tr>
<td>Connections between IT and business planning</td>
<td>Business goals are created by the SVP and the VP of Marketing.</td>
</tr>
<tr>
<td></td>
<td>IT goals are created by two individuals in separate processes. The Systems Development manager has a shared process involving all BU 5 managers. The Marketing Administration manager creates his own plans and ratifies them later.</td>
</tr>
<tr>
<td></td>
<td>We rated the connections in planning as being mainly derived since the majority of the IT work is agreed upon in a shared meeting.</td>
</tr>
</tbody>
</table>
### Table VII.5
A Summary of the Factors and Linkage Ratings for Business Unit 5

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Factors</td>
<td>There is a lack of clarity in the organizational structure within BU 5. No single manager is responsible for all of the IT work done in the unit.</td>
</tr>
<tr>
<td>LINKAGE</td>
<td>HIGH - HIGH.</td>
</tr>
<tr>
<td>- understanding of objectives (EXECIS/IS)</td>
<td>HIGH</td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>HIGH</td>
</tr>
<tr>
<td>OVERALL</td>
<td>HIGH</td>
</tr>
</tbody>
</table>


1. Stage One: The Relationship between Antecedents and Current Practices

The high level of shared knowledge in BU 5 has resulted in a situation in which the SVP feels quite confident in discussing IT solutions and in managing the IT-related activities of two managers. "I... will have to make certain calls and I will have to step in and take it project by project". The shared knowledge has influenced the communication between IS and business executives.

The three executives in BU 5 can be labelled as "composites". The only weakness in this "team" is that the individuals have not worked together very long and have not yet created a working relationship which will produce an IT strategy for the business unit.

The past failures of IT implementation have not had negative consequences on the business practices in the business unit. Actually, they caused a rise in communication due to the restructuring of the business unit to move the IS project manager into the business unit permanently from corporate IS. The SVP wanted more control over the IT activities which he saw as being critical to the success of the business unit. In this way IT implementation history has influenced communication between IS and business executives.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

The management meetings in which all three executives who manage IT within BU 5 attend have resulted in high levels of mutual understanding about objectives. There are also frequent one-on-one meetings which further this understanding. Therefore, communication has influenced linkage in BU 5.

There is evidence of a shared vision for IT within BU 5 even though there are two IT planning processes and no complete IT plan. Several reasons are suggested for this: firstly the clear business imperative to streamline operations and secondly the executives’ belief that IT is the only way to accomplish that task. The lack of success in
implementing other administrative systems is not deterring them from pinning hopes on an IT solution in the future. We conclude that the shared knowledge and the presence of clear BU direction supported the formation of a shared vision for IT.

The presence of clear business objectives was also instrumental in influencing the Systems Development manager's IT planning process in which projects which directly supported the goals received the highest priority. In this case, clear business direction influenced the connection between IT and business planning processes.

3. An Emergent Factor

It is not been made clear in BU 5 who is in charge of IT strategy. At the moment, the Systems Development manager looks after the mainframe systems and the marketing Administration manager oversees the PC-based systems. Therefore, for effective communication about the objectives of IT, three individuals should be involved. The SVP must always manage the delicate balance between the two people most interested in the application of technology within BU 5. We concluded that the role ambiguity in IT management has resulted in a lack of integrated planning practices within the business unit.

The causal relationships in BU 5 are depicted in Figure VII.6.
Figure VII.6
Causal Relationships in BU 5
K. Factors - Business Unit 6

1. Implementation of Previous IT Plans

BU 6 has two major kinds of information systems in place: administrative systems which support the insurance products and the integrated software package which they sell to agents. The administrative systems reside on the mainframe, the agent's software is supported on a local area network.

The agents' software has been in the market since the early 1980's. The original software was a strategic system and created a significant competitive advantage for BU 6. Since then, many imitators have forced BU 6 to redesign it, which they accomplished in 1988. The re-development project was significantly over budget and was a year late. It was much more complex and comprehensive than any existing package on the market. The roll-out to the market was slow as most agents were not technologically proficient and resisted paying fees for the use of software.

The administrative systems in the business unit were rewritten for a new platform in 1988. As a BU 6 manager notes: "The package was chosen very quickly in order to get onto the new IBM mainframe. We had some real problems in putting it in. The result of the conversion troubles and the haste is that our people didn't know what the package could do - saw the problems mainly. Now they are seeing that it can do some other things and they are beginning to understand it".

In summary, BU 6 had a significant competitive advantage from IT in the early 80's but the period from 1987-1989 was characterized by a definite lack of success. Recently they have introduced some changes to stabilize the IT environment and seem confident now that they can create whatever technological environment they choose. Overall, we rate their IT implementations as being strategically successful and operationally unsuccessful.
2. Shared Knowledge of IS and Business Executives

There are three people who influence the IT objectives: the SVP, the Manager of Administration and IS, and the Director of Finance.

The SVP has been with the company for many years and his career has been entirely within BU 6. He has had no direct experience managing an IT project and does not read technology periodicals or attend IT conferences. The SVP’s insurance and company knowledge is high and his IT project management experience and awareness of new technology is low.

The Manager of Administration and IS has a varied background - an M.A. in Sociology followed by several years with a consulting company doing conceptual systems design work. After several years with a software vendor, he joined a major transportation company to do in-house studies on the value of new technology. In 1988, he joined the company as the manager of IS in BU 6. Since then, he has been given the responsibility for providing manual and automated systems support for all of the BU 6 products. This manager is neither a traditional IS person nor is he a long-term insurance person. His contribution has been in the creation of practical administrative processes in support of an extremely dynamic marketing environment. He successfully managed the project which built the Software Management System, a system which allows them to manage various releases and versions of the agents’ software system.

His IT project management experience is high but his level of new technology awareness is only moderate ("I rely on my systems people and their knowledge"). His business knowledge is low since he has only been in insurance for 3 years ("I am not an expert on how insurance companies use technology"). His company knowledge is moderate.

The Finance Director has no formal responsibility for IS people or projects but represents BU 6 on the IS Steering Committee. His background is more traditionally IT,
with a computer science degree and 10 years with a very large IT consulting firm. He
joined BU 6 in 1984 as Director of Sales and Marketing. This manager’s technical IS
knowledge is quite extensive and covers all ranges of hardware from mainframes to
micros and communication networks. His level of IT project management experience is
moderate, and his awareness of new technology is high. He has worked for 6 years in
insurance, giving him an insurance knowledge rating of moderate and a company
knowledge rating of high.

The shared business and IT experience in these executives is moderate, since the
executives with IT experience have little insurance experience and the SVP has no IT
experience.

3. Communication between business and IS executives

Using the Galbraith typology, there are two types of lateral relations in Business
Unit 6 - direct contact, and permanent teams. Each lateral relations device is discussed
below.

a) Direct Contact

The regular contact between the Manager of Administration and IS and the SVP
is very frequent ("he usually calls every day or every other day."). They have a meeting
every couple of weeks to review things. ("That helps me understand where he is going
and what I have to do to get things in place to be there when he wants to be. Actually I
find those meeting more useful than our Senior Management meetings"). The SVP, as
well as being the head of the Division, is also the current marketing VP so this contact
between the SVP and the Manager of Administration and IS connects him with both
strategy-making and marketing roles.

It is important to note that, similar to BU 1 and BU 2, BU 6 structure has put the
administration and IS functions under the same manager, thereby reducing the need for communication channels. When the Manager of Administration and IS makes a visit to the regional offices, as he has done on a number of occasions, "to get them back on track with respect to the software", he is bridging the gap between administration, IS and the marketing roles.

b) Permanent Teams

Every two weeks there is a senior management meeting with all BU 6 managers and the SVP. At these meetings, operational, tactical and strategic themes are discussed. ("We review the last few weeks and we come up with new ideas, policies or processes. Over time those get fleshed out."). Since all BU 6 home office management are present, this is an excellent forum to bring together the concerns of IT with the concerns of the other managers. In addition, any items of importance that were discussed at the IS Steering Committee can be brought to the table by the Finance Director.

c) Summary

The communications within BU 6 are frequent and diverse, with regular meetings between the two managers who between them are responsible for strategy, marketing, administration and IT.

4. Connections between business and IT planning

a) Business Planning

BU 6 holds quarterly off-site meetings "to do some brainstorming and creative thinking". All eight senior managers are present. These discussions provide a focus for their individual planning. By October, each manager (regional and head office) has created a plan for the following year. "Each of the Departments (Admin, Marketing,
One BU 6 manager describes the strategy creation process as follows: "Our corporate (BU 6) objectives seem to deal more with leadership, quality and those sorts of things rather than numbers. The SVP is getting us to focus more on personal development. We are much more focused on action plans with respect to what leadership is and how to achieve it rather than we are on what we actually going to do step by step to sell $100 million. Each strategy is left up to a large extent left up to the regions themselves."

There are two other ways that strategies get forged. One way is that ideas coming out of the regular management meetings will get taken to a regional managers meeting which BU 6 holds two or three times a year. Another way that policy gets originated is from the SVP. "And some of it gets set by the SVP sitting down and deciding where he wants BU 6 to be by the end of the year and how we should get there and we try to fill in the gaps." The details are filled in at the meetings.

The result of these planning processes is that there are eight tactical plans by year-end and one set of financial projections. There is no consolidated written statement of BU 6's strategy or its plans. The SVP states "Our strategic plan is the sum of all the individual plans. We know where we are going because we meet frequently and talk a lot."

b) IT Planning

There are two places in BU 6 where IT planning occurs. The Manager of Administration and IS does the bulk of it - he is responsible for the administrative system
and the agent’s software. The other systems are administered by BU 6 marketing and regional staff.

The Manager of Administration and IS develops two "action plans" each year - one for the agent’s software group, the other for the Administration group which includes the mainframe software support team. There is no consolidated written "IT" plan.

The Administration and Systems Services manager and his team create technological strategies for the agents' software. These plans are as important as the content of the software, since their focus is to link the agents very tightly into BU 6 through features such as remote diagnostics, downloading of software releases, and electronic mail communication. The agent’s software system has a Steering Committee to help prioritize the upgrades and changes and it is staffed by the people who are selling it to the agents. This process creates the initial IT plan.

The mainframe systems are prioritized by systems analysts rather than by the Manager of Administration and IS. This process reflects the fact that they are considered to be non-strategic to BU 6. As the SVP says "We don’t need any changes there. You could spend a lot of money on this but we don’t want to change anything that is adequate".

The SVP and BU 6 management do not recognize IT as a separate functional area within BU 6 in the same way that they recognize sales, administration and finance. Responsibility for IT is partially decentralized and IS people (BU 6 business analysts, corporate IS programmers, or consultants) are included within the units whose work requires systems. In his 1991 Administration plan, the Manager of Administration and IS referred to the "administrative infrastructure" - meaning policy, systems and procedures. He does not differentiate systems from any other organizational device designed to promote productivity and operational efficiency.
c) Summary

One of the important ways to connect business and IT strategies is to have them developed simultaneously. As the Administration and IS Manager notes "I am usually at the table when new products are discussed."

Another important connection is to bring the ideas from the agents' software Steering committee to a strategic level of discussion. Again the Administration and IS manager notes "We would bring the enhancements the Steering Committee rank as high to the senior management meetings and talk about the two or three things that we think are the keys. This is where you link the objectives of the organization with what you do. All of the things from a technical point of view are easy to do. That's always one of my arguments - we can do it technically, some things are more difficult than others, but the question is from a marketing perspective what do we want to do."

In summary, the connections between BU 6 business and IT planning are very strong and occur both in the regular management meetings and in the off-site strategic planning sessions. They do not, however, result in consolidated long term written plans, either for the BU or for the IT function within it. The rating for the connections in these planning processes is integrated.

L. Summary and Analysis - Business Unit 6

In Table VII.6, the findings are summarized for Business Unit 6 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
Table VII.6
A Summary of the Factors and Linkage Ratings for Business Unit 6

<table>
<thead>
<tr>
<th>FACTORS/ LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Implementation of IT Plans</td>
<td>BU 6 has enjoyed significant strategic success from IT since the early 80's. In the last five years, they have had several unsuccessful implementations in operational and strategic systems. It is not clear whether they can regain their previous level of competitive advantage. The history of IT in BU 6 is one of strategic success and operational failures.</td>
</tr>
<tr>
<td>Shared Knowledge between IS and business execs</td>
<td>The SVP or the agency VPs have no IT experience. The Manager of Admin and IS has a moderate level of company and IT knowledge. The Finance Director has significant IT and business experience. Moderate level of shared knowledge.</td>
</tr>
<tr>
<td>Communication between IS and business Executives</td>
<td>Direct contact between the IS executive and the SVP is frequent. The IS executive is also in charge of administration. The SVP is also in charge of marketing. Therefore the frequent meetings between these two connect all major functions in the BU. The senior managers meet every two weeks. Overall communication is frequent and diverse.</td>
</tr>
</tbody>
</table>
Table VII.6
A Summary of the Factors and Linkage Ratings for Business Unit 6

<table>
<thead>
<tr>
<th>FACTORS/ LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connections between IT and business planning</td>
<td>Planning is done off-site in quarterly meetings with the IS Manager participating.</td>
</tr>
<tr>
<td></td>
<td>Items from the agents' software Steering Committee are brought to management meetings for senior level prioritization.</td>
</tr>
<tr>
<td></td>
<td>The short-term planning processes are highly connected and are rated as integrated. There are no longer term planning processes - no 5 year business or IT plans.</td>
</tr>
<tr>
<td>Other Factors</td>
<td>The BU is experiencing some serious market share losses - the environment seems very volatile.</td>
</tr>
<tr>
<td></td>
<td>The organizational structure in BU 6 has resulted in two people managing most of the functions. This reduces the need for communication between many people.</td>
</tr>
<tr>
<td></td>
<td>The fact that the IT is integrated into the product means a higher profile for IT than might be possible otherwise.</td>
</tr>
<tr>
<td>LINKAGE - understanding EXECS/IS)</td>
<td>MODERATE - MODERATE.</td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>NO VISION</td>
</tr>
<tr>
<td>OVERALL</td>
<td>LOW</td>
</tr>
</tbody>
</table>
1. Stage One: The Relationship between Antecedents and Current Practices

This BU exhibits a moderate level of shared knowledge. If the same managers stay in place for a few more years, they will have a higher level of shared knowledge since the IT-knowledgeable managers lack business experience and are acquiring it in their present positions. This moderate level was lower in 1988 when they embarked on a re-development of the agents' software. We felt that their lack of business experience led to a serious overbuilding of the software which has wasted resources and may not be successful strategically. We suggest that the level of shared experience may have influenced the IT implementation success.

There is a history of strategic success with IT and, despite the current problems, a feeling that BU 6 could regain its former position. This strategic IT success influences the communication patterns between the SVP and the Manager of IS, since they spend a considerable amount of time discussing the agents' software.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

The communication between the business and IS executives is frequent and diverse and we would expect them to be able to accurately recollect each others' objectives. However, the data showed only a moderate level of mutual understanding. The reason for this may lie in the absence of an integrated plans and the lack of any long range plan. The planning processes are connected tightly at the month-to-month level but not strategically.

3. Emergent Factors

The fact that the agents' software is an integral part of the insurance product has meant a close coupling of the two strategies in the past. It has influenced the communication patterns between the SVP and the Manager of IS. Without the strategic
influence of IT, there would be little communication (as we see in the administrative systems side).

The organization structure in BU 6 currently has the SVP acting as the Marketing VP and the IS manager also in charge of Administration. This influences the communication patterns and these two people are in contact more than they might be in single roles.

The volatility of the market has resulted in serious short term business problems - very unusual for BU 6. They have not been able to complete the annual planning process. This may account for the lack of a shared vision for IT.

Figure VII.7 depicts the causal relationships in BU 6. As shown in the diagram, emergent factors were as important in explaining the findings in this business unit as the factors in the research model were.
Organization Structure has two managers doing four jobs.

IT is integrated into the insurance product.

Figure VII.7
Causal Relationships in BU 6
M. Factors - Business Unit 7

1. Implementation of Previous IT Plans

In the Annual Reports from 1985 to 1990, there is almost no mention of BU 7 information systems initiatives, although the accomplishments of other business units and corporate IS are mentioned several times. The AVP of IS noted in her strategic planning documents that there were several systems using a very outdated programming language, that the system for administration was still not complete after 17 years, and that her people had few modern productivity tools. So the past few years must have been largely devoted to supporting new products and keeping old systems running. They do not mention any new developments such as special illustration software or use of special computers for their agents - they seem to have been followers in implementing any new developments over in the last 5 years.

The reorganization of the company around the four product lines has meant many changes within BU 7 Operations. The immediate outcome was that the New Business System is being redeveloped to include both U.S. and Canadian products. This is a very large undertaking which has been in the development and implementation phase for two years. It has not been a successful implementation, being well over budget and very late. According to the AVP of IS, the reasons for delay included inadequate user commitment and an outside consultant as project manager because it was a "big political nightmare". The problem now is that the old products have no documentation and no real expertise remains within the division. They are replacing a system that had been in place for 22 years. So an original estimate of 12 months has been revised to 27 months. The VP of Administration says "this is not an IS problem".

According the VP of Administration, IS has put in a lot of small systems which had short (12 - 24 month) payback periods.
In general, during the last few years, IS has been unsuccessful in terms of implementation.

2. Shared Knowledge of IS and Business Executives

a) Business Executives

The VP of Administration, started with the company as an undergraduate doing summer jobs in the actuarial department. He received a masters in Computer Science in 1972 and joined the company permanently in the corporate IS department. He spent the next 10 years in IS, almost exclusively in corporate information systems - accounting, financial reporting, human resources and investment systems. In 1982 the company reorganized into profit centres and he was offered the job of running the insured underwriting function in a business unit 72.

When he joined underwriting, the information systems were obsolete and the cost of running them was very high. He decided he would decentralize systems people into the BU and started with three people who had been allocated from corporate IS and hired more from the outside. He bought two software packages, had them installed on the IBM mainframe and replaced all of the systems in the BU. He hired consulting resources to help and the two packages were up within eighteen months. They went from "being the lousiest at technology to pretty up to date and today the business unit is perceived to be the leading edge in the company." So, instead of just being in charge of underwriting in 1982, he became the de-facto head of IS as well. He has a high level of company and insurance knowledge and IT project management experience. He is rated as having a moderate level of new technology awareness. This executive is another example of a

72 In time he took over all of underwriting and then became VP of the business unit from 1986 to 1988. He then joined the current BU as Canadian manager from 1989 to 1990 and when the U.S. and Canadian sides were centralized, he became the V.P. of Administration.
"composite" - a person with significant line and IS management experience.

The SVP has little experience or understanding of technology. In one executive’s opinion, "technology is a barrier rather than an opportunity for him - it’s always the reason that he can’t do something that the business wants to do.. To a large extent he still views DP as a cost.." He exhibits high levels of company and insurance knowledge but low levels of IT experience and awareness.

The AVP of Canada Marketing is an experienced insurance person who spent most of his working career with two other large Canadian insurance companies in actuarial, administrative, and marketing positions. He had been at the company for 14 months at the time of the interview. He is actively working on recreating the Marketing strategy for the business unit. He rates as having low levels of company knowledge, IT project management experience and awareness of new technology, and a high level of insurance knowledge.

There are two other executives within BU 7 who have a strong IT background: the VP of Sales the AVP of Life New Business.

b) IS Executives

The AVP of IS, started work with the company in 1966 as a co-op student and joined the company in 1969. She has an undergraduate degree in Computer Science. She took courses and received the insurance certificate in 1975. She has been a manager in IS for all of her career, first in corporate IS and then in a business unit as IS was decentralized. From 1985 to 1989 she also had responsibility for underwriting as well as for IS. In 1989, a new corporate policy was created that one person could not have two different responsibility areas. She moved back into being a full-time IS manager. She

73 Using our rating scheme, she is very close to being a "composite". She needs one or two more years of line management experience.
also had responsibility for the Quality First program for the business unit. She rates as having a high level of company knowledge and IT project management experience, and a moderate level of new technology awareness and insurance knowledge.

c) Summary

There are several business executives with a good knowledge of IT and the IS executive exhibits strong business knowledge. In general, the rating for shared knowledge is moderate. The VP of Administration is a very strong example of a "composite" one.

3. Communication between business and IS executives

Using the Galbraith typology, there are three types of lateral relations in Business Unit 7 - direct contact, temporary task forces, and permanent teams. Each lateral relations device is discussed below.

a) Direct Contact

The AVP of IS meets with the VP of Administration, her direct superior, every couple of days. Her main communication with other executives occur in the permanent teams. She doesn't meet regularly with the SVP to talk about IT: "I don't push him because I can see that other things are easier for him to manage and to be on top of."

b) Temporary Task Forces

Although the AVP of IS reports through to Administration, she has several important connections to the marketing operations within the business unit. She sits as a member of the Steering Committee for the new line of products, which meets once a week.

She is also on the field compensation task force which is planning a changeover
in the field compensation plan for agents. In this role, she meets with the sales people two or three times a month.

c) Permanent Teams

The AVP of IS reports is a member of the Senior Management Team in the BU. This group includes the SVP, the three Vice Presidents and the five Assistant Vice Presidents. They meet weekly for three hours - the first hour to discuss Canadian business, the second for common issues, and the third for the U.S. business.\(^\text{74}\)

The AVP of IS is also a member of the management team within Administration and attends bi-weekly meetings with that group.

There is also a Systems Steering Committee within the BU which was initiated in 1990. The membership of this committee is the same as that on the Senior Management Team, except that it includes a member from corporate IS. They meet once a month, although there have been several months without any meetings, mainly when the SVP was not available.

She also helps to administer the corporate program called Quality First. She is called a "quality advisor" and sits as a member of the planning group for the business unit.

c) Summary

In summary, the communications between the AVP of Information Services and the business unit executives is extremely frequent and very diverse\(^\text{75}\).

\(^{74}\) This is quite similar to the amount of time spent together by the management team in BU 1 - approximately 14 hours per month. In BU 7, you have 9 people instead of the 6 in BU 1, however, so there is less "air time" for IT issues.

\(^{75}\) This BU exhibited the strongest communication between IS and business executives in our sample.
4. Connections between business and IT planning

a) Business Planning

As mentioned before, the AVP of IS sits on the senior management team. She comments on the 1991 business and systems planning process: *I don't remember if the senior management team sat down formally or it just evolved because we work so closely together. And then we pulled all our (business) programs together. Then I (as AVP of IS) made a guess at how many man-years each of the projects was and, because there was not enough IS resources, went back to the Senior Management team for prioritization. Instead of re-prioritizing, they gave me more people. We're now up to 106, including co-ops. In order to get all the work done, the user had to add a couple of people too.*

In the weeks just preceding the data gathering, the strategic planning meetings took a slightly different form. The AVP of IS was invited to join the VPs and the SVP in the first day of a two day planning session to re-orient the strategies in line with market conditions. The next day all the senior management team was included. So the IT role as support for both sides of the operation seemed to be explicitly recognized, rather than its formal reporting relationship to the VP of Administration.

The AVP of IS mentioned an explicit example of connecting the IT and business plans during the two day strategy session: *"we went through the exercise of making sure everyone's programs, not only IS, fit under one of our (eight) objectives."*

Because of the top-down, bottom up business planning process, the VP of Administration stated that the IT plans fit perfectly under the BU 7 Operations plans and the corporate plans. Both he and the AVP of IS use the unit overview produced by the SVP as a guiding document.
b) IT Planning

The process of putting together the IT Strategy document was described as "a series of interviews in which all management of the business units had an opportunity to provide input. In addition, the strategic direction of the company, the business units and corporate IS were reviewed in detail."

The people who put the strategy together were exclusively from the Information Services department within Individual Operations, chaired by the AVP of IS. It was prepared in 1989 and ratified by the business unit.

The AVP of IS: "The SVP takes the overview from the CEO and does a business unit overview up for us. I try not to put any of my programs under Information Technology, unless its to do with improving ourselves. I try to fit them back into the business objectives." 76 Each manager at the AVP level appears before the Canadian Management Team (the President and SVPs) and explains how it supports corporate initiatives (e.g. profitability, quality).

c) Summary

Connections in the planning process are built into the planning process in this company. All departments integrate their plans to the business unit and Corporate plans.

N. Summary and Analysis - Business Unit 7

In Table VII.7, the findings are summarized for Business Unit 7 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between

76 The AVP of Information Services is deliberately creating linkage through her implementation of the planning process.
Antecedents (i.e. shared knowledge and previous implementation of IT plans) and Current Practices (i.e. Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
Table VII.7
A Summary of the Factors and Linkage Ratings for Business Unit 7

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
</table>
| History of Implementation of IT Plans    | The major project, to integrate new business process for the U.S. and Canada, was significantly underestimated and has not achieved much success.  
A few short term projects have been implemented successfully.  
Overall, the recent IT implementations have not been successful. |
| Shared Knowledge between IS and business executives | At least three of the eight BU executives have a strong IT background. The SVP, however, has little knowledge about IT and is not interested in learning more.  
The AVP of IS has several years of line management experience in another BU. Few other IS managers have line experience.  
There is a moderate-high level of shared knowledge in BU 7. |
| Communication between IS and business Executives | The reporting relationship for IT is not optimal, according to the AVP of IS. She reports to the VP of Administration (who is very IT literate) rather than the SVP (who is not IT literate). She has little direct contact with the SVP.  
The AVP of IS communicates to the executives through four permanent teams: the senior management team, the IS Steering Committee, the Administration management team, and the Quality First program.  
The AVP of IS communicates to the executives through two temporary task forces: the Marketing Steering committee and the compensation committee.  
Communication between IS and executives is rated as being very frequent and diverse. |
<table>
<thead>
<tr>
<th>FACTORS/ LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
</table>
| Connections between IT and business planning  | The top-down, bottom-up company planning process explicitly connects the IT plans to the BU and the corporate objectives.  
The AVP of IS created a strategic IT plan for the BU in 1989 and had it ratified by the executives.  
The planning processes are rated as integrated.                                                                                                                                 |
| Other Factors                                 | The SVP sees IT as a constraint rather than an opportunity. He is not convinced that IT will offer the BU any competitive advantage.                                                                                                                         |
| LINKAGE - understanding of objectives (EXECIS) | MOD - HIGH.                                                                                                                                                                                                                                           |
| - Shared Vision                               | LOW. There are many visions for IT expressed by the executives but no congruence among them.                                                                                                                                                           |
| OVERALL                                        | MIXED                                                                                                                                                                                                                                                  |
1. Stage One: The Relationship between Antecedents and Current Practices

The high level of business knowledge and management experience of the AVP of IS has led to her inclusion in many task forces. This involvement contributes to the high level of communication exhibited by the IS and business executives.

Although the New Business application has had serious problems that are going to last for another year or two, we believe that the high level of IT knowledge among the business executives has helped them understand that, as the VP says it is not an IS problem. They continue the high level of communication with IS and redouble their efforts to complete the project.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

The AVP of IS rated as having a HIGH understanding of business objectives. This almost inevitable, considering how many committees and task forces she sits on that discuss strategic issues. In addition, she was in charge of preparing the presentation of the BU plans to middle managers. So, the high level of communication has influenced linkage.

3. An Emergent Factor

One important limiting factor in this BU seems to be the SVP. He is wary of IT, refusing to attend the Senior IS Steering Committee meetings without bringing along the VP of Administration, refusing to have the AVP of IS report to him, and not calling IS Steering Committee meetings. He is not convinced that IT is anything other than an expense item to be minimized and must be quite frustrated with the lack of progress on the New Business system. There is a wealth of vision about IT in this BU because of

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77 He was the only executive in our sample who declined to be interviewed.
the IT experience among the executives but no single vision dominates. This is the job of the SVP, one which this SVP chooses to abdicate. We concluded that the lack of a belief about the strategic value of IT in the SVP has limited the level of observed linkage in BU 7.

Figure VII.8 depicts the causal relationships found in BU 7.
O. Factors - Business Unit 8

1. Implementation of Previous IT Plans

In 1983, the company was restructured into profit centres. At the same time, the Group application development unit in corporate IS was decentralized into BU 8. This was the first IS unit to be decentralized within the company. The move was championed by a corporate IS manager who became the manager of IS within BU 8. Within a couple of years, he had taken a line position within the administration function of BU 8.

From 1983 to 1985, the IS department implemented a new system for the administration of BU 8 policies. A software package was bought and enhanced. Both the Canadian and the U.S. policy administration was run on this platform. BU 8 is now considered by many managers within the company to have the best systems of all the operating areas.

The VP of BU 8 rates 1989 as an excellent year. They had to integrate the U.S. and Puerto Rico business and that was done well. He felt that the IS director did a great job.

In early 1990, a new AVP of IS was hired for BU 8 as the former IS head was moved to another business unit who needed better IS productivity.

In 1990, the biggest project was automatic claims adjudication. The VP said it was "moderately successful". It went in late and the throughput of claims is not where they had expected it to be. They implemented a GST (Goods and Services tax) project which displaced other planned systems because it had not been planned for. This project was very successful. On balance, the VP rated 1990 as a medium year, not one of our better years with respect to implementation of information systems.
2. Shared Knowledge of IS and Business Executives

a) Business Executives

The VP in charge of BU 8 has been with the company for 30 years, all of it in the same business unit. He worked for many years in the underwriting area and also has held management positions in sales and sales support. He stated that he had not been very close to the IT operation during his career. "Since I took over as Vice President, I have been very dependent on the AVP of IS since I am not systems literate". When asked about methods of project control, Marcel was not sure of the process but felt that there were some controls in place. He is rated as having high levels of company and insurance knowledge, and low levels of IT project management experience and awareness of new technology.

The SVP of two business units, BU 8 and BU 10, has had no hands on management experience with IT projects, nor is he an avid reader of IT publications. His ratings are the same as those of the VP, high in business knowledge and low in IT awareness or experience.

b) IS Executives

The AVP of IS has been in data processing since the early 70's, employed by a number of different insurance companies. He had been in BU 8 just under a year at the time of the interview. He has had some experience in managing the underwriting and claims functions for a smaller insurance company a few years ago. He rated as having high IT project management experience and awareness of new technology, moderate insurance knowledge, and a low level of company knowledge.

A number of the executives commented about the competence of the IS unit and the fact that several of the people had good understanding of the business issues. The AVP of IS sees it as a "double edged sword because what we tend to do is what we've
seen before. On the other hand... we don't have as much of a translation problem between requirements and programs as you might expect."

In general, BU 8 has a low level of shared knowledge among its executives.

3. Communication between Business and IS Executives

Using the Galbraith typology, there are two types of lateral relations in Business Unit 8 - direct contact and permanent teams. Each lateral relations device is discussed below.

a) Direct Contact

The VP of the business unit meets with the AVP of IS on an issue-oriented basis. The VP estimates that they meet one or two times a month.

b) Permanent Teams

The AVP of IS is part of the management team of both BU 8 and BU 10. BU 8 has weekly lunch meetings, lasting about two hours, with nine senior managers in attendance: underwriting, accounting, sales and marketing, client services, claims, controller. Topics are mostly operational and the meeting is informal.

In 1990, an IS Steering Committee was established in the business unit. It meets "roughly once a month" and is attended by the SVP, the nine senior managers and a member from Corporate IS. There is an agenda and the meetings get minuted by the AVP of IS. He is using it partly as an education forum, spending part of each meeting on a IT topic that is relevant to the business unit. He says it is a good opportunity to talk about priorities and to talk about the consequences of new activities. He also says that the Steering Committee is a place where he can legitimately talk about issues such as the details of production overruns.
c) Summary

The communication in BU 8 is informal and collegial according to the AVP of IS. However, the frequency of communication is only moderate and it is oriented to IT topics.

4. Connections between business and IT planning

a) Business Planning

In the past two years, BU 8 has held some off-site strategy sessions with the four senior executives (i.e. the AVPs of IS, Accounting, Actuarial, Underwriting) and the Vice President. Although the AVP of IS is at the meetings, he is limited to "nods and smiles" since he does not know the business and cannot add much value. In 1991, however, the planning times were too tight to fit off-site meetings in, so the VP has drafted an overview of the plan and distributed it to the full management team.

The AVP observed that there was not a lot of linking between statements in the strategic plan like "fee income is important to us" and the programs that were put in place. The whole notion of what concentrating on fee income would mean to IS and to the other organizational units had not been discussed.

The AVP of IS was involved with the Quality First initiative. There was an task force on planning and they "are trying hard to develop a stronger coordination within our operating plans and a better linkage with the business strategic plan. That’s just getting underway. We proposed that we meet quarterly and review our various plans and make sure we’re actually doing the things we said we were going to do and we ought to get together in one of those meetings and discuss our plans for next year. There’s not a lot of linkage between the strategic plan for the business unit and the individual operating plans. We may not be factoring out the programs we really need to be part of the strategic plan."
b) IT Planning

There is no strategic IT plan in the business unit. When he joined the company, the AVP developed a strategic IT plan for another business unit as he had done at his former company, but "I don't think anybody ever read it". He learned something about "how far you can go, how fast".

In doing his operational systems plan, he got a unit overview from the VP and an operational plan. "Our projects pretty much have their own momentum - the ... conversion, the client-based systems. We also did a quality analysis on our internal processes (how well do we do them, how important are they)". This is a strategic approach to 'self-improvement'. This had not yet been presented to any other managers within the business unit. He doubts whether other managers would find it interesting.

In summary, IS has not done any strategic planning with respect to generating new application requirements, they are following the long-range plans which were in place when the AVP arrived a year ago. They did do a strategic assessment of their internal productivity and have generated some internal projects to improve it.

c) Summary

There does not seem to be a lot of opportunity within the business unit to make new strategic IT plans. The management is focusing on the plans that were put in place by the former IS executive, who was highly respected. The new AVP of IS is expected to play a tactical rather than a strategic role for the time being. The connection between the planning processes is rated as derived since the IT plan was taken from the operational plans.
P. Summary and Analysis - Business Unit 8

In Table VII.8, the findings are summarized for Business Unit 8 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Implementation of IT Plans</td>
<td>The previous year was a bit disappointing, according to the VP. The IS area went over budget and did not complete the tasks assigned to them. He rated it as a medium year.</td>
</tr>
<tr>
<td>Shared Knowledge between IS and business executives</td>
<td>The SVP and the VP have no IT experience. The AVP of IS has some line experience in another business unit. It is not directly transferable to BU 8. He is learning the business. Low level of shared experience.</td>
</tr>
<tr>
<td>Communication between IS and business Executives</td>
<td>Communication channels between IS and executives are scarce except for the weekly management meetings which involve all managers in BU 8. Communication is rated as moderately infrequent and focused on IT.</td>
</tr>
<tr>
<td>Connections between IT and business planning</td>
<td>Usually, the managers go offsite for planning meetings. However, this year, the VP created the overview document and managers created plans to fit with it. The AVP of IS does not have an IT strategic plan, only operational plans. The connection between the planning processes is rated as derived since the IT plan was created in response to the business overview document.</td>
</tr>
<tr>
<td>Other Factors</td>
<td>Disagreement about the value of IT between the VP and AVP.</td>
</tr>
</tbody>
</table>
### Table VII.8
A Summary of the Factors and Linkage Ratings for Business Unit 8

<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINKAGE</td>
<td></td>
</tr>
<tr>
<td>- understanding of objectives (EXECIS)</td>
<td>LOW - LOW</td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>LOW</td>
</tr>
<tr>
<td>OVERALL</td>
<td>LOW</td>
</tr>
</tbody>
</table>
1. Stage One: The Relationship between Antecedents and Current Practices

The new AVP of IS has not yet established frequent communication patterns with the executives. His predecessor, who was very knowledgeable about the business, enjoyed a much higher level of communication that the AVP currently does. One cause of this low level of communication is low shared knowledge. While his predecessor was able to bridge the gap and communicate with business people, he cannot. He recounted an instance of when his lack of knowledge about the culture of the business unit became very evident: "I still joke about the day I used the word DASD in the (management) meeting and they looked at me as if to say "what planet are you from?"

The VP recounted an instance of lack of understanding by the AVP of the importance of some decisions "we have a unique product which involves mass marketing to individual organizations and I have been for the last 6-8 months asking him to get a handle on the costs of running that through our system. He really hasn’t been giving me much information. Then he went away and was working on something himself, whether it was staffing or production costs or something. I think that all of a sudden it came to him that this is an issue and now he is beginning to understand why I was asking for information on that."

This lack of shared knowledge is also contributing to the low level of connection between business and IT planning. The AVP recognizes that he cannot contribute to the strategic planning process in the BU because he does not know enough about the business. He estimated that he needed another six months to fully understand the business unit. Six months would bring his total time in BU 8 to 18 months.\footnote{He is probably naive in this estimate, although Group products may be less difficult to understand than Individual products. His predecessor, who is now in the Individual business unit, estimates it will take her five years to get fully familiar with the products and business leverages.}
2. Stage Two: The Relationship between Current Practices and Observed Linkage

The lack of a shared planning process this year has no doubt contributed to the low level of mutual understanding about objectives. There was very little direction for IT in the 1991 plan.

The low level of communication and the low level of connection in planning are causes of the lack of a shared vision in BU 8. Operational issues are discussed at management meetings, but not radical new ways to restructure the business.

3. An Alternative Explanation

Another reason for the low level of vision for IT is a difference in opinion about the value of IT in the business unit. The VP sees IT as a way to support the current infrastructure at lower costs. The AVP sees IT as a way to restructure and decentralize the business and deliver products much more effectively. There is no agreement on this issue and there does not seem to be anyone else in the BU who is contributing to the discussion.

Figure VII.9 depicts the causal relationships found in BU 8.
Figure VII.9
Causal Relationships in BU 8
1. Implementation of Previous IT Plans

When the company decentralized its business operations in the early 80s, the Canada and U.S. pension departments were created. The pension administration system was cloned and each area proceeded to make their own changes. The US pensions was the bigger unit and it grew rapidly, providing the financial resources to spend on IT. Also management felt strongly that IT was very important to their success and spent considerable energy on it. "It wasn't just the techies out there in their own little world...technology was mission critical and so everybody in the management team worked at this."

Canada pensions had less growth and less resources to spend on IT. The VP of Canada Pensions mentioned that his IT department was underfunded but also suffered from a couple of false starts - "for example when the core of the group-fund accounting system was worked on for two years (1982-1984) and then thrown out. We ended up with an automated name and address file and not more functionality than that. Between 1984 and 1987, when the corporate IS people were decentralized into the business units, they bought a packaged participant record keeping system and modified and ran it on a time sharing facility. It was designed by techies here talking to techies there. It was done very quickly - about a year and a half. If we'd waited internally to get it, it would have taken six years. This is our major critical system, supporting more than half of our business. We have spent from mid 1989 to late 1990 getting that system under control. It cost us a quarter of a million dollars in overruns on the processing bill in 1989. We are now actively managing this critical resources and treating it accordingly.

We also built in-house a system to support the existing business but did not build anything for the future and did not reengineer the work processes. So the number of cases
it can totally support is very small."

1990 was a busy year, according the AVP of IS. They came in under budget in 1990. The business unit did not have a lot of deliverables - they are in a rebuilding mode.

The VP of BU 9 recalled the 1990 year as being mostly "fix up, so we could do the job." She did have a couple of IS projects that provided some immediate payback. "We don't have basic management information. In the end of 1990, we, for the first time ever, came up with a client list. So we're really starting with no management information. We're just starting to be able to track even the cost of nonconformance - what it's costing us to make mistakes."

In summary, BU 9 IT history is one of underfunding and failed initiatives. No infrastructure has been built and no management information is available to support the pension business: half of their business is on an outsourced system and the other half is in-house. They are just beginning to get some payback from some of the IT projects.

2. Shared Knowledge of IS and Business Executives

a) Business Executives

The SVP of BU 9 and one other business unit is an actuary by trade and worked in the corporate actuarial department for several years. His first five years in the company included a lot of programming. He learned programming tricks, and was an early hacker on the mainframe. Then "I got into PCs and we got the first PCs in the company. My boss invested $25,000 and bought a LAN with 4 PCs in 1978 and installed actuarial software on it." He left the department and it continued to "bootleg" hardware and software into the company, well ahead of corporate IS standards. He was the business analyst in US Pensions in the mid 80s, and managed the IS budget and priorities. His people also do a little skunkworks but "we don't spend too much money...the President would get upset with me. We do a little bit. I get hours of free service from my people as
they investigate these new gadgets." His line people prototype systems to support new products until they know what they want and then they get the IS people to build it. "I'd prefer to have a fancy mainframe system with all the controls but time and flexibility is good on PCs." He rates as having high company and insurance knowledge, and moderate new technology awareness and IT project management experience.79

In 1976, the current VP of BU 9 went from a history degree at Queen's into the corporate planning department in the company, where she stayed for 7 1/2 years. She then took a leave and did an MBA and came into pensions as a marketing manager. Her job in the Planning department involved some APL coding and working with the SIMPLAN financial modelling packages. When VISICALC came out in 1980, they used it and LOTUS. "I am probably the only VP in the company who does her own word processing". She has had no hands on experience with systems projects in her career. "IT is the competitive advantage in our business. The key things are the quality of the statements, and the timeliness and accuracy of the statements, and the speed with which we can pay benefits. From my days in the corporate planning department and seeing the change that having a PC and spreadsheets made, I have personally experienced and am a complete believer that technology can radically change the cost structure and the way we do work." She rates as having high levels of company and insurance knowledge, low IT project management experience and moderate awareness of new technology.

b) IS Executives

The AVP of IS joined the company in 1973, after working for the UK government for two years. He was an underwriter, took insurance courses, and obtained his insurance

79 This SVP spent five years programming as a junior actuary and has had considerable exposure to PCs. He has not had hands on IT project management, but was the head of US pensions for the five years they were spending heavily in systems and getting some good results. He qualifies as a "composite" by the breadth of his IT experience.
designation in 1975. He became a business systems analyst within the business unit in 1976. In 1978 he moved to corporate IS as the director of an applications development unit and then moved to the pension and reinsurance systems unit before he was put in charge of all of the IS areas within BU 9. He reads Pension World in order to "if nothing else, to get early warning on the buzzwords". He is rated as having high IT project management experience and company knowledge, moderate insurance knowledge and awareness of new technology.  

The IS director for BU 9 started out studying actuarial science and is an Actuarial Science Associate. He spent four years in the actuarial department of another life insurance before joining the company. He has two years of experience with the company and 10-12 years experience in IT. He is rated as having high IT project management experience, low company knowledge, and moderate insurance knowledge and awareness of new technology.

In summary, BU 9 has a wealth of shared knowledge: the SVP and the AVP of IS are composites and have worked together to implement successful systems in another business unit. The VP is a PC user and a true believer in the value of IT for the business. The Director of IS is almost a composite, although his effectiveness is lessened somewhat because he does not know the company environment well. They have a high level of shared knowledge.

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80 The AVP of IS's experience in the line business area qualify him as a "composite" since he has had five years of both line and IT management experience.

81 He is very close to meeting the criteria of five years of business and five years of IT experience required for a composite. His only drawback now is a lack of company experience and possibly a lack of experience in pensions. In assessing the differences between the 2 senior IS managers, the VP of BU 9 remarked that the AVP's length of experience with the company was very useful to her - "he knows what's been tried, has the connections, knows the company game".
3. Communication between business and IS executives

Using the Galbraith typology, there are two types of lateral relations in Business Unit 9 - direct contact and permanent teams. Each lateral relations device is discussed below.

a) Direct Contact

The AVP of IS has monthly or bi-monthly one-on-one chats with the SVP. He feels he has good access to him and to all of the other senior managers. "One of the things I like about his management style is that he is very open. He doesn’t like contentious issues bubbling for a long time - he likes them to get onto the table. I can bring a systems approach to things - in product launch and things. I’ve been able to bring some structure to them and it has worked well on several occasions. I add value - I ask dumb questions. The spectator often sees more than the players. He also has a one-on-one meetings with the VP of BU 9 each month.

The Director of IS, has a dotted line reporting relationship with the VP of BU 9 and attends the bi-weekly management meetings. He also meets with the VP monthly for a one-on-one meetings to review progress on the issues at hand. He sees the VP informally about once or twice a week and also communicate via the e-mail system - "I would say that she and I would have a contact a day, at least one contact a day."

b) Permanent Teams

The AVP of IS attends several regular meetings within the BU - monthly management meetings, weekly and bi-weekly operations meetings, and monthly IS Steering Committee meetings including this and two other business units. He is a real participant at the operations meetings, "I have plenty to say at them", and attends the annual sales meetings in his business units.
The VP of BU 9 remarked that the IS Steering Committee "is a little bit of overkill. We all sit in so many meetings all the time. We do a lot of information sharing. I did find the meetings useful - to hear about the other elements within the other business units." A perusal of the minutes of the Steering Committee meetings reveals that it serves as a forum for discussion of shared interests between the three business groups. For example, one of the first topics discussed was an investigation of whether the BU 9 could use a system developed by their US counterpart. The discussion included a review of the similarities and differences in the two business units, both current and future.

The AVP of Information Services also sits on the company-wide job evaluation committee and an industry committee for pension IS managers.

c) Summary

In summary, there is a very high level of communication between business and IS executives within BU 9.

4. Connections between business and IT planning
a) Business Planning

In formal business planning, they follow the top-down, bottom-up planning process which is initiated by the President’s Overview document. There are no off-site strategy meetings held in BU 9. The SVP and the direct reports look over the strategic issues in the corporate overview and try and relate them to specific business unit level activities.

After they have looked at the corporate objectives (e.g. move into fee-based products), that translates into a requirement for IT support. The heads of the three businesses do their own strategic plans.
b) IT Planning

The AVP of IS says that he prioritizes the work that is performed by his people. He lays out where the business is going and what they need to do. He finds that balancing the business projects with the technology projects is the difficult thing to do. The technology projects don't buy the business a whole lot - the priority has to be the business projects and "I am trying to get to the situation where we deliver something to the business side and in parallel or soon after, implement a technical project. The technical projects always have to come second". The SVP is aware of the technical projects and agrees that they have to be done.

The AVP's compensation is mostly salary but bonuses are paid based on the objectives set for him by the SVP and by the overall profitability of the business unit and the company. He is also rated by his customers on his services and that is input for the bonus calculation. The Key Result Areas are used as an agenda for the monthly meetings - it focuses the discussion on the important things. "I think it is a terrific management tool- its dynamite - its very easy in the scurry of day to day to lose track of that you were supposed to do. Its an evolving thing - they are changed and modified as the year evolves."

The VP of BU 9 outlined the priority setting procedure for systems projects within her area: "In the detailed resource allocation procedure, there's some criteria to define what goes first - is it going to eliminate work, how many people is it going to affect if we make this change, would this enhancement mean that we save an hour of thirty people's time each day or one person two times per week. It is very much tied into the need to lower administrative costs of the business."

The strategic IT issue is how BU 9 and the other two units it has been joined with are to share their IT assets. They are now trying to determine where the opportunities are between the three units. A team of IS people from BU 9 used a strategic IT planning
methodology and have just completed the architecture portion of the strategic plan. This document has not yet received approval from management and had not been incorporated into any of the strategic business plans.

c) Summary

It seems that within the day-to-day operations of BU 9, there is a high level of coordination in tactical planning. It has not had a strategic plan for years and neither has its IT function. The latest initiative will change that, but it is too early to evaluate it. The VP of BU 9 says that "this is not a pilot, we intend to use the strategic IT planning material as soon as we can". There are explicit connections in the resource allocations procedures for the annual plan.

R. Summary and Analysis - Business Unit 9

In Table VII.9, the findings are summarized for Business Unit 9 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
</table>
| History of Implementation of IT Plans | The IT history of the BU is one of underfunding and failed implementations.  
The recent two years have been catch-up with not a lot of progress made towards any strategic goals.  
Recent implementations have been moderately successful. |
| Shared Knowledge between IS and business executives | The SVP has a history of hacking and funding IT skunkworks. The VP is PC literate.  
The AVP of IS is a "composite" having more than five years business and IT management experience. The IS Director also has both IS and business experience.  
A high level of shared knowledge. |
| Communication between IS and business Executives | The AVP of IS has good access to the SVP and the VP.  
Both IS executives sit on permanent teams including business executives.  
A high level of communication between IS and business executives. |
| Connections between IT and business planning | No strategic business or IT planning as yet. With the recent reorganization, they are just sorting out the synergies between the three units which are now together.  
Annual planning tightly connects business priorities and IT projects, based on business unit objectives of cutting the unit cost of administering the business.  
Strong connections in short term planning, no strategic planning. |
<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Factors</td>
<td>Lack of a strategic business direction.</td>
</tr>
<tr>
<td></td>
<td>Through a system of bonuses, the objectives of the AVP of IS and those of the BU are connected.</td>
</tr>
<tr>
<td>LINKAGE</td>
<td>HIGH - HIGH.</td>
</tr>
<tr>
<td>- understanding of objectives (EXEC/IS)</td>
<td></td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>LOW</td>
</tr>
<tr>
<td>OVERALL</td>
<td>MIXED</td>
</tr>
</tbody>
</table>
1. Stage One: The Relationship between Antecedents and Current Practices

The high level of shared knowledge in the business unit and shared experience between the AVP and the SVP have resulted in a situation in which there are many communication channels between IS and business executives. There is a lot of trust and respect between them.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

The high level of communication has resulted in a high level of mutual understanding exhibited in the linkage measures.

The lack of a strategic business or IT plan has influenced linkage in that there is no shared vision for IT. There is a lot of enthusiasm for the potential but not a clear picture of how their business will operate in the future with more IT support.

3. Emergent Factor

This business unit has a number of composites and the data from other business units would lead us to believe that this wealth of talent would have produced an IT vision. However, it seems that the changes in their structure and the extreme pressure to change the costs of doing business have resulted in short term connections but no long term strategies yet. This lack of a strategic direction has nullified, for the time being, the presence of the "composites".

The VP of BU 9 remarked that the system of bonuses had acted to alert the AVP of IS to deficiencies in the IS unit during the previous year. He felt that these bonuses had increased the AVP of IS’s understanding of business objectives.

The causal relationships are shown in Figure VII.10.
Shared Knowledge between Business and IS Executives

Communication between Business and IS Executives

Connections between Business and IT Planning Processes

Linkage (Mutual Understanding)

IS Bonuses Based on BU Objectives (Mutual Understanding)

Lack of a Clear Strategic Business Direction (Vision)

Figure VII.10
Causal Relationships in BU 9
1. Implementation of Previous IT Plans

Beginning in 1987, BU 10 began to use PCs to replace some of the functions that were not satisfactorily handled by mainframe or outsourced solutions. Claims processing was first and they now have an independent claims systems which gives them good statistical reporting capability. There was a lot of "sneaker-net" activity between multiple users of applications such as claims, special risk and bulk processing until they installed the first company local area network in 1990. BU 10 makes the most sophisticated usage of local area networks in the company with both production systems, electronic mail, and device sharing being supported.

BU 10 bought a LAN-based electronic mail system which allowed them to link 40 of their 60 people to each other without incurring the $1000 cost to connect each person to the mainframe. They felt this was very cost effective compared with using the mainframe services as it reduced their electronic mail costs by 60%. This non-standard software cost less than the $1000 limit set by central IS, and enabled them to bypass the corporate approval process.

When the IS Manager joined BU 10 in 1988, the Vice President had just cancelled a very major project to develop an administration system for the major part of their business. This project had taken several years (from 1983 to 1987), with several part time people on it, and achieved no results. After a period of time in which general business strategies were reformulated, they began to search for a packaged solution. During 1990, they found a software vendor with package which could be modified to fit most of their business. Because it was over divisional spending limits (the package price was $1 million), they had to get approval through three steering committees and the President. The President was also involved because it used older technology, rather than the
approved corporate platform. The project was approved and they are now proceeding with implementation.

However, the history of IS in BU 10 since 1988 is one of innovation, relative to the rest of the divisions in the company. They had early production systems on PCs, purchased a local electronic mail solution and ran production systems on the LAN.

2. Shared Knowledge of IS and Business Executives

a) Business Executives

The VP, has been with the company for 21 years, all of it within BU 10. He is an actuary by profession and did actuarial work within the company for 13 years, before becoming VP of the business unit in 1987. He has never managed an IT project and has no particular interest in technology.

He rates as having a high level of company and insurance knowledge, and a low level of IT project management experience and awareness of new technology.

b) IS Executives

The IS manager joined the company out of university 10 years ago. She had a political science degree and college-level courses in programming. She spent several years as a programmer in various business units. She joined BU 10 in 1988. Most of her IS training has been provided by the company; BU 10 is her first management position. She has no insurance courses and no non-IS experience.

She exhibited a high level of company knowledge, a moderate level of IT project management experience and new technology awareness and a low level of insurance knowledge.

The AVP of IS, who is also in charge of the IS group in BU 8, has been in data processing since the early 70's, employed by a number of different insurance companies.
He had been in BU 10 just under a year at the time of the interview. He has not pursued an insurance designation but has had some experience in managing the underwriting and claims functions for a smaller insurance company a few years ago. He is rated as having a high level of IT knowledge and experience, a moderate level of insurance knowledge, and a low level of company knowledge.

Within the IS area, there are several analysts with a long history in BU 10. These people are considered quite capable of analyzing requirements and working closely with the users.

In summary, there is no senior manager with both BU 10 and IS experience. One would predict low levels of innovation in this situation but the reinsurance business, according to the SVP, is a simple one and the need for IT is not too sophisticated.

3. Communication between business and IS executives

Using the Galbraith typology, there are two types of lateral relations in Business Unit 10 - direct contact and permanent teams. Data on direct contact was not collected. Permanent teams are discussed below.

The VP runs his division by holding a number of different kinds of regular meetings. In addition to the monthly operations meetings, he holds quote meetings (to discuss new business), weekly pre-trip meetings (to prepare for a sales trip), pricing meetings (for product pricing discussions), monthly finance meetings (to discuss the divisions numbers) and weekly IS meetings (to discuss systems issues). These weekly IS meetings have been held since 1989, when the feasibility study for the new package began.

In 1990, BU 10 instituted an IS Steering Committee. The SVP (who looks after BU 8 and 10) sits on the corporate IS Steering Committee and also the Steering Committee within BU 10. In BU 10, the IS Steering Committee meets "roughly once a
These are not always held - if there are no important items to be discussed, there will be no meeting. The VP noted that the IS Steering Committee meeting served as an education for the SVP and the representative from corporate IS as to what was happening in BU 10 and, to a lesser extent, for the business unit people as to what was happening in the rest of the company.

The AVP of IS attends the operations meetings, the IS meetings and the IS Steering Committee meetings.

The IS manager attends the weekly IS meetings, and the monthly Operations, finance, and IS Steering Committee meetings. She recently attended a sales meeting, which she found useful to increase her understanding of the business and also to make contact with the sales people. She does not attend the quote, pricing or pre-trip meetings which are held regularly in the division.

In summary, the IS executives' connections with the business operation are good, although they do not have time to attend important business meetings which would help them to fully understand the workings of the business unit. The IS department is small and working at full capacity, so she may not feel that it is urgent to look for more work or for different priorities than she is already executing.

Communication between IS and executives is rated as being moderately frequent.

4. Connections between business and IT planning
a) Business Planning

The IS manager believes that there is not a lot of strategic business planning going on in BU 10. Because of that, she does not get advance notice of new developments. "It would be wonderful to have even 6 month planning, let alone strategic planning, but we cope."

The VP of BU 10 said that no strategic planning has been done since the last
rethinking of the divisional direction in 1987. In 1991, they started off-site planning meetings again, focusing on growth and expense control. The reinsurance business is profitable but the outlook for growth is minimal.

They follow the corporate planning process which has dates laid down for each step of the top-down, bottom-up process. This has created plans which are extensions of the previous ones.

b) IT Planning

The IS manager prepares a plan for her section each year. Her formal input consists of the President’s corporate overview, and her Vice President’s unit overview. She creates her Issues/Concerns documents and her budgets and the controller accumulates them for the division. They are discussed at the Operations meetings and then sent back up the chain. She feels that line management equate planning with budgeting so they may keep on track financially throughout the year but complete different activities than were planned. She juggles activities when her users change their priorities or bring systems in at the last moment. Her plans and the plans of her BU peers are prepared at the same time; she doesn’t get involved with their planning and doubts if they do formal planning.

She noted that her 1991 planning was quite simple - they had decided in 1990 to buy a package and were proceeding with that direction. So no complicated planning was necessary since her unit is too small to carry on more than one big project at a time.

c) Summary

In summary, BU 10’s IT planning process is connected to the business planning by the VP’s overview document. It is rated as being derived from the business unit objectives. There has been no reformulation of strategy in BU 10 since 1987 and no
strategic planning, either business or IT. There is a strong plan-to-plan connection to support the existing strategies.

T. Summary and Analysis - Business Unit 10

In Table VII.10, the findings are summarized for Business Unit 10 on factors, discussed in this chapter, and linkage, discussed in Chapter VI. In the analysis following, explanations of the linkage results are presented. First, the relationship between Antecedents (shared knowledge and previous implementation of IT plans) and Current Practices (Communication and Connections in Planning) are discussed. Then the relationship between Current Practices and Linkage are discussed. Alternative explanations are also examined.
<table>
<thead>
<tr>
<th>FACTORS/LINKAGE</th>
<th>Linkage Between Business Unit and Corporate IT Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>History of Implementation of IT Plans</strong></td>
<td>The history of IT implementations in the business unit has been mixed. They have a long history of innovativeness in PC-based solutions, and a poor history of large project implementation. The executives that they are innovative and practical in using IT and would rate themselves as being successful.</td>
</tr>
<tr>
<td><strong>Shared Knowledge between IS and business executives</strong></td>
<td>There is a low level of shared knowledge in the business unit. There is a high level of continuity in the BU, with many people being long service employees.</td>
</tr>
<tr>
<td><strong>Communication between IS and business Executives</strong></td>
<td>The communication is moderately frequent. There are many types of meetings at which the business is discussed and two at which IT is discussed. The IS manager attends more meetings and has a higher level of communication than does the AVP of IS.</td>
</tr>
<tr>
<td><strong>Connections between IT and business planning</strong></td>
<td>There has been no strategic business planning since 1987. There is no strategic IT planning. There level of connection is rated as being derived since the IT plan is prepared based on the VP's overview document and the IS manager's knowledge of the environment.</td>
</tr>
<tr>
<td><strong>Other Factors</strong></td>
<td>The business strategy was established in 1987 and is stable. The BU has been very profitable for several years. There is no incentive to be innovative with IT. BU 10, which sells reinsurance services, might be less reliant on excellent IT for business success than are other insurance units. If so, there would be little incentive to create an innovative IT vision.</td>
</tr>
<tr>
<td>FACTORS/LINKAGE</td>
<td>Linkage Between Business Unit and Corporate IT Objectives</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>LINKAGE</td>
<td>HIGH - HIGH.</td>
</tr>
<tr>
<td>- understanding of objectives (EXECIS/IS)</td>
<td></td>
</tr>
<tr>
<td>- Shared Vision</td>
<td>NO VISION</td>
</tr>
<tr>
<td>OVERALL</td>
<td>MIXED</td>
</tr>
</tbody>
</table>
1. Stage One: The Relationship between Antecedents and Current Practices

Low shared knowledge does not seem to have negatively influenced the communication patterns in the business unit.

The BU feels very positive about the way they have used IT, particularly when they can show how proactive they are in relationship to the rest of the business units. This history of success has enabled the IS manager, who was new to them and new to management, to fit in well and establish strong communication ties with the executives. Therefore, success in IT implementation has influenced communication.

2. Stage Two: The Relationship between Current Practices and Observed Linkage

The IS manager attends seven meetings a week with the VP, in addition to any informal communication she has with him. The strong communication ties have resulted in a high level of mutual understanding being observed.

There is no vision for IT in BU 10. One explanation has to do with the level of shared knowledge in the BU. The two IS executives had no previous experience in reinsurance before joining BU 10. Totalled, they have only five years of exposure to reinsurance IS. The VP of the business unit has spent all of his career in BU 10, having no experience in any other business unit or company. As a team, these three executives meet five times a month to discuss systems, but their deliberations are tactical and project-oriented. While this may be partially caused by their pre-occupation with the large project underway, it is also due to their lack of other experience with which to fashion a strategic IT vision.

3. Emergent Factors

Another explanation of the lack of a vision for IT may stem from the "if it ain't broke, don't fix it" rationale. The existing business strategy has been followed
successfully since 1987 and the BU is satisfied with its performance. The two IS executives, the AVP and the IS project manager, were not part of the BU when this strategy was formed. Their jobs have been limited to one of supporting an established strategy, rather than in creating a new one. There is no perceived need to create a new business strategy and therefore the business planning is very tactical and incremental. The IS planning follows this lead, and no IT vision is created. Therefore, a successful business strategy has influenced the vision measure of linkage.

Another explanation of the lack of vision was suggested by the SVP, who believes that the reinsurance business has less of a need for strategic IT implementations that do the other traditional insurance business units. This conjecture would need to be verified through an examination of other reinsurance business units. However, if it is true, then the lack of vision might simply be due to the lack of reliance on IT for strategic business success.

The causal relationships in BU 10 are depicted in Figure VII.11.
Figure VII.11
Causal Relationships in BU 10

Implementation of Previous IT Plans

Communication between Business and IS Executives

Connections between Business and IT Planning Processes

Stable, successful Business Strategies

Lack of Strategic Opportunities for IT

Linkage

(Mutual Understanding)

(Vision)
U. Across-Site Findings

In this section, findings from all ten business units are combined in order to analyze the effects of the factors. The hypothesized relationships for each of the four factors are examined and the emergent factors and relationships are discussed.

In section V, the effect of "composites" in business units is discussed. In addition, data is analyzed to assess the effects of other factors at the company, business unit, and IS department levels. A model summarizing the findings is presented in section W. More generalized findings are developed in Chapter VIII.

1. Shared Knowledge between IS and Business Executives

It was hypothesized that the level of shared knowledge between IS and business unit executives would affect the frequency of communication between them. The expected relationship was not clear in our minds at the outset of the project. For the most part, we expected to find that shared knowledge would directly affect the frequency of communication because it would increase the level of comfort and trust between IS and business executives. However, it was possible that a high level of shared knowledge would preclude the need for frequent communication and an inverse relationship between shared knowledge and communication would result. Table VII.11 contains a summary of the findings concerning the effect of shared knowledge in each of the business units.

As can been seen from Table VII.11, we identified a direct relationship between the level of shared knowledge and the frequency of communication in eight out of ten business units. The inverse relationship was not present in the sample.

In the organizations, there was a high level of reciprocal dependence between the tasks of IS and business executives and they needed to communicate frequently. Furthermore, IS people had analytic and problem solving skills which were very useful to a business team. In units with high levels of shared knowledge (especially BU 1 and
7), we found IS executives playing an integral role in the non-IS tasks of the unit, such as business planning, total quality management, and new product development. In units exhibiting low levels of shared knowledge (especially BU 2 and 4), IS executives were isolated from the other executives and almost all of their communication was directed towards their own unit or to other IS people in the organization.\(^2\)

<table>
<thead>
<tr>
<th>Business Unit</th>
<th>Level of Shared Knowledge</th>
<th>Effect in the Business Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HIGH</td>
<td>Communication (+), IT Implementation (+)</td>
</tr>
<tr>
<td>2</td>
<td>LOW</td>
<td>Communication (-)</td>
</tr>
<tr>
<td>3</td>
<td>HIGH</td>
<td>Communication (+), Connections in Planning (+)</td>
</tr>
<tr>
<td>4</td>
<td>LOW</td>
<td>Communication (-)</td>
</tr>
<tr>
<td>5</td>
<td>HIGH</td>
<td>Communication (+)</td>
</tr>
<tr>
<td>6</td>
<td>MODERATE</td>
<td>IT Implementation (-)</td>
</tr>
<tr>
<td>7</td>
<td>HIGH</td>
<td>Communication (+)</td>
</tr>
<tr>
<td>8</td>
<td>LOW</td>
<td>Communication (-), Connections in Planning (-)</td>
</tr>
<tr>
<td>9</td>
<td>HIGH</td>
<td>Communication (+)</td>
</tr>
<tr>
<td>10</td>
<td>LOW</td>
<td>no effect observed</td>
</tr>
</tbody>
</table>

It was clear from our interviews that low levels of business experience in IS people frustrated business executives, who felt that they could not communicate with them. Appendix E contains the reasons given by respondents for their subjective ratings of linkage. In most of the units, executives remarked on the presence or lack of

\(^2\)In this table and others in this section, a + sign means that the factor appeared to influence the level of the Current Practice or Linkage positively, a - sign means that the factor affected the Current Pratise or Linkage negatively.
understanding of the business exhibited by IS people as an important indicator of linkage. In two cases, they positively commented on the fact that "IS people are interested in the business", as if this was an unusual trait. Business unit executives characterized IS people as "techies" in several interviews and one SVP remarked, jokingly, "You can't get very good, but he's about as good as you can get from a pure systems person." This may have been said in jest, but probably reflects his perceptions that IS people can never really understand the business.

In two business units, the level of shared knowledge also affected connections in planning. One IS group with low business knowledge was demoted and therefore pushed further away from the "inner circle" of people who created objectives for the BU. In two other units, which exhibited high levels of shared knowledge, the IS executive coordinated the business planning process, bringing the individuals and the concerns of IT closer to the strategic core.

Shared Knowledge also appeared to influence IT implementation success in two business units. In one case, shared knowledge had been at a high level for a long period of time, and we concluded that it had positively influenced the business unit’s ability to sustain a high level of success on various IT projects. In the other case, a high level of shared knowledge may have counteracted the expected influence of IT failure, and enabled the business unit people to keep their communication levels high and continue their efforts to complete a very difficult project.

In summary, shared knowledge exhibited a very strong influence on the business units we studied. It was a backdrop against which the drama of everyday business life was played and seemed to affect many of the current practices within a business unit, most notably, the ongoing communication between IS and business executives and the strategic planning processes.
2. Implementation of IT Plans

It was hypothesized that successfully implemented operational-level IT plans would positively influence communication between business and IS executives and that successfully implemented strategic-level IT plans would positively influence connections between business and IT planning. Table VII.12 contains a summary of the findings concerning the effect of IT implementation success in the business units.

In analyzing the data, we could not clearly distinguish between the effects of implementation success or failure for strategic and operational systems without a detailed analysis of the history of each business unit. Therefore, we simplified our hypothesis to one which predicted a direct relationship between IT implementation success and both communication and connections in planning.

<table>
<thead>
<tr>
<th>Business Unit</th>
<th>Level of IT Implementation Success</th>
<th>Effect in the Business Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HIGH</td>
<td>Connections in Planning (+)</td>
</tr>
<tr>
<td>2</td>
<td>LOW</td>
<td>Communication (-), Connections in Planning (-)</td>
</tr>
<tr>
<td>3</td>
<td>MODERATE</td>
<td>no effect observed</td>
</tr>
<tr>
<td>4</td>
<td>LOW</td>
<td>Communication (-)</td>
</tr>
<tr>
<td>5</td>
<td>LOW</td>
<td>Communication (+)</td>
</tr>
<tr>
<td>6</td>
<td>HIGH</td>
<td>Communication (+)</td>
</tr>
<tr>
<td>7</td>
<td>LOW</td>
<td>no effect observed. The effect of low implementation success might have been counteracted by high Shared Knowledge.</td>
</tr>
<tr>
<td>8</td>
<td>MODERATE</td>
<td>no effect observed</td>
</tr>
<tr>
<td>9</td>
<td>MODERATE</td>
<td>no effect observed</td>
</tr>
<tr>
<td>10</td>
<td>HIGH</td>
<td>Communication (+)</td>
</tr>
</tbody>
</table>
The hypothesized relationship between IT implementation success and planning was present in two business units. In BU 1, which had enjoyed a decade of IT implementation success, the IS VP was the coordinator of the business planning process, thus tightly binding him and his IT plans with the plans of the other departments. In BU 2, which had been plagued with IT failures for 5 years, the IS director no longer reported to the SVP of the business unit and some responsibility for the direction and evaluation of IT projects was being transferred to the new Quality Business function. The IS department had been relegated to a tactical and operational role within the business unit, with most of their strategic planning tasks being performed by other executives.

A relationship between IT implementation success and communication was found in five business units. In four of the units, the effect was direct, with high levels of IT success resulting in high levels of communication. In BU 5, however, an unsuccessful IT project caused the SVP to move the IS people closer to the business unit and have them report to him instead of to corporate IS. In all of the other business units, the IS department had previously been moved to report to the business unit.

Executives related IT implementation success or failure to their perceptions of linkage in five business units (Appendix E, business units 2, 3, 6, 8, and 9). For the most part, they complained that IT deliverables were too slow in arriving. At first, we considered this to be an operational complaint and therefore one which was unrelated to the topic of linkage between objectives. However, as our understanding of business units concerns deepened, we realized that late IT projects often meant missed product implementation deadlines or unsatisfied customers and agents. These were strategically important outcomes and IS departments which caused the delays were considered to have failed in their commitments to the business unit. Compounding the effect of failed

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*A quote from BU 2: "we seem to be taking forever...all I can see is we spent 2,3,4 million dollars and I don't see anything yet."
implementations was the difficulty that executives reported in communicating with IS. Not only did late IT implementations cause problems, executives could not understand the reasons for the delays, and therefore could not create plans to avoid them in the future. Executives in this situation expressed frustration and exhibited dysfunctional behaviour (for example, avoiding communication with the IS executive).

In summary, IT implementation history appeared to influence both communication and connections in planning. A strong history of success resulted in high levels of communication and connections in planning. A history of failure caused the opposite effect. Business executives reported that missed project implementations were important to the attainment of linkage within the business unit.

3. Communication between IS and business executives

It was hypothesized that the level of communication between IS and business executives would influence connections between business and IT planning. There was no anecdotal evidence to support the hypothesis or to support an equally plausible hypothesis that connections in planning influence communication. In our sample, all business units exhibiting high levels of connections in planning also exhibit high frequency in communication (i.e. BU 1, 3, 7) and the only business unit with a LOW rating on connections in planning also rated LOW in communication (i.e. BU 4). However the remaining six business units, which rated MODERATE in connections in planning, had HIGH (i.e. BU 6, 9, 10), MODERATE (i.e. BU 5) and LOW (i.e. BU 2, 8) rating on communication. This strong correlation at the outer points on our scale is interesting but the lack of corroborating evidence from our analysis of events or from the informants led to the conclusion that more detailed data, possibly using participant observation methodologies, was needed to fully explore this relationship.
It was hypothesized that high frequency in communication between IS and business executives would lead to high levels of mutual understanding and shared visions for IT. Table VII.13 contains a summary of the findings concerning the effect of communication in the business units.

The effects of communication on linkage in our sample were very strong. In five business units, mutual understanding was directly affected by the frequency and content of communication. In three other business units, shared IT vision was directly affected by levels of communication.

<table>
<thead>
<tr>
<th>Business Unit</th>
<th>Level of Communication</th>
<th>Effect in the Business Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HIGH</td>
<td>Shared IT Vision (+)</td>
</tr>
<tr>
<td>2</td>
<td>LOW</td>
<td>IT Vision is present but not consistent with plans and budgets.</td>
</tr>
<tr>
<td>3</td>
<td>HIGH</td>
<td>Shared IT Vision (+)</td>
</tr>
<tr>
<td>4</td>
<td>LOW</td>
<td>Mutual Understanding (-)</td>
</tr>
<tr>
<td>5</td>
<td>MODERATE</td>
<td>Mutual Understanding (+)</td>
</tr>
<tr>
<td>6</td>
<td>HIGH</td>
<td>no effect observed</td>
</tr>
<tr>
<td>7</td>
<td>HIGH</td>
<td>Mutual Understanding (+)</td>
</tr>
<tr>
<td>8</td>
<td>LOW</td>
<td>Shared IT Vision (-)</td>
</tr>
<tr>
<td>9</td>
<td>HIGH</td>
<td>Mutual Understanding (+)</td>
</tr>
<tr>
<td>10</td>
<td>HIGH</td>
<td>Mutual Understanding (+)</td>
</tr>
</tbody>
</table>

Although we had expected to uncover the relationship between communication and mutual understanding, we were surprised at the wide variance of communication levels exhibited in the sample. At one extreme, BU 1 reported 14 hours of scheduled senior management meetings per month. The IS executive in BU 7 participated in six permanent
management teams. At the other extreme, BU 4 reported no scheduled meetings and no management team involvement.

Another interesting finding was the relationship exhibited between communication and the presence of shared IT vision. We had suspected, contrary to the emphasis placed on the technical issues of strategic IT planning in the literature (e.g. selection of planning methodology), that shared IT visions were crafted when high levels of communication are present. This proposition was supported in BU 1 and 3. In these two business units, the integrated planning process extended smoothly into the regular communication processes via the list of prioritized projects (which were positioned under specific goals for the BU). Each senior management meeting revolved around the items on this list as progress, results, and changes in priority were discussed. The business objectives were brought in to clearer focus as progress towards them was reported. With this process of continual referral to the BU objectives, an IT vision, which may only have been dimly understood by many of the executives when it was formulated, was honed and diffused through regular discussion and debate. In business units lacking this rich set of communication mechanisms (e.g. BU 2) the IT visions were present but lacked substantial detail and commitment.

In summary, the level of communication between IS and business executives seemed to directly affect both mutual understanding and the creation of shared IT vision in our sample.

4. Connections between IT and business planning

It was proposed that high levels of connection between IT and business planning would result in high levels of linkage. Table VII.14 contains a summary of the findings concerning the effects of different levels of connection in planning.

One unanticipated finding which hampered our ability to investigate this
proposition was the very low level of IT and business strategic planning within the ten business units for the years we examined planning practices. Upon reflection, we realized that our expectations were set too high and that a five year observation period was the minimum amount of time to investigate the connections between IT and business planning processes and its effects on other processes or outcomes.

<table>
<thead>
<tr>
<th>Business Unit</th>
<th>Level of Connections in Planning</th>
<th>Effect in the Business Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HIGH (Integrated)</td>
<td>Mutual Understanding (+)</td>
</tr>
<tr>
<td>2</td>
<td>MODERATE (Derived)</td>
<td>Mutual Understanding (+)</td>
</tr>
<tr>
<td>3</td>
<td>HIGH</td>
<td>no observed effect</td>
</tr>
<tr>
<td>4</td>
<td>LOW (Isolated)</td>
<td>Mutual Understanding (-)</td>
</tr>
<tr>
<td>5</td>
<td>MODERATE</td>
<td>no observed effect</td>
</tr>
<tr>
<td>6</td>
<td>MODERATE</td>
<td>Mutual Understanding (-)</td>
</tr>
<tr>
<td>7</td>
<td>HIGH</td>
<td>no observed effect</td>
</tr>
<tr>
<td>8</td>
<td>MODERATE</td>
<td>Mutual Understanding (-)</td>
</tr>
<tr>
<td>9</td>
<td>MODERATE</td>
<td>no observed effect</td>
</tr>
<tr>
<td>10</td>
<td>MODERATE</td>
<td>no observed effect</td>
</tr>
</tbody>
</table>

Table VII.14

The Effects of the Connections in Planning Factor

According to our informants within the business units, the typology of connections in planning processes (e.g. integrated, derived, isolated) accurately described the current planning practices. However, it proved to be inadequate to capture the differences in the business unit’s position within a strategic planning cycle. For example, BU 10 reexamined and altered their strategic plans in 1988. Since then, they have been implementing the new plans with satisfactory results. We examined their planning practices for 1990 and 1991, found no evidence of strategic thinking, and rated the
connections in planning as moderate or "derived", using our typology. BU 2 created a strategic IT plan based on business needs in 1984. Projects from this plan have dominated IT activity since that time. We also rated this connection in planning as "derived", although it was clear to us that the IT direction needed to be reworked. BU 9 is in a state of strategic confusion at the moment and its long term objectives are not formulated. Their short term direction is clear, however, and the IT plan is based upon it, resulting in a "derived" rating for the connections in planning.

Using our typology, most units had attained a "derived" level of connection in planning. This classification was too broad and allowed few conclusions to be drawn for business units with this rating. The higher rating, "integrated", was reserved for business units in which contents of the IT plan were explicitly examined and prioritized simultaneously with other business objectives by all executives in a meeting. Although this distinction seemed important in describing the business units actions, we could not identify any strong patterns of linkage effects associated with these practices.

A relationship between Connections in Planning and Linkage was found in five business units but, not surprisingly, considering the low level of strategic planning in our sample, only short term linkage was influenced. No business unit reported any explicit discussions relating to the creation of IT visions in their planning activities.

In summary, we did not identify a strong relationship between connections in planning and linkage. This could be a result of inadequate measures or an absence of the effect.

5. Emergent factors

As expected, there were factors in many of the business units which seemed to influence current practices (i.e. communication, connections in planning) or observed linkage but which were not anticipated in our original model. Table VII.15 lists the
factors which emerged from our analysis.

<table>
<thead>
<tr>
<th>Business Unit</th>
<th>Emergent Factors</th>
<th>Effect in the Business Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The VP of IS is a &quot;Composite&quot;</td>
<td>Shared Knowledge (+), Communication (+)</td>
</tr>
<tr>
<td>3</td>
<td>Lack of a Strategic Business Direction</td>
<td>Connections in Planning (-), Communication:Mutual Understanding (-)</td>
</tr>
<tr>
<td>4</td>
<td>Lack of Belief in the Strategic Value of IT</td>
<td>Connections in Planning (-)</td>
</tr>
<tr>
<td>4</td>
<td>Lack of a Strategic Business Direction</td>
<td>Linkage:Vision (-)</td>
</tr>
<tr>
<td>5</td>
<td>Role Ambiguity in IT</td>
<td>Connection in Planning (-)</td>
</tr>
<tr>
<td>5</td>
<td>Presence of a Strategic Business Direction</td>
<td>Connections in Planning (+), Linkage:Vision (+)</td>
</tr>
<tr>
<td>6</td>
<td>Volatility in the Business Environment</td>
<td>Linkage:Vision (-)</td>
</tr>
<tr>
<td>6</td>
<td>Two Executives executing four Roles</td>
<td>Communication (+)</td>
</tr>
<tr>
<td>6</td>
<td>IT Embedded in the Product</td>
<td>Communication (+)</td>
</tr>
<tr>
<td>7</td>
<td>Lack of Belief in the Strategic Value of IT</td>
<td>Connections in Planning(-), Linkage:Vision (-)</td>
</tr>
<tr>
<td>8</td>
<td>Difference in Beliefs about the Strategic Value of IT</td>
<td>Linkage:Vision (-)</td>
</tr>
<tr>
<td>9</td>
<td>Lack of a Strategic Business Direction</td>
<td>Connections in Planning(-), Linkage:Vision (-)</td>
</tr>
<tr>
<td>9</td>
<td>IS Bonuses are based on BU Objectives</td>
<td>Linkage:Mutual Understanding (+)</td>
</tr>
<tr>
<td>10</td>
<td>Lack of Strategic Opportunities for IT</td>
<td>Linkage:Vision (-)</td>
</tr>
<tr>
<td>10</td>
<td>Presence of a Successful Business Direction</td>
<td>Connections in Planning (-), Linkage:Vision (-)</td>
</tr>
</tbody>
</table>

The most prevalent factors in the sample were: 1) the presence/lack of a strategic business direction, and 2) beliefs about the value of IT to the business unit. There were also structural factors identified in the analysis or noted by respondents in interviews.
These included role ambiguity, role overlap (BU 1, 6) and IS reporting relationships (mentioned by executives in BU 1, 5, 6, and 9 - see Appendix E). These emergent factors are discussed below.

In several business units, the presence of one or more "composites" was influential but these composites did not always influence the factors directly. The effect and importance of "composites" will be discussed in the next section.

a) Presence/Absence of a Strategic Business Direction

In three business units, there was no clearly identified business direction, a situation caused by recent re-organizations and/or changes in the business environment. In all three units, the IT planning processes had been halted in order to wait for a clearer mandate. IT visions were absent or if present, were not supported by strategies and plans. However, two of the business units continued their strong tradition of communication and rated themselves as having moderate or high levels of linkage. Our conclusion was that the lack of a business direction can de-rail strategic IT planning, but if the IS department is already communicating well with the business executives, short term linkage need not suffer.

In two business units, a clear business mandate was influential, albeit in different directions. BU 5 reported using the business objectives directly to choose among potential IT projects. High levels of mutual understanding and shared vision were observed. BU 10, however, had created its business direction several years ago and, because of its success, only marginally changed it since then. IT planning was tactical and incremental, similar to the business planning. No IT vision had been created and no strategic thinking was evident.

* As mentioned in the BU 1 discussion, a "composite" is defined by this project to be a person with a minimum of five years of business management and five years of IT management experience.
Our conclusion from this data is that the IT planning process will often mirror its counterpart, business planning. If business planning is focused, the IT planning process can also be clearly focused. If business planning is halted temporarily, IT planning will also stop. Our identification of the two timeframes for linkage, long and short term, however, made it possible to observe that a cessation in long term IT planning can be compensated for by strong short term linkage. Organizations can continue to be effective in their daily routines while re-examining their long-term direction.

b) Shared Beliefs about the Value of IT

In three business units, differences in beliefs about the value of IT had inhibited their ability to connect business and IT planning processes and/or achieve high levels of observed linkage. In all cases, the business executives felt that IT could contribute operationally but not strategically. The IS executives held strong opinions to the contrary but could not convince their senior colleagues.

This lack of shared beliefs resulted in sub-optimal situations in all three units. In one unit, a diverse set of IT visions created by the Vice Presidents was allowed to drift without direction from the SVP. The IT budget was being spent in many areas and little progress towards any identifiable business strategy was being made. In another unit, an IT project had grown from a one million dollar budget to a 15 million dollar expected outlay and the deliverables were still late.

Our conclusion was that a lack of shared beliefs about the contribution of IT can weaken the management processes within a business unit. Responsibilities are abdicated, IT budgets are misspent, and mistrust between IS and business executives inhibits linkage.

c) IS Reporting Relationships
Executives consistently pointed out the importance of reporting relationships in creating and maintaining linkage. Eight of the business units had had their own IS application development departments for at least four years. Two others used programmers and analysts from corporate IS. Both groups reported that having IS report internally had improved or was expected to improve linkage in the business units. For example, both BU 1 IS executives, who had reported internally for nine years, mentioned this as an important reason why they rated linkage as being high.

In one business unit, the Vice President noted that physical proximity was important to the creation of short term linkage. She said, "when things go wrong, we track them down. They can't hide and they learn about the effect of systems on our business."

In summary, the proximity, both structural and physical, that the IS applications development unit has to the business unit, appears to influences linkage. A model incorporating all of the findings discussed above, is presented in the next section.

V. Other Findings

This section includes two topics which were not in the original model of inquiry: the finding relating to "composites", and an examination of demographic and other exogenous factors.

1. Composites: A Special Case of Shared Knowledge

During the course of this research project, interviewees were asked to identify individuals who had made a significant contribution to IT in their company or their business unit. There was a small number of people mentioned, most of them more than once. They included:

1) A Vice President of IS and Administration, who created an IS department in
which each senior person was conversant with the details of the business as well as IT. They have a nine year history of successful IT implementation.

2) An Assistant Vice President of IS, who was responsible for the only strategic IT plans in evidence in her company and who was a key member of several cross-functional task forces.

3) A Vice President of Administration who had encouraged the company to decentralize IS into the business units in 1983, and then had created the best IT systems in the company for the BU in which he was the IS executive.

4) A Manager of Marketing Administration who championed all of the strategic systems installed in his business unit and was currently using his own time to test several emerging technologies.

5) A Director of Corporate Services, who had, as a user manager, directed the first comprehensive strategic IT planning project in his company and then, as IS manager, directed the implementation of the first systems in the resulting plan.

6) A Senior Vice President who had created a successful IT environment to support his rapidly growing business unit. During the last three years, no IT projects have gone in late or over budget.

When interviewing these individuals, it became clear that they shared a trait that differentiated them from the rest of the interviewees: a significant amount of work experience in IT management as well as in line management. One such person, an AVP of IS, summed up the difference between himself and his IS colleagues as follows:

I've had experience sitting in a court contesting a client, I've dealt with angry agents who don't like underwriting decisions.... You know when the updates don't run, the commission cheques don't get cut, you kind of understand what's happening out there. I think the advantage is the sense of urgency .. good technicians get overly involved in getting it right...it takes them six times the amount you want to take to get something done because they do deal in a level of perfection - technical perfection.

From this finding, we created the word "composite" to refer to such a person and identified the criteria for labelling a person as a composite - at least five years as a senior
IT analyst or manager and as a line manager. Although the five year criterion is arbitrary, we based it on our belief that experience with entire product cycles (e.g. introduction, modification, withdrawal) takes several years. Similarly, experience in managing a large IT project from inception through to maintenance takes several years. Wisdom is gained when the person experiences both success and failure. The five year criterion was also supported by one of the composites in the interview:

"Once you know the basics, you can pick up the nuances. I'm never going to know all the tax laws. Right now, it's the product side that I'm not quite as comfortable with. I know the sales distribution side and the management issues such as human resources and quality programs. For basically how the business works, you need four years. Five years to be really solid."

Senior vice presidents in business units with composites described them in glowing terms (e.g. "we are extremely spoiled...") because they recognize how rare composites are and how much value they can bring to a business situation in which the use of information technology is both critical for survival and expensive in a time of shrinking margins.

Unlike many other IS professionals, composites may be able to rise through the ranks, even in insurance companies dominated by actuaries. One SVP remarked:

"If he had still been on that job, he may have been at the next level (VP) with systems as part of his responsibilities. He and I saw quite a bit of each other, a lot of time not on technical issues but on broader BU issues. He's a much broader thinker than average, so I liked to talk to him."

This comment came from the executive who demoted the next Director of IS and reported that he could not get interested in talking to him.

Another SVP reported how he had repeatedly asked his former IS AVP, who was

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85 Keen (1986, p.186-191) discussed the need for telecommunications experts with a "knowledge of the business" and labelled them "hybrids". He noted the difficulty that organizations have in "growing" them.
a composite, to take a line management position because she was a skilled manager in many dimensions and he was worried about losing her to another business unit. At the time of the interviews, she had been moved to help salvage the IT operations in another business unit and was a member of several task forces and head of the Quality Business project.

There was evidence of a negative effect of having a composite in business units which otherwise did not exhibit much IT knowledge among the executives. Senior management, abdicating their responsibility to manage IT as they would any other resource, would give full responsibility to the composite to implement IT projects, set IT objectives, and allocate IT resources.

"Now if you've got somebody like that running your systems department you don't mess with it. They're in touch with the operation, they understand the operation, and they are able to make all these decisions about which project has higher priority than the other far better than any committee."

If the composite did not make any important errors, the projects were successful and IT in the business unit prospered. Otherwise, IT projects had huge overruns and business benefits were not realized. In one case when the composite moved to another business unit, her original unit was left rudderless, having relied on her judgement for many years and not having created any expertise among the management team.

The finding regarding composites was not included in the summary analysis of the business units because the effect of these unique individuals was not merely to influence one or more factors in the model. Their presence permeated the fabric of the business unit and they caused many results - most positive, but some negative as well.

For the purposes of this study, the phenomena of "composites" will be viewed as a special case of "shared knowledge" - the case where the shared knowledge is contained within a single individual rather than in a group of executives. Our revised model reports
a strong relationship between Shared Knowledge and: 1) Implementation of Previous IT Plans, 2) Communication between IS and Business executives, and 3) Connections between IT and Business Planning. The composites in our sample certainly influenced all of these factors, but without further study, we could not draw strong inferences about their influence on linkage.

2. Demographic and other Exogenous Factors

In this section, we examine other possible explanations for the findings. These include intra-company similarities, demographic factors and functional similarities.

a) Intra-company similarities

As noted in chapter VI, there was a significant difference in the IT vision attained in units 1, 2, 3, and 4 (which belonged to one company) and 7, 8, 9, and 10 (which resided in another), with the first group being significantly higher in attained levels of congruence in vision. Findings in individual business units have already been explained in light of the factors from the research model, but it was felt that a company-level factor might also be influential.

The first group of business units belong to a company which is recognized as being one of the best managed in Canada. They were entrepreneurial, individualistic and successful, at least until this latest recession. The second group of business units belongs to a company which has been under severe financial stress for the past three years. It is being managed in a centralized, bureaucratic manner, with creativity and local power at a low ebb. Most corporate programs revolve around the management of costs.

The latter company is not an environment in which visioning and innovation is welcomed, especially when the resulting programs will require financial resources to implement. Although it is speculation on our part, it seems that the corporate culture of
the latter company has filtered into the individual business units and may have partially caused a low level of IT visions.

Another possible influence might have been the CEOs in each company, but we found little difference in them with respect to their feelings about IT. Both were less than enthusiastic about the strategic importance of IT, both believed that IT cost too much and delivered too little. One CEO had designed a set of inter-related steering committees to force his managers to make more informed IT decisions. Using Parson's typology (1983), both men seemed to believe that IT was a "necessary evil", and a very difficult function to manage wisely.

b) Demographic and Functional Factors

Because business units were selected after the sample was chosen, we had little choice with respect to several demographic factors such as size and age of the IS department. Also, we had a mixture of pure insurance lines of business (e.g. individual, group life) and auxiliary functions (e.g. investment). In this section, we investigate the relationships between these factors and observed linkage, recognizing that our small sample may prevent the discovery of an association that is present in the larger population. However, we could find no theoretical reason why any of these factors should be systematically related to linkage. Table VII.16 contains the data for the factors and linkage.86

86 The age of the IS departments refers to the amount of time that the department has been together as a unit. The scale was as follows: "mature" for over five years, "middle" for between three and five years, and "new" for two years and less.
Table VII.16
Demographic and Functional Factors in the Business Units

<table>
<thead>
<tr>
<th>BU</th>
<th>No. of IS professionals</th>
<th>Age of IS Dept</th>
<th>Line of Business</th>
<th>Linkage: Mutual Understanding (EXECS/IS)</th>
<th>Linkage: Shared Vision for IT</th>
<th>Overall Linkage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>Mature</td>
<td>Individual</td>
<td>mod/high</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>Mature</td>
<td>Group</td>
<td>high/mod</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
<td>Young</td>
<td>Assets</td>
<td>mod/low</td>
<td>high</td>
<td>mixed</td>
</tr>
<tr>
<td>4</td>
<td>29</td>
<td>Middle</td>
<td>Investment</td>
<td>low/low</td>
<td>no vision</td>
<td>low</td>
</tr>
<tr>
<td>5</td>
<td>17</td>
<td>Middle</td>
<td>Individual</td>
<td>high/high</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>6</td>
<td>26</td>
<td>Mature</td>
<td>Credit</td>
<td>mod/mod</td>
<td>no vision</td>
<td>low</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>Middle</td>
<td>Individual</td>
<td>mod/high</td>
<td>low</td>
<td>mixed</td>
</tr>
<tr>
<td>8</td>
<td>24</td>
<td>Mature</td>
<td>Group</td>
<td>low/low</td>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>9</td>
<td>15</td>
<td>Mature</td>
<td>Assets</td>
<td>high/high</td>
<td>moderate</td>
<td>high</td>
</tr>
<tr>
<td>10</td>
<td>9</td>
<td>Mature</td>
<td>Reinsurance</td>
<td>high/high</td>
<td>no vision</td>
<td>mixed</td>
</tr>
</tbody>
</table>

The size of the IS department does not seem to have much relationship to either measure of linkage, since two of the largest (BU 1 and 2) and two of the smallest (BU 5 and 9) business units achieved high levels of linkage.

The age range of the units does not exhibit much variance (six are rated "mature", three are "middle" in age). Table VII.17 summarizes the relationship between age and overall linkage. There does not seem to be any identifiable correlation between them.

The last factor, line of business, also does not exhibit any relationship with overall linkage. Of the three business units which sell individual insurance, two were rated as achieving high linkage and one low. Of the two units which sell insurance to groups, one was rated as having high linkage, one low.
Table VII.17
The Relationship between the Age of the IS Department and Overall Linkage

<table>
<thead>
<tr>
<th>Age/Overall Linkage</th>
<th>LOW</th>
<th>MODERATE</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>MIDDLE</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>MATURE</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

In summary, these demographic factors do not seem to exhibit any correlation with linkage in our sample.

W. A Revised Model of Business Unit Linkage

Based on the findings from the previous section, a new model of the factors influencing the linkage between business and IT objectives at the business unit level is shown in Figure VII.12. Emergent factors are shown in dotted boxes. Stronger relationships are drawn with darker arrows.

This model, although reflecting the findings from our sample, is not a very satisfactory one to guide future research. It is difficult to read, it portrays relationships at a more specific level than can be justified, given the size of our sample, and the factors are not rationalized according to their temporal effects. A somewhat simplified model is presented in Chapter VIII.
Figure VII.12
Business Unit Linkage:
Across Site Causal Relationships
VIII. CONCLUSIONS

This final chapter provides summaries of the findings and draws implications for research and practice from them.

The first overall conclusion is that there are two distinct types of linkage within multi-divisional companies\(^8\). The first is corporate level linkage, in which the corporate IT objectives are linked both to the corporate business objectives and the objectives of the business units. The second is linkage at the business unit level, in which the business and IT objectives of the business unit are linked. The factors influencing the attainment of these two types of linkage have some similarities but are enacted by different IS groups (Corporate vs BU IS groups) who each create their own set of IT objectives. For the most part, corporate IT objectives are concerned with corporate policies (e.g. acquisition, chargeout), technological platforms, and common software. Business Unit IT objectives may include selection of application development methodologies, and a prioritized applications architecture. Findings relating to each type of linkage are discussed below.

A. Linkage at the Corporate Level

Corporate IT objectives in multi-divisional companies have two major stakeholder groups: the corporate executives (e.g. the CEO, SVP of Finance, SVP of Corporate Resources, etc.) and the business unit executives. Our analysis of linkage at the corporate level differentiated the two places at which linkage needs to be forged: linkage between corporate IT and corporate business objectives, and linkage between corporate IT and business unit objectives.

\(^8\)We state this as a conclusion, although it was reflected in the design of the study, because it has not previously been reported in the IT planning or linkage literature.
1. Linkage between Corporate IT and Corporate Business Objectives

Many of the propositions from our original model were supported. For example, very high or very low levels of IT implementation success were found to increase the frequency of communication between IS and business executives. However, the level of the resulting communication differed depending on the implementation history. In cases of successful implementation, discussions between IS and business executives tended to be strategic in nature, relating to opportunities for shared resources and new initiatives. In unsuccessful situations, discussion was kept to a tactical level in an effort to avoid future project disasters. Strategic discussions influence the linkage between IT and business objectives; purely tactical discussions do not. Therefore, while the level of IT implementation appeared to influence the level of linkage, communication processes mediated the nature of this influence.

Shared knowledge between IS and business executives did not prove to be influential, but two closely related concepts, shared experience and shared beliefs about IT, did have an effect. Shared experience among the executives of a multi-divisional company occurs when a new CEO is chosen from within the company and moves people from his/her former division to corporate headquarters. This creates a team of people who have shared successes or failures, who understand each others’ strengths and weaknesses and who will, in the best of these situations, communicate more often and
more strategically. If Corporate IS executives are among those who have been moved in to work with the new CEO, then communication and linkage will be higher than would be expected in other situations.

One finding which had not been reported in earlier research, but which appeared to influence linkage very markedly in the companies under study was the presence or absence of a shared belief about the value of IT. In a company which is under financial pressure and is spending from 15 to 25% of its operating expenses on information technologies, congruent beliefs about the value of these expenses can reduce friction, improve trust, and raise the level of discussions to a strategic level. When the CEO and the IS executive agreed on the value of IT, policies were drafted, committees were formed, and budgets were approved. When the CEO and the IS executive disagreed, little leadership resulted. The budget continued to be spent, but no direction was evident and dissatisfaction grew, reinforcing any negative beliefs about IT. Recall that the industry studied was one in which widely-held assumptions about profits were collapsing. Executives were being forced to trim budgets and the importance and effect of shared beliefs about IT was exposed.

Although we were not able to test this proposition, it is quite likely that a company exhibiting a high level of shared experience will also have a high level of shared beliefs about the value of IT, especially if the business unit where the executives came from had a history of success with IT implementations.

Another finding was that companies differed widely in their willingness to create non-financial corporate objectives. Some corporate executives crafted them carefully and monitored progress towards them. Others chose to act more as a "holding company" for the results generated by the individual business units without prescribing overall objectives. Although we did not find it to be mandatory that corporate objectives be present in order to create corporate level linkage, their presence or absence influenced
greatly the ease with which corporate IT objectives could be created and legitimized in a context wider than that of technological innovation or imperative.

No overall vision for the use of IT existed at the corporate level within our sample of companies. A few IS executives had technical blueprints that they were implementing, but very few of the business executives had any conceptualization of the effect that technology would have on their company over the next five years. For the most part, corporate executives were focused on the cost side of the IT equation rather than the benefits side. Whether this finding was attributable to the pervasive downturn in the insurance industry or was a feature of corporate executives in general or actuaries (which most of the senior executives were) in particular, we were not able to discern. Many different reasons for the absence of long term vision in the three companies under study were identified. Its likely that given another dozen organizations, we might have encountered a dozen more reasons. What was common to all of the executives in the sample was a lack of previous experience in a company with a strong, successful, IT strategy. The result was a lack of technological vision at the helms of these companies.

Although business and IS executives did not exhibit congruent IT visions, it was clear to us that the involvement of the CEO in the management of IT had a direct result on communication, connections in planning and, ultimately, on the mutual understanding dimension of linkage. The CEO signalled the importance of technology to the company by spending precious time listening to technological discussions, creating formal IT communication channels, and reviewing IT objectives and plans. In an environment characterized by an involved CEO, the corporate IS group created and enforced strong policies and programs. Without visible CEO support, corporate IS’s hands were tied and they had to rely on methods such as persuasion and voluntary compliance to effect change in policy or procedure.

In Figure VIII.2, the findings, both emergent and hypothesized, are presented.
This model is a modification of the one shown at the end of Chapter V. It has been simplified somewhat by showing all emergent factors as "antecedents" which influence Communication and/or Connections in Planning directly, and Linkage indirectly.

Figure VIII.2
A Revised Model of Corporate Level Linkage: Corporate IT to Corporate Business Objectives
2. Linkage Between Corporate IT and Business Unit Objectives

Figure VIII.3 portrays the linkage investigated in this part of the study.

This linkage, between the Corporate IT objectives and the business objectives of the various business units, proved very difficult to achieve in the sample companies due to the walls of misunderstanding, indifference, and ignorance which existed between corporate IS and BU executives.

While the original model has been corroborated, emergent factors caused doubt as to whether the pursuit of this type of linkage was within the grasp of most corporate IS groups.

Corporate IT implementation history had a strong effect only in that company which had not previously decentralized IT development into the business units. In this case, a series of poorly executed projects fuelled an existing antipathy towards corporate control of IT resources and the senior vice presidents persuaded the CEO to allow the creation of separate IT groups in each business unit.

It was surprising to find no mention of individual business units, their products and markets, or their objectives, in the corporate IT plans. Not only was this omission displayed in the written plans, it was also exhibited in interviews with corporate IS executives. They could not identify any individual business unit’s objectives other than in a very general way. An examination of the communication patterns between corporate IS and business unit executives revealed the reason - an almost total lack of direct contact. Steering committees, mandated by the CEO, were the only regular channel of
communication. The steering committee enabled business unit executives to understand corporate IT objectives. It did not, however, reveal business unit objectives to corporate IS participants since IT projects, not business strategies, were the main topic of discussion. This resulted in one-way conversations regarding strategies and corporate IS people were not informed about and were not sensitive to the individual needs of business units.

This situation might have been rectified if business unit planning processes included corporate IS people, but none did. In the best situation, corporate IS received a copy of the BU plans at the same time as the corporate IT plan was published. This exchange was not timely enough to create innovative technological platforms or to develop tailored research plans for emerging technologies. Therefore, it was not surprising that a major criticism from business unit executives was that corporate IS was not showing enough leadership.

Solutions to these problems, namely a lack of connections in planning and a lack of regular communication, would seem to be relatively straightforward, given the myriad of organizational techniques (e.g. task forces, liaison groups) at the disposal of most large organizations. However, none of the companies in our sample, even the most sophisticated IT users, had solved these problems.

Data from interviews on subjective assessments of linkage gave some clues about one of the underlying reasons for the lack of communication. IS and business unit executives disagreed about the degree of linkage between them and, more importantly, disagreed on the nature of linkage itself. Corporate IS executives regarded excellent technical support and platform stability as good indicators of linkage. Business unit executives were looking for proactive research on technologies and methodologies to save money and speed up applications development. Corporate IS executives, to some extent, were living in the past - a time when platform stability and technical excellence were
things to strive for and to be proud of. Business unit executives were living in a world which seemed to be changing daily, a world in which they were continually inundated by information about new low-cost technologies. Corporate IS groups who took years to research PC clones and who blocked the introduction of local area networks were seen to be obstructive and incompetent.

However, other evidence indicated that this explanation for the lack of linkage between corporate IS and business unit objectives may be too simplistic. The first clue was a situation in which a very well-respected IS manager from a business unit moved into corporate IS and began to formulate policies designed to create innovative technological platforms, to encourage higher applications development productivity, and to move the company away from a dependence on a single hardware vendor. The changes he proposed were criticized by all business units and were being reworked at the time of our data collection. The very leadership that the business units criticized corporate IS for not providing was not welcomed when it became available.

The second clue came from the interviews. While many executives chastised corporate IS for not showing leadership, some admitted that leadership might be resisted by their units. An SVP of one of the larger business units succinctly stated the conundrum that Corporate IS faces:

"If I was the President of the Company, I'd say that's what I want these people (Corporate IS) to do.....provide leadership. But in fact, from my point of view, I don't want someone to bother me. You know I've got my own line of business to worry about; I don't want these people to start telling me that I shouldn't be doing it this way, I should be doing it that way, because it makes more sense corporately."

Another business unit SVP discussed it in a different way:

"I think...what happens is what I call a healthy tension between central IS and the BU IS, that's what we want to encourage. And what we want to hear at the senior level is where they disagree and where they agree. But
I get very concerned if there's no tension. I like to see tension, I don't assume that the BU IS execs are always right or central IS is always right or wrong. I think it's hard (for the linkage between Corporate IS and the business units) to be much more than medium."

Executives were willing to discuss the need for leadership. They had had strong corporate IS leaders in the past and had been left with non-standard technology that was difficult and expensive to replace. They also recognized that leadership was important in bringing out the best in an organization. At the time of the interviews, many were ambivalent about corporate IT leadership, both wanting it and fearing it. Therefore, regardless of the type of initiatives that corporate IS introduced, they were likely to face a tough audience. Our conclusion is that a double-bind (Argyris, 1970) exists here: the more that corporate IS moves towards the leadership role that is expected by some executives, the more it will be resisted. Corporate IS executives who might provide leadership to the business units were not included in business unit planning nor were they privy to business unit objectives. Therefore, their initiatives suffered from a lack of focus and were more easily rebuffed by the business units. Only a few executives we interviewed understood this dynamic tension and were working to capitalize on it.

It seemed to us that this problem is a classic line-versus-staff conflict, exacerbated by rapid environmental changes both in the business environment and in technology. Tension has always existed among "corporate departments" (e.g. corporate accounting) who try to balance global with local objectives. The corporate view that there is "one best way" to solve problems is not supported in individual business units who are trying desperately to hold onto existing customers and to cut costs. There is much ambiguity in this data, as there was in the business units we studied, and more research is needed to investigate the depth of this "double-bind" faced by corporate IS.

In figure VIII.4, the findings, on both emergent and hypothesized factors, are presented.
3. Summary

The simultaneous achievement of linkage between: 1) corporate IT and corporate objectives and 2) corporate IT and business unit objectives is difficult, and possibly unattainable. The very acts that corporate IS performed to bring themselves into line with corporate objectives (e.g. standardization of technology, introduction of spending limits), brought them into conflict with the business units. Each level of management wished to pursue the goals of efficiency and effectiveness, but pursued them in different ways.
Corporate IS wanted to standardize on mainframe hardware and generic software; business units wanted to buy flexible, cheaper, technology platforms. Corporate executives, who might have mediated this argument, failed to do so.

It is likely that there will never be a full resolution of this conflict. Perhaps there should be no resolution. Several executives opined that the tension between innovative business units and the desire for standardization by corporate IS was healthy and productive for the company. In our sample companies, the tension was certainly present but management was not achieving its full benefit.

B. Linkage Within the Business Units

Figure VIII.5 portrays the linkage investigated in this part of the study. This is the traditional relationship between information systems providers and their business counterparts, although in these multi-divisional companies, the IS departments within business units were not often in control of their own technological destiny. The task that business unit IT objectives had to fulfil was to be seen to be supportive of business unit objectives and to be showing leadership with respect to applications of technology.

Our original model has been corroborated and several influential emergent factors were discovered. Each is discussed below.

Shared knowledge was strongly associated with communication between IS and business executives. In most cases, communication flourished in the presence of shared knowledge and withered when IS and business executives did not
understand each others' domains. Several interesting observations can be made about the importance and the recognition of the shared knowledge issue. In units in which the IS people had made a visible effort to become knowledgeable about the business, it was greatly appreciated by the executives. IS project teams in this situation were given a wider "band of tolerance" when they needed extra time or extra effort from users.

Several business executives reported with approbation that their IS managers were "interested in the business". The wide perception among executives was that, not only do IS people not know about business issues, but that they do not wish to become involved in the realities of business life. This fact galled them, especially when the IS department effectively controlled the speed with which they could introduce new products or new administrative processes.

In organizational behaviour research, (e.g. Dougherty, 1992) the chasm between the functions such as marketing and production has long been an object of study. In insurance companies, information technology is the production function and the IS department exhibited many of the characteristics of a sophisticated high-tech production environment - highly trained people, professional pride, and power (Hickson et al., 1971). When these attributes were coupled with a disdain for the needs of customers, agents, and regional managers, the results ranged from low levels of communication to mistrust and antipathy between IS and business executives.

There was a different level of awareness of the shared knowledge problem between IS and business executives. Business executives, in listing the reasons for their rating of linkage, mentioned the lack or presence of business knowledge among IS people in seven of the ten business units. IS executives did so in only one unit. This fact may explain why we did not find any action plans to raise the business knowledge of IS people in any of the low-ranked units. Business and IS executives are not talking together about the shared-knowledge problem, let alone solving it.
Unfortunately, there seemed to be a double standard regarding shared knowledge. Although senior managers freely admitted to having no special knowledge about IT, they did not engage in any activities to raise that knowledge. Few attended technology briefings with their IS executive, even fewer went to conferences or courses on the management of technology. They expected the IS people to make the adjustments and to speak their language and were reluctant, possibly too apprehensive, to tackle the theory and practice of IT management.

The presence of composites is an important element in the overall development of IT capabilities within business units. Until further research is done, we have chosen to view this phenomena as a special case of shared knowledge. One of the notable contributions of composites in our sample was to encourage others to develop cross-functional expertise, thereby raising the overall level of shared knowledge in the business unit.

The history of a business unit with respect to IT implementation was also an influential factor. If the history had been positive; trust was high, communication was frequent and diverse, and connections in planning between IS and business executives were likely to be quite strong. If the history was a negative one, communication channels were likely to be weak. Comments made by executives revealed that the track record of the IS department influenced their perception of linkage for many years after a particular success or failure. They did not understand the complexities of IT infrastructures or the project management process and often felt that the IS people were guilty of "overbuilding" and perfectionism.

It is possible that a history of low levels of communication predated and caused IT implementation failures. Without a longer period of historical data, we could not identify such situations.

We found a surprising number of business units without strategic IT plans. Similar
to the findings from corporate level linkage, the presence or absence of a clear business direction had influenced business units' ability to connect their IT and business planning processes. Only short term IT planning proceeded without a clear business vision and only short term linkage was possible to attain. Although lack of direction might be expected to occur periodically in every business unit, the recent volatility in the Canadian insurance may have increased its prevalence in this sample over what is to be expected in other populations.

Another finding reported in the corporate level analysis was the importance of a shared belief about the value of IT. The deeply held differences about information technology related to its purported ability to transform the levers of competitive advantage and to produce above average returns for a business unit. Many IS executives viewed new technologies, such as expert systems and imaging, as being the keys to long term success. Business executives, perceiving a short-lived or minimal benefit from laptop computers for salespeople or having failed to extract benefits from the last three installed systems, had a less inflated view of the return from technology. Parsons (1983) identifies a wide range of management approaches to IT, including "necessary evil", "scarce resource", and "leading edge". In our sample, we observed examples of all of these approaches. What was problematic were situations in which IS and business executives held widely differing views and had not discussed their differences.

Events are filtered through our belief systems, and an innovative IT plan can be viewed as "empire building" by an executive who is not excited about the possibilities of information technology. Similarly, a cautious approach can be viewed as obstructionist by an zealous technocrat. In an environment characterized by major differences in opinions about IT, all other shared management processes are impacted, including business and IT planning. Optimal use of IT is left up to chance.

The factors discussed above, as well as the IS reporting relationships, appeared to
influence both communication and connections in planning in the business units. Furthermore, communication between IS and business executives was found to exert a strong influence on linkage. Meetings in which all executives reported on progress towards common objectives were very important to the creation of mutual understanding among the senior management team.

Interestingly, executives in business units which held such shared meetings opposed the idea of an IT steering committee. To them, a discussion of all aspects of the business was better than a meeting which concentrated on any one aspect, and steering committees were seen as detrimental to the IT function. Comments included one from an executive in whose business unit an IT steering committee was imposed:

"I hated the steering committee. Why are we singling out systems for separate discussion? Why don’t I have a marketing steering committee? I was totally opposed to the concept. The weekly luncheon meetings that we have should have as many IS issues being discussed as we have sales issues being discussed. Now the discussion of systems things decreases because people figure they’ll be discussed over there. But what happens is that people show up at the weekly lunch but they don’t necessarily show up for the IS steering committees. So we don’t always have the same people together at the right place. The decisions are being made without everybody who should be involved in decision being there."

The VP of IS remarked:

"I actually had a hard time with those steering committees when they were set up because we had finally integrated IS into the business unit, in that IS was just a topic like underwriting, like products, like anything was. By pulling it out, it gave it a very peculiar status."

Our analysis of the business units leads us to agree with the view of these executives, with one important caveat. Creating shared understanding takes a significant amount of time, and business units which hold infrequent regular meetings or ad-hoc issue-oriented meetings do not provide an appropriate environment for this understanding to flourish.
Frequent communication between IS and business executives laid the foundation for a shared IT vision. There was little evidence that sophisticated planning techniques, high powered steering committees, or advanced uses of technology were responsible for the strong IT visions exhibited by some business units. What seemed to be important was a high level of shared knowledge, similar beliefs about IT value, and frequent, diverse, cross-functional communication at many levels within the business unit. Ideas generated in one part of the business unit travelled, through informal communication or via task forces, both to sources of expertise and to sources of influence. Shared management meetings provided forums for discussion of technical as well as business impact. A strong IT track record provided the confidence to plan new innovative projects.

Based on the data available from this project, we cannot conclusively trace the influence of connections between IT and business planning processes on the creation of IT visions. The two year time frame of data collection in the study did not allow us to follow a complete business cycle. New strategic directions would be created in business units when previous ones proved inadequate or when changes in the environment dictated a re-positioning. IT plans should be expected to change along with changes in business directions and changes in the IT environment should be used as input for changes in business direction. Our data collection timeframe was too short to catch more than a few of the business units at the time of their re-evaluation of business strategy.

In our analysis of IT planning practices, we drew one conclusion about the ways in which connections in IT and business planning can be optimized. Planning processes which have a connection "event" (e.g. a meeting at which all projects, both business and IT, are prioritized), plus a regular re-evaluation of priorities are the optimum for ensuring high levels of mutual understanding of objectives. Top-down or derived planning

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88 As noted earlier, we can view major changes in business direction as a paradigm shift, precipitated by problems with the existing direction and/or a crisis (Kuhn, 1970).
processes are only adequate in business units with clear, unambiguous business objectives which are still relevant in the current environment.

Our findings regarding linkage within a business unit are presented in Figure VIII.6, which is a simplified version of figure VII.12.

Figure VIII.6
A Revised Model of Business Unit Linkage

C. Implications for Future Research
1. Limitations of this Research

There are several limitations of this research project which affected our ability to study the factors of interest and which should be rectified in future studies.

In two business units, we were unable to interview one key individual during the first data collection period. In one case, the writeup was deemed to be incorrect by the organization and more data was collected, albeit three months later. In the unit in which a key individual refused an interview, we interpreted this "no-response" as evidence of lack of IT leadership. After this hypothesis was verified by the key informant and other executives in the business unit, we retained the unit in our sample. However, it is possible that this analysis is flawed.

Research into congruence in IT vision is a promising avenue of investigation, especially in light of the importance of shared beliefs. At the beginning of this research, we had not identified a typology of possible visions to use in measuring the construct. This lack of preparation and the nature of the responses from our interviewees (i.e. unstructured, fragmented), hampered our ability to consistently assess the degree of congruence exhibited. For example, several of our respondents produced vision statements that were tied closely to their domain of responsibility, rather than representing a vision of IT for the organization. It might have been more productive to use a closed question (e.g. based on Zviran, 1990; Feeny, Edwards and Simpson, 1992) followed by an open-ended set of questions to better measure congruence in vision. These questions could elicit a list of benefits from IT, a set of areas of the organization where IT might impact success, or a range of effects which might result from the application of IT. In this way, it would be possible to capture a more complete picture of the respondent’s expectations for IT than open, unstructured questions were able to elicit.

Our efforts to identify the influence of planning processes on linkage were inconclusive. To improve such an investigation, researchers will first need to develop
more sophisticated scales to measure the level of connection between IT and business planning. If the need for strategic IT planning is tied to the need for strategic business planning (e.g. because of changes in the environment or within the organization), researchers will need to longitudinally track the business planning activities and the IT planning activities to assess the level of connection between them. If planning processes do affect linkage, cross sectional or studies of limited duration may not identify the influence.

As mentioned previously, the insurance industry was under financial pressure during time of the data collection. Many units were rethinking their strategies and this uncertainty provided us with many interviewees who were willing to discuss the current state of their IS organization in very open and frank terms. This environmental pressure may have provided us with different findings than would be identified in more stable industries. Specifically, the level of communication might have been augmented in the sample units, and the executives’ assessment of linkage might have been reduced. It is quite possible that the incongruence in shared beliefs between IS and business executives might not have surfaced in conversations with people in companies who were more satisfied with their overall performance.

2. Implications for Future Research

This project has confirmed the presence of two distinct aspects of corporate linkage: linkage of corporate IT objectives with corporate business objectives and with BU objectives. In light of this data, we should not continue the practice of collecting data about linkage by sending questionnaires to the senior corporate IS executive which include a single question concerning "the amount of linkage achieved in their company" (e.g. Galliers, 1987). Unless linkage is uniformly low, the IS executive might have several aspects of linkage in mind when replying to this question: 1) linkage with corporate
objectives, 2) level of IT support provided to the business units, or 3) level of technology leadership provided to the business units. As we have seen in this sample, each aspect may differ from the others. Furthermore, the answer to the first question is only relevant if there are stated or agreed upon corporate objectives, and the second aspect, "support," is not considered to be linkage, according to our definition.

Similarly, based on the finding regarding the depth the lack of communication between corporate IS executives and business unit executives, it is unwise to expect corporate IS executives to provide reliable data concerning business unit objectives. Each business unit will have a unique environment within which it forges business and IT objectives and should be investigated separately.

The question of whether it is possible for linkage to be forged between corporate IT and business unit objectives should be reviewed. From the data presented, we see that some business unit executives would not want strong leadership from corporate IT, arguing that corporate IT objectives should provide support, rather than leadership. On the other hand, corporate IT objectives which result in appropriate technology platforms and supportive policies and methodologies can make a significant difference to a business unit's ability to develop cost effective applications. Therefore, it seems important to pursue the goal of linkage, recognizing that its attainment is difficult and paradoxical, as many complex leadership issues are\(^8\).

The factors which we found to be influential antecedents to effective business practices have been discussed. It is important to note that several of these factors, namely shared knowledge and shared beliefs, have not been the subject of much previous research. They are difficult concepts to explore systematically, but in view of their importance to subsequent actions and outcomes, researchers need to delve more deeply

\(^8\) Pascale (1990), points out the difficulty and the importance of recognizing and managing conflict within complex organizations.
into the ways that the belief patterns of IS and business executives are created and modified during business activities. It would seem that cross-functional events such IT steering committee meetings, post-project reviews, and planning meetings could be observed to investigate this topic.

Another finding, the influence of composites, although anticipated by Keen (1986) and included in other prescriptive literature, has never been systematically investigated. We did not have the resources to track the progress of composites or to investigate carefully the ways in which each of them came to their high level of knowledge in both IT and a line discipline. These are topics for another research project, along with an investigation of the specific ways that composites impact the IT success and failure in their business units.

In summary, our study raised more research questions than it answered, which is appropriate for an exploratory piece of work. However, the overall finding from the study, that "antecedents" are influential and need more systematic investigation, seems incontrovertible. Researchers' earlier pre-occupation with such topics as the selection of information systems planning approaches or the positioning of steering committees, seems premature. Linkage and the behaviours that precede it are unlikely to occur without a background of shared knowledge, shared beliefs about IT, and clear business directions. As an IS research community, we need to know more about these antecedents.

D. Implications for Practise

There is a long list of prescriptive advice which could be formulated based on this research. However, every company and business unit is unique and each will need to interpret the findings within their own context. A few generalizable comments are available, however, both to IS executives and to business executives.

IS executives are urged to develop a deeper level of sensitivity to the world in
which business people operate. This may entail actions such as physically moving IS people into business units, making industry (i.e. non-IT) reading and industry-based conference attendance mandatory, and taking regular trips to visit sales offices and customers. All of these activities would be designed to change first the behaviours and then the attitudes of IS professionals towards the needs and the priorities of the business. IS people who do not want to respond to these needs should be encouraged to find employment in environments which are not strategically dependent on IT for productivity and profitability.

Organizations which rely on IT for their success must recognize that IT knowledge is a "core competence" (Prahalad and Hamel, 1990). Composites are the "lightning rods" around which IT innovations seem to occur. Companies, therefore, should create programs to develop composites within the middle and senior ranks of their company. For example, insurance companies with management training programs for actuaries should ensure that each trainee completes a one or two year tour of duty on a large IT project. Systems analysts can be encouraged to follow their applications into line areas, either temporarily or permanently. Managers should be trained and expected to exert the same managerial influence over IT projects as they do over marketing and new product development. Over time, the overall level of IT competence within the organization will grow and this will enable most managers to participate fully in IT decision making.

IS and business executives should recognize that attitudes and beliefs about IT are very influential even though they may never be discussed. Failures or successes in previous IT implementations affect confidence, trust, and risk-taking in the future. Post-implementation reviews should be seen as an opportunity to create a "learning organization" (Senge, 1990) rather than an exercise in retribution or reward.

Frank discussions about the ability of IT to influence the attainment of organizational objectives must be held. Differences of opinion should be expected,
surfaced, and, if possible, resolved. These discussions must be supported by data gathered from within the company, the industry, and related industries, in order to avoid the common problems of bias and self serving behaviour.

Business unit executives should recognize the conundrum that corporate IS groups face within multi-divisional organizations. Different perspectives are healthy and should be managed for the good both of the company and of the individual business units.

The importance of regular communication between IS and business executives cannot be over-emphasized. Organizations must realize, however, that without some background of shared knowledge or shared beliefs, mechanisms such as IT Steering Committees may degrade into project review or budget approval committees. A strategic focus should be forged early in these committees, even though this process may surface opposing views about IT's role within the company.

Management literature often focuses on organizational interventions as a panacea for all situations. This is particularly true for committees such as the IT steering committee, which is regarded as a progressive step. Data from this study suggest that these interventions need to be carefully tailored to the context, that a steering committee which isolates IT discussion from other organizational issues may be counter-productive and act to lower, rather than raise, the level of linkage.

In general, there are few "quick fixes" emerging from this project. Like any other core competence, IT proficiency within an organization takes time to develop. Management must act with deliberation and consistency over a significant period of time to develop the background for linkage.

E. Contribution of the Study

At the end of Chapter III, we suggested that the multiple-case research methodology would allow us to surface new factors of interest, identify and document
conflicts between different organizational actors, and build causal models. To a large extent, our expectations were fulfilled.

With respect to the factors in our original model, we have shown that shared knowledge and communication between IS and business executives are the two most influential factors in enabling or blocking the two aspects of linkage, mutual understanding of objectives and shared vision for IT.

We were able to identify several emergent factors important to the creation of linkage. These included:

1) factors relating to individuals - e.g. the presence of composites, the importance of CEO involvement,

2) factors about beliefs - e.g. expectations about IT contribution, the nature of linkage, and

3) factors about organizations - e.g. the presence of corporate objectives.

We were also able to surface conflicts between roles in the organization, most notably between corporate IS and business unit executives.

The multiple sources of data (e.g. history, opinions, written reports) did allow us to cross-reference data and to raise the overall level of reliability of the findings. In addition, as shown in our analysis of linkage between corporate IT objectives with business unit objectives, we were able to use several different sources of data, much as a detective would, to "peel back the onion" and get closer to the organizational "truth".

Although the theory of absorptive capacity (Cohen and Levinthal, 1990) was not known to us before commencing this work, we may have made a contribution by operationalizing portions of this theory (i.e. the shared knowledge factor).

Another contribution of this study is the use of multiple scales to measure linkage.

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90 This factor has been noted in other studies, but not in studies of linkage.
Although the use of multiple measurement criteria made data collection more onerous and data reduction more difficult, each scale provided new insights, whether or not the scale was ultimately used to measure linkage.

At a higher level, however, we were able to prove to ourselves, and hopefully, to readers, that "antecedents" play a more important role in the development of linkage than was previously reported. In other words, organizations which implement devices such as steering committees to increase communication, or top-down planning to connect IT and business planning processes may or may not create linkage, depending on the "background" of the organization. This background includes the last five or ten years of IT history, the level of shared knowledge of the executives, and the congruence of beliefs about the potential contribution of IT.

Obviously, a period of systematic research is necessary to support or refute these tentative findings. However, the contribution of this study is in surfacing and supporting them.

This was a large and rather complex piece of research. Any single piece of it could have been done more thoroughly as a standalone study. However, we set out to look at real situations in a holistic manner and to suffer (and enjoy) the consequences. We hope that readers conclude, with us, that this approach was worthwhile.
REFERENCES


Davis, G.B. and M. H. Olson. **Management Information Systems: Conceptual Foundations,**


This Appendix contains sample interview guides which were used to create the actual interview guides used in this study. Each interview was personalized to reflect the interviewee's role, and the company and business unit's unique names for positions, IT projects, and people. The parts of the interview guide are presented in the order that was used in the interview. In order to make this interview guide more readable, all parts presented are taken from the interview guide used for the senior IS executive within the corporate unit.

When using these interview questions, the interviewer did not probe exhaustively for the sub-items shown. They were used only as reminders for the interviewer.

In many interviews, questions relating specifically to an important event or IT project were added to the interviews in order to get a rich history of organizational stories.

a) Questions on Personal History and level of IT awareness within senior management

First I need a little background about yourself.

1. What is your IS training and experience?

2. What is your job history within the company?

3. Have you held non-IS positions here or elsewhere?

4. Do you have insurance training or management experience?

5. Have you been involved in any non-IT business function in the company, in any capacity (management, assisting, committee work)?

6. Are there any executives within the company who are particularly interested in the application of IT to their strategies?

7. What is the general level of IT awareness?
8. How well do you think each of the Executives understands the opportunities and constraints of IS?

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<th>Opportunities</th>
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<td>President</td>
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b) Questions on Communication

1. What are your formally scheduled face-to-face communications with members of the senior executive, either as a group or individually?

   a) Steering Committee  
   b) other IT committee  
   c) other business committee  
   d) business planning sessions  
   e) scheduled reviews with V.P.  
   f) monthly/annual meetings  
   g) other  

1A. For each of the above, what topics are discussed? Who initiates (ed) the meetings? Who sets the agenda?

2. What informal face-to-face communication occurs between you and members of the senior executive, either as a group or individually?

   a) drops by my office  
   b) I drop by their office  
   c) meet in the building and chat  
   d) go to meetings with  
   e) social outings with  
   f) other ________________ with  

2A. Discuss the frequency of these communications. Is the discussion about IT business, general business or other items?

3. What written communication passes between you and the senior executives on a regular basis.

   a) minutes of SC  
   b) IS project reports to  
   c) business updates from  
   d) other  

3A. For each of the above, who writes the communique?
4. In the last year, what irregular written communication has passed between you and the senior executives.

a) issue #1

b) issue #2

c) issue #3

d) IT questions from

e) business questions to

f) personal notes from/to

4A. Who initiated the issue-oriented communication? Who was involved? What is the frequency of the other communications?

5. For each of the senior executives, what is their level of IT involvement at your company, previous and current? (IT project management, SC).

President/CEO

Executive #1

Executive #2

Executive #3

Executive #4

6. Do members of the Steering Committee talk about their respective business strategies when they are at meetings? What do you learn about the business units from these meetings?

7. How would you rate the type and frequency of communication between yourself and the senior corporate executives?

infrequent, IS related

frequent, IS related

frequent, IS and business related
c) Questions on Business and IT Planning

Business Planning

1. Is there a formal business planning cycle in the organization? If so, could you tell me the steps that are taken in it? Who is involved at each stage.

2. Would you characterize the planning as primarily financial, tactical or strategic. If not strategic, was a strategic direction set a few years ago?

3. For the most recent business plan, was this cycle followed? Were there any new procedures or differences from the previous years?

IT Planning

1. In the IT plan for last year, there were a number of projects identified. Could you tell me a bit about them?

   How were they identified?

   1) From corporate level strategy setting
   2) From Divisional level strategy sessions
   3) Taken from a list of backlogged items in the Divisions
   4) Emerged in the course of events in the Division
   5) emerged from discussions at the Steering Committee
   6) put on the list by central IS group

2. Was Corporate-level information used? What form did it take?

   Financial Projections
   ------------------------
   Input from President
   (strategy, budget guidelines..)
   Other sources
   Strategy from Divisions
   (documents, talks)

3. Was a formal Planning methodology used?
4. Who is coordinating the preparation of the plan?

5. How were the IT projects prioritized? -
   1) Prioritized by the Steering Committee
   2) Prioritized within Divisions and put in the plan intact
   3) as in 2) but reprioritized at the SC

6. What is the role of the Steering Committee in the planning process? Is it effective at surfacing and resolving strategic issues?

7. Do you have a long range plan or IT architecture - showing the various systems, and their interconnections? Are your information systems connected within the company?
   - shared corporate systems (e.g. financial reporting, HR)
   - shared line of business systems: (e.g. Policy Issue, investments)

8. Were draft IT plans subject to scrutiny by the business planners or other units within the company?.

9. Would you characterize the recent IT planning cycle as
   - formal/informal,
   - participative/inclusive,
   - comprehensive/focused.

10. Is this method of planning satisfactory? What would you like to see done differently?

11. Is this process typical of what happened last year? the year before?
d) History of IT Implementation

1989/90

1. Was there an IT plan prepared for the 1989/90 year?

1A. Going over the plan, what was the level of implementation of each of the major projects.....

1B. What methods of control and which people were in place to aid in implementation?

    processes: SC meetings, budget reviews,

    controls: checkpoints, specific project methodologies

1C. Was there any form of reward/incentive for timely project implementation in 1989.

1D. In summary, how well was the plan implemented?

    timewise

    budgetwise

    attainment of project goals

1990/91

2. Was there an IT plan prepared for the 1990/91 year?

2A. Going over the plan, what was the level of implementation of each of the major projects.....

2B. What methods of control were in place to aid in implementation?

    processes: SC meetings, budget reviews,
controls: checkpoints, specific project methodologies

2C. Was there any form of reward/incentive for timely project implementation in 1990.

2D. In summary, how well was the plan implemented?

   timewise

   budgetwise

   attainment of other project goals
e) Questions on Business and IT Objectives

Introduction

In this interview, I want to talk about the goals and strategies of your company in general and of the IS function, in particular. You may not have access to the information I am looking for. If that is the case, just tell me as we go along.

The literature on strategic management distinguishes goals/objectives from strategies. Goals are defined as performance targets (e.g., 40% market share, 2 day turnaround for creating a certain insurance policy); strategies are defined as the means of achieving the goal (e.g., add more agents, add related product lines, automate the acceptance process). There are usually several means of implementing any given goal, and one of the key strategic management jobs is in choosing the strategy.

In addition, organizations usually have several sets of goals/strategies... at the corporate level, at the line of business level and at the function level.

Your company may use different names for these concepts and I'll try to identify the difference and adapt to it as we go along.

Business Goals and Strategies

1 (a). At the company level... What are your company's current objectives (next 1-3 years).

   a) finances- debt ratios...
   b) overall competitive position
   c) image
   d) profitability/income
   e) growth
   f) new markets

1 (b). And what strategies are they adopting for each of the identified goals...

   1. _______________
   2. _______________
   3. _______________
   4. _______________
2 (a). Let's explore the individual business units now... same questions.

Division 1: What are their goals...

Division 1: what are their strategies...

2 (b). Division 2: Goals

Division 2: Strategies

2 (c). Division 3: Goals

Division 3: Strategies

IT Objectives

What are the current objectives of Corporate IT?

Vision for IT in the Future

1. Could you tell me a bit about your view of the future (i.e. in the next 3 - 5 years) role of the IS function at your company?

   (a). What will the mission be?

   (b) What are the goals?

   (c) What are the IT strategies for achieving the goals?

   (d) How will IT contribute to the objectives of the company?
2. Will a Committee continue to be an appropriate way to oversee the IS function? What will the role of that committee be?

3. (a) If I asked the 5 senior executives on the S.C. about IS goals and objectives, would they have the same view of the future as you do?

(b) Who would differ and why?
f) Subjective Assessment of linkage

**Linkage with Corporate Objectives**

If we define linkage as the congruence between company goals/strategies and the Corporate IT Goals and strategies, how would you rate linkage within the company?

LOW........ MODERATE ............ HIGH............

What strengthens linkage efforts?

What detracts from them??

What else might be done to achieve higher levels of linkage?

**Linkage with the Business Unit Objectives**

If we define linkage as the congruence between Corporate IT goals/strategies and the business units' goals/strategies, how would you rate linkage?

LOW........ MODERATE ............ HIGH............

What strengthens linkage efforts?

What detracts from them??

What else might be done to achieve higher levels of linkage?
COMPANY A

Company A has a long history in Canada and has operated internationally for several decades, marketing life and health insurance, pension programs, and reinsurance to groups, individuals, and other insurance companies. It maintains over one hundred sales and service offices in Canada, the United States, and abroad. As of early 1991, it had assets of over $10 billion and ranked in the top 2 percent of the more than 2000 life insurance companies in North America in terms of size.

Company A has four major lines of business (Individual, Group, Reinsurance and Retirement Assets). They are supported by two corporate divisions: Corporate Resources and Investments. Corporate Resources includes Finance, Information Services and Human Resources.

During the past five years, Company A has suffered an erosion of profits mainly due to defaults on U.S. mortgages and high costs in U.S. health care. Through 1989 and 1990, the chief executive officer (CEO) instituted a series of measures designed to increase central control over the financial assets of the company through strategic planning and budgeting.

Organization

The CEO made a number of changes to the organization structure recently. In 1989, Company A created a five-year strategic plan and the organization was flattened so that only four layers of management could exist between the CEO and the most junior employees. The Vice President (VP) of Information Services continued to report to the Senior Vice President (SVP) of Corporate Resources.

The CEO also instituted two tiers of IS Steering Committees within the company. The Senior Systems Steering Committee included the CEO, all corporate and business unit SVPs, and the VP of corporate IS. Each business unit also has a steering committee, which includes the SVP and senior executives from the BU, including the senior IS executive, plus a representative from corporate IS. These steering committees had been in operation for under a year at the time data was collected for this study.

History of Corporate IT initiatives in Company A

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91 Please note: Financial and other data about these organizations has been omitted or obscured in order to protect their privacy.
APPENDIX B
A Brief Overview Of The Companies And Business Units

Changes to the composition and responsibilities of the corporate IS group had begun in 1983. In that year, one of the business units created an IS department and hired people from corporate IS to fill the positions. Through 1987 and 1988, many of the remaining application development groups within corporate IS were decentralized into the business units. This was a deliberate attempt to improve linkage within the business units. This change was made to ensure that the IS people were more responsive to the particular products and geographic markets.

There is a Technology Steering Committee within Company A. It includes the five senior IS executives from corporate IS and the senior IS executive from each business unit. This committee was formed in 1988, when the corporate IS department was decentralized.

In the last two years, the VP of corporate IS has pursued control strategies including 1) gaining control of and eventually repatriating the data centre, and 2) simplifying the main system software in order to lower the cost of supporting it. Through this process of instituting tighter controls over expenditure and diversity of technology, several of his senior managers quit. In 1989, corporate IS began an investigation which culminated in a proposal for the installation of information engineering workstations within the business units to plan, design and implement applications at Company A. This proposal is currently being discussed by the Senior Systems Steering Committee.

Information technology is a big part of the budget at Company A, accounting for more than 20% of operational expenses. The total budget was approximately $40 million in 1990 and is projected to be $37 million in 1991. No new positions have been added in corporate IS for the last several years; it has been downsized through attrition.

One of the notable features of IT in Company A is the heavy reliance on the mainframes for development and operation of applications. There are only five local area networks in use in the company, with two of these supporting operational applications and the remainder used only to share resources such as software and printers.
APPENDIX B

A Brief Overview Of The Companies And Business Units

COMPANY B

Company B was founded over 100 years ago and is one of the largest life insurance companies in Canada and among the top 30 in North America. It has assets over $15 billion and does over half of its business in the U.S.

After many years of prosperity, the entire insurance industry, including Company B, is facing moderate to severe erosion of earnings from a number of sources - bad real estate investments in the U.S., competition from banks and trust companies and the recession which began in 1990. Company B is still profitable but it is not achieving its earnings targets.

Corporately, Company B spends over $50 million on information technology annually, which is approximately 17% of operating expenses.

Organization

The Canadian operation of Company B (which is the object of our study) has several lines of business: group insurance, individual insurance and retirement assets. They are supported by three corporate divisions: Investments, Finance, and Corporate Resources. Corporate Resources is responsible for information technology as well as human resources and other corporate services.

Corporate Systems and Computer Operations report to the Senior Vice President of Corporate Resources. Together, these two groups constitute the "Corporate IS" group mentioned in this analysis.

History of Corporate IT initiatives in Company B

In the early 1980's, the SVP of Corporate Resources proposed that systems development be decentralized into the lines of business. Decentralization was implemented, beginning in 1983, in two phases: Group and Individual first, and the other divisions later. The interesting feature at Company B is that, unlike many other companies, the decentralization move was initiated by the head of IS rather than being foisted on IS after a series of problems arose with the business units.

In 1987, The Technology Steering Committee was formed by the VP, IS to share information. Its members included the directors within Corporate IS and the heads of the IS groups in each business unit. By 1990, the role of the Technology Steering Committee had changed to increase its power to set direction for IT within Company B. It now officially sponsors most of the large projects that Corporate IS undertakes.

Corporate IS delivered two direction-setting documents to the Technology Steering Committee: Communications Computing Environment (CCE) and Systems Development
Environment (SDE). The CCE document proposed an open systems environment centred around the UNIX operating system and RISC processors, which was considered to be a radical departure from IBM inspired industry norms. One of the divisions is implementing this environment. The SDE report, which proposed common approaches to systems development and project management, was discussed at the Technology Steering Committee and was not supported by the divisional representatives. A major reevaluation of the objectives of this project was scheduled. Neither of the proposals have been communicated formally to senior management.

In summary, there are many recent changes initiated by the Corporate IS group - all designed to increase its leadership role while linking itself with the needs of the divisional clients. The first few initiatives have not been entirely successful. However, they have raised the profile of the group and have begun the process of developing common technology solutions within Company B.
Company C operates as an independent subsidiary of an international parent with its own Canadian Board of Directors. The parent company, which owns several financial institutions, has assets over $10 billion. In its internal news digest, the parent company exhibits a high level of interest in using information technology to support the direction of the company. The parent company itself has been proactive in their use of technology and their individual life system has been a frontrunner in the industry. In early 1990, the IT function within the holding company was moved one step higher in the organizational hierarchy and now reports one level below the Chairman.

Company C is an aggressive company, innovative in its products and relationships with agents and customers. It has three major lines of business: Individual, Group and Special Products supported by one corporate division, Corporate Resources. The VP of IS reports to the SVP of Corporate Resources, who is also the Chief Financial Officer of the company. In 1988, an IS Steering Committee was formed which included the CEO, the SVPs of the business units and Corporate Resources, and the VP of IS.

Company C's CEO is committed to "full computerization" and this view is reflected in the company's public documents. In a recent Annual Report, there were descriptions of the computer systems which support two of the business units, both of which are key components of the product marketing approaches in the two divisions. The report also discussed the conversion of the computer systems to a new mainframe and the rapid growth in the use of personal computers. Clearly, Company C is proud of its achievements in the use of information technology and considers them important for continued prosperity. Company C spends approximately 20% of its operating expenses on IT.

History of Corporate IT Initiatives in Company C

In 1986, the long-term decision was made to move to a single vendor of hardware technology. The actual conversion of systems did not start until 1987, when a new IBM machine was purchased. At that time, the IS Division had responsibility for all of the full-time programmers and systems analysts in the company as well as for the technical support staff.

Traditional insurance applications are of two types: the administrative system(s) in which is recorded all policies, policy holders, premium payments, commission payments and salespeople. The other type of system is the marketing system, which contains the presentation software (software which can be used to sell different insurance products). At Company C, the years from 1987 to the present have been filled with many conversion projects, with each business unit having their administrative and presentation systems rebuilt for the IBM environment. Each of the major conversions were characterized by significant cost and time...
overruns with not much immediate increase in functionality. Problems on the latest project caused the firing of the previous VP of IS. After each major conversion, corporate IS people have been moved into the business units. Now, Corporate IS is responsible for the programming and some of the analysis for all mainframe systems.

Although the public documents discuss IT at some length, the opinion of senior management at Company C is that IT activity over the past few years has not been very productive. As the CEO said "after we installed Office Automation in 1986, we have done nothing important. We have essentially stood still with respect to new technologies because we have been implementing mainframe software packages and transferring to the IBM." The SVP of Corporate Resources agrees "I think we were better positioned three years ago. We were very aggressive in introducing PCs in to the company. Then in 1988, we took delivery of the IBM and spent the last few years doing this absolutely useless work of conversion. It slowed us down. It all traces back to the merger of the two companies".
BUSINESS UNIT 1

This business unit sells life and health insurance to individuals in Canada. The primary distribution channel is the independent life insurance agent. Over 500 agents in Canada are managed out of the agency offices.

Organization

The organization of this business unit is different from most other divisions in this study. Below the Senior Vice President, there are five Vice Presidents - one in charge of New Business, three in charge of the Agency offices (the distribution channel), and one in charge of both Client Services (administration) and IS. Therefore, the senior person in charge of IS is also in charge of a major function in Business Unit 1. There are approximately 100 IS people reporting through to the VP.

History of IT Implementation in Business Unit 1

This business unit was one of the first life companies to get PCs for agents - they introduced them in 1982.

The application development function was decentralized to the business unit in 1982/83.

The administration system was redeveloped in 1982. This was a very major development ($12 million) which was reported to be successful, implemented on time and on budget. It was the first large system to utilize database technology and has provided a very stable base for the last nine years of systems application enhancements in support of the administrative side of the business.

They now have a major initiative underway which will put much more of the onus for entering client details and writing the business contract onto the agent. This may have a very significant impact on administrative functions currently performed at the agency offices. It is conceivable that many administrative staff will be made redundant when this application is fully implemented.

In summary, the IS group in Business Unit 1 seem to have a very long and successful history of implementing leading edge technology.
APPENDIX B
A Brief Overview Of The Companies And Business Units

BUSINESS UNIT 2

This business unit sells group insurance and has a large market presence in Canada. It has a long history of innovation with high levels of profitability. It has weathered the recent difficulties with relative ease, although it is experiencing a reduction in growth in new clients and a large and increasing expense gap (i.e. the difference between premium income and expenses). Management does not expect these difficulties to cease in the near future.

History of IT Initiatives in Business Unit 2

In the early 80's, a large project which automated the claims processing function created many changes in the agency offices. It was a strategic system for the unit and, according to the SVP, paid for itself many times over. It was the first of its kind in Canada and lowered unit costs and supported higher quality, faster service.

In 1983 or 1984, systems development activities were decentralized and placed in the business units.

In 1984, the IS department created a strategic IS plan, which produced an applications architecture covering all of the business unit’s administrative activities. Although subsystems from this architecture have been top priority for the past five years, the deliverables have been very slow in appearing and have not provided any significant benefits to the business unit.

In the meantime, a small IS group started PC-based projects which have been successful and are now being integrated with the administrative architecture. One system, which is a customer-oriented strategic system, is a market leader. It allows customers to access their own records and to make changes to the files as their circumstances change. According to the SVP, this system has provided some competitive advantage to the business unit.

Recently, the Director of IS has been moved from under the SVP to report to the VP of Client Services. A new executive position has been created to liaise between the business units and the architecture project. The Director of IS has approximately 100 IS people reporting to him.
A Brief Overview Of The Companies And Business Units

BUSINESS UNIT 3

This business unit was recently formed through the merger of two product types; one from each of the individual and the group lines of business. It combines what are essentially asset generating lines of business: retirement savings and income products for individuals and groups. Recently, growth in the individual assets was substantial. Sales of group RRSPs did not fare as well.

The new division is undertaking a complete review of the markets, products, services, distribution channels and systems in order to establish a clear sense of direction. They have retained a consulting firm to assist them in strategic planning and this exercise was underway when the interviews for this study were conducted.

Organization

The SVP of Business Unit 3 has organized the new unit along functional lines - the distinction between group and individual products is not reflected at the top management level. His four top people are a VP of Finance and Actuarial Services, a VP of IS, a VP of Marketing and a VP of Administration. The IS unit is comprised of approximately 45 people - 21 support marketing systems, 12 each support the administration and management information departments. Many of the people in the IS group are new - there were 15-20 new hires in the past year.

History of IT Initiatives within Business Unit 3

Because the business unit is a combination of parts of Group and Individual lines of business, the systems inventory within Business Unit 3 is a combination of stand alone systems and embedded pieces of larger systems. One of the larger problems in planning for the future is deciding whether to build systems which support both group and individual RRSPs. At the present, they are distinctly different systems and have been written using different database software. For example, the group systems use in DB/2 and the Individual systems use IMS as the database management system.

The marketing system is the major initiative underway. It is designed to give the agents access to client and product information in order to support the selling process. It was begun as a group pension system but with the new organization the future of it is unclear. This strategy, like the business strategy, seems to be still in flux.
APPENDIX B
A Brief Overview Of The Companies And Business Units

BUSINESS UNIT 4

This business unit is responsible for investing the revenues that are generated by the life and health insurance product lines. Insurance companies rely on investment profits to cover the gap between the cost of doing business (operating expenses, commissions and benefits paid on policies) and the premiums that this business generates. In a recent year, this unit generated over $1 billion in net investment income, a significant increase over previous results.

Organization

Business Unit 4 is structured so that the various types of investments are managed by vice presidents and the "service" functions of accounting and IS report to the Senior Vice President (SVP). The IS group within this business unit contains 29 people.

History of IT Initiatives within Business Unit 4

Investment units in insurance companies are not concerned with the marketing or administration of the life insurance business, but with the investment and management of money, securities and real property. This difference makes the business unit's need for IT very different from that of the insurance business units. They do not have the high volume transaction processing requirements found in the individual and group businesses. The investment management functions need specialized databases with valuation and accounting capability. They also require strong analytic support for decision making and scenario building.

Prior to 1987, there were very few major IS initiatives in Business Unit 4. Their needs were primarily met by the financial systems in the company. They had two main systems - the Mortgage system and the Bonds system. The Bonds system, installed in 1979, was 20% over in cost and 6 months late in its implementation. It is considered to be successful now.

In early 1987, the Systems development unit within Investments was formed. In 1988, a major IT initiative began to develop an important application. This system was company-wide in scope because the details of all insurance and annuity business generated would have to be fed into the system. Very little has been delivered to date. It is a disaster considering the initial expectations of cost ($1 million), the total outlays to-date ($7-8 million) and the projected requirements (up to $15 million). The business benefits are expected to be very substantial and the company is continuing its implementation effort.

The IS group developed an executive information system (EIS) in 1989 under the sponsorship of the Vice President of Investment Administration. This system was hampered by a lack of funds and inadequate senior input and was not developed past its initial version.
A Brief Overview Of The Companies And Business Units

BUSINESS UNIT 5

This business unit is responsible for products which are marketed to individuals. It supports many products, including life and term insurance and annuity products. It is located in several regional offices across Canada serving a network of several thousand agents.

Business unit 5 has chosen to market its products through independent agents, rather than dedicated agents who are employees, and its mission is to build a long-term partnership relationship with agents and brokers to obtain profitable results.

The Senior Vice President (SVP) of Business Unit 5 has created a very flat organizational structure, with 15 vice presidents and managers reporting directly to him, including the Director of IS. The IS Director has 17 people reporting to him.

History of IT Initiatives in Business Unit 5

The decision was made in early 1988 to convert to a new release of a proven software package to support policy administration. These systems are very transaction intensive, with many new policies, premium payments and commissions being processed in any given month. Since life insurance policies are in force for many years and since there have been many new products introduced in the last decade, the administrative system is quite complex. According to all accounts from the managers within the business units, the implementation was a disaster - it was over six months late and it immobilized the division. No new products were introduced for approximately three years. As one manager said "We were doing a three year conversion in a business unit which was very proactive". The Division was expanding into the U.S. at this time and this segment of the business was late in receiving support from computerized systems. They are just now getting into a position where new products can be introduced and supported by the system.

In mid 1987, a manager was hired to develop a new product for the business unit. Since it was impossible to access the central mainframe systems to create support for this product ("the mainframe system was off-limits, no changes or upgrades"), the manager created a PC front-end system which was able to produce an RRSP policy and tax receipt in regional offices - a significant competitive advantage in the 1988 RRSP season. He has continued to create PC systems to provide service to regional offices and these systems, according to the SVP, have enabled the business unit to differentiate itself from competitors.

In summary, the experience with mainframe systems within the business unit has been very unsatisfactory. The experience with PC systems has been more positive in its outcomes.
A Brief Overview Of The Companies And Business Units

BUSINESS UNIT 6

This business unit serves a niche market. It supports a narrow line of products including lease insurance and accident and health plans. It has created a sophisticated software package to streamline the management and maximize the profitability of the client’s business office. It also provides training courses and personnel evaluation services for its customers.

It is a small Division, with just over 100 personnel, and is the industry leader in its market. It has long been an innovator in Canada and has been serving the niche market for over two decades. Business Unit 6 operates several regional and two district offices across Canada and all products are sold by their employees or distributors.

Business Unit 6 has focused on this narrow market for many years and their persistence and innovation have been very successful. They are very profitable and are well positioned to enter the U.S. market within the next few years.

History of IT Initiatives within Business Unit 6

Business Unit 6 is interesting to examine in that it has moved away from being focused on insurance products towards a focus on total client needs for a particular type of client. As one manager remarked: "we are pretty unique - we seem to operate pretty much as a marketing company that just happens to sell insurance - that's the way I've always seen it."

BU 6 has three kinds of information systems in place: administrative systems which support the insurance products, the integrated software package which they sell to dealers, and systems to train and evaluate customers’ staff. The administrative systems and training systems reside on the mainframe, the customers’ software is supported on a LAN. There are 26 IS people in the business unit reporting to the Director of Administration and IS.

The customers’ software has been offered since the early 1980’s. The original software allowed customers to enter the details of a sale and to generate documents required by provincial regulatory bodies. It was a first-mover system when it was introduced and was immediately successful. It had several imitators and in 1986 BU 6 launched a major redevelopment effort.

The new system was to be deployed in late 1987 but was delayed a full year for extensive redesign after initial system testing. It was released in late 1988 and has undergone continual enhancement since then. This new software was designed to recapture pre-eminence in the field of customers software and was much more complex and comprehensive than any existing package on the market. The roll-out to the market was slow as most customers were not technologically proficient and resisted paying fees for software. However, they have moved half of their clients over to it and are targeting for the full 100% within the next few years.
The administrative systems were rewritten for a new mainframe in 1988. The problems that they encountered in converting were more user-oriented than technical - the result of putting in a large system without full user involvement. The users still do not use the system to its full capacity and resent having to use it at all. They are now planning a major upgrade of it.

In summary, BU 6 has not had a great deal of success in the last two years with development or implementation of its two largest systems. They blame others: consultants and corporate IS for most of their problems, although the lack of skill in managing IS projects in the BU was a contributing factor in both cases.

Recent changes to their application development environment have been more professionally managed and more successful. They seem quite confident now that they can create whatever technological environment they choose and can manage well within it.
The clients of this business unit are individuals who purchase life and health insurance. The Senior Vice President has three Vice Presidents reporting to him: Administration, Marketing and Sales.

The VP of IS reports to the Vice President, Administration. She has approximately 40 staff members supporting the Canadian business.

History of IT Initiatives in Business Unit 7

In 1986 the administration system was cloned into a U.S. version and a Canadian version when it was decided to run the U.S. business from an American headquarters. Some of the IS people opposed the idea of splitting the database but they were overruled and there have been five years of developments in each system. Now they want to combine the operations, and it is a very complex and expensive task to put the two systems back together. They have begun the process of recombining them by creating a New Business application to support the creation of new policies from both U.S. and Canadian agents. This work has gone very slowly because there are dozens of products supported by this business unit and each has to be analyzed in detail. The project has already suffered several setbacks and has not yet been implemented.

In 1988, the company decentralized most of its applications development staff into the business units in an effort to make them more responsive to the particular products and geographic markets. This is widely seen as being a very successful change.

In the Annual Reports from 1985 to 1990, there is almost no mention of Individual information systems initiatives, although the accomplishments of other business units and corporate Information Services are mentioned several times. The IS department have spent the time supporting new products and keeping old systems afloat and have been followers in implementing any new developments.
BUSINESS UNIT 8

Business Unit 8 markets a full line of group life and health products in Canada. It has had a prosperous history and continued strong results in 1989 and 1990.

Organization

This business unit and one other report to a senior vice-president. The VP of Business Unit 5 reports to him. The Assistant Vice President of IS, who manages IS departments for both of the business units, reports to both of the VPs. The IS organization is comprised of 24 people.

The History of IT Initiatives within Business Unit 8

In 1983, application development was decentralized into the business units. Business Unit 8 was the first IS unit to be decentralized within the company. From 1983 to 1985, the IS department implemented a new system for the administration of policies and the business unit is now considered by many managers within the company to have the best systems of all the operating areas.

From 1985 to 1990, steady progress was made in building systems to support the business. The IS Director was very highly regarded and was asked several time to take a line management position within the business unit. She has now moved to another business unit to manage a less successful IS department. A new AVP of IS replaced her less than a year.
BU 9 markets a broad range of retirement products, such as pooled investment funds and GICs, and financial services to clients. It is not currently meeting its return on capital targets. Its unit costs are high compared with its competitors, its market share is low and the customer service it provides is considered inadequate. Its investment activities have been its strength.

Organization

In this company, one SVP has been put in charge of two lines of business, BU 9 and BU 10. Reporting to the SVP are the VPs of both business units. The Assistant VP of IS, who manages the IS groups servicing both business units, reports to both VPs, rather than to the SVP. The Information Services department for BU 9 is comprised of 13 people.

History of IT Initiatives within Business Unit 9

Over the last decade, this business unit had less growth and less resources to spend on IT than other comparable units. The VP of the unit mentioned that IT was underfunded but also suffered from a couple of false starts - for example when the core of the group-fund accounting system was worked on for two years (1982-1984) and then thrown out. We ended up with an automated name and address file and not more functionality than that.

The administrative system wasn’t well managed, but was well integrated with the marketing efforts. Brokers signed on from all over Canada and accessed their records on it, but the records were often out of date and not reconciled. It also had no financial controls built into it. So we have spent from mid 1989 to late 1990 getting that system under control. It cost us a quarter of a million dollars in overruns on the processing bill in 1989. We are now actively managing this critical resources and treating it accordingly.

The VP of Canada Pensions recalled the 1990 year as being mostly fix up, so we could do the job. She did have a couple of IT projects that provided some immediate payback: subledger inquiry was one example. We don’t have basic management information. In the end of 1990, we, for the first time ever, came up with a client list. So we’re really starting with no management information. We’re just starting to be able to track even the cost of nonconformance - what it is costing us to make mistakes.
Reinsurance is the business whereby one insurance company will insure the policies written by another insurance company which exceed its retention limits. Business Unit 10 is one of the largest reinsurers in North America. Profitability of the reinsurance operations has been restored since 1987 through a policy of cost-effective and service-oriented distribution. They have continued to achieve excellent profitability and return on capital during the last few years.

Organization

In this company, one SVP has been put in charge of two lines of business, BU 9 and BU 10. Reporting to the SVP are the VPs of both business units. The Assistant VP of IS, who manages the IS groups servicing both business units, reports to both VPs, rather than to the SVP. BU 10 is a small division, with 60 people in total, all residing in head office. The IS organization includes 9 people, who report to the AVP.

History of IT Initiatives within Business Unit 10

Beginning in 1987, the business unit began to use PCs to replace some of the functions that were not satisfactorily handled by mainframe or outsourced solutions. Claims processing was first and they now have an independent claims systems which gives them good statistical reporting capability. There was a lot of passing disks back and forth (i.e. "sneaker-net" activity) between multiple users of applications such as claims, special risk and bulk processing until they installed the first local area network in 1990. This took them 10 months and $25,000 to install. This business unit makes the most sophisticated usage of LANs in the company with both production systems, electronic mail, and device sharing being supported.

In 1988, the Vice President cancelled a very major IT project which was attempting to develop the perfect administration system for the reinsurance business. This project had taken several years (from 1983 to 1987), with several part time people on it, and got nowhere. A short-term systems strategy was prepared by the new head of IS which recommended a holding pattern for IT, with no major development expenditures being initiated until general business requirements stabilized. According to the annual reports, the reinsurance business strategies were reformulated in 1988.

During 1990, they found a software vendor with package designed for the one of the lines of business and are now proceeding with implementation. In general, the history of IT in the business unit since 1988 is one of innovation, relative to the rest of the divisions in the company.
APPENDIX C
Measures of the Linkage Construct

This Appendix describes the six measures used in this project to rate the "mutual understanding" dimension of linkage.

Two aspects of linkage were investigated: short term and long term. Short term linkage was measured by assessing 1) the degree to which IS and business executives understood each others’ short term objectives, and 2) the level of cross-referencing exhibited by the written one year IT and business plans. Longer term linkage was measured by assessing 1) the degree of congruence in the visions for IT articulated by IS and business executives, and 2) the degree of cross-referencing exhibited in the written five-year IT and business plans.

In order to add to the reliability of our linkage measures, we asked each executive to subjectively rate linkage in their unit (company or business unit) and then asked them to explain what factors influenced this rating.

During the project, another potential measure of linkage emerged. We named it "Involvement in New Product Development" and measured it as shown in this appendix.

Chapters IV and VI of this thesis describe the results of measuring linkage at the corporate and business unit level, respectively.

1. Mutual Understanding of Current Objectives

The rating is separated into 1) the level of understanding that IS executives have about current business objectives and 2) the level of understanding the business executives have about current IT objectives. Current objectives are defined as the goals and strategies (i.e. business and/or IT projects) for the next 1-2 years.

**HIGH - IS Executives**
- the IS executive identified the current objectives of the business unit (or corporate unit, if applicable). These objectives were the ones written in the business plan or articulated by senior business executives.

**HIGH - Business Executives**
- the executives identified the current high priority projects of the IS group, both internal (i.e. infrastructure) and external (i.e. user-based).

**MODERATE (IS or Business Executives)**
- The executives have only a vague general understanding of current objectives but cannot identify specific, high-priority goals and strategies.
LOW (IS or Business Executives)
- the Executives cannot identify each other's major current objectives.

UNKNOWN (IS or Business Executives)
- No current objectives have been formulated.

2. Cross-References in Written Plans

This is a rating of how clearly the business plan gives direction to the IT function and how clearly the IT plan reflects the business concerns. There are two ratings: the rating on the annual, one year plans and the rating on the long term (usually five year) plans.

For example, projects in the IT plan can be linked by specific reference to business objectives (e.g. "The customer order project is intended to support the organizational objectives of increasing our customer service and creating a customer information database.")

Examples of direction given to IT in the business plan include general strategies (e.g. "our systems must be upgraded to improve the customer service function") or specific ("the new XXX product will require significant changes to the administrative systems").

It is possible for plans to be linked without being specifically noted in the written document. (e.g. if the business strategy was to improve customer service by reducing order processing delays, a congruent IT strategy might be to build an improved customer order processing system.) In this case, the linkage is evidence of the other dimension of linkage, the 'intellectual process' dimension, and will not be identified by this project. We did not delve into the implicit fit between the objectives but identified the overt connections between them.

a) Short Term (1 Year) Plans

This scale was developed before the project commenced and was modified after all of the data was analyzed. Both the original and the revised scales are described.

The original scale was as follows:

HIGH
- the short term business plan references the current IT objectives and the IT plan references the current business objectives.
APPENDIX C
Measures of the Linkage Construct

MODERATE
- either the short term business plan references the IT projects or the IT plan references the business objectives. One plan may be missing.

LOW
- the short term business plan does not reference the IT projects and the IT plan does not reference the business objectives.

NO PLANS
- there is no short term plan for the business unit and no short term plan for the IT function within the business unit.

Additions to the scale

Contrary to our expectation of finding a one year business plan and a one year IT plan in each business unit, there were several instances in which the IT plan was integrated into the business plan. In general, we rated these integrated plans as being more highly linked than a pair of separate plans because the format forced readers to consider IT objectives at the same time as they read the sales and new product objectives. These plans were rated as being highly or moderately linked, as described below.

The changes to this scale are discussed more fully in section K of chapter VI.

HIGH
- there is only one short-term plan maintained within the business unit and all objectives, including IT, are embedded in it. The format of the document is such that either 1) the IT objectives are placed under business unit goals, or 2) the IT objectives are contained in a separate section in the business plan but are articulated in terms of business unit objectives.

MODERATE
- there is only one short-term plan within the business unit and all objectives, including IT, are imbedded in it. The IT objectives are contained in a separate section of the plan and are not articulated in terms of business goals.

b) Long Term (5 Year) Plans

HIGH
- both the long term business plan and the long term IT plan reference each other. The long term business plan should identify the specific ways that IT will be used in support of business goals. The IT plan should place its objectives into the context of business objectives or
outcomes.

**MODERATE**
- either the long term business plan gives IT some direction or the long term IT plan exhibits knowledge and fit with the long term business plan. One of the plans may be missing.

**LOW**
- neither the long term business plan nor the long term IT plan reference each other.

**NO PLANS**
- there is no 5 year strategic business plan and no 5 year strategic IT plan which is operative within the business unit.

3. Shared Vision for IT in the Future

Vision is defined as a clear expectation of the role IT will play in contributing to the long term success of the business unit (e.g. what business processes will benefit the most from the application of IT, how the benefits will be realized, what other changes will occur in the business environment ...etc.).

**HIGH**
- business executives and the IS executive agree on the overall role for IT in the future of the business unit.

**MODERATE**
- among the executives interviewed, there is some agreement (e.g. two or three out of five) on how IT will contribute to the future of the business unit. The other executives might have conflicting or no visions for IT.

**LOW**
- the visions expressed for IT by the executives did not show any congruence. Several visions might have been expressed, but they differed on the overall value of IT or on the business processes to which IT can be most effectively applied.

**NO VISION**
- none of the executives had any clear vision for the role of IT within the business
4. Subjective Assessment of Linkage

Each executive interviewed was asked the following questions:

1. If we define linkage as the congruence between the business unit goals/strategies and the IS strategies/plans, how would you rate linkage currently within your business unit?

   LOW...... MODERATE .......... HIGH.........

2. Why did you rate linkage as ....? 

3. What strengthens linkage efforts?

4. What detracts from them?

5. What else might be done to achieve higher levels of linkage?

From these questions, we identified the subjective rating of linkage (question 1), the executive's ideas on what constitutes linkage (question 2), and the factors which were perceived to influence linkage in the business unit (question 3, 4 and 5).

5. Involvement in New Product Development

From conversations with executives, we identified this factor as one which they perceived to be an indicator of linkage. If IS people participated very early in the new product development cycle, linkage was considered to be higher than if IS people were involved very late.

   EARLY
   - IS people are involved during the early conceptualization of the product - to

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92 For corporate units, these questions varied slightly to refer to the company as a whole.
define the target market, the product characteristics, the timing of rollout, etc. This stage would follow the very earliest time in which the marketing department is getting feedback from its agents, agency offices, or competitive data that a new product is needed.

**MIDDLE**
- IS people are involved after the basic characteristics of the product are identified, and the benefits and costs of the product have been discussed.

**LATE**
- IS people are asked to develop the new product which is fully specified, including product characteristics, rollout dates, commission structure etc.
Appendix D
Scales used to Measure the Factors

notes: the rationale for these scales is developed in more detail in Chapter III in the "Operationalizing the Research Model" section.

1. Shared Knowledge

Insurance Experience
- > 10 years in line roles in insurance companies - high
- > 5 and < 10 years - moderate
- < 5 years - low

Company Employment Experience
- > 5 years with the current company - high
- > 3 and < 5 years - moderate
- < 3 years - low

IT Management Experience
- > 3 years management of the IT function - high
- management of a big project - moderate
- no hands-on IT management - low

Awareness of New Technology
- regularly reads IT publications and experiments with new IT products - high
- irregular reader and experimenter - moderate
- seldom reads or discusses new IT - low
2. Communication between IS and Business Executives

Galbraith (1977) developed a typology of seven techniques which are used to increase communication between two separate units. They are listed below, in order of degree to which they contribute to connecting the objectives of two organizations.

1) direct
2) liaison roles
3) temporary task forces
4) permanent teams/committees
5) integrating roles
6) managerial linking roles
7) matrix management

In this project, we used the typology to identify the type and number of techniques being employed in any one unit of analysis. After doing this, we classified communication between the IS and the business executives in the unit as either:

a) frequent, moderately frequent, or infrequent, and

b) focused or diverse - with respect to the content of discussions. "Focused" meant that only IT issues were discussed, "diverse" meant that other business issues were discussed.
3. Connections in Planning

- As described in Chapter III, we created a scale which contained five levels. Each level is higher than the last in its "level of connection" between IT and business objectives:

1. isolated - plans are developed separately by each group.

2. architected - for BU IT plans
   - IT plans are developed from systematically developed data and business architectures.

   negotiated - for corporate IT plans
   - IT plans are developed in isolation and then presented and ratified in meetings.

3. derived
   - IT plans are developed during a top-down analysis beginning with business objectives and involving business and IT participants.

4. integrated
   - IT plans are developed and ratified at the same time as other business objectives are. Business and IS executives are present during the meetings.

5. proactive
   - IT objectives precede the formulation of business objectives and are used as input to their development. This occurs in industries in which IT is considered to hold significant promise for changing the basis of competition.
## Appendix E

Reasons Given by Respondents for their Subjective Ratings of Linkage

<table>
<thead>
<tr>
<th>Business Units</th>
<th>Measures Used by Business Unit Executives.</th>
<th>Measures used by IS Executives</th>
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</thead>
<tbody>
<tr>
<td>BU 1</td>
<td>1. IS visits sales offices (+)</td>
<td>1. Business planning process (+)</td>
</tr>
<tr>
<td></td>
<td>2. IS understands the business. (+)</td>
<td>2. IS reporting to the BU (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rating: HIGH</td>
</tr>
<tr>
<td></td>
<td>1. IS people interested in business (+)</td>
<td>1. IS and business plans are</td>
</tr>
<tr>
<td></td>
<td>2. Business planning meetings (+)</td>
<td>synonymous (+)</td>
</tr>
<tr>
<td></td>
<td>3. Lack of business targets for a major IT</td>
<td>2. Liaison devices for communication</td>
</tr>
<tr>
<td></td>
<td>initiative (-)</td>
<td>(+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. IS reporting to the BU (+).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rating: HIGH</td>
</tr>
<tr>
<td>BU 2</td>
<td>1. Prioritizing process (+)</td>
<td>1. IS is too reactive, doesn’t show</td>
</tr>
<tr>
<td></td>
<td>2. Early involvement in New Product</td>
<td>leadership (-),</td>
</tr>
<tr>
<td></td>
<td>Development (+)</td>
<td>2. Business areas are not excited</td>
</tr>
<tr>
<td></td>
<td>3. IS is learning the business.(+)</td>
<td>by IS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>projects, not supportive (-).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rating: MODERATE</td>
</tr>
<tr>
<td></td>
<td>1. IS understands business objectives(+)</td>
<td>1. IS doesn’t understand the business well enough (-)</td>
</tr>
<tr>
<td></td>
<td>2. Deliverables take too long. (-)</td>
<td>2. IS doesn’t show leadership (-).</td>
</tr>
<tr>
<td></td>
<td>3. IS has let them down regarding their IT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>position against competition.(-)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rating: HIGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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Note: Each respondent is shown separately. Linkage rating follows the reasons. + means the person saw the reason as contributing to higher linkage; - means the respondent believed the factor detracted from linkage.
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<td><strong>BU 3</strong></td>
<td>1. IS interested in the business. (+)</td>
<td>1. IS is part of senior management (+)</td>
</tr>
<tr>
<td></td>
<td>2. IS understands business. (+)</td>
<td>2. IS coordinates business planning process (+)</td>
</tr>
<tr>
<td></td>
<td>3. IS reports to the BU, no conflict of interest. (+)</td>
<td>Rating: HIGH</td>
</tr>
<tr>
<td></td>
<td>4. Regular management meetings. (+)</td>
<td>Rating: HIGH</td>
</tr>
<tr>
<td></td>
<td>1. No goals in place. (-)</td>
<td>1. Close working arrangements between IS and Senior executives. (+)</td>
</tr>
<tr>
<td></td>
<td>2. Slow getting IS systems delivered. (-)</td>
<td>2. Early involvement in new product development. (+)</td>
</tr>
<tr>
<td></td>
<td>Rating: MODERATE</td>
<td>3. No clear long term goals. (-)</td>
</tr>
<tr>
<td></td>
<td>1. IS Director understand priorities (+).</td>
<td>Rating: HIGH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rating: HIGH</td>
</tr>
<tr>
<td><strong>BU 4</strong></td>
<td>1. IS has no input into business planning. (-)</td>
<td>1. IS has too much discretion within the BU. (-)</td>
</tr>
<tr>
<td></td>
<td>2. Line management do not accept responsibility for IS - no sponsorship of projects. (-)</td>
<td>2. No business direction for IS. (-)</td>
</tr>
<tr>
<td></td>
<td>3. IS operates in a vacuum (-).</td>
<td>Rating: LOW</td>
</tr>
<tr>
<td></td>
<td>Rating: LOW</td>
<td></td>
</tr>
<tr>
<td><strong>BU 5</strong></td>
<td>1. Strong IS/line individual in the BU. (+)</td>
<td>1. IS needs to be involved earlier in New Product Development (-)</td>
</tr>
<tr>
<td></td>
<td>2. Stronger relationships between programmers and BU analysts. (+)</td>
<td>Rating: MODERATE</td>
</tr>
<tr>
<td></td>
<td>3. Programmers report to central IS, not to the BU. (-)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Programmers do not understand business, are not connected to it.(-)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Business Plan gives direction to IS (+)</td>
<td></td>
</tr>
<tr>
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<td>Rating: MODERATE</td>
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| BU 6           | 1. IS history is very positive (+).  
                 2. Good communication within the BU. (+)  
                 3. System directly supports business strategy. (+) | Rating: HIGH |
| BU 7           | 1. The key business executive understands IT well (+).  
                 2. IS reports to the BU. (+)  
                 3. Steering Committee format isolates IS issues. (-)  
                 1. Management meetings include IS, both routine and off-site. (+)  
                 2. IS is on new product development teams. (+)  
                 3. Close ties between operating plan and strategy. (+) | Rating: HIGH |
| BU 8           | 1. Main areas of strategy are supported by systems projects. (+)  
                 2. IS not delivering on schedule. (-)  
                 3. IS needs a better understanding of business priorities. (-)  
                 4. Incentive system rewards linkage and compliance (+). | Rating: MODERATE |
|                |                                            | 1. IS sits on cross functional committees, helps to understand business. (+)  
                 2. IS does not report to the SVP (-).  
                 3. Not enough trust at the first line manager level (-).  
                 Rating: MODERATE |

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| **BU 9**       | 1. BU was starved for technology historically. (-)  
2. IS needs to understand the business better. (-)  
  1. Good prioritization process. (+)  
  2. IS people are located close to the business people. (+)  
  3. Need for some quick deliverables. (-)  
  4. IS people need some business experience. (-)  
RATING: MODERATE | 1. Reporting relationship not clean (-).  
2. No agreed upon business strategy. (-)  
3. IS people need a better understanding of the business. (-)  
RATING: MODERATE |
| **BU 10**      | 1. Meetings deal with IS and other issues simultaneously (+).  
RATING: HIGH | 1. Good support from executives. (+)  
RATING: HIGH |
|                | 1. BU is simple in operation, the IT problems are not too complicated. (+)  
RATING: HIGH | 2. Less strategic dependence on IT. (+)  
RATING: HIGH |

**Note:** Each respondent is shown separately. Linkage rating follows the reasons. + means the person saw the reason as contributing to higher linkage; - means the respondent believed the factor detracted from linkage.