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DEVELOPING BUSINESS AND INFORMATION STRATEGY ALIGNMENT: A STUDY IN THE BANKING INDUSTRY

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ABSTRACT

This paper reports part of an empirical study which explored business and information strategy alignment in the Australian banking industry. The aim of the study was to identify organizational policies and practices which contribute to and enhance alignment.

The case-study research design involved multiple sources of evidence collected in a structured manner from the major firms which dominate Australian banking. These sources included both written and interview-based executive manager participation, examination of board-level strategic planning documentation, and an analysis of five years of annual reports. Evidence for the alignment of business and information strategies was sought in the use of information and/or information technology which provided a comparative advantage to an organization over its competitors.

There was evidence to indicate a positive relationship to business and information strategy alignment in the four areas in the case study banks: firm-wide strategy formation processes, organizational structure and accountabilities, information systems responsibilities and policies and technology strategy. Fifteen indicators within these four related areas were depicted in an alignment model.

1. INTRODUCTION

The superimposition of the technological revolution, along with deregulation, makes for exciting times.

[Retail Banking Executive Manager]

In terms of the next stage of technology, we are trying to address the *information environment*....Most of our systems implementations have been directed at the *production environment* where it is easy to cost justify....At present, all of our systems are essentially account based...being product driven, rather than customer driven.

[IS/T Manager]

We are in the information business, rather than the finance business.

[Strategic Planning Manager]

These are executive managers in large banks speaking about the challenges in their internal and external environments. Underpinning their concerns is the need for better

alignment of their business and information strategies, where business objectives are well supported and stimulated by information strategies.

Aligning business and information strategies is as a major and continuing challenge for Information Systems and Technology (IS/T) managers. The alignment of IS and corporate goals has consistently been among the top four issues in the North American-based Index Group studies (Index Group 1990) and in the UK-based Price Waterhouse Information Technology Reviews (Price Waterhouse 1990). Concerns of chief executives in Ireland have focussed on the management of information technology and the linking of information technology and business strategies (Moynihan 1988). In three recent Australasian studies, IS/T managers have ranked the alignment of information systems with business goals as their top concern (Broadbent et al. 1989, 1990; Watson 1989).

This paper reports part of an empirical study which explored the nature of business and information strategy alignment in the major firms which dominate the Australian banking industry. The aim of the study was to identify organizational policies and practices which contribute to alignment.

This paper commences with an explanation of the Australian Banking industry and the research approach and data

collection sources of the study. This is followed by a discussion of the type and nature of advantages each firm has relative to its competitors.

Different organizational policies and practices between these firms provide grounded evidence for fifteen alignment indicators. These are grouped into an alignment model which summarize and synthesize the findings of the study. This model identifies policies and practices which enhance the alignment of business and information strategies.

2. THE AUSTRALIAN BANKING INDUSTRY

Banks operate in a strategic IS environment, where the alignment of business and information strategies should be a significant focus for organizational effort. Financial institutions are critically dependant on the IS activity for daily operations (McFarlan, McKenney and Pyburn 1983) and the banking sector is at the forefront of business-oriented technology developments.

Nationally operating banks in Australia provide retail and wholesale services to a population of 17 million dispersed over an area as large as the continental United States. The banking sector includes some of Australia's largest firms, with the number of employees in each of the five major banks ranging from over 10,000 to over 40,000 (1988 figures). The banks targeted in this study accounted for 82% of the total assets of banks operating in Australia (KPMG Peat Marwick Hungerfords 1988). They all have national retail branch networks and three have significant international operations.

The past decade has been one of rapid change in the banking and finance sector as the industry has moved from a relatively high to low level of deregulation. Since 1983, the Australian federal government relaxed trading bank deposit taking restrictions, significantly deregulated the foreign exchange market, and approved the entry of foreign banks into the Australian market.

All five banks studied had either recently undergone, or were still undergoing, major organizational structural changes in the years of executive manager data collection (1988-1990). Recent annual reports of the five major banks indicated a number of areas in which each bank claimed to have gained some comparative advantages using technology.

As the Retail Banking Executive Manager quoted above indicated, the combination of a deregulated environment with the technological revolution makes for exciting times.

3. RESEARCH APPROACH

The case-study research design involved multiple sources of evidence collected in a structured manner from large Australian banks which compete with each other.

The level and nature of cooperation in four of the five banks was high. One firm was not willing to participate fully in the study because of concerns of business confidentiality. Thus this paper reports the results from four banks.

Case-study research design was used because of the lack of a cumulative theoretical base, the need to examine complex phenomena in depth, terminological variations, and the sensitive nature of the data which needed to be collected (Yin 1984; Benbasat, Goldstein and Mead 1987). This was a hypothesis-generating, rather than a hypothesis-testing, study.

Evidence for the alignment of business and information strategies, in this study, was sought in the use of information and/or information technology which provided a comparative advantage to an organization over its competitors. Examples of such uses were referred to as Information-Based Comparative Advantages (IBCA's). Banks with more extensive and strategy-enabling IBCA's were seen to have a higher level of business and information strategy alignment than those with fewer strategy-enabling IBCA's.

The conceptual basis for this approach is the realized strategy framework of Mintzberg (Mintzberg and Waters 1982; 1984; Mintzberg 1987). The notion of realized strategy is very pertinent to the information systems area where developments in the information industry might make it inappropriate to pursue some intended strategies while other emerge (see Broadbent and Samson [1990] for further elaboration).

The key questions addressed in this study were

- Is there evidence to support the development of a hypothesis about the relationship between the nature and extent of a firm's information-based comparative advantage and the firm's
 1. firm-wide strategy formation processes,
 2. organizational structure and accountabilities,
 3. information systems responsibilities and policies, and
 4. technology strategy.

The first area above, firm-wide strategy formation processes, referred to the way in which strategy was developed on a firm-wide level: the nature and extent of participation and documentation; the time frame for the planning; the firm's experience of strategic planning; and the extent of executive manager reviewing of IS strategy.

Organizational structure and accountabilities included the reporting and responsibility arrangements across the firm. The third area, IS responsibilities and policies, focussed on these arrangements specifically as related to the IS area. Technology strategy was the firm's technical framework for decisions about computing and communications technology.

	Bank 1	Bank 2	Bank 3	Bank 4
Executive Managers: -Response Form -Interview Session	4	4	5	5
Board-level Strategic Planning Documentation	Corporate Plan: 1 vol Note: No other corporate or business unit documentation prepared	Corporate Plan: 1 vol Business Unit Plans: (All 40+ volumes) Administrat'n Manual for Preparing Plans (46 pages)	Corporate Plan: 1 vol Business Unit Plans: (5 vols as examples) Briefing document re Strategy Formation Process (6 pages)	IS/T Strategy: 1 vol which incorporated Board-level plans
Other Organisational Documentation	-Organisation charts including structure and function responsibilities -Internal reports and reviews	-Documents, plans, presentations on IS/T strategy. -Organisation charts including detailed structure and function respon'ties -Internal reports	-Documents, plans, presentations on IS/T strategy. -Organisation charts including detailed structure and function respon'ties -Internal reports	-Documents, plans, presentations on IS/T strategy. -Organisation charts including detailed structure and function respon'ties -Internal reports
Annual Report Analysis	Annual Reports 1985-1989	Annual Reports 1985-1989	Annual Reports 1985-1989	Annual Reports 1985-1989

Note: Generic terms for documentation are used above as specific titles could identify the banks and/or their strategic thrusts.

Figure 1. Data Collection Sources

Section of the Bank	Bk 1	Bk 2	Bk 3	Bk 4
Number of Executive Manager Participants	4	4	5	5
1. Bank as a Whole: compared to competitors: Means	3	3.1	4.4	3
2. Bank as a Whole: compared to competitors: SDs	0	0.22	0.49	0.89
3. Retail banking: compared to competitors: Means	3	3	4	2.8
4. Retail banking: compared to competitors: SDs	0.71	0	0	0.75

**Figure 2. Overall Information-Based Positioning:
Executive Manager Response**

This study required data points which provided an informed perspective in each of these areas for each of the firms.

4. DATA SOURCES

Major data collections sources for the four firms are summarized in Figure 1. This combination of sources permitted triangulation of the data to strengthen the finds (Denzin 1970; Yin 1981; Miles and Huberman 1984). These included

- Executive Manager data: Written Response Form followed by focused Interview Schedule from four or five of the most senior managers in each firm who were responsible for Strategic Planning, Information

Systems and Technology (IS/T), Retail Banking and Wholesale and/or Commercial Banking. Most reported directly to the firm's Chief Executive Officer (CEO) and were members of the firm's "Executive Committee" (or similarly named group). These participants constituted a very significant group of "key actors" in the development and implementation of strategy in each of the firms. Interviews were recorded and later transcribed for analysis.

- Board level strategic planning documentation: Access to extensive confidential board-level documentation concerning strategic planning processes and outcomes at both corporate and business unit levels.
- Other organizational documentation: Material related to organizational structures and responsibilities;

external reports and reviews; documentation, plans and presentations on IS strategy.

- Annual report analysis (1985-1989): A content analysis of five years of annual reports, identifying references to information systems and technology and the discussion of strategy (adapted from Jarvenpaa and Ives 1990).

The Response Form provide initial information from each manager on their perceptions of the strategic thrust(s) of their firm, the nature, strengths and weaknesses of their firms' strategic planning processes, and their firm's information-based comparative advantage. Areas pursued in the interview sessions and documents included aspects of organizational structure, accountabilities and responsibilities, and further details on the firm's information-based advantages; in particular the nature of the advantage achieved and the process of initiation, justification, design, implementation and benefits tracking for the IBCA. The nature of the advantage gained was not confined to those which could be classed as yielding above average profits in the industry (Porter 1985; Porter and Millar 1985). These advantages, could, for example, be positioning advantages, which were perceived to place the firm in a position where it would gain future benefits from the development or deployment of IT.

5. FINDINGS

The findings of the study are reported in two stages. First, the relative positioning of the banks is identified through the number and nature of strategy-enabling IBCAs. These IBCAs were seen as evidence for the alignment of business and information strategy.

Having established the positioning of the firms, the second part of the findings explores possible reasons for this positioning by examining the specific organizational practices of the banks. Differences in organizational practices provide evidence for the identification of fifteen alignment indicators. Six of these are in the area of firm-wide strategy formation processes, three in organizational structure and accountabilities, four in IS responsibilities and practices, and two in technology strategy.

In reporting results, specific factual data collected concerning size, number of employees, systems in place and financial assets have not been given as these would readily identify the firms. For similar reasons, general comments only can be reported on some sensitive organizational issues, particularly those related to the strategic orientation of the firms. Generic terms are used for all executive manager positions.

6. POSITIONING OF THE FIRMS

The information-based positioning of the firms was identified through Response Form answers; these were

followed up in the interview sessions. Three questions on the Response Form sought perceptions about advantages in relation to the Bank's use of information and/or information technology. The first two questions asked managers to rate their firm's use of information-based advantage (for the "Bank as a whole" and then for the Retail Banking area) when compared to competitors on a Likert scale of 1 (Low) through 5 (High). A low rating (1-2) indicated a position behind competitors, (3) was average and above that (4-5) was ahead of competitors. The means and standard deviations of the responses from executives are depicted in Figure 2.

Bank Three was the only bank where all executives indicated that the bank had at least an "above average" position in relation to competitors both for the "bank as a whole" and for the Retail area. Executive managers in Banks One and Two generally ranked their own firms as average performers in their use of IBCA. Bank Four executives indicated the greatest level of variance regarding their responses in both areas, and the lowest mean for the bank's position in the Retail area.

In the interview sessions, the executives in each bank were asked to indicate which of their competitors could be considered to be the best positioned at present. Their responses confirmed that Bank Three was currently in front, though potential future positioning was more fluid.

In a subsequent Response Form question, executive managers were presented with a list of eighteen areas of potential information-based advantage drawn from the literature (Galliers 1988; Sager 1988) and from the initial analysis of the banks' Annual Reports (1985-1987). Managers were asked to indicate in which of these areas their firm had gained some advantage over competitors by utilizing information and/or information technology. Figure 3 lists those areas together with the executive managers' responses from each of the banks. For example, in Bank One, one executive manager believed that bank was positioned ahead of its competitors in "Differentiated customer services" (area "a"), while three believed that they were ahead in "Differentiated customer products" (area "b"). The average number of IBCA per participants is listed near the bottom of the table, as the number of executive participants varied between the banks. In responding to the areas of advantage listed in Figure 3, IS executives were generally more optimistic than their business manager counterparts about the nature and extent of their bank's information-based advantages.

The responses in Figure 3 were quite consistent with those to the earlier general questions on the Response Form. Bank One had the lowest number and smallest spread of IBCAs and this was confirmed in interview. Bank One executives indicated that the advantage gained from their "differentiated customer products" had been dissipated because the key product developed was underpriced and used as a "loss leader."

Information-Based Comparative Advantage				
	Bk 1	Bk 2	Bk 3	Bk 4
Number of Executive Manager participants	4	4	5	5
Range of no. of responses	1-5	0-6	4-8	3-10
a. Differentiated customer services	1	1	2	2
b. Differentiated customer products	3	1	1	1
c. Electronic home banking				4
d. Electronic Funds Transfer/Point Of Sale Terminals		3	3	3
e. Number and availability of auto'd teller machines (ATMs)	3	1	2	5
f. ATM interchange links with other financial institutions	3	2	5	2
g. Integration of customer data		1	5	
h. Centralised transaction processing centre	1		3	4
i. Consolidation of applications onto a uniform product base			3	
k. Market analysis, marketing		1	3	
l. Competitor intelligence				
m. Internal networking systems		2	2	2
n. Office automation, records management				
o. MIS Planning and control			1	1
p. Cost accounting			1	2
q. Risk management techniques		1		
r. Inventory or Stock control, asset management				
s. Investment and Financial planning			2	1
Totals	11	13	33	27
Average number of IBCA per participant	2.75	3.25	6.6	5.4
Standard Deviations within Banks	1.7	2.5	1.9	2.7

Figure 3. Number and Range of IBCAs in Each Bank

Banks Two's executives indicated advantages in a number of areas, but there was no area which was marked by all executives. In interview, these limited advantages were discussed in terms of providing positioning advantages. Positive financial returns had not yet been achieved (and nor were systems in place to indicate such returns).

Bank Three had the highest average number of IBCAs per participant. In their comments concerning the tracking of benefits, Bank Three executives focussed on the interconnection between several of their information-based developments, which had been identified as requiring significant human and capital investment.

While Bank Four executives had a high average number of IBCAs, these results were skewed by the fact that the number of advantages marked by executives ranged from three to ten. Though Bank Four had a clear advantage over competitors in electronic home banking, this was not an area of advantage sought or valued by other banks.

While it had contributed to the bank's desired technology-oriented image, electronic home banking was not a profit-making service, nor was it a strong strategy-enabling IBCA.

In interview, the predominant information problem identified by executives in all of the banks was the need to improve their customer information database. As one executive articulated, Australian banks had been operating in "a production environment" rather than an "information environment" where twenty year old processing systems were essentially "account-based," designed for a regulated era and were "product driven rather than customer driven." Bank Three led its competitors in three key areas of development: "integration of customer data," "consolidation of products onto a uniform product base," and "marketing and market analysis."

In this study, evidence for business and IS strategy alignment was sought in the number and nature of strategy-enabling IBCAs. Based on both the quantitative and

qualitative evidence, Bank Three had the highest level of alignment between its business and information strategies. While Bank One was clearly the laggard, the relative positions of the Banks Two and Four were more complex. Bank Two had the second lowest number of IBCAs per participant and the second highest variance among the four banks. While Bank Four executives indicated a relatively high number of IBCAs, these were not necessarily in areas competitors considered important.

Explanations for the comparative positioning of the firms are now explored, commencing with firm-wide strategy formation processes.

7. FIRM-WIDE STRATEGY FORMATION PROCESSES

Differences between the strategy formation practices of the banks were evident in three major areas: the nature of their strategy formation processes (experience, focus, participation); their strategic orientation characteristics (consensus, clarity and consistency); and the way in which management reviewed IS strategy.

This study provided evidence for six indicators which were important in aligning business and information strategy in the banks:

1. Longer experience of firm-wide strategic planning processes
2. Planning which focused on critical and long-term issues
3. More extensive participation in firm-wide planning
4. Executive manager consensus on firm-wide strategic orientation
5. Clarity and consistency in strategic orientation
6. More extensive executive manager experience reviewing IS strategy

Each of these areas is discussed below.

7.1 Nature of Strategy-Formation Processes (Indicators 1-3)

A summary of the data from the evidence about the nature of strategy formation processes is presented in Figure 4.

Three of the banks had four years or less experience in firm-wide strategic planning, with Bank Three having more than seven years experience. The date of commencement for Banks One, Two, and Four largely coincided with the first full year of deregulation and the entry of foreign banks into Australia. Bank One's strategy formation processes had only a one year time-frame and was almost completely operationally focused. Bank Two had very extensive and complex strategic planning documentation, which required a manual so Business Units developed their plans in the appropriate format. Bank Three had much less extensive documentation than Bank Two, but it was more focussed, with responsibility for the implementation

of plans clearly linked to named individuals and specific groups.

We are trying to make the strategy formation process less formal, more flexible, more issue oriented.

[Strategic Planning Manager]

From this evidence it appears that the length of experience in firm-wide strategic planning in the banks brought with it greater confidence, competence and increased involvement and participation across the firms. Effective planning processes are likely to be related to experience and the greater opportunity for permeation into other than only the top levels of management (Hax and Majluf 1984). At the same time, there may be a better balance between analytical processes and intuitive judgments, as suggested by McGinnis (1984) and evident in Banks Three and Four.

Executives in two of the four banks indicated a concern with confidentiality in involving employees in the strategy formation process as it evolved and in more widespread communication of strategic thrusts and developments within their firms. They then faced a dilemma that too few employees were aware of the directions of their business. In the information systems context, participation is more effective in developing a sound understanding of top management objectives than simply communication of that strategy at a later date (Lederer and Mendelow 1987; Lederer and Sethi 1988). Findings in the banking study suggest the need for a trade-off between strict confidentiality and an informed and committed workforce.

7.2 Strategic Orientation Characteristics (Indicators 4-5)

An indication of the strategic orientation of the banks was sought as part of the initial input from executive managers. The strategic orientations were drawn from Wiseman's (1985) "theory of strategic thrusts," which in turn has its base in the work of Chandler (1962) and Porter (1980). Analysis of these responses, plus interview, documentation and annual report analysis provided substantial evidence to indicate the banks had different levels of consistency and consensus concerning their strategic thrusts. Figure 5 outlines these findings while retaining confidentiality. Bank Three had the highest level of consensus and consistency in its strategic orientation, followed by Bank Four.

Research findings on the importance of consensus among senior managers concerning organizational ends and means are ambivalent (Bourgeois 1980; Dess 1987; Wooldridge and Floyd 1989). Evidence from the banks lent support to the importance of gaining some executive management consensus concerning predominant strategic orientations as the means to organizational ends. Where that consensus was more evident, there were more extensive and more strategy-enabling examples of information-based comparative advantage.

	Bank 1	Bank 2	Bank 3	Bank 4
Length of time firm-wide planning in place (Experience)	4 years	3 years	7+ years	4 years
Strategic planning timeframe in 1989 (Focus)	Short -1 yr operational	Medium -1 yr financial -3 yr rolling cycle	Long -3 yr financial & capital -5 yr economic & strategic	Long -1 yr operational -5 yr rolling cycle
Nature of firm-wide strategic planning documentation (Focus)	General -statements of intent	Complex -highly structured and formatted, statements of intent	Focused -linking plans to implementation responsibilities	(Not sighted)
Extent of firm-wide strategy iteration with business units (Participation)	Limited	Extensive	Extensive	Developing

Figure 4. Nature of the Strategy Formation Processes

	Bank 1	Bank 2	Bank 3	Bank 4
Consensus re strategic orientation	Medium	Medium	High	Medium-High
Consistency of strategic orientation	Low-Medium	Low	High	Medium-High

Figure 5. Strategic Orientation Characteristics

	Bank 1	Bank 2	Bank 3	Bank 4
Reviewing of IS/T in firm-wide strategic planning	Limited, general, incidental references	1989+: extensive & mandatory references to IS/T requirements	1985+: part of business strategy formation process	1990+: formally linked to IS/T plans
Overt linking of Business and IS strategies & plans	Not in place	1988+	1985+	1989+

Figure 6. Management Experience with Reviewing Information Strategy

Indicators	Averages from 1985-1989				
	Bk 1	Bk 2	Bk 3	Bk 4	Aver
1. Number of IT phrases per paragraph	0.17	0.15	0.3	0.3	0.23
2. Percentage of paragraphs with IT phrases	12	9.2	14	13	12

Figure 7. Concentration of IT Phrases in CEO Letters

While authors such as Parker (1985) identified the importance of linking IS to objectives of the firm, the assumption is often made that these objectives are clear and consistent. The importance of clarity and consistency has been observed recently by Hirschheim and Earl (1988) and Lederer and Mendelow (1989). In the banks in this study, it appeared that consistency in strategic orientation over a period of time enabled greater opportunities for business and information strategy alignment.

This study supported the proposition that the process of well developed strategic planning provides a rich information channel in the reduction of uncertainty and clarification of ambiguity (Daft and Lengel 1984; 1986; Daft and Huber 1987). Sound planning processes constitute institutional learning (DeGeus 1988), where the process is more important than the product. This lays the groundwork for the clarity and specificity of business strategy from which the organization's information strategy can be concurrently planned and realized.

7.3 Executive Management Reviewing IS Strategy (Indicator 6)

In this study, all executive managers indicated that they believed that their bank was highly dependent on information systems. The strategic documentation of each bank at least mentioned the role and importance of information systems and technology. This study sought more discriminating indicators by drawing on the nature and context of references to information technology in strategic documentation, the interview responses of executives, and the analysis of annual reports.

Major differences between the banks are summarized in Figure 6. Bank Three had the most lengthy experience of attempting to link overtly business and information strategic planning at the firm-wide level. In recent times, Banks Two and Four had made major advances in explicitly linking business strategies and their information systems and technology implications and requirements. Bank One's consideration remained general with overt linking underdeveloped.

There is considerable debate concerning the extent to which formal planning processes enable or hinder the identification of strategic information technology oppor-

tunities (Runge 1985; Earl and Runge 1987; Ward 1987; Earl 1988). In tracing the initiation, justification, and development of information-based advantages in each bank, a consistent pattern emerged. About half the major IBCA initiatives had evolved as part of the bank's firm-wide processes, while the other half were initially individual initiatives, championed by particular managers, in the manner of innovation management (Munro and Huff 1985; Earl 1989; Weill and Broadbent 1990). The major factor in banks developing realized IS strategy consistent with business needs was a flexible and issue-oriented strategy formation process, with concurrent processes taking place at different organizational levels (a combination of Indicators 2 and 3).

The content analysis of the CEO letters in annual reports provided additional evidence of the centrality of information technology to strategic orientations in each of the banks (see Figure 7). In quantitative terms, Bank Three had the highest number and concentration of IT phrases in annual reports. From a qualitative perspective, Bank Three showed the earliest attributions of IT to strategy, with the later reports of Bank Four making the link more explicit. The path of IT developments for each bank portrayed in the annual reports closely resembled that gleaned from executive managers and from strategic planning documentation.

8. ORGANIZATIONAL STRUCTURE AND ACCOUNTABILITIES (INDICATORS 7-9)

Three aspects of organizational structure and accountabilities were important in underpinning a bank's ability to properly link business and information strategies. These became indicators 7 to 9.

7. Organizational structure which complemented strategy
8. Decision-making processes appropriate to strategic orientation
9. Accountabilities appropriate to strategic orientation

The need to link strategy and structure is well embedded in the organizational design literature. While all four banks had some form of divisionalized structure in place, the level and nature of responsibilities delegated to the business units varied. One bank, with a predominant

strategic orientation of product and service differentiation, had an organizational structure with accountabilities and responsibilities which mitigated against this strategy. There was minimal devolution of responsibility for and incentive to develop new products and services. A low level of business ownership and initiation of information systems developments typified the IS/T area.

In three of the firms, increasing emphasis was being given to the balance of responsibilities, particularly in the information systems and technology area. The major IS/T corporate level responsibilities were in the development and approval of technological architectures and the oversight of centralized transaction processing systems. These were progressing in concert with increased provision for decentralized or distributed access and usage. Banks Two and Three had the most highly developed forms of devolved responsibilities in other areas. Bank Two had gone through a process of heavy devolution in the mid-1980s, some of which it was reversing due to compatibility and control problems.

The importance of the match between firm-wide structure and responsibility arrangements and strategic orientation was further illustrated at the functional level in the structure, responsibility, and accountability arrangements for information systems.

9. INFORMATION SYSTEMS RESPONSIBILITIES AND POLICIES

Different IS responsibilities and policies provided evidence for four indicators of business and information strategy alignment.

10. Business management responsibility for information-based developments
11. Extensive interaction between business and IS/T staff
12. Development of IS/T understanding in business managers
13. Development of business skills in IS/T managers

9.1 Responsibilities for Information-Based Developments (Indicator 10)

The most effective management of information systems seemed to take place when these resources were managed by those who were closest to business needs. Aspects of the information systems and technology relationships and responsibilities are summarized in Figure 8. Bank One executives felt much frustration about and little ownership of information systems developments. Banks Two and Four were in the midst of major corporate level initiated changes to their organizational arrangements for information systems and technology, strategic decision-making, and ownership issues. These banks were seeking to move to

the type of ownership and federated arrangements identified in Bank Three. The major impetus for such arrangements was a more responsive ability to introduce new products and services based on customer information and market analysis.

Bank Three executives were the most positive about the match between their organizational structure, strategic orientation, and information-oriented structures and processes. Bank One executives were the least positive. Bank Three had a centralized transaction processing system together with a relatively high level of devolution of responsibility to Business units for developing products and services, provided they were within the firm-wide strategic and technological parameters. Each information systems development was owned by a Business unit and each IS project or steering committee was chaired by a manager from the Business unit.

9.2 Interaction Between Business and IS/T Staff (Indicator 11)

The contact between IS/T personnel and business units, based on responsibility and accountability arrangements, was the most extensive in Bank Three. The lack of such interaction was lamented by executives of the other banks. Direct contact between the "IS function and line divisions" and greater "line influence" on IT were found to be important factors supporting strategic utilization of IT by Johnston and Carrico (1988, pp. 43-44). The presence of six of Feeny's seven characteristics of firms with high business and information systems integration was evident in Bank Three (Feeny, Earl, and Edwards 1989). The seventh related to cost and profit center approaches. Bank Three had a mixed approach depending on the nature of he activity

9.3 Development of Business and IS/T Managers (Indicators 12-13)

The federated arrangements outlined above require new skills of both business and information managers at many levels (Applegate, Cash and Mills 1988; Rockart 1988; Earl 1989). Banks Two, Three, and Four had each recognized the changing educational and experiential needs of both business and information personnel. These banks were making conscious efforts to manage the inter-relationships between business units within firms and to transfer middle and senior personnel between functions and task forces, in the manner recently suggested by Johnston and Carrico (1988).

I would never run a big financial services organization with a technologist on top, but I would have the core business managers being much more technologically literate than they generally are.

[Strategic Planning Manager]

	Bank 1	Bank 2	Bank 3	Bank 4
IS/T and Business Unit relationships	Difficult, strained	Turnaround situation	Mature, Business ownership	Turnaround situation
Previous driver of IS/T developments	IS/T group	IS/T + Business	Business units	IS/T group
Ownership of IS/T projects	Corporate level IS/T group	Some corporate level IS/T group Some business unit ownership	Business units	Corporate level IS/T group

Figure 8. IS/T and Business Relationships and Responsibilities

Banks Two and Four had made recent appointments in the IS/T area of staff with strong business and/or strategy backgrounds in order to improve the business orientation of technological developments. Bank Three had staff development practices in place for seven years in order to give potential senior business managers experience in managing technology projects. Their IS/T Manager came from a business rather than a technological background but had previously been given responsibility for a major IT taskforce.

10. TECHNOLOGY STRATEGY

In this study, technology strategy focused on decisions concerning the hardware, software and communications components of information systems. Two aspects of technology strategy

appeared to be particularly important in the alignment of business and information strategies. These are presented as indicators 14 and 15.

14. Appropriate technology architectures
15. IT to suit the generation of required information products and services

Well-developed strategy formation processes should result in identification of a preferred range of information-based products and services to meet firm-wide and business unit needs. The firm's ability to develop these products and services depends on

- the suitability of the technology already in place
- processes for changing or supplementing that technology as required, and

- the decision-making processes which enable the development of those products and services when the technology becomes available

At the time of data collection, Bank Two was developing a firm-wide approach to agreed technology architectures to enable the more rapid development of products and services. A period of excessive divisionalization and decentralization, where virtually all technology decisions were devolved to business units, had resulted in incompatible systems. Some compatibility in the form of agreed architectures was required when developing products across business units. The introduction of Bank Three's information-based advantage of "Integrated customer data" required changes in the bank's centralized transaction processing system. However, once those changes were made, the development of subsequent products did not require major systems changes.

The fifteen alignment indicators developed in the discussion of findings are now presented in an alignment model which depicts the relationship between these indicators.

11. ALIGNMENT MODEL

The alignment of business and information strategy in the banks requires a complex and contingent set of strategic, organizational, information systems and technology arrangements. The four areas explored in this study resulted in evidence for the identification of fifteen indicators for alignment.

Figure 9 presents a working model of alignment with these indicators grouped into the four areas which provided the basis of the research questions. This model does not claim to be comprehensive, but rather illustrative of indicators for which there is grounded evidence in large firms in the finance industry.

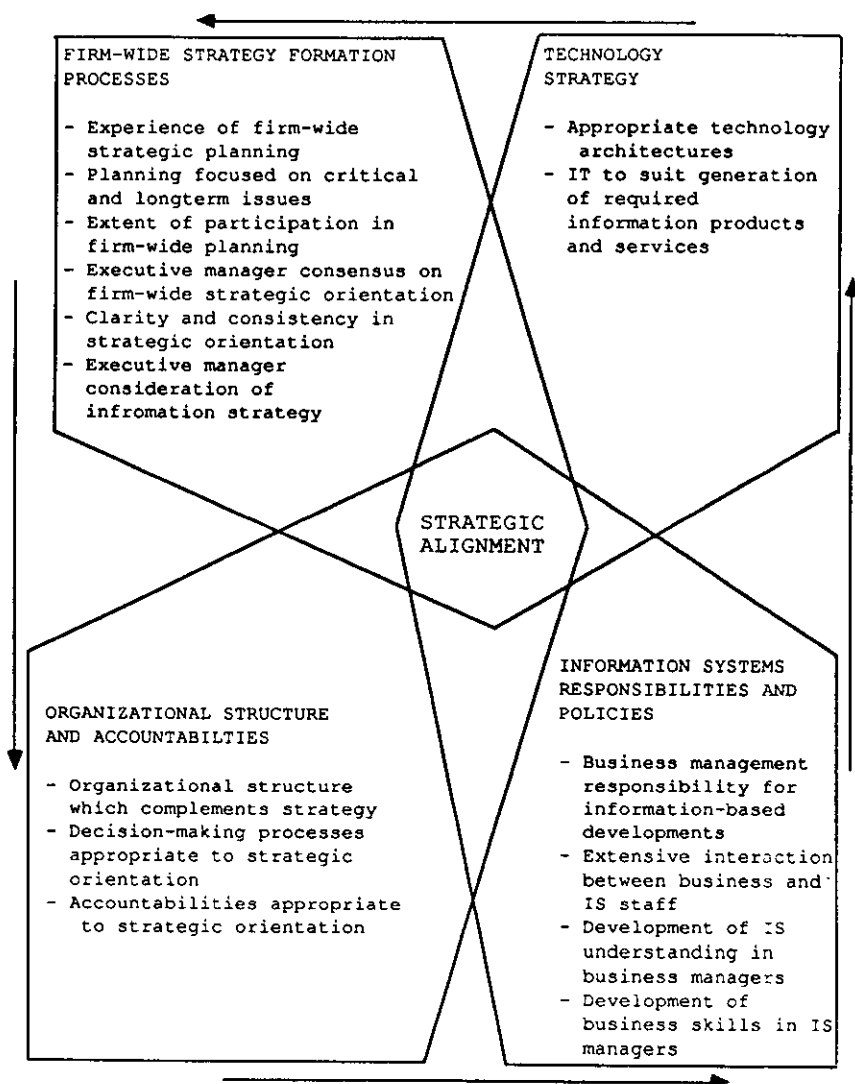


Figure 9. Alignment Model

These four areas ideally should be addressed in order, commencing with firm-wide strategy formation process through organizational structure and accountabilities, to information systems responsibilities and policies, and then technology strategy. Following this process maximizes the opportunities for alignment. At the same time, sound development of technology strategy, the fourth stage of the process, would increase the extent to which technological decisions would then stimulate further business considerations and options.

This alignment model is consistent with two other recent models, those of Earl (1989) and Henderson and Venkatraman (1990), identified while this study was in progress. The Australian banking study emphasized the interconnections between the quadrants and the importance of firm-

wide strategy formation and implementation processes. Strategic decision making processes were not as clear-cut as in the Earl model, with some aspects of both Information Services and Technology strategies requiring corporate or Board level decisions and oversight.

12. CONTRIBUTION AND LIMITATIONS

This study identified fifteen indicators where there was evidence to indicate a positive relationship between business and information strategy alignment in large banks. A firm-wide framework for alignment was depicted which emphasized the connections between the fifteen indicators.

Cross-industry studies have consistently shown that the financial services area is relatively mature in its information

strategy development processes (Wilson 1988, Broadbent et al. 1989; Jang 1989; Lederer and Mendelow 1989). Limiting the study to one leading edge industry avoided the problem of cross-sectional studies by minimizing the effect of moderating variables (Weill and Olson 1989) and facilitating the analysis of multiple sources of evidence. The banks were "critical sites" (Yin 1984), where evidence for business and information alignment was expected to be most acute. However, this also points to the primary limitation of the study: a case-based approach and the interpretive nature of the findings. The level of confidentiality required meant that publicly available financial data could not be integrated into the findings. However, the information-based performance results were generally consistent with overall financial indicators.

Central to the alignment of business and information strategies was the nature of the banks' firm-wide strategy formation processes. While IS/T managers placed considerable importance in IS planning methodologies at the functional level, it was the firm-wide processes which differentiated the banks in this study. A key factor in banks developing a realized IS strategy consistent with business needs was a flexible and issue-oriented strategy formation process, with concurrent processes taking place at different organizational levels.

The most effective management of IS occurred when these resources were managed by those closest to business needs. The extent and nature of interaction between business and IS staff was critical to the development of an IS/T strategy which was aligned with business strategy. The bank which had the best information-based positioning had a policy of appointing a business manager (rather than an IS/T manager) to head the IS/T group at the corporate level.

The research base of business and information strategy alignment remains small, although the quantity and quality of that research has improved greatly in the last four years. This study of large firms in the Australian banking industry has tackled one segment of what is needed in the generation of grounded frameworks. The study developed a new approach to the operationalization of the concept of alignment through measures which focused on the extent and nature of information-based comparative advantage.

Each of the fifteen indicators provide further areas for research. Replication of the study in other industry areas, or in the financial services sector in other countries, would provide a substantive comparative base against which to evaluate this study's findings.

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