EXPLORING THE IMPACT OF ALIGNING BUSINESS
AND IS STRATEGY TYPES
ON PERFORMANCE IN SMALL FIRMS

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ABSTRACT

This paper assesses the impact of Miles and Snow's business strategy and Sabherwal and Chan's IS strategy types on business performance in small firms using the Profile Deviation Approach. Survey data collected from 93 small firms across various industry sectors throughout Australia revealed an interesting mix of business strategy and IS strategy types similar to those reported in large firms. Results showed that while business-IT alignment was positively related to performance in all 93 small firms, the difference was not significant. Measuring alignment and performance within business strategy types revealed alignment was positively and significantly related to business performance for Prospectors and Analyzers, but not Defenders. Findings suggest that Defenders can benefit from deploying ICT in a variety of ways to enhance performance, while Prospectors should focus their use of ICT on quick strategic decisions, and Analyzers should concentrate on using ICT to facilitate comprehensive decisions and quick responses.

Keywords: business strategy, IT strategy, Miles and Snow, matching, small firms, performance

INTRODUCTION

Aligning business strategy with the firm's IT strategy has consistently been one of the most important business concerns over the past two decades (Luftman, 2000; Luftman, 2005; Luftman, Zadeh, Derksen, Santana, Rigoni, and Huang, 2013; Drnevich and Croson, 2013). These studies of alignment between business strategy and IT strategy and its impact on business performance historically have been researched primarily within large firms (Sabherwal and Chan, 2001, Bendoly and Jacobs, 2004; Velcu, 2010; Sabegh and Motlagh, 2012). However, there is evidence that small firms

fighting to gain an edge over their competitors also recognize strategic alignment as a similarly important area of concern (Pollard and Hayne, 1998; Gibbons and O'Connor, 2005). And, in their a study of 160 small firms in Midwest USA, Celuch, Murphy and Callaway (2007) found evidence that "a small firm's ability to develop aligned information technology capabilities will affect its ability to use strategic flexibility to proactively anticipate and react to needed changes, thereby improving firm performance".

Those who have studied this phenomenon in small firms have focused on different aspects of business-IT alignment. For example, Cragg, King, and Hussin (2002) reported on the positive impact of business-IT alignment on performance in small manufacturing firms in the UK. Gibbons and O'Connor (2005) examined organizational and individual factors influencing the type of strategy formation processes adopted in 359 small firms in Ireland. Wong, Ngan, Chan, and Chong (2012) focused on the influence of employee alignment on business-IT alignment in small manufacturing companies in Indonesia, and Pandya (2013) reported on attitudes to IT strategy in small firms in Singapore. Reflecting the importance to researchers, managers, and policy makers of information systems' contribution to organizational performance, there is still considerable research debate on the topic. For example, in research on large firms Drvenich and Croson (2013) discuss the strategic roles of IT at the business level, and in small firms, Pandya (2013) maintains that typically small firms have misconceptions and misgivings about the impact of IT strategy. Exploring these phenomena in small firms in Australia is considered important because the performance of small firms makes a

significant contribution to its economic and social prosperity. For example, in the most current report from the Australian Bureau of Statistics it reports that small firms represent 88% of Australia's total economy (ABS, 2012). The primary aim of this research is to better understand the vexing issue of Business - IT alignment in small firms and its relationship to perceived business performance. Further, this study is motivated by the cautionary advice of previous researchers who stress the importance of small firms being informed by results generated from research conducted in small firms rather than relying on research that reports on information technology in large organizations (Ein-Dor and Segev, 1978; Malone, 1985; Kyobe, 2004).

While there have been studies that either theoretically evaluate or empirically report the positive relationship between IS strategic alignment and firm performance (Sabherwal and Chan, 2001; Hirschheim and Sabherwal, 2001; Bergeron, Raymond, and Rivard, 2004; Adner and Kapoor, 2010), the link between most actions within the organization (especially IS strategic alignment) and firm performance remains an area of constant debate (Olugbode, Richards, and Biss, 2007; Drnevich and Croson, 2013). To explore this concept in large U.S. firms within four industry sectors, Sabherwal and Chan (2001) used the Profile Deviation Approach to develop and validate an instrument that explored the relationship between alignment and perceived business performance using the Miles and Snow (1984) business strategy typology and theoretically-developed profiles of IT strategy types to explore this phenomenon in large firms from a socio-technical perspective. The research is guided by the approach developed by Sabherwal and Chan (2001). In this way,

we respond to their call to assess the wider applicability of their instrument to small firms across a variety of industry sectors outside the USA and further assess its validity and reliability.

An overview of research on IT in small firms is provided in the next section where the concepts of business strategy and IT strategy types are explained. This is followed by a full description of data collection and data analysis procedures. Then the results are presented with respect to their relevance to the research issues and hypotheses. Finally, the implications of the results are discussed in light of those reported in previous studies and suggestions are offered for practitioners and researchers.

BACKGROUND LITERATURE AND HYPOTHESES

ICT Adoption and Use in Small Firms
Historically, it is well accepted that the IT challenges faced by small firms are different from those of large firms. For example, nearly 30 years ago, Ein-Dor and Segev (1978) established that firm size was directly positively associated with information systems success, and suggested that research findings regarding the IS environment in large firms cannot be generalized to small firms. It was also reported that managers in small firms have reservations regarding information systems usage in that they lack resources for IS implementation, have a lack of formalized systems, and are plagued by the short management time frame characteristic of the small business environment (Malone, 1985). It would, therefore, seem that the environment in which small firms exist calls for a different approach to the deployment and management of IT and that typically small firms have lagged large firms in their use of IT (Pollard and Hayne, 1998).

Historically, small firms have had fewer "slack" resources to spend on IT (Celuch, Murphy, and Callaway, 2007).

Others have reported on the increasing awareness and management of IS in small firms (Bergeron, Raymond, and Rivard, 2001; Hussin, King, and Cragg, 2002; Kaushik 2013) and of small firms strategically leveraging their use of the Internet for communication and e-commerce (Mkansi, Qi, and Green, 2010). For example, the Internet has been touted as a means to reduce global advertising costs whilst increasing advertising efficiency and eroding the competitive advantage of scale economies. It also decreases information dissemination and communication costs by abolishing geographical and temporal barriers thus facilitating small firms to reach a critical mass of customers (Mkansi et al., 2010). This means that the Internet provides a mechanism for small firms to compete for markets and customers more equally, enhance their operational efficiency and effectiveness, and improve their level of business communication. In addition, the advent of on-demand software delivery in the form of utility computing, ASPs, and software-as-a-service has greatly reduced the cost and facilitated access to newer technologies that may benefit small firms.

Business Strategy
Contrary to evidence collected in large firms, early research in small firms indicates that their business strategy may not always be formalized or planned, but evolves as a result of constant business decision-making (Mintzberg, 1988).

It has been suggested that the Miles and Snow (1984) typology of Defenders, Analyzers, and Prospectors provides a useful means to measure business strategy types and that it is especially relevant in

analyzing the strategic behavior of small firms (Rugman and Verbeke, 1987; Olson and Currie, 1992). The Miles and Snow typology looks upon a firm as a complete and integrated system in active interaction with its environment. As such, it would appear to be especially relevant to the study of small firms focused, as it is, on the firms' conduct at the total-system level, rather than at the level of sub-units. In brief, Miles and Snow (1984) suggest that competing firms and industries display behavioral patterns that can be divided into three basic competitive strategy types: Defenders, Prospectors, and Analyzers. Each of the three strategy types is described next.

Defenders try to find and maintain a safe niche in a relatively stable product or service area. These firms tend to offer a more selective range of products or services compared to their competitors, and they try to defend their domain by offering better quality, superior service, and lower prices. More often than not, firms that use this type of strategy have a conservative view regarding developments in the industry – they tend to disregard industry innovations that do not directly influence current areas of operations and concentrate instead on excelling in their limited area.

Prospectors typically operate within a broad product-market domain that periodically redefines itself. This type of organization values being "first-in" with regard to new products and markets, despite the fact that some of these efforts do not result in high profits. The organization responds quickly to early signs regarding areas of productivity, and these responses often lead to further rounds of competitive actions. However, an organization with this type of strategy may not maintain a strong market in every area that it enters.

Analyzers try to maintain a stable, limited line of products or services, as do defenders, but also mobilize quickly to pursue a carefully chosen set of more promising innovations in the industry. This type of organization is seldom a major competitor in areas compatible with its established product-market base. The organization will often be "second in" and, in this way, avoid the mistakes made by the pioneers to develop a more cost-efficient product or service.

Table 2 shows the mapping of business strategy attributes to business strategy type to business strategy profiles developed by Sabherwal and Chan (2001).

In keeping with Sabherwal and Chan's (2001) use of the Profile-Deviation approach, in the present study each attribute was measured on a three-point scale of high, medium, and low. The ideal Defender, Analyzer, and Prospector business strategies were developed based on scores on Venkatraman's (1989) six strategic orientations of the business enterprise (STROBE): *defensiveness, risk aversion, aggressiveness, proactiveness, analysis,* and *futurity*. These dimensions of strategic orientation represent a broad and holistic perspective of strategy that is consistent with Miles and Snow's assessment of Defenders, Prospectors, and Analyzers. Venkatraman's (1989) operationalization of business strategy is widely used (Chan, et al. 1997; Croteau, and Bergeron 1999; Gilbert, 1995; Khan, Qureshi, and Zaher 2012) and an integral part of the conceptual model developed by Sabherwal and Chan (2001).

Table 1: Mapping Business Type to STROBE and IS Strategy

STROBE (Venkatraman 1989)	No. of Items	Business Strategy Type* (Miles and Snow 1984)		
		Defender	Prospector	Analyze
Defensiveness	4	High	Low	Medium
Risk Aversion	3	High	Low	High
Aggressiveness	2	Medium	High	Medium
Proactiveness	3	Low	High	Medium
Analysis	3	Medium	Medium	High
Futurity	3	High	Medium	Medium
IS Strategy Attributes (Sabherwal and Chan 2001)				
Operational support systems	6	High	Low	Medium
Market information systems	4	Low	High	High
Interorganizational systems	4	High	Medium	High
Strategic Decision Support systems	4	High	High	High
Ideal IS Strategy Profile		IS for Efficiency	IS for Flexibility	IS for Comprehensiveness

* Ideal measure of six STROBE attributes for each Business Strategy Type

IS Strategy

The literature emphasizes that an IS strategy should be an integral part of business planning, otherwise strategic systems would be developed in a piecemeal manner, neither contributing to strategic vision nor enhancing organizational flexibility to respond to market changes (Galliers, 1991; Avison et al., 1998). In their extensive review of IS strategy literature, Chen, Mocker, Preston, and Teubner (201, p. 233) operationalize IS Strategy as the "degree to which the organization has a shared perspective to seek innovation through IS." Camillus and Lederer (1985) suggest that different IS strategies are associated with different business strategies and others have reported that Defenders, Prospectors and Analyzers differ in their level of IT investment Karimi, et al. (1996), type of business support provided (Sabherwal and Chan, 2001) and information management sophistication (Gupta, et al., 1997).

Business-IT Alignment

Business-IT alignment is the application of Information Technology (IT) in an appropriate and timely way, in harmony with business strategies, goals, and needs (Luftman, et al., 2013). Reich and Benbasat (1996) define business-IT alignment as the "degree to which the information technologies mission, objectives, and plans support and are supported by the business mission, objectives, and plans". Alignment allows a firm to make the most of its IT investments, and therefore increase profitability by attaining accord between its business strategies and plans. Even though firms instinctively expect benefits from IT alignment, many of them create a resistance to achieving alignment (Chan and Huff, 1993). Not surprisingly, the role of IT in achieving organizational strategic objectives is still one of the key issues that challenges IT executives (Luftman, et al., 2013), andits importance is not limited to large firms. In a study of critical IS issues in small firms in Canada, Pollard, and Hayne

(1998) reported that "aligning the IS organization within the enterprise" emerged in the top five most important issues in their list of 23 critical IS issues, whereas it had not warranted a mention in a previous Canadian study (Rivard, Boisvert, and Talbot, 1988) or in an earlier study by Ein-Dor and Segev (1978), who reported that the critical issues of small firms in the US appeared to be narrower in focus and more operational in nature than those mentioned by large firms. It would appear that time may not have changed the unique needs of small firms with respect to their IT needs, but the easier and less costly access to IT capabilities may have changed the ways in which small firms view IT investment vis-à-vis organizational performance. This is particularly important because some studies have concluded that IS strategic alignment impacts performance both at IS and business levels (Chan and Huff, 1993; Sabherwal and Chan, 2001; Hussin, et al., 2002). These findings suggest a growing need for alignment between business and IT strategies in small firms and that the premise that small firms have less need for alignment and coordination in their deployment and management of IT needs to explored further.

To test the relationship between business strategy types, IS strategy types, IT alignment, and perceived business performance in large firms, Sabherwal and Chan (2001) developed and tested a conceptual model of Business-IT alignment and developed four hypotheses that tested for a positive relationship between the various constructs. Their results showed that alignment affects perceived business performance, but only in some organizations. More specifically, their results indicated that alignment seems to positively influence overall business success in Prospectors and Analyzers, but

not in Defenders. Given that some small firms have reported mixed impacts from IT alignment their hypotheses were revised in the present study to explore both positive and negative associations between strategy types, alignment, and performance by stating the following hypotheses.

H_1: Alignment between business strategy and IS strategy is related to business performance.

H_2: For Defenders, alignment between their IS strategy and "IS for efficiency" strategy is related to business performance.

H_3: For Prospectors, alignment between their IS strategy and "IS for flexibility" is related to business performance.

H_4: For Analyzers, alignment between their IS strategy and "IS for comprehensiveness" is related to business performance.

CONCEPTUAL MODEL

Sabherwal and Chan's (2001) conceptual model of IT and business alignment in large firms is shown in Figure 1. This model was used to measure the impact of alignment on business performance using Miles and Snow's (1984) business strategy typology (Defender, Prospectors and Analyzers) and Venkatraman's (1989) STROBE (defensiveness, risk aversion, aggressiveness, proactiveness, analysis, and futurity). Based on these dimensions, Sabherwal and Chan (2001) theoretically developed four IS strategy attributes and three ideal IS strategy types that correspond to the Miles and Snow business strategy types. The specifics of these constructs are discussed further in the following sections.'

Figure 1: Conceptual Model (adapted from Sabherwal and Chan, 2001)
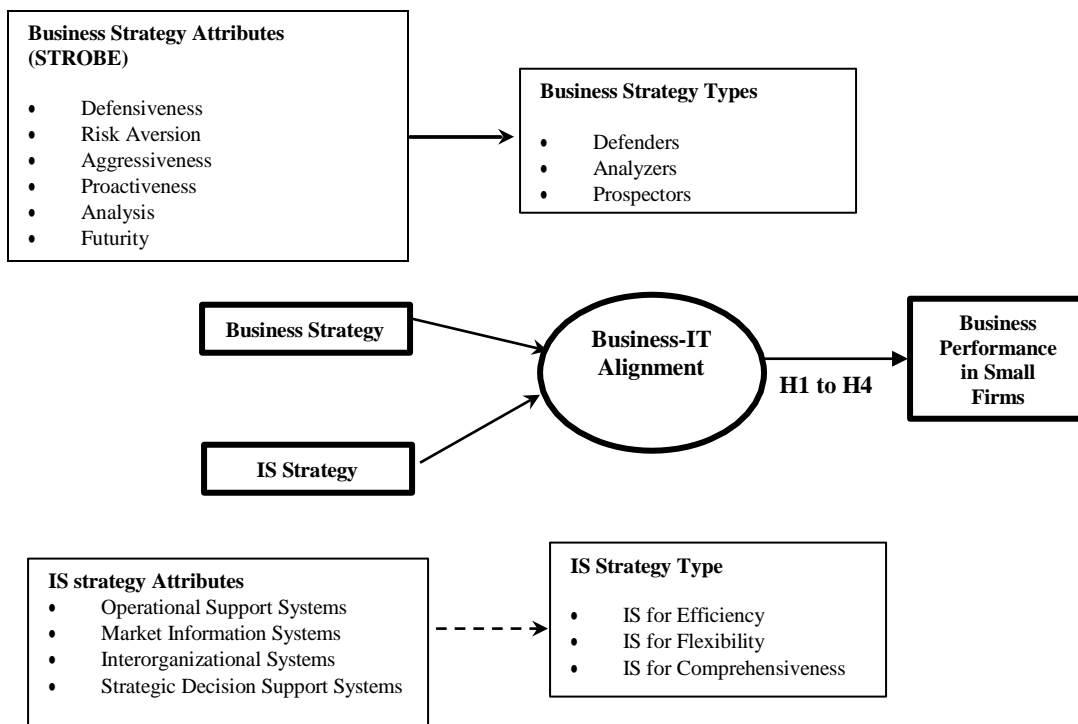
The premise of Sabherwal and Chan's framework is that greater alignment between an organization's business strategy type and the corresponding IS strategy type (shown in Table 1) should lead to the development of systems that are targeted on areas critical to the firm's success and result in improved business performance (Sabherwal and Chan, 2001). The model implies that Defenders should utilize the 'IS for efficiency' strategy because this kind of strategy is oriented toward internal and inter-organizational efficiencies and long-term decision making. In the case of Prospector firms, IS should have a 'flexible' strategy because this business strategy type is focused on market flexibility and quick strategic decisions. Finally, Analyzers need the 'IS for comprehensiveness' strategy to facilitate comprehensive decisions and quick responses through knowledge of other

firms central to the nature of this business strategy type.

RESEARCH METHOD

Data Collection
Quantitative data were collected using the survey developed and tested by Sabherwal and Chan (2001) with the replacement of performance measures more suitable for small firms (Khandwalla, 1977). Although Sabherwal and Chan (2001) administered "matched" surveys to both the CEO and the CIO in each of the large companies in their sample, this approach was not considered appropriate for the current study since the literature suggests that the majority of small firms do not have the resources to employ IT employees and the owner/manager oversees both the business and IS/IT strategy. Instead, a decision was made to

administer only one survey per company. It was recognized that this approach might raise a question of common methods bias (Bagozzi and Yi, 1991; Nunnally, 1978) since a single source of data was used within each company. However, it has been reported that owner-managers are the best-placed persons to provide valid and accurate data on the business strategy, IS strategy and business performance in small firms (Hussin, et al., 2002; Bergeron, et al., 2004). In addition, this approach is consistent with that successfully used by Hussin, et al. (2002) in their study of IT alignment in 256 small UK manufacturing firms and Bergeron, Raymond, and Rivard (2004) in their study of ideal strategic alignment patterns in 110 small firms in North America. To ensure the appropriateness of the research instrument and its modified method of administration, the survey was pre-tested for content and construct validity by the owner/managers of three small firms. No changes were suggested.

The survey was mailed to the owner/manager of a stratified sample of 400 firms who had 100 employees or less with a request that they personally complete the survey. The firms were randomly selected from Australia Online, a database of Australian firms that is widely used for research in Australia. The selection of small firms was purposely not limited to any specific industry or set of industries.

Fifty-seven (57) surveys were returned as a result of the first mailing, for an initial return rate of 14.25%. Two weeks after the initial mailing, follow-up letters were mailed to all respondents in an attempt to increase the response rate. As a result of the second mailing, 36 additional surveys were returned, for a total of 93 useable surveys for an overall response rate of 23.25%. This

compares favorably with other survey-based IS research responses reported in the literature that cite a response rate of around 20% as a valid study according to Bourque and Fielder (1995) and compares favorably with the response rates of 19% and 7% for two surveys administered to large firms by Sabherwal and Chan (2001) in their initial test of the instrument.

A t-test for non-response bias on the main variables of interest revealed no significant differences (p=.63) between early and late respondents. This allowed the data to be pooled for analysis. The data exhibited a normal distribution on all variables which enabled the use of parametric statistical analysis.

Measurement of Constructs

Organizational performance is the dependent variable in the study. To measure the dependent variable, items developed by Khandwalla (1977) and validated by Miller (1987), Raymond, Pare, and Bergeron (1955) and Hussin, King, and Cragg (2002) were used. Performance was measured using a 5-point Likert Scale (1=very weak to 5=very strong) to assess Khandwalla's four objectives measures: long-term profitability, extent of sales growth, financial resources (liquidity and investment capacity), and public image/client loyalty.

The independent variables were business strategy and IS strategy. Business strategy was assessed by the six business strategy attributes, defensiveness, risk aversion, aggressiveness, proactiveness, analysis, and futurity, proposed by Venkatraman, (1989). Each business strategy attribute was measured by multiple items as shown in Table 1.

The three theoretically derived IS strategy profiles (efficiency, flexibility and comprehensiveness) were assessed by four IS strategy attributes: operational support systems, market information systems, strategic decision support systems, and inter-organizational systems (Sabherwal and Chan 2001). Operational support systems symbolize the use of IT for monitoring and controlling the day-to-day operations. These systems are generally expected to assist in operational efficiency. Market information systems are positively associated with management. Strategic decision support systems are generally the systems that aid the organization in making strategic decisions. Inter-organizational systems would, for example, provide Analyzers with sales-related information to facilitate the frequently complex coordination between their marketing and production function. Multiple items were used to measure each IS strategy attribute as shown in Table 1. All business strategy attributes and IS strategy attributes were measured using a 5-point Likert scale ranging from 1=strongly disagree to 5=strongly agree.

Table 1 also shows the mapping of 'ideal' business strategy (Venkatraman, 1989) and 'ideal' IS strategy (Sabherwal and Chan, 2001) to each of Miles and Snow's (1984) business strategy types, using a parsimonious 3-point scale (high, medium, and low). For example, ideally Defenders will score 'high' on operational support systems since their administrative system is suited for generating and maintaining efficiency (Sabherwal and Chan, 2001).

Table 2: Construct Reliability (n=93)

Independent Variables	Dimensions	Items	Mean	S.D.	Alpha
Business	18				
Strategy	Defensiveness	4	4.26	.54	.69
	Analysis	3	3.56	.78	.74
	Risk Aversion	3	3.30	.80	.74
	Pro-activeness	3	3.49	.74	.80
	Futurity	2	3.66	.84	.80
	Aggressiveness	3	2.57	.82	.62
IS Strategy	17				
	Operational Support Systems	6	3.93	.73	.91
	Inter-organizational Systems	4	3.48	.83	.82
	Market Information Systems	4	3.26	.80	.78
	Strategic Decision Support Systems	3	3.45	.74	.77
Dependent Variable	Dimensions	Items	Mean	S.D.	Alpha
Organization performance	4		3.81	.56	.70
	Long-term profitability	1	3.81	.74	
	Extent of Sales Growth	1	3.78	.76	
	Financial Resources (liquidity and investment capacity)	1	3.54	.83	
	Public Image/Client Loyalty	1	4.13	.73	

The alignment or 'fit' between ideal profiles for business strategy (Venkatraman, 1989) and IS strategy (Sabherwal and Chan, 2001) was measured using the profile deviation approach. To systematically test the existence and effect of 'fit' between a theoretically or empirically derived 'ideal profile', Venkatraman and Prescott (1990) advocate the profile deviation approach, a pattern-analytic technique proposed by Drazin and Van de Ven (1985) rather than using the reductionist approach that relies on simple interactions between the two. The profile deviation approach provides an explicit multivariate measure of alignment to examine relationships with a variety of criteria whereas the more common analytic approaches like cluster analysis (Mambrick, 1984) and q-factor analysis (Miller and Friesen, 1984) provide only implicit concepts of 'fit'.

To determine the extent to which each responding company deviated from the ideal business and IS strategy, 'high' and 'low' values for the ideal business and IS strategy were operationalized as +1 and –1, respectively, and a normalized score of 0 was given to the 'medium' value (Govindarajan, 1988; Sabherwal and Chan, 2001).

The Euclidean distance between the actual strategy score and the 'ideal' strategy was calculated using the following formula.

$$\text{Distance (Strategy type)} = \sqrt{\sum \{(Xj - Ij, ST)^2\}}$$

Xj represents the standardized score of the jth business strategy, and Ij represents the ideal scores described previously, across all strategy attributes. This process produced three distance measures for each firm, indicating the distance from its ideal profile.

Finally the lowest distance score was used to classify each company into one of the strategy types and values of 1 (Defenders), 2 (Prospectors), and 3 (Analyzers) were assigned for business strategy, and 1 (Efficiency), 2 (Flexibility), and 3 (Comprehensiveness) were assigned for IS strategy.

Alignment was calculated by subtracting the value for business strategy type from the value for IS strategy type. Firms who exhibited a zero difference between the two strategies were assigned to the "aligned" group all others were assigned to the "non-aligned" group.

Reliability and Validity of Constructs

A summary of the reliability statistics for the constructs measured is presented in Table 2. All of the constructs displayed a Cronbach's Alpha greater than 0.60 as recommended by Nunnally (1978) indicating that the scales were reliable and internally consistent. Furthermore, the standard deviations ranging from .54 to .84 indicate a high degree of agreement among the participants on each of the constructs and dimension.

To test the discriminatory properties of the constructs and their dimensions, a correlation matrix was constructed and the average variance explained was computed.

Discriminant validity is the extent to which items differentiate among the measurement scales. The results in Table 3 demonstrate that all items within each of the eight independent variable scales were more highly correlated within the dimension they were measuring than with items in other scales. In addition, the average variance explained for all scales exceeded the .50 level recommended by Fornell and Larcker (1981). This demonstrates that the scale were measuring different constructs.

Table 3: Inter-correlations of Independent Variables

Construct	Dimenson	OSS	IOS	MIS	SDSS	Def	Anal	Risk	Pro	Fut	Agg
IS	**OSS**	**0.91**									
Strategy	**IOS**	0.59	**0.82**								
Type	**MIS**	0.43	0.66	**0.78**							
	SDSS	0.74	0.58	0.50	**0.77**						
STROBE	**Def**ensiveness	0.47	0.32	0.27	0.28	**0.69**					
	Analysis	0.38	0.24	0.30	0.48	0.22	**0.74**				
	Risk Aversion	0.04	0.02	0.07	-0.03	0.02	0.19	**0.74**			
	Proactiveness	0.61	0.47	0.32	0.57	0.32	0.37	0.07	**0.80**		
	Futurity	0.42	0.44	0.32	0.47	0.36	0.37	0.21	0.55	**0.80**	
	Aggressiveness	0.11	0.31	0.21	-0.02	-0.09	0.01	0.11	0.14	0.07	**0.62**

RESULTS

Sample

Table 4 shows the company profile of each of the responding companies, including the title of the informant from each company. The 93 participating firms represent all states and territories of Australia, and their representation is consistent with the percentage of small firms in each state and territory. Firms had been in business for 1 to 115 years, with an average existence of 19 years (SD 18.34) and represented a wide variety of industries. The data on geographic location, industry, and longevity were not collected for the purposes of segmenting the data for statistical analysis, but rather to demonstrate the proportionate representation of all states and territories across Australia and the wide range of industry types and years in business represented. All firms fit the Australia Bureau of Statistics' definition of a small to medium-sized enterprise (ABS 2013).

The 93 responding firms had been using computers for a maximum of 31 years and a minimum of 1 year. On average, firms had been using computers for approximately 13 years (SD 7.47). To measure the extent of "IT sophistication", firms were classified into three levels of principle IT use: operational, management control, and strategic planning. Sixty-five (70%) of the responding firms used IS/IT primarily to support decision making at the operational level, while 24 (26%) firms used IS/IT to support the management control level, and only four (4%) firms reported the importance of IS/IT to support its' strategic planning process. When asked about the extent of strategic planning documentation, 54 (58%) firms indicated they have a written business plan (i.e., a document that contains an analysis of the organization's current position, where it would like to be in the future and how it plans to get there), and 23 (25%) indicated that they have a formalized IS Strategy (i.e., a medium or long-term IS directional plan).

Table 4: Characteristics of Companies Studied (N=93)

Title of "Informant"	N	Geographic Location	N
CEO (Owner/Manager)	65	Australian Capital Territory	1
Business Manager	19	New South Wales	25
IT Manager	6	Northern Territories	1
Financial Controller	2	Queensland	17
Company Accountant	1	South Australia	8
		Tasmania	4
Industry Sector	N	Victoria	22
Accommodation and Restaurants	7	Western Australia	15
Communication Services	3		
Construction	4	Total Number of Employees	N
Corporate Re-Seller	1	1-20 employees	67
Education	4	21-50 employees	21
Finance, Insurance	6	51-100 employees	5
Health and Community Services	3		
IT Consultancy	2	Full-Time IT Employees	N
Manufacturing	9	0	71
Personal Services	6	1-5	21
Promotional Services	1	5 or more	1
Property and Business Services	25		
Retail Trade	14	Annual Revenues	N
Transport	1	< $500K	30
Wholesale Trade	7	$500K-$1M	13
		$1M – $5M	41
		>$5M	9

Data Analysis

The survey data were analyzed using the three procedures prescribed by Sabherwal and Chan (2001): (1) the business and IS strategy type of each business was computed, (2) the alignment between business strategy and IS strategy was calculated, and (3) each hypothesis was tested.

Business and IS Strategy Types

Calculating respondents' business strategy type resulted in the classification of 20 firms as Defenders, 30 as Prospectors, and 43 as Analyzers. Calculating the IS strategy type revealed 25 firms who used for 'IS for Efficiency', 39 for 'IS for Flexibility', and 29 for 'IS for Comprehensiveness', indicating that the greatest number of small firms used IT to enhance their market flexibility and quick strategic decision making.

Alignment

Measuring the alignment between business strategy and IS strategy, 36 "aligned" firms and 57 "non-aligned" firms were identified. Further analysis revealed that the aligned group consisted of six Defenders, 14 Prospectors, and 16 Analyzers, compared to the non-aligned group which had 14 Defenders, 16 Prospectors, and 27 Analyzers.

Performance

The mean scores of the total performance of the three groups were: Defenders (3.93, SD .46), Prospectors (3.73, SD .52), and Analyzers (3.82, SD .63), indicating that Defenders across a variety of industries performed somewhat better than Analyzers,

followed by Prospectors. A one-way ANOVA comparing total performance across the three different business strategy types revealed no significant differences (F = .71, p = .49). A similar statistical analysis of the mean scores and standard deviations for each of the four individual performance outcome items revealed no significant differences in performance outcomes across business strategy types, except for "financial resources" which were significantly different (p<.10) as shown in Table 5. Analyzers reported highest financial resources (liquidity and investment capacity), followed by Defenders and Prospectors.

Table 5: Performance Outcomes by Business Strategy Type

Performance Outcome	Defender (N=20)		Prospector (N=30)		Analyzer (N=43)		F	Sig.
	Mean	SD	Mean	SD	Mean	SD		
Total Performance	3.93	.46	3.73	.52	3.82	.62	.71	.49
Long-Term Profitability	3.90	.64	3.80	.71	3.77	.81	.22	.81
Sales Growth	3.85	.58	3.90	.71	3.67	.87	.86	.43
Financial Resources	3.60	.75	3.27	.83	3.70	.83	2.55	.09*
Public Image/Client Loyalty	4.35	.67	3.97	.77	4.14	.71	1.71	.19

*p< .10

Hypothesis Testing

When the four hypotheses were tested to assess the relationship between alignment and performance, two were supported and two were not supported (Table 6). All hypotheses were tested using a two-tailed independent samples t-test in SPSS. To understand the amount of variance in performance as explained by alignment, Eta Squared (η2) was also calculated. The findings relative to each hypothesis are discussed next.

Table 6: Summary of Hypothesis Testing

	Hypotheses	Sig.	Support	Direction
H_1	Alignment between business strategy and IS strategy in small firms is associated with business performance	.52	No	Positive
H_2	For Defenders, alignment between actual IS strategy and ideal "IS for efficiency" strategy in small firms is associated with business performance	.13	No	Positive
H_3	For Prospectors, alignment between actual IS strategy and ideal "IS for flexibility" in small firms is associated with business performance	.02*	Yes	Negative
H_4	For Analyzers, alignment between actual IS strategy and ideal "IS for comprehensiveness" in small firms is associated with business performance	.05*	Yes	Positive

*$p \leq .05$

H_1: Alignment between business strategy and IS strategy in small firms is related to business performance.

Perceived business performance of the 36 aligned firms (mean=3.86, SD 0.60) was marginally higher than that reported by the 57 firms in the non-aligned group (mean=3.79, SD 0.53). The results of the t-test demonstrated the difference is positive but not statistically significant (t=.64, p = 0.52). H_1 is **not** supported.

Variance explained by alignment across all business strategies was negligible ($\eta2$=.004), in that less than one percent (.4%) of the variance in performance was explained by aligning business and IT strategies in small firms.

H_2 through H_4, focused on performance differences between aligned vs. non-aligned groups within each of the three business strategy types: Defenders, Prospectors, and Analyzers.

H_2: For Defenders, alignment between actual IS strategy and ideal "IS for efficiency" strategy in small firms is related to business performance.

In considering H_2, although defenders in the aligned group reported higher performance outcomes (mean=4.17, SD 0.26) than the non-aligned groups (mean=3.82, S.D. 0.49), the t-test results indicated that the difference between groups was not statistically significant (t = 1.60, p = 0.13). H_2 is **not** supported.

Variance explained by alignment in performance of Defenders was 12.5% ($\eta2$=.125).

H_3: For Prospectors, alignment between actual IS strategy and

ideal "IS for flexibility" in small firms is related to business performance.

When "H$_3$" was tested the results of the t-test show that the difference between the aligned groups (mean=3.50 SD 0.44) and non-aligned groups (mean=3.94, SD 0.50) was significant (t = -2.51, p = 0.02), and perceived business performance was lower for aligned groups than non-aligned groups. H3 is supported at the level of p <.05.

Approximately eighteen percent (18.4%) of the total variability ($\eta2$=.184) in perceived business performance of Prospectors was attributable to IT alignment.

H$_4$: For Analyzers, alignment between actual IS strategy and ideal "IS for comprehensiveness" in small firms is related to business performance.

In assessing Analyzers (n=43) to test H4, the aligned group reported higher perceived business performance (mean=4.06, SD 0.67) than the non-aligned group (mean=3.67, SD 0.56). In this case, the mean difference was 0.39 (t=2.04, p 0.048). H4 is supported at the level of p <.05.

However, again the variance suggested weak influence, in that only slightly more than nine percent (9.2%) of the variance ($\eta2$=.092) in Analyzers' business performance was explained by alignment of IS and business strategies.

DISCUSSION AND IMPLICATIONS

Measures of performance showed that the 93 small firms across a variety of industry sectors were performing well overall and on a number of financial and one non-financial outcome measures. Not surprisingly, the highest performance score was on the non-financial outcome - 'public image/client loyalty'. This is consistent with conventional wisdom that small firms typically interact with their customers in a more personal way and are more focused on creating relationships with their customers than achieving high financial returns on their investment. The 93 small Australian firms reported a mix of business strategies that occurred in a similar distribution to those found in large U.S. firms in a limited number of industry sectors: banking, insurance, pharmaceutical, and manufacturing. Consistent with previous studies of large firms, (Zajac and Shortell, 1989; Sabherwal and Chan, 2001) the majority of the responding small firms were Analyzers followed by Prospectors and Defenders. When assessed across the three business strategy types, performance was not significantly different across Defenders, Prospectors, and Analyzers. This provides further support for the applicability of Sabherwal and Chan's conceptual model in the context of small firms across multiple industry sectors. IS strategies were similar divers with 25 firms using IS for "Efficiency", 39 for "Flexibility", and 29 for "Comprehensiveness". However, given the different numbers of firms across business strategy and IS strategy types, it was clear that many were using conflicting strategies.

In considering how many small firms had achieved alignment between their business and IS strategies, only 39% of the 93 met this condition. Thus, a large percentage of small firms were using an IS strategy that differed from the "ideal" IS strategy type for their business strategy type. For example, it appeared that some Analyzers are using IS for flexibility rather than the "ideal" IS strategy, i.e., IS for comprehensiveness, that allows

comprehensive decisions and quick responses through knowledge of other firms that should be the preferred approach for Analyzers. Again, this is consistent with findings reported by Sabherwal and Chan (2001) in their study of large firms in the U.S. possibly suggesting that some differences between large and small firms with respect to IS strategy are not all that different. One explanation for this may be that as small firms become increasingly sophisticated in their business acumen, and as technology becomes more easily accessible and affordable to small firms, advanced technologies are being adopted by more and more small firms.

Interestingly, it appears that alignment between business strategy and 'ideal' IS strategy does not significantly improve business performance in small firms as a whole and for Defenders alignment negatively impacted performance. Again, these finding supports those reported by Sabherwal and Chan (2001), who found that an emphasis on IT alignment does not improve strategy execution, and business performance in large firms classified as Defenders. Based on the literature review that describes Defenders as 'firms that tend to disregard industry innovations that do not directly influence current areas of operations, and concentrate instead on excelling in their limited area', it is concluded that alignment may be inappropriate because it will not provide acceptable returns. On the other hand, the current data suggest that IS alignment improves business performance for firms that are classified as Prospectors or Analyzers. As the mapped structure of Sabherwal and Chan (2001) proposes for Prospectors, it is important to place increased emphasis on their use of market information systems and strategic decision support systems to achieve alignment.

Whereas for Analyzers it is important to have their market organizational systems, interorganizational systems, and strategic decision support systems well developed and directed to their business needs. Therefore, the owners of the firms classified as Prospector or Analyzer should be aware that the alignment between business and IS strategy could significantly improve business performance in a way that would make them more competitive.

Alignment between business and IS strategies may not be the most appropriate paradigm to manage IT in today's small firms. When you consider IT in the environment in which small firms operate, this view is appealing since, to gain market share, small firms often have to be flexible and spontaneous – qualities that may be hampered by a sequential approach to establishing a business strategy and then bringing their management of IT into alignment with the previously planned business strategy. Instead, it might be that small firms are better served with a more seamless integration of IT and business strategy that are created simultaneously and can be executed in unison rather than in tandem. Considering that most small firms have few, if any, IS/IT employees, the idea of separately conceived plans becomes even less likely and/or desirable. In addition, it has been suggested that most models of alignment assume that organizations are mechanistic and use structured, planning-oriented approaches to business objectives (Avison, Jones, Powell, and Wilson, 2004). It may be that the majority of small firms do not fit into this mold and instead approach their planning in a more informal manner, possibly blending or fusing there IS strategy and business strategy as they adjust to their changing environment in an attempt to differentiate themselves in the marketplace and/or achieve more non-financial rewards

depending on the motivation of the owner/manager, as evidenced by the finding that the performance outcome that was rated highest by small firms was public image/customer loyalty.

Concluding Remarks

This study has produced important evidence of the validity of Sabherwal and Chan's (2001) theoretically derived conceptual model and the existence of their ideal business and IS strategy profiles in (1) small firms, (2) a wide variety of industry sectors, and (3) companies headquartered outside North America. Overall, it supports the model through the various hypotheses that were tested; however, the strength of the associations in the present study are not as strong as those previously reported.

While this research contributed to the scant literature on strategy content rather than on the more commonly researched strategy process, it is suggested that future research is needed to further examine the strategic processes and paradigms to gain a better understanding about alignment in small firms. For example, studies of the processes and paradigms that guide decision making in small firms might provide useful insights into how the strategic process develops.

The relatively low strength of significance of the relationship between alignment and performance (positive and negative), and the very low variance explained by alignment, provides strong evidence that other factors influence alignment in small firms. Future research that investigates the functions of IS/IT and the ways in which it supports the differing strategy types and varying expected outcomes in small firms would appear to be warranted. This might be achieved through comprehensive case studies and/or action research to gain greater insight into alignment and business

performance in small firms and explore its facilitators and barriers.

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