COMPARING ALIGNMENT FACTORS IN SMEs AND LARGE ORGANIZATIONS: A PLANNING INTEGRATION PERSPECTIVE

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Abstract

Measurement of the alignment between business strategies and information systems (IS) has demonstrated positive impact for the organizational performance. The factors that have proved relevant when assessing the maturity level of alignment are: communication, competency/value measurement, governance, partnership, architecture & scope, and skills. Existing research, however, has focused on the assessment of these factors on large organizations and has barely explored their impact on Small and Medium Enterprises (SME). This paper uses the data provided by 127 participants from large and SMEs in order to identify whether the aforementioned factors are also relevant for assessing the level of alignment maturity in SMEs. The results from this research suggest that there are not significant differences between large organizations and SMEs when assessing those factors. In addition, this research also explored the relation between different planning integration of alignment (independent, sequential and simultaneous) in order to measure the perceived relevance of the factors. The results suggest that the planning integration identified on SMEs and large organizations has a positive correlation on how these factors are ranked. For both SMEs and large organizations where the formulation is simultaneous, the relevance of the factors is higher perceived than it is for those where the formulation is independent or sequential.

Keywords: strategic alignment, information systems planning, alignment assessment, IS strategy, SME

Introduction

Strategic alignment approaches have proved to be related to organizational performance (Tallon, 2003; Chan et al., 2006) and a variety of these have been proposed to assess alignment in the literature, though, most of them are based on the same rationale: the identification of the factors that influence strategic alignment and a way to measure these factors. For instance, one of the first approaches identified in the literature is the Henderson and Venkatraman's Strategic Alignment Model (SAM) (1993). SAM was intended to support the integration of IT and business strategy by advocating alignment between and within four domains: business strategy, IT strategy, organizational infrastructure and IT infrastructure. Henderson and Venkatraman identify three main ways to measure strategic alignment. These are: a) the driver of the strategy, b) the role of business and IT management, and the c) performance criteria. Similarly, other studies have identified relevant perspectives when assessing alignment and consistently along the evolution of alignment theory many of them take the SAM model as ground theory. For instance, Papp (1999), Luftman (2000) and Hussin et al. (2002) identify different factors to measure the alignment from different rationale as illustrated in Table 1.

Table 1. Relevant rationale approaches of alignment and related factors

Reference	Rationale of assessment	Factors measured
Venkatraman (1993)	Identify the organizations alignment perspective	▪ Driver of the strategy ▪ Role of IT management ▪ Role of business management ▪ Performance criteria
Papp (1999)	Identify organizations alignment perspective	▪ Driver of the strategy ▪ Role of IT management ▪ Role of business management ▪ Performance criteria
Reich & Benbasat (2000)	Social dimension of alignment	▪ Understanding of current business objectives ▪ Shared vision for the deployment of IT
Luftman (2000)	Identify organizations strategic alignment maturity	▪ Communication ▪ Measurement of the competency and value of IT ▪ Governance ▪ Partnership ▪ Scope & architecture ▪ Skills
Hussin et al. (2002)	Compare the alignment of business strategy and IT strategy in small firms	▪ IT maturity ▪ Technical IT sophistication ▪ CEO's software knowledge. CEO's personal involvement in IT planning ▪ CEO's IT usage

Even though multiple factors have been considered to measure alignment the following limitations were identified (Gutierrez et al., 2006):

a) Current assessments measure alignment at strategic level without integrating the tactical and operational.
b) Lack of instruments to measure alignment specifically for SMEs.
c) It is needed deeper understanding of the factors that impact strategic alignment.

Luftman (2000) brings out an applied perspective on his identified factors. He refined SAM by elaborating more on its critical management issues. The author argues that achieving alignment is an evolutionary process, which requires strong support from senior management, good working relationships, strong leadership, appropriate prioritization, trust, and effective communication, as well as a thorough understanding of the business and technical environments. Thus, he proposes a strategic alignment maturity assessment mechanism for evaluating these activities within an organization to understand its position in terms of alignment and how this can be improved. The factors included in his model are: communication, measurement of the competency and value of IT, partnership, scope & architecture, and skills as explained in table 2. The advantage of the categorization provided by Luftman (2000) is that every factor even complex can be practically measured at any organizational level, either strategic, tactical or operational. This has been applied and tested using the Luftman's maturity model to generate a new model which

measures alignment across different organizational levels in SMEs (Gutierrez et al., 2006). However, research on factors that impact strategic alignment deserves further research. It is important to understand how relevant the maturity alignment factors are for SMEs but also their differences against large organizations. Therefore, this investigation takes in consideration that each factor may suggest implications depending on the organizational size and the IS planning integration of the organization (degree of integration of IS and business). For organizational size it is a well known division between SMEs and large organizations but there are different considerations in how IS planning integration is identified in organizations. The IS planning integration has been reported as a practical guide to how organizations will change their planning process over time in an attempt to improve their effectiveness (Grover and Segars, 2004). In this research, the planning integration is defined in three stages of evolution. Firstly, the independent planning where the IS and business strategy formulation are separate and independent processes. Secondly, the sequential planning where the IS strategy follows and support the business strategy. Finally, the simultaneous IS and business strategy which is done concurrently.

Table 2. Factors and attributes affecting strategic alignment maturity (Adapted from Luftman, 2000)

Factors	Attributes
COMMUNICATIONS: exchange of ideas, knowledge and information among the IT and business managers, enabling both to have a clear understanding of the organization's strategies, business and IT environments.	• Understanding of Business by IT • Understanding of IT by Business • Inter/Intra-organizational learning • Protocol rigidity • Knowledge sharing • Liaison(s) effectiveness
COMPETENCY/VALUE MEASUREMENTS: It includes assessment of IT investment by the use of metrics to demonstrate the contribution of IT to the business.	• IT metrics • Business metrics • Balanced metrics • Service level agreements • Benchmarking • Formal assessments reviews • Continuous improvement
GOVERNANCE: The degree to which the authority for making IT decisions is defined and shared among management. It includes setting IT priorities and allocating IT resources.	• Business strategic planning • IT strategic planning • Reporting/organizations structure • Budgetary control • IT investment management • Steering committee(s) • Prioritization process
PARTNERSHIP: The relationship among the business and IT managers. It includes IT people involvement in defining business strategies, degree of trust between IT-business managers and how each perceives the contribution of the other.	• Business perception of IT value • Role of IT in strategic business planning • Shared goals, risk, rewards/penalties • IT program management • Relationship/trust style • Business sponsor/champion
SCOPE & ARCHITECTURE: It includes organization's infrastructure, change readiness, flexibility in structure and the management of emerging innovations.	• Traditional, enables/driver, external • Standards articulation • Architectural integration • Architectural transparency • Flexibility • Managing emerging technology
SKILLS: Human resource consideration for training, performance feedback, encouraging innovation and providing career opportunities. It also includes IT organizations readiness for change, capability for learning and ability to leverage new ideas.	• Innovation, entrepreneurship • Locus of power • Management style • Change readiness • Career crossover • Education, cross-training • Social, political, trusting environment

This research analyzes the strategic alignment maturity factors proposed by Luftman (2000) to identify the relevance of these factors regards the organizations size and planning integration. In doing so, it was collected information from 127 IT/Business practitioners from both Small and Medium Enterprises (SMEs) and large organizations. Respondents rated the factors relevance according to the perceived planning integration in their

organizations. Results suggest all factors are valid for both SME and large organizations. For those organizations where the IS and business strategy formulation is separate or independent, the relevance of each factor is clearly lower than it is for organizations where that formulation is developed simultaneously. Surprisingly, respondents belong to organizations with more than 5000 employees identify less planning integration in their organizations as they first do the business formulation followed by IS. Conversely, respondents in organizations with 251-5000 employees report they mainly develop their IS-business strategy formulation simultaneously.

To guide the reader on the description of this research, the rest of the paper is organized as follows: next section presents the research strategy and survey design. This is followed by the analysis and results. Finally the findings are summarized on the conclusions together with the suggested future research.

Research Strategy Description

A survey was found to be the most appropriate tool for data collection as standardized questions will be interpreted in the same way by all the respondents (Saunders et al., 2003). The online survey technique was chosen since it is easier to access a large number of audiences and also provides an efficient way of collecting responses from organizations situated in different geographical locations. Selection of appropriate audience was also an important aspect of this research. Executives, managers and top management positions were respondents targeted since CEO's perceptions and attitudes towards IT have been strongly associated with the extent use of IT (Tallon et al., 2000) and top executives' perceptions has been reported as key to understand how IT affects firm performance.

Survey Design

A pilot test was conducted in order to get the feedback about the audience's understanding of the questionnaire. Some of the university staff and a few business executives were invited to conduct the pilot tests and 22 responses were collected. In this stage the questionnaire was rephrased with the feedback obtained and simplified from 21 to 13 questions. The questions omitted were considered redundant due its content was related to other factors different from the Luftman's maturity model. The focus of this investigation is to understand the alignment maturity for SMEs and large organizations and therefore the questionnaire was focus on the factors included on the maturity model (Luftman, 2000): communication, competency/value measurement, governance, partnership, architecture & scope, and skills.

The final survey includes three main sections: First section, background information is to ask the organizational profile of the participants. This section consists of 5 questions regards size, business unit, location, sector and level of planning integration.

In the second section, factors prioritization, the six maturity factors and its attributes where included in a format that the responder could set the relevance of achieving them. There is one question for each of the six factors on Luftman's Strategic Alignment Maturity Model. For instance, table 3 shows communication's factor with its five attributes that are related to the original alignment maturity model on table 2. The respondents were asked to rate the elements affecting the alignment of each factor on a five-point likert scale where "1" was the least relevant and "5" was the most relevant in the related factor.

Table 3. Survey question example. Attributes of "communication"

Communication:
This refers to the exchange of ideas, knowledge and information among the IT and business managers, enabling both to have a clear understanding of the organization's strategies, business and IT environments.
Rate each of the following elements on a scale of 1 to 5 according to the relevance of achieving each one. (1=Least relevant, 5=Most relevant).

Attributes	1	2	3	4	5
Understanding of business strategies by the IT department	☐	☐	☐	☐	☐
Understanding of IT capabilities by the business department	☐	☐	☐	☐	☐
Knowledge sharing between organizational levels from strategic to operational and with business partners (e.g. other commercial entities such as suppliers, customers, etc)	☐	☐	☐	☐	☐
Conducting regular meetings between IT and business departments to discuss IT priorities, requirements and implementation	☐	☐	☐	☐	☐
Creating a communication environment that promotes freedom to express opinions about business and IT strategies in a flexible and informal way	☐	☐	☐	☐	☐

The final section includes an additional question where the format is a list of major problems the organizations face when linking business and IT strategy. Hence respondents are allowed to select from the list those problems they

most experience. In total the questionnaire has 12 questions, it was kept short and simple because respondents often do not like to answer excessively long questionnaires (Kitchenham and Pfleeger, 2003).

Data Collection

The final survey was sent to various organizations around the world. Among them many organizations were requested to participate in the survey by telephone to have a better response rate. Associations like ISACA (London Chapter of Information Systems Audit and Control Association) and LACAIS (Latin American and the Caribbean Chapter of Association for Information Systems) were contacted which significantly improved the response rate and a large number of responses from remote countries were received. A total number of 127 responses were collected from the several organizations all over the globe. Table 4 provides a list of the geographical areas where responses where obtained. This research did not intend to find correlation between geographical areas or countries, thus the information provided in Table 4 is to give the reader a better idea of the scope of this study.

Table 4. Survey respondent profiles

Location	# of respondents	% of respondents
Europe	34	26.77%
America	19	14.96%
Oceania/Asia	2	1.57%
Africa	72	56.69%
Total	**127**	**100%**

For the purpose of this investigation, SMEs are considered to have up to 250 employees and large organizations more than 250 employees. However, large organizations were divided into two subgroups for analysis purposes. Table 5 shows that nearly one quarter (22.84%) of the responses were from SMEs, 32.28% from large organizations between 251-5000 (subgroup A) and 44.88% from large organizations with more than 5000 employees (subgroup B). The most responses were from the banking and finance sector. 127 responses were obtained. For the data analysis only complete surveys were included.

Table 5. Organizational size

Organizational size	Number of employees	# of respondents	% of respondents
SME	1-250	29	22.84%
Large A	251-5000	41	32.28%
Large B	>5000	**57**	**44.88%**
	Total	**127**	**100%**

Analysis and results

All the results were produced in a statistical format with the help of the same tool used to prepare the online questionnaire. All the collected data was arranged in a tabular format in order to make the analysis more understandable. Filters like grouping and segmentation were applied on the collected data and trend analysis was done in order to evaluate the impact of different organization's characteristics. Organizations were also divided into two groups, SME's and large organizations depending upon its number of employees. The first goal was to find differences of each factor's relevance between SMEs and large organizations. Table 6 suggests all factors are equally valid for both types of organizations however some factors such as competency/value measurement, governance and scope & architecture seem to be with some variance. Due to the complexity of large organizations, these factors are more difficult to assess and possibly led respondents to rate them highly in large organizations.

Table 6. Factors relevance by organizational size

Factors	SME	Large	Difference
Communication	3.80	3.82	0.02
Competency/Value measurement	3.36	3.55	**0.19**
Governance	**3.75**	**3.90**	**0.15**
Partnership	3.71	3.70	0.01

Scope and Architecture	3.70	3.60	**0.10**
Skills	3.53	3.46	0.07
Average	**3.64**	**3.67**	**0.03**

The second goal was to identify the impact of the integration planning on the alignment maturity factors. Three IS-Businesses planning stages are considered: independent, sequential and simultaneous. As can be shown in table 7 a higher percentage of organizations have sequential planning integration in contrast with large organizations with less than 5000 employees which show simultaneous planning.

Table 7. Distribution of planning integration in SMEs and large organizations

IS-Business Planning integration	Respondents					
	SME		Large 251-5000		Large > 5000	
	#	%	#	%	#	%
Independent (IS strategy formulation and business strategy formulation are separate, unrelated processes)	7	29.17%	8	22.86%	9	21.43%
Sequential (IS strategy formulation follows and supports business strategy formulation)	**10**	**41.67%**	10	28.57%	**25**	**59.52%**
Simultaneous (IS strategy formulation and business strategy formulation are done concurrently)	7	29.17%	**17**	**48.57%**	8	19.05%
Total	**24**	**100%**	**35**	**100%**	**42**	**100%**

Table 8 illustrates the factor's rated perceptions by organizational size and planning integration. This table exemplifies a positive increase in both SMEs and large organizations whether the formulation is analyzed from an independent to a simultaneous integration. For both organizations where the formulation is simultaneous, the relevance of the factors is higher perceived than it is for those where the formulation is independent or sequential. This table also shows an average of the most relevant factors identified by all participants. Not only governance and communications are identified as the most relevant factors but also both SMEs and large organizations with simultaneous and sequential integration recognized same highest factor's relevance as can be seen in Chart 1.

Table 8. Factors relevance by organizational size and planning integration

Alignment factors	Independent Business-IS Planning		Sequential Business-IS Planning		Simultaneous Business-IS Planning	
	SME	Large	SME	Large	SME	Large
Communication	2.88	**3.54**	**4.26**	3.98	4.06	3.85
Competency/Value measurement	2.31	3.19	3.70	3.60	3.94	3.68
Governance	3.05	3.30	3.84	**4.17**	**4.31**	**4.01**
Partnership	2.85	3.20	3.98	3.93	4.20	3.74
Scope & Architecture	**3.17**	3.14	3.86	3.72	4.02	3.90
Skills	3.10	3.08	3.68	3.53	3.74	3.66
Average	**2.89**	**3.24**	**3.89**	**3.82**	**4.05**	**3.81**

Chart 1. Highest ranked factors by organizational size and planning integration

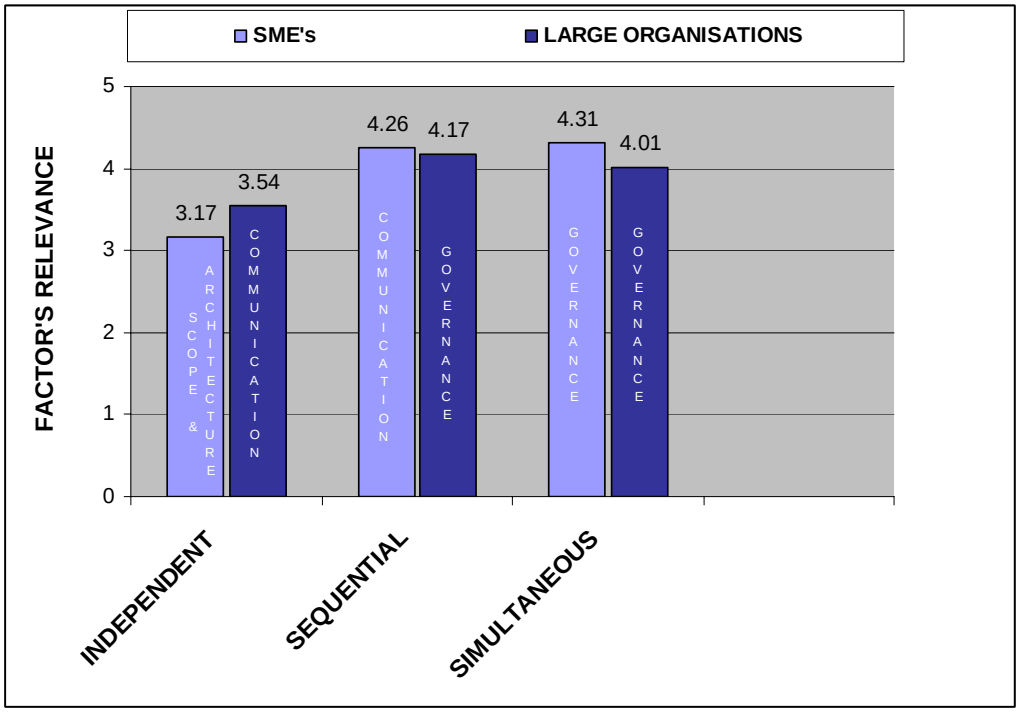

Table 9 illustrates the attributes highest ranked by all respondents depending on their planning integration. There were selected those most relevant in each factor in both SMEs and large organizations. As can be seen, the results suggest that most organizations concern lack understanding of IT potential by top management. Most respondents agree giving higher ratings to the same attributes in each factor except governance and skills. Moreover, analysis of the whole attributes could guide in those remain strategic alignment challenges such as using effective metrics and measurements, implementing flexible, integrated and secure applications and considering IT as a significant part of the business.

Table 9. Highest ranked attributes by organizational size and planning integration

Highest ranked attribute(s) by factor	Planning integration					
	Independent		Sequential		Simultaneous	
	SME	Large	SME	Large	SME	Large
Communication						
Understanding of business strategies by the IT department	**1**	**1**	**2**	**1**	**1**	**1**
Competency/Value measurement						
Making effective use of measurements obtained from the metrics application	**1**		**1**	**1**	**1**	**1**
Using selected metrics on a regular basis	**1**	**2**	**2**	**2**	**2**	**2**
Governance						
Integrating the enterprise's business plan and IT plan	**2**	**1**		**1**	**2**	**1**
Reviewing business priorities before adopting any IT project	**1**	**2**	**1**		**1**	**2**
Partnership						
Considering IT to be a significant part of		**1**	**1**	**1**	**1**	**1**

Highest ranked attribute(s) by factor	Planning integration					
	Independent		Sequential		Simultaneous	
	SME	Large	SME	Large	SME	Large
business, not just a cost centre for doing business						
Sharing a long-term relationship between IT and business that enables trust		**2**	**2**		**2**	**2**
Scope & Architecture						
IT is able to provide information security	**1**	**1**	**1**	**1**	**1**	**1**
IT is able to provide integrated information systems across the organisation and with business partners	**2**	**2**		**2**	**2**	**2**
Skills						
Providing formal training before implementing a new IT project	**2**	**1**		**1**	**1**	
Willingness or readiness to adopt technological changes		**2**	**1**		**2**	**1**

Finally, the respondents were asked about what the major problems in linking business and IS strategies are. The results indicate the more common problem for those organizations that has been developing their strategies simultaneously is the top management commitment and participation in the process. In contrast, those organizations with independent or sequential planning integration the main problem is the lack of understanding of IT potential by top managements as shows in table 10.

Table 10. Major problems faced when linking IT and business strategy.

Major Problems	Large-Independent		SME-Independent		Large-sequential		SME-Sequential		Large-Simultaneous		SME-Simultaneous	
Top management commitment and participation in the process	9	18.75%	2	15.38%	12	14.81%	**7**	**28.00%**	**9**	**17.65%**	**4**	**30.77%**
Lack of top management support for IT initiatives	6	12.50%	2	15.38%	11	13.58%	3	12.00%	7	13.73%	1	7.69%
Shortage of qualified IS/IT personnel	6	12.50%	2	15.38%	15	18.52%	5	20.00%	8	15.69%	2	15.38%
Estimation of the funding levels for IS/IT	7	14.58%	0	0.00%	10	12.35%	4	16.00%	8	15.69%	1	7.69%
Lack of understanding of IT potential by top management	**10**	**20.83%**	**6**	**46.15%**	**16**	**19.75%**	4	16.00%	8	15.69%	4	30.77%
Lack of IT leadership	10	20.83%	1	7.69%	15	18.52%	1	4.00%	6	11.76%	1	7.69%
Other	0	0.00%	0	0.00%	2	2.47%	1	4.00%	5	9.80%	0	0.00%

Total	**48**	**100%**	**13**	**100%**	**81**	**100%**	**25**	**100%**	**51**	**100%**	**13**	**100%**

Conclusions and further research

This paper is part of ongoing research in the area of strategic information systems planning, focused on strategic alignment. The results report that factors such as communication, competency/value measurement, governance, partnership, scope & architecture, and skills are valid and highly relevant for both SMEs and large organizations. However, a comparative analysis in the variation of ratings for SMEs and large organizations depicts slightly high differences for competency/value measurement, governance and scope and architecture. Further research is needed for better understanding of the reasons behind these differences. Additionally, there is a notable difference in the organization planning process identified by two subgroups in large organizations. Large organizations with 250-5000 employees mainly identify a concurrently integration in the IS-business formulation while organizations with above 5000 employees identify a IS strategy which primarily supports the business strategy formulation.

Rated perceptions in the organization planning process are positively related to the level of integration between the IS and business strategy formulation. Lower levels of the relevance of the factors are rated in organizations with unrelated formulation (independent planning processes) while higher levels correspond to organizations with concurrent formulation (simultaneous planning processes). This is evident for both SMEs and large organizations. Comparing the concurrent IS-business formulation for both SMEs and large organizations, SME participants perceive higher maturity than those in large organizations. Therefore, the use of strategic alignment maturity model could be a useful tool for SMEs to leverage their alignment based on those attributes that are more relevant according their planning integration. Deeper research in understanding those relevant factors for SMEs will contribute to develop mechanisms for assessing alignment.

The results suggest that organizations with sequential and independent planning processes lack understanding of IT potential by top management. Nevertheless, once organization planning becomes simultaneous the challenge turns into achieving management commitment and participation. Most respondents give higher ratings to the same attributes in each factor except governance and skills. Governance is the highest ranked factor while integrating the enterprise's business plan and IT plan still remains as the most relevant challenge for all organizations. Respondents belonging to large organizations find all governance attributes substantially more relevant than do those members of SME organizations. Moreover, analysis of the whole attributes reveals that the highest ranked attributes for achieving alignment are:

- Using effective metrics and measurements
- Implementing flexible, integrated and secure applications
- Considering IT as a significant part of the business.

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