USING TACTICAL AND OPERATIONAL FACTORS TO ASSESS STRATEGIC ALIGNMENT: AN SME STUDY

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Abstract

The strategic use of Information Technology (IT), better known as strategic alignment, has significantly increased, as a result of the strong dependence of organisational activity on Information Systems (IS) and their related technologies. Strategic alignment is considered as a key element to improve performance on organisations, enhance efficiency and allow organisations to be more competitive in their respective industry. One of the first steps towards achieving strategic alignment is to have adequate means to measure it. Current assessment approaches, though, are mainly focused at the strategic level but provide little insight at tactical and operational levels, which are recognized as important areas for achieving strategic alignment. Furthermore, most of the existing approaches are tested in large organisations and there is little research on assessing the effectiveness of these approaches for Small and Medium Enterprises (SMEs). This paper proposes an alternative instrument that rather than focusing only at the strategic level it aims to have a better understanding by measuring alignment at tactical and operational levels. Finally this paper presents the findings of applying this instrument on an SME.

Keywords

Strategic alignment, Information Systems planning, Alignment assessment.

1 INTRODUCTION

The strategic use of Information Technology (IT), better known as strategic alignment, has increased its significance as a result of the strong dependence of organisational activity on information systems and their related technologies. Consequently, organisations want to ensure that IT investments are made on those projects that improve business performance and competitiveness (Tallon, Kraemer & Gurbaxani 2000). Furthermore, IT executives consider strategic alignment as one of the main challenges that the organisation has to face (Ives, Mandviwalla December 2004, Luftman 2000, Tallon, Kraemer 2003).

Strategic alignment, however, has been subjected to different interpretations in theoretical and practical studies and it is difficult to find a common agreement, which can see reflected on the variety

of definitions found in the literature. For example, strategic alignment has adopted different pseudonyms like integration (Weill, Broadbend 1988), fit(Porter 1996), linkage (Henderson, Venkatraman 1999), harmony (Luftman 1996), bridge (Ciborra 1997) and fusion (Smaczny 2001). All these definitions, though, focus on how to improve organisational capabilities through technology. In the early works, researchers focused on developing a strategic plan that integrates business and IT visions. Frameworks were also used by organisations to improve the information system strategic planning process. Examples of these are: Critical Success Factors, the value chain, the Strategic Option Generator and methodologies such as Business System Planning and Strategic System Planning (Robson 1997). More recent research on this area focus on all the activities that management performs to achieve business goals supported by IT across the organisation (Luftman 2000).

Despite the fact that most of the literature in this area coincided on the fact that strategic alignment has room for improvement there is little guidance on how to achieve alignment. Several approaches have been used to integrate the business strategy and information technology (IT) strategy. Most of these approaches are planning oriented (Smaczny 2001) and assume structured environments under full control (Ciborra 1997, Maes 1999) in contrast with the real environment organisations face where uncertainty, flexibility and changeability prevail (Peppard, Ward 2004). Even if some organisations do not have a formal planning process, they still need to be able to develop their business direction (Reich, Benbasat 2000)). This business direction should be clear enough to allow organisations to focus on those IT projects that add business value.

Despite the wide acceptance of strategic alignment, there is no consensus on how to achieve alignment and few references detail the process. Henderson and Venkatraman (1999, reprinted from 1993) suggested that alignment could be achieved through the selection of appropriate alignment perspective included in their strategic alignment model (SAM). These perspectives were: strategy execution, technology transformation, competitive potential and service level. Each of these defines the driver of the perspective and the roles of business and IT managers including the criteria performance measure. This approach was followed by Luftman (1996), who redefined the SAM model providing eight perspectives instead of four. The general process of achieving alignment consists of the following steps: set the goals and establish a team, understand the business linkage between IT and the business, analyze and prioritize gaps, specify the actions (project management), choose and evaluate success criteria and finally to sustain alignment (Luftman, Brier 1999). Existing literature, however, does not provide further details for all the steps involved.

The following sections analyse in more detail current approaches for strategic alignment in order to identify their advantages and limitations. Subsequently, a proposed solution that addresses some of the limitations found is presented.

2 ASSESSING STRATEGIC ALIGNMENT

Current assessment approaches can be classified in two types. First, those approaches that measure alignment to support its relevance, the impact of IT on business performance, and its relation with financial benefits or its business IT value. Second, research approaches that help on the understanding of the alignment phenomena and measure alignment to help the organisation to improve their current situation. Representative research of each type is discussed in the following sections highlighting their advantages and limitations.

2.1 Assessment to support the relevance of strategic alignment

Although executives are sceptical of the payoffs of IT investment due to its difficulties in achieving tangible benefits (Weill and Broadbent, 1998), Tallon (2003) provides evidence that corporations with clear strategies goals for IT achieve higher levels of strategic alignment, therefore higher IT business value (Tallon, Kraemer & Gurbaxani 2000, Tallon, Kraemer 2003). In addition, a key contribution from Tallon's work is the unit of analysis, while most of the literature focuses the alignment analysis at firm's level, Tallon focuses on process level to obtain deeper insight of alignment. A survey was developed to measure the payoffs across the processes in the value chain; this survey was duplicated to address both the business and the IT strategy. Despite the fact that he found that strategic alignment can improve the business value of IT, the authors also found that highly-tight strategies between IT and business strategy could prevent organisations from the flexibility required to react in a changeable environment (Tallon, Kraemer 2003), also known as the alignment paradox. Thus, the business value of IT depends, to some extent, on the organisation's ability to link their strategic process with the IT strategic process with a flexible framework. Consistently Kearns and Lederer (2000) state the relevance of the alignment dichotomy, where the alignment of the information systems plan with the business plan (ISP-BP) is as important is as the reciprocal alignment (BP-ISP). Literature shows that only a small number of organisations gained a competitive advantage although they aligned their ISP to the business plan (Lederer, Mendelow 1988). Furthermore, it was found that the main reason of this happening is due to the lack of alignment of the business plan to the IS plan (BP-ISP) ((Kearns, Lederer 2000).

Another example of this type of research indicates that alignment affects the perceived business performance (Sabherwal, Chan 2001). The model has two components: one to conceptualize the business and the other to conceptualize IT strategy. The first component of the model, the business strategy, classifies the types of business strategy in terms of the Miles and Snow's typology. This typology includes three types: defenders, prospectors and analyzers. Defenders are more stable and stressing operational efficiency and economies of scale. The prospectors type continuously seeks new products/market opportunities, and is the creator of change in its market. Finally, the analyzers share common characteristics with each of the other two types, and seek to simultaneously minimize risk while maximizing opportunities for growth. The second component of the model is the information systems strategy that is described in terms of the IS purpose: IS for efficiency, IS for flexibility and IS for comprehensiveness. Then, a correlation is established between these two components to allocate the most appropriate IS strategy for a specific type of business strategy to improve alignment. Greater alignment between an organisation's business strategy and IS strategy implies that the systems are oriented on areas that are critical to achieve business strategy, therefore IS should contribute to the business performance as they are using IS for a competitive advantage. A survey aiming to examine the impact of alignment on business performance shows that the association between alignment and business success depends on selecting the appropriate IT strategy for the specific type of business strategy. While analyzers and prospectors showed strong correlation between alignment and performance, for defenders this association is not found. Consequently, the authors conclude that for organisations with a defenders type of business strategy, the emphasis on IS may not improve strategy execution and business success. The alignment paradigm then is more appropriate for organisations that are interested on use IT as competitive advantage.

2.2 Assessing to improve strategic alignment

Early work on this topic assesses alignment in order to identify which component drives the alignment, the role of top management, the role of IT management and their performance criteria

(Henderson, Venkatraman 1999). This type of assessment allows the company to understand how the components of alignment are related but not how to achieve such alignment. Similar research assesses the organisation's alignment through a web tool but again the result is a description of which perspectives are strong or weak in the organisation based on the SAM model (Papp 2005). In practice, the web tool, provides little support to managers in order to improve alignment as it is not possible to determine which factor produces which perspective. On this research the unit of analysis is the whole corporation and no empirical research is provided.

Following the research based on the SAM model, a useful proposal is presented where the strategic planning was merged with a prioritization process as organisational context to determine the degree of alignment between business and IT strategies based on their completed projects (David Avison et al. 2004). The authors modified the Luftman's alignment perspectives and developed empirical research. In order to identify what type of alignment or perspective the organisation has, they analysed the IT projects data instead of collecting the executive's perception. This approach emphasizes the relevance of having clear business goals and a prioritization process to align the IT projects to the organisational goals. Moreover, it represents a practical approach not only to examine the current alignment but also it can be used to monitor and track alignment in a flexible way by re-allocating project resources when strategy change or if the project is not more aligned with the strategy. Even this approach represents a deepened analysis to assess alignment, the matching project process to identify what alignment of perspective the organisation follows is considered by the authors as not conclusive. In addition, this information does not help to identify those areas that need improvement in terms of strategic alignment. More specific information, such as the identification of the factors that hinder alignment, could help managers to take the corresponding actions to improve the level of alignment.

Another limitation of the instruments available to measure alignment is that most of them are designed for larger organisations and little evidence exits to validate their applicability for small organisations. Small and medium enterprises are usually less strategically oriented than larger organisations. For those SMEs that consider IT as strategic, however, alignment is also very important, thus it needs to be measured. Hale and Cragg (Hale, Cragg 1996), for example, constructed measures to assess small firms based on Venkatraman's instrument called STROBE that conceptualize the business strategy and also use Chan's STROIS instrument to conceptualize the IT strategy. For each dimension on these instruments the corresponding results are compared to assess the degree of mis-match between business and IT strategies. Low scores for dimensions indicate that the dimensions are receiving sufficient attention. A high score indicates an opportunity to improve alignment in that dimension. Where a STROBE score is high and the associated STROIS score is lower, firms should invest in that dimension as it is most likely to bring significant benefits. This research demonstrated that current models could be adapted to provide SMEs with relevant mediums to assess and improve alignment. To validate these assumptions, though, more empirical research is required.

Luftman provides an extended research that started when he redefined the SAM model (Luftman 1996). In 1999, Luftman published the enablers and inhibitors of alignment as a result of deeper research using his framework for alignment (Luftman, Papp & Brier 1999). In 2000, he had provided a model to assess the maturity level of alignment called the strategic alignment maturity model (SAMM). This model is consistent with his previous research and, using the same background he concludes that the harmony between the 12 components of the SAM model is impacted by six criteria: communication, measurements, governance, partnership, scope & architecture, skills. For each of these criteria, he defines the attributes that determine the level of maturity in each one(Luftman 2000). This research contributes a framework to assess strategic alignment from concepts well known in most of the organisation in comparison to the aforementioned models.

3 AN ALTERNATIVE INSTRUMENT TO MEASURE STRATEGIC ALIGNMENT

Previous section presented a brief review of current approaches to assess strategic alignment. From this review the following limitations were identified: first, the current assessments measure alignment at strategic level without integrating the tactical and operational. Second, the lack of instruments to measure alignment specifically for SMEs. Finally, the need for a deeper understanding of alignment within the organisation to promote continuous improvement. The instrument proposed in this paper aims to address these limitations.

3.1 Questionnaire design considerations

The instrument proposed in this paper aims to measure the factors that impact alignment maturity (as described on SAMM model) from the strategic perspective and the current practices at tactical and operational levels. When some factors show low maturity, it may be possible to identify the reasons of this happening to make the corresponding adjustments that allow improving that factor, hence the alignment.

The instrument is based on the alignment dichotomy paradigm, which argues that the information system plan should be aligned to the business plan (ISP-BP) and the business plan should be aligned to the information system plan (BP-ISP). Both these types of alignment increase the organisational understanding of IT that helps to prioritize IT projects. Furthermore, it signifies better top manager understanding and commitment that are considered enablers of alignment (Luftman, Papp & Brier 1999). This alignment dichotomy is emphasized at strategic level, but is needed as well at tactical and operational levels. Another example that justifies the use of different organisational levels is the information technology alignment planning process. This process helps to identify IT strategies, IT projects and Information Systems from the requirements of each business unit and creates links between the strategic and the operational levels (Peak, Guynes & Kroon 2005). Consequently, the proposed instrument to measure alignment addresses the strategic, tactical and operational levels collecting information from different stakeholders that participate in those IT projects carried out by the organisation. The analysis of these data will permit to recognise inconsistencies assessing factors of alignment across the organisation.

Another consideration when developing the instrument is the knowledge needed to understand the questions and provide appropriate answers. The proposed instrument measures the maturity level of alignment in organisations based on the current SAMM model. This is based on the idea that the six criteria defined by the SAMM model are well known concepts in business and IT subjects, thus are more useful to conceptualize the maturity alignment.

For the questionnaire design the factors that impact the alignment maturity proposed by Luftman in the SAMM model, are used to support the instrument. However the attributes of each factor were reviewed according to the SMEs context to make the questions more appropriate and still measure the same factors. This helps to interpret the results according to the five maturity levels recommended by the SAMM model.

The questions were designed to collect the same data from different people at strategic, tactical and operational levels. The current assessment approaches mainly collect general information regards the organisational IT-Business practices. However, this instrument refers to the use of people experience obtained from the IT projects where they participated.

3.2 Questionnaire Structure

The Questionnaire consists of 29 questions related to one o more of the factors from the SAMM model that impact the strategic alignment. The following example describes the design of the instrument questions to measure the factors that impact alignment at strategic, tactical and operational levels on SMEs.

The first factor in the SAMM model is communications and one of its attributes is the understanding of business by IT. Then the top IT executives are asked to rank the maturity in terms of the following options:

1. Understanding of business by IT
2. It management not aware
3. Limited IT awareness
4. Senior and mid-management
5. Pushed down through organisation
6. Pervasive

An understanding of business by IT is relevant not only at strategic level but also at tactical and operational levels. Moreover it is needed to know if that understanding is applied to all the participant in IT projects. Consequently, the proposed questions for top IT executives, IT middle managers and IT staff are:

1. Do you know which business strategies are supported by the IT project(s)?
2. Do you know which organisational areas are impacted by the IT project(s)?
3. Could you describe which business processes are impacted by the IT project(s)?
4. Could you describe the main business benefits of the IT project(s)?
5. Do you know what IT your competitors are using equivalent to the IT project(s) in your organisation?

The analysis of the responses not only provides a measure of alignment maturity for this attribute. It also allows a comparison of the consistency of results at different organisational levels. All this questions refers mainly to communication but also have a cross reference with other factors like partnership. The proposed instrument permits to identify the maturity level of each factor and its consistency at strategic, tactical and operational level (see Figure 1).

The criteria with less maturity can be then further analyzed to verify which practices inhibit the alignment or if the problem is the lack of linking between the organisational levels. The main contribution is assessing alignment to obtain in depth understanding within one organisation rather than comparing the alignment between several organisations, this may contribute to enhancing the current alignment theory. The questionnaire was developed using an online tool and is available in the following web address: http://www.questionpro.com/akira/TakeSurvey?id=339127.

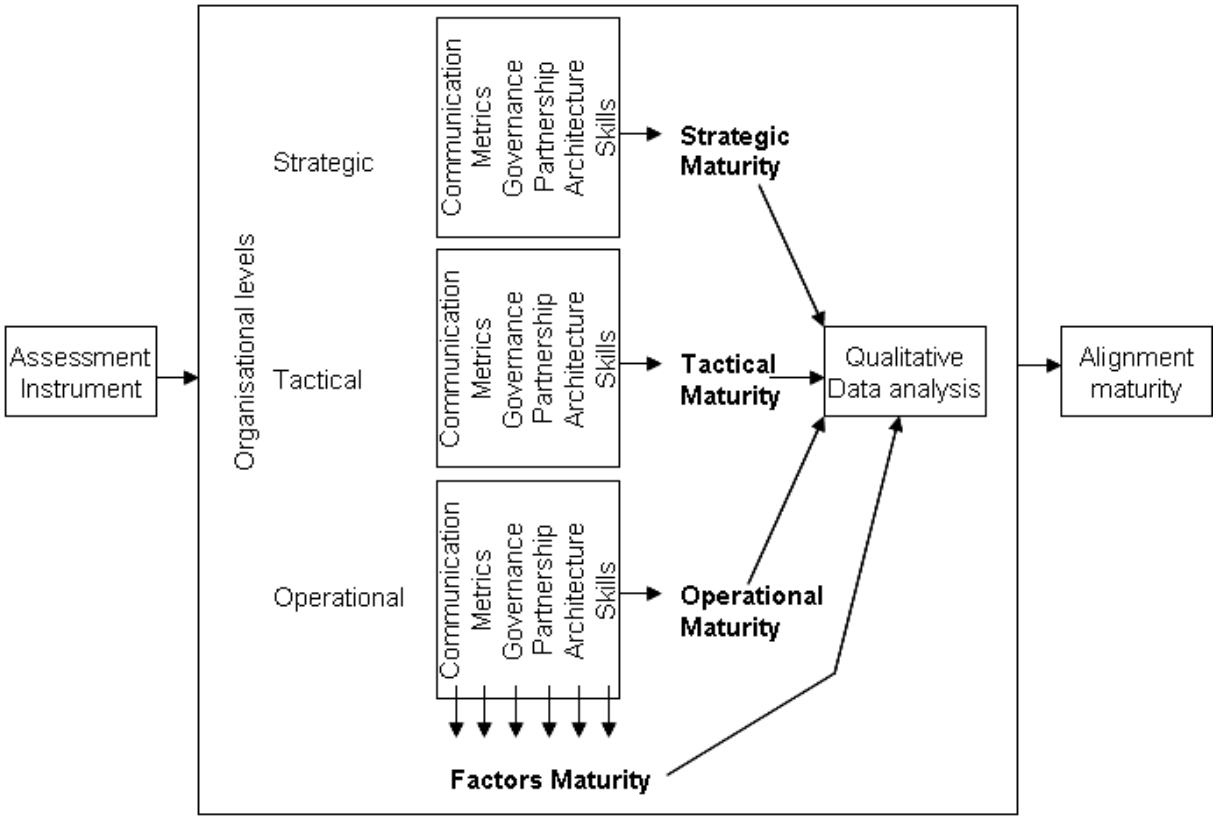

Figure 1. Business-IT alignment maturity across organisational levels on SMEs

4 CASE STUDY DATA ANALYSIS

To investigate the advantages and limitations of the proposed questionnaire, this was applied in a small business services organisation in Mexico City. The questionnaire was applied to people at different organisational levels. To interpret the results for the case study the following steps were carried out:

- Calculate the maturity for each participant. Each question uses a five-point scale to assess the alignment maturity of each factor. Hence, the maturity obtained is quantified for the factor or factors that each question is addressing. From the table 1, it could be observed the perception of each participant has regards to the maturity alignment through the different factors.

Participant	Comm	Metrics	Governance	Partnership	Architecture	Skills	Maturity	Level
A	2.72	2.60	2.74	3.24	2.33	3.60	2.87	S
B	3.00	2.67	3.39	3.88	2.33	4.40	3.28	S
C	3.16	2.87	2.52	3.00	3.00	3.00	2.92	S
D	4.40	4.67	4.17	4.41	4.00	4.40	4.34	S
E	3.96	3.93	3.83	3.94	3.00	3.40	3.68	T
F	2.56	2.07	2.48	3.06	1.67	3.80	2.61	T
G	3.40	2.40	3.30	3.53	1.67	3.60	2.98	T
H	2.60	2.80	2.91	3.35	2.67	3.40	2.96	T
I	3.42	3.73	3.39	3.59	2.33	4.00	3.41	O

Table 1.

- Calculate the maturity of each factor and across the different organizational levels. The quantitative analysis depicted in the table 2 shows that communication, metrics/value, governance and skill reached a level 3 of maturity however the standard deviation prevents to consider this maturity level as the final one. The maturity for partnership and skills were rated with a level three as well, nevertheless in this case the standard deviation is low, reflecting agreement in the assessment of participants. The next step is to validate the quantitative results and understand the reasons of high standard deviation on some factors.

	Communications		Metrics		Governance		Partnership		Architecture		Skills		Level	Level
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Maturity	St Dev
Strategic	3.32	0.74	3.20	0.98	3.21	0.74	3.63	0.64	2.92	0.79	3.85	0.68	3.35	0.68
Tactical	3.13	0.63	2.80	0.91	3.13	0.87	3.47	0.72	2.25	0.58	3.55	0.72	3.06	0.71
Operational	3.42	0.70	3.73	NA	3.39	NA	3.59	NA	2.33	NA	4.00	NA	3.41	NA
Factor Maturity	3.29		3.24		3.24		3.56		2.50		3.80		3.27	
Factor St Dev	0.63		0.84		0.58		0.46		0.73		0.47			

Table 2.

- The qualitative analysis is required to fully understand if the level obtained correspond to the SAMM levels characteristics. Verifying if the organization meets the attributes of each factor, the final level was rated with 2, as shows the last column in table 3. For example, Metrics/Value factor resulted on level 3 however a deeper analysis of the answers in the questionnaire confirms that the organization has business and IT metrics but they are not using them continuously. Also, employees perceive that they are not evaluated with those metrics. For all this reasons the factor finally was rated with a maturity level of 2. Reviewing the final column in the table 3, it depicts that most of the factors reached a level 2; therefore the qualitative analysis provides valuable information in those factors that require more attention. The organization should establish new mechanisms to monitor the alignment maturity with the proposed instrument and improve those factors that require consideration.

	Quantitative result	St Dev	Qualitative result
Architecture	2.50	0.73	2
Governance	3.24	0.58	2
Metrics/Value	3.24	0.84	2
Communications	3.29	0.63	3
Partnership	3.56	0.46	2
Skills	3.80	0.47	3

Table 3.

5 CONCLUSIONS AND FURTHER RESEARCH

This study represents a contribution to assess strategic alignment in SMEs using the alignment maturity factors defined by Luftman (2000) which provides a solid support of measuring alignment in organisations. The development of the questionnaire according to the SME characteristics, contributes to develop an instrument able to assess the alignment maturity at different organisational levels. This instrument also allows organisations to document the results and retake the assessment for future comparisons. This paper is part of an ongoing research in the area of strategic information systems planning, focused on strategic alignment. Even though the authors recognise the limitations of applying the questionnaire to one organisation, the results provide evidence that such approach can help organisations to assess their strategic alignment and to identify those areas that need further improvement. For example, the results confirm that metrics is a factor that needs improvement, and also was found the functional managers perceive they were not evaluated by those metrics consequently they use them rarely. This type of results helps management to better understand how to improve their current practices.

The application of the questionnaire was applied to strategic, tactical an operational levels. During the analysis of the results it was identified, however, that in order to increase its effectiveness on participant, different questionnaires are needed to address different operational level, covering in this all factors at all levels. In addition, in order to analyse those numeric values emitted by the instrument an additional tool should be developed to consider the links between the questions, the attributes and factors against the common practices in SME organisations. It is suggested the use of interviews to triangulate the data from the questionnaire, to obtain more information and improve the qualitative analysis.

Finally, the refinement of this approach and its application in a wider context can lead to the proposal of a strategic alignment methodology that could use the proposed instrument to improve the complex relationship between the identified factors by continuously assessing the organisation's alignment maturity.

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