Strategic alignment: a performance tool for SMEs

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Abstract

The purpose of this research is to investigate whether the alignment of IT with the strategy (particularly the partnership strategy or cooperation practice) and organizational structure of an SME could have a decisive influence on its performance.

We constructed a model and tested it empirically using data from 381 SMEs operating in different sectors.

A multivariate perspective, modelled with structural equations, was used to test the alignment between strategy, structure and IT. The alignment is considered as a covariation of a set of theoretically related variables.

The results indicate that the alignment of IT with corporate strategy and organizational structure could generate the best performance levels for an SME.

Keywords: IT, SME, strategic alignment, strategy, organizational structure, performance

1 INTRODUCTION

To solve the problem of the measurement of Information Technology (IT) productivity, different perspectives must be found to evaluate systems implementation based on IT (Strassman, 1997). Henderson and Venkatraman (1993) have developed a conceptual model, the Strategic Alignment Model (SAM), to address the issue of exploiting IT capabilities in their competitive role and for the strategic management of IT.

The concept of strategic alignment has been investigated by many researchers (Luftman, 1996; Croteau, Bergeron & Raymond, 2001; Nickerson & al., 2003, Kalika & Kefi, 2003, …). These studies suggested that any evaluation of the impact of information systems, in terms of performance, must take into consideration the alignment level of these systems with the strategy and the organizational structure.

The existing tools for performance analysis and the instructions for their implementation have been primarily developed for large – scale firms. Compared with large enterprises, Small and Medium – sized Enterprises (SMEs) have fewer financial resources, lower technical expertise and poorer management skills (Blili & Raymond, 1993, Julien & Marchesnay, 1996) and have started to use IT relatively recently.

The present research focuses, particularly, on SMEs and tries to test if this type of enterprise could have best performance levels by aligning strategy, structure and IT.

This research is based on SMEs involved in partnership. In a strategic alignment context, the conceptual framework of this research is based on studying the relationship between four variables: strategy of the enterprise, IT strategy, organizational structure and co-alignment.

In this paper, we first provide a brief review of literature related to strategic alignment and IT success. Then, we present our research proposition and exploratory hypotheses. Finally, we discuss the results of a survey of 381 SMEs.
2 THEORETICAL CONTEXT

Information Systems Success is recognized by many researchers as a difficult concept to define (Weill & Baroudi, 1990). In such away, Delone & McLean (1993) through a comprehensive literature review of IT success measures, concluded that “in searching for an IS success measure, rather than finding none, there are nearly as many measures as there are studies”.

Venkatraman (1989), in his research on IT impact, suggested that IT could construct a main road of development for new activities generators of profit. He argued that IT possesses an important organizational and strategic dimension.

Recent researches show that IT tended to transform traditional enterprise to a numeric enterprise (Isaac, 2002). They allow to enterprises, the possibility to establish electronic relations with their clients and suppliers (thanks to Exchange Electronic Data (EED) technology), to share markets and electronic platforms (notably through markets places) with their competitors and reached, easily, new markets at a world level. The collaboration came more and more easier thanks to Internet and to the interconnection of Production Systems of different partners (Isaac, 2002). EED technology, for example, allows amplifying interaction between two partners by making easier, their social exchanges and their resources, their coordination and their modes of adaptation and of cooperation (Baile, 2003).

Henderson & Venkatraman (1993) argue that the “inability to realize value from IT investments is, in part, due to a lack of alignment between the business and IT strategies of organizations”. For that, Atkinson (1990) suggested that strategic orientation of a firm is crucial to its performance. So, if a firm decided to cooperate (or to opt to a partnership strategy) with other firms, it could realize better organizational performance.

Ettlie, Bridges and O’Keefe (1984) indicated that firm structure is considered as a foundation of its strategic technological choice. Various researchers proposed a contingency approach in which the performance of a firm depends on the degree of coherence between its structure and its environment. Researches highlighted that the integration is necessarily to hold a coherence to enterprise functioning.

The goal of this study consists to show that, by aligning the IT strategy of the enterprise to its strategy and its structure, firms could generate best performance levels. Robinson (1983) argued that performance could be measure by two different manners; either by objective approach, or, by subjective approach. Objective measurements are based, generally, on financial data (ex. financial result). However, subjective measurements are based on manager’s evaluations relative to their perception of IT impacts. According to Miller (1987), subjective measurements are better than objective measurements since account information are, usually, not reliable and not available since they could be manipulated by owners for different reasons. In our research, to evaluate organizational performance, we used, Venkatraman (1989) tool, based on subjective approach. So, we have evaluated the performance construct by four items: improved production, cost reduction, innovation abilities and client satisfactions.

The alignment strategic model that we tested is represented in this following figure:
This figure shows that, if a firm wants to generate best performance levels, it should align its IT strategy with its strategy and its organizational structure. In others words, firms can achieve best performance levels by aligning IT strategy with corporate strategy and structure.

3 RESEARCH PROPOSITION AND EXPLORATORY HYPOTHESES

In this study, we investigate the following question:
What is the impact on SMEs' performance of the alignment of IT with their corporate strategy and organizational structure?
To answer the question we first constructed two sub-hypotheses:
H1: If IT strategy is aligned with corporate strategy (partnership), performance improves.
H2: If IT strategy is aligned with the firm's organizational structure, performance improves.
We then have grouped these two hypotheses in a global hypothesis:
GH: If IT strategy is aligned with the firm's corporate strategy and organizational structure, performance improves.
The hypotheses are summarized in the figure below:

4 METHODOLOGY

To test the hypotheses, we have, firstly, extracted a sample, of 381 SMEs, from the data base of the Cegos - Dauphine Laboratory (2003). Employee’s number, in these SMEs, is comprised between 50 and 500. This study treats so, secondary data.
Our model constituted from four variables, presented above: strategy of the enterprise, organizational structure, IT strategy and performance. These variables could be operated by different items formulated on questions. These items were measured by Likert scales. Then, a multivariate perspective was employed for testing the alignment among strategy, structure and IT. Strategic alignment is considered as a covariation or an internal coherence of a set of variables theoretically related (Venkatraman, 1989).

To analyze data, we have proceeded on two stages. Firstly, we have done a descriptive analyze by using SPSS software (Statistical Package for the Social Sciences) which has allowed us to describe our sample and to analyze measurement scales. This factorial analyze is used to verify scales validity and to confirm factors researched. Secondly, we have used AMOS 4.0 (Analyses Moments Structures) software, of modeling by structural equations, to test our research model. This method allowed us to evaluate, simultaneously, our propositions and measurements for the model in question.

5 ANALYSIS AND DISCUSSION OF RESULTS

The principal goal of the factorial analyze consists on structuring items and summarizing them in a small number of variables named factors (Evrard & al., 2000). This method allows us to select among a set of initial items those which intervene most on describing phenomena’s. The following graph summarizes this method:

Figure 2. Items and factors summary
To assess our structural model, we have used Maximum Likelihood method. Convergent reliability and validity of the alignment are evaluated by examining adjustment level of the model and the causality coefficient relying alignment and performance constructs.

The absolute fit measure, Chi-square test results are 39.766 for 9 degrees of freedom. The GFI has a value of 0.970. The Root Mean square Residual (RMR) is 0.066, which is within the acceptable range of 0.08 or less. Another measure that attempts to correct for the tendency of the Chi-square statistic with a sufficiently large model is the Root Mean Square Error of Approximation (RMSEA), where values ranging from 0.08 to 0.12 are deemed acceptable. The proposed model’s RMSEA is 0.095 and falls within that range.

However, the parsimonious measure of AGFI is 0.931. the second parsimonious measure is the named Chi-square (χ^2/d.f), which has a value of 4.418. This falls within the recommended level of 5.0 (Jöreskog & Sörbom, 1993).

Having assessed the structural model, the estimated coefficients can now be examined for both practical and theoretical reasons. As a measure of the entire structural equation, an overall coefficient of determination (R^2) is calculated. It provides a relative measure of fit for each structural equation.

Another means of evaluation is the standardized estimation coefficients. The coefficients closely approximate effect sizes shown by beta weights in regression. Coefficients near zero have little, if any, substantive effect, whereas an increase in values corresponds to increased importance in the causal relationships. These results are summarized in the following table:

<table>
<thead>
<tr>
<th>Standardized estimation coefficients</th>
<th>Estimator</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSTIC &lt;-- ALIG</td>
<td>0.477</td>
</tr>
<tr>
<td>STRA &lt;-- ALIG</td>
<td>0.560</td>
</tr>
<tr>
<td>STRU &lt;-- ALIG</td>
<td>0.569</td>
</tr>
<tr>
<td>PER &lt;-- ALIG</td>
<td>0.597</td>
</tr>
<tr>
<td>INFRASTR &lt;-- GSTIC</td>
<td>0.751</td>
</tr>
<tr>
<td>COMMUNIC &lt;-- GSTIC</td>
<td>0.441</td>
</tr>
<tr>
<td>INTEGRAT &lt;-- GSTIC</td>
<td>0.253</td>
</tr>
<tr>
<td>PRATCOLL &lt;-- STRA</td>
<td>0.770</td>
</tr>
<tr>
<td>COORDINA &lt;-- STRU</td>
<td>0.772</td>
</tr>
<tr>
<td>PERFORMA &lt;-- PER</td>
<td>0.780</td>
</tr>
</tbody>
</table>

The structural equation fit of the endogenous constructs, the co-alignment, shows that 31% of its variance was accounted for by strategy orientation (which is partnership strategy), 23% for by IT strategy and 32% for by organizational structure. These results allow the importance of the fit among these three constructs.

The results of the structural equation method are shown in the following Figure:
The results suggested that there is a significant relationship between the strategic alignment and the performance ($\gamma=0.60$, $p<0.001$). This result confirms our principle hypothesis (G.H) which suggests that if IT strategy is aligned with the strategy and the organizational structure of the enterprises, the performance is better.

The findings for the two sub-hypotheses ($\gamma_1=0.56$ and $\gamma_2=0.48$ and $\gamma_3=0.57$) indicate that IT strategy might be aligned with the strategy orientation of the firm and its organizational structure to generate best performance levels.

Most indices suggested that the proposed model is acceptable. The Goodness of Fit and Chi-square measures for the overall model are adequate ($\chi^2 = 39.766$, GFI = 0.970). Evidence of internal consistency is provided by the composite reliabilities and variance extracted measures. The $R^2$ of the endogenous constructs also exhibited statistical significance for the structural model.

6 CONCLUSION

The results of this research indicate that aligning IT strategy to the partnership strategy of the SME and to its organizational structure allows it to generate best performance levels. In other words, the results suggest that there is a direct positive link between the strategic alignment and the organizational performance. The data from 381 SME supports our propositions.

The results suggested, also, that if a SME, embarking in a collaboration practice, aims to generate better performance level, it might to align its adopted technology to its internal organization (strategy and structure). So, to success a partnership strategy, SME need to analyze the organizational impact of the adopting of technologies. More importantly, firms need to understand how aligning IT strategy to its strategy orientation and its organizational structure.

The positive relationship between alignment and performance indicates the importance to enterprises to search the fit.

However, there are two main limitations of this study. Firstly, the data used in this study was extracted from Cegos - Dauphine Laboratory database. The reliability of these data was not guaranteed since
they came from manager opinions. Secondly, others items might be taken into consideration to explain constructs (ex. managers role).

There are several avenues where future research may be conducted. It may be specifically conducted on SME belonging to an only one sectors (manufacturing sector for example). So, a new questionnaire might be constructed to more evaluate constructs of the research structural model.

References


