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PROSPECTIVE STRATEGIC BEHAVIOUR AND IS COALIGNMENT, IMPACT ON PERFORMANCE, AN ALTERNATIVE PERSPECTIVE

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Abstract

This research explores an alternative interpretation of the concept of co-alignment in the field of Information Systems (IS) and corporate strategy. While both the traditional research and practitioners have an axiomatic conclusion about the fact that the co-alignment between IS strategy and structure and the corporate strategy is a necessary condition for all the enterprises that aim to perform, we show in this study that the more the firms strategy is consider as prospector, the less the co-alignment impacts on their performance. We obtain our results by testing the model developed by Croteau, Bergeron and Raymond (2001) using Amos 7 and SPSS 14 and a database of almost 1500 firms. We interpret them according the concept of Order and Disorder introduced by Edgar Morin in his Method. This provides a alternative approach since it supposes that it is not the co-alignment itself, which is a performance factor for prospective firms, but rather their ability to mediate between alignment and non-alignment and between their strategy and their structure.

Keywords: Strategic alignment, IS strategy, Strategic behavior, performance

INTRODUCTION

In an unstable environment where prospective behaviors (Miles et Snow, 1978) are more and more frequent, is it relevant for firms to be co-aligned? The Information Systems theory (IS now) always underlines the strategic impact of the IS, especially with the concept of alignment. As Venkatraman and Camillus (1982) say, the concept of alignment is frequently used by both of practitioners and researchers. This shows how the congruence between different elements such as corporate strategy, structure, competences, etc. is relevant and important to firms. Understandably, the IS literature uses this concept with focusing on the impact of a co-alignment between corporate strategy and IS structure, corporate strategy and IS strategy. A brief overview of the arts on Strategic Alignment leads us to this axiomatic conclusion: the co-alignment is a necessary condition for all the enterprises that aim to perform. Nevertheless, few researchers contest this concept. Chan and Reich (2007) note different arguments, two of them are interesting regarding our positioning and research project.

- Alignment is not an objective in itself because a corporate activity is always evolving. Then, the IS should better stimulate the activity than following it.
- The IS has to challenge and not follow the activity, because conflicts and frictions, that is to say incoherencies, could have positive effects on firm's performance.

Indeed, firms that evolve in an unpredictable and unstable environment often build their strategies on anticipations or bet on the future made by managers (Vitale et al., 1986). Thus a too precise alignment could be negative for the firms' performance when the environment is changing quickly.

Our study is in this kind of perspective since we consider that the co-alignment couldn't be stipulated in every cases and a non-alignment is not a synonym of bad performances. Indeed it is legitimate in our eyes to reconsider the fact that co-alignment between corporate strategy and IS strategy and structure is relevant for all strategic profiles types. Actually, Miles and Snow (1978) built their typology to show that each type has special features, which are more or less adapted to their environment. Thus, prospective firms evolve on markets, which promote innovation and research of new products. On the opposite, the more a defensive firm is on a strategic niche the more she will be performing. In consequence and in accordance with the two critics state above, we think that the co-alignment should not be the solution for all strategic types as Croteau and al. (2001) or Sabherwal and Chan (2001) say. We assume that the co-alignment between these two dimensions is not optimal in term of its impact on performance of firms characterized by a prospective strategic behavior in the sense of Miles and Snow. Because this kind of firms makes a special effort on innovation and enlargement of their product range, they develop specific features, they have complex coordination and communication mechanisms, their decision are decentralized and they are influenced by marketing and research and development (Miles and Snow in Hambrick, 1983). The co-alignment issue is particularly interesting in this case because this specific characteristics could reappraise the traditional conclusion of the IS literature and confirm the critics. From the Croteau and al. (2001) model, we focus on an eventual impact on prospective firms' performance of the co-alignment of corporate strategy and IS choice and management.

1. REVIEW

This article is focused on the impact on performance of a co-alignment. In this context of alignment between IS Choice and Management and prospective strategy, we introduce those concepts (strategic behavior, IS Choice and Management, co-alignment and performance) and then present the model.

Strategic behavior

As we shortly present above, the Miles and Snow's typology distinguishes 4 types of strategic behavior: prospectors, analyzers, defenders and reactors. Those 4 types of firms develop different characteristics, they obviously have different and specific needs in term of IS structure and strategy.

In this study we focus ourselves on prospective firms. As we say previously, those firms develop complex coordination and communication mechanisms, their decision are decentralized and they are influenced by marketing and research and development (Miles and Snow in Hambrick, 1983). These features are fundamental, like a core competencies, and are expected to appear in each firms of this type. We use them in order to discriminate the firms of our panel regarding their level as a prospector.

Information System Choice and Management

This dimension has been defined by various studies. Nevertheless, and following Croteau et al. (2001), we use only the synthesis purposed by Janz et al. (1996) which characterized the IS Choice and Management in 7 items: IS architecture, the strategic role of the IS, the technological intelligence, the IS development source, the IS appraisal, the IS centralization and the management style of IS team.

For each dimension correspond some criteria from which we could define an adapted behavior for each strategic type of firms. We synthesize the literature in table 1.

Authors	Dimension	Evaluation	Strategic behavior type		
			<i>Prospectors</i>	<i>Analyzers</i>	<i>Defenders</i>
Das and al. (1991)	IS architecture	Type of IS architecture?	Open	Distributed	Close
Bergeron and Raymond (1995)	Strategic role of the IS	Importance of the IS department in the organization	Important		Limited
Lesca (1994) / Sutcliffe (1994)	Technological intelligence	Quantity of collected, analyzed and disseminated information		Important	
Das and al. (1991)	IS development source	Localization of the sources	External	Mixed	Internal
Tavakolian (1989)	IS centralization	Type of architecture	Decentralized	Decentralized	Centralized
DeLone and McLean (1992)	IS appraisal	Technical and qualitative aspects			
Das and al. (1991)	Management style of IS team	Level of involvement, of standardization and of flexibility	Important		Limited

Table 1: The 7 dimensions of the IS Choice and Management

Fit

Usually, the co-alignment, or fit (Chan and Reich, 2007), is defined as the level of the consistency of the IS and corporate strategy defined by its mission, plans, goals (Reich and Bensabat, 1996). Thus we consider co-alignment when there is a harmony between different dimensions (McKeen and Smith, 2003). Notwithstanding, this notion remains confusing. We have to specify precisely on which

perspective we build our work. Then we use the foundational text of Venkatraman and Camillus (1984) and Venkatraman (1989). The first one defines the fit in the strategic and organizational field, while the second one orders the different perspectives of co-alignment in 6 groups. From these articles, we consider that the co-alignment has to be realized between corporate structure and corporate strategy (Camillius, 1982), where the strategy is one of the elements of the system “firm”. Then we assume that the strategy is given. Moreover we are in a perspective of “Fit as covariation”.

A consensus exists among the literature (but also for practitioners) about the positive impact on performance of the co-alignment between IS structure and/or strategy and corporate strategy. Indeed, a lot of researchers according themselves on this point of view as shown in the table 2 inspired by Bergeron et al. (2004) and completed with new references.

Authors	Domain				Alignment type	Impact of performance
	Corporate strategy	Org. Structure	IT strategy	IT structure		
Bergeron and Raymond (1995)	X		X		Mediation Moderation	+
Teo and King (1996)	X		X		Pairing Mediation	+
Chan et al. (1997)	X		X		Moderation	+
Palmer and Markus (2000)	X		X		Pairing	No Impact
Sabherwal and Chan (2001)	X		X		Profile Deviation	+
Croteau et al. (2001b)		X		X	Covariation	+
Croteau et al. (2001a)	X		X	X	Covariation	+
Kefi and Kalika (2003)	X		X		Covariation	+
Jouirou and Kalika (2004)	X	X	X		Covariation	+
de Leede et al. (2002)	X		X			+
Irani (2002)	X		X			+
Kearns and Lederer (2003)	X		X			+
Chan et al. (2006)	X		X			+
Tallon and Kkraemer (2000)	X		X			+

Table 2: Synthesis of the literature on co-alignment

Performance

We can distinguish 2 type of performance measure, one is objective and the other is subjective. According to Dess and Robinson (1984), an objective measure is stronger and more exact than subjective ones. However they admit that subjective measures are positively related to objective ones, but they deny that they should be a good substitute for objective measures. Venkatraman and

Ramanujam (1986), Gauzente (2000) or Bergeron and Raymond (1995) confirm this positive link between objective and subjective measures. Note that Sabherwal and Chan (2001) use only subjective index to evaluate the firm performance. Thus we use only subjective index of performance in this study, that is to say the gains of productivity, the production cost control and the relative position of the firm on its market regarding its component.

Propositions

- Pa: the more the companies concur with the prospective strategic type, the less the co-alignment of their Strategic Behavior with their Information System Choice and Management has a positive impact on their performance.
- Pb: Co-alignment is more beneficial to the prospective companies than to others.

If those propositions are verified, it will allow us to interpret the IS co-alignment concept in a new and different perspective. If they are not, this study will be a confirmation of the traditional theory of the IS co-alignment which say that the more the co-alignment is strong, the more the firm perform. This conclusion is reinforced when we focus on prospective firms according to Croteau et al. (2001) or Sabherwal and Chan (2001).

2. MODEL

We can't use a linear regression method (Snow and Hambrick, 1980). Our "Fit as covariation" position requires a more precise establishment of a pattern than other types of co-alignment – Fit as moderation or mediation and needs a logical explanation of the different elements of the model. Indeed, a risk of creating artificial covariation links exists. Then we are in a confirmatory posture in the sense that we assume a model a priori built on our hypothesis and literature review. This forces us

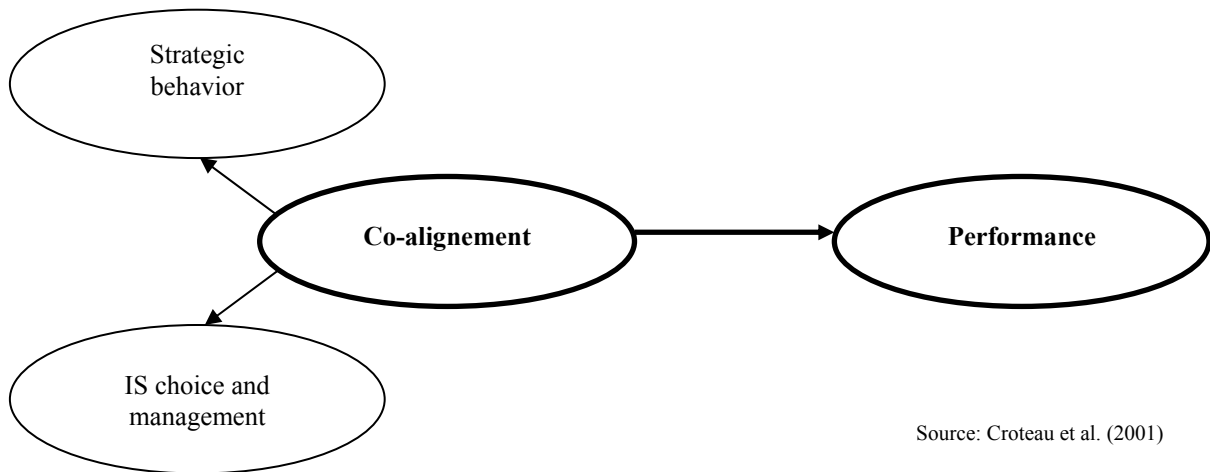


Figure 1: Model

to use structural equation method. The covariation won't be an observable theoretical variable but it will be obtained via 2 second order constructs operationalized by observable indicators, here the strategic behavior and the IS choice and management. The performance is measured via 3 indicators. Finally, the correlation test between the constructs co-alignment and performance confirms or invalidates the model and our propositions. The model is represented by the figure 1.

3. METHODOLOGY

A new methodological perspective

Our questionnaire has been realized by the confrontation between our literature review and existing questionnaire with questions available in our database.

First we sort the firms into 5 groups according their level of prospective behavior. Then the first group gathers firms that have a low degree of prospective characteristics, the second gathers firms that are a little bit more prospective and so on to the fifth group that contains the most prospective firms.

In a second time we test 5 patterns built on the general model previously presented.

The questionnaire is divided into 4 sections. 3 are dedicated to confirm the model and the last one to split the firms into the 5 groups.

A prospective firm is defined as innovative, forcastive, reactive to its market opportunities and able to adapt his supply to the market demand. We use those 4 criteria to sort the firms into the 5 groups (Q13d, Q13e, Q13f and Q14).

The strategic behavior is defined as implemented actions to achieve the firm goals (Croteau et al., 2001). A prospective firm adopts flexible and non-centralized customers and working processes. 8 Likert scales (5 points) items are used to operationalize these dimensions (Q35, Q33b, Q31, Q30, Q27a – Customers and work processes; Q21a, Q21b, Q22 – decision centralization).

The tool to measure the variable IS choice and management is inspired by the 7 dimensions of Janz et al. (1996). Nevertheless, we have only 2 dimensions because of the constraint due to the use of a second hand questionnaire. Those dimensions are operationalized by 6 Likert scales (Q11, Q15, Q16 – IS Architecture; Q09, Q12, Q13c – strategic impact of the TIC).

The performance is measured by 3 Likert scales (Q13b, Q13c and Q07b) inspired by the tool used by Jouirou, Kalika (2004) and Kéfi, Kalika (2003).

Data

Data have been sampled on a questionnaire given to the management of participant firms which is focused on the IT contribution in the organization. Each year between 2001 and 2003 almost 500 firms answered to this questionnaire.

4. DATA ANALYSIS

The data analysis is made in 3 steps. In first we verify the relevance of the 3 constructs of the model. Secondly we split the data according to the criterion that we choose to compose the 5 groups. Finally we test the model with structural equations. For the 2 fist steps, we use SPSS 14, then for the third one we use AMOS 7. Here we present only the two last steps.

Split of the data

We create a new variable to sort the firm in the 5 possible groups according their level of prospective behavior. For each firm we aggregate its score on the 4 criteria presented above for measuring the level of the prospective behavior. The range of the score is from 4 to 24 points and seems to respect a normal distribution. We split the data into 5 groups, each group represent approximately 20% of the population (table 3).

	Degree of prospective features score	Population	%
Group 1	[1;2,75[	399	19,86
Group 2	[2,75;3,25[	371	18,47
Group 3	[3,25;3,75[	509	25,34
Group 4	[3,75;4,25[	440	21,90
Group 5	[4,25;6[	290	14,44

Table 3: *Repartition of the enterprises in 5 groups according their prospective level*

Structural equation analysis

We test our model with a structural equation method and Amos 7. The model adjustment is tested on 3 points, the viability of the constructs, the validity of the constructs and the adjustment level of the measure model. The table 4 shows that the model has a good adjustment.

Indexes	Obtained values	Key values
Absolute index		
χ^2	185,75	-
<i>ddl</i>	8	
<i>GFI</i>	0,97	> 0,9
<i>AGFI</i>	0,93	> 0,9
<i>RMR</i>	0,05	Closest to 0
Incremental indexes		
<i>NFI</i>	0,92	> 0,9
<i>CFI</i>	0,92	> 0,9

Table 4: *Model adjustment*

The table 4 shows that the 4 first models are well validated and that the regression coefficients are all of them significant ($p \leq 0,1$). In the other hand, the model number 5 is not valid, that is to say that there is no significant correlation between co-alignment and performance. Then this result is not a confirmation of Croteau et al. (2001). Indeed, as they say, the more they are co-aligned, the more they perform. In our cases we cannot confirm this conclusion because we found that for 15% of the most prospective, a co-alignment has no influence on the firm performance. In opposition to the classical assessment, we found that the firms that are the less prospective are those for which the co-alignment has the strongest impact on performance.

5. DISCUSSION

We assimilate the co-alignment to the concept of Order and Disorder conceptualized by Edgar Morin. This assimilation seems to be relevant when defining co-alignment as a covariation (Venkatraman, 1989). This means that the higher the co-alignment is, the higher the cohesiveness is. That is to say that there are only a few Residues. This is the Order. In opposition, a low-level of co-alignment intends that there is a lot of Noise between the studied dimensions. This is the Disorder. According to Edgar Morin, in every organization, the Order and the Disorder have to coexist. This is available in all research fields as cosmology, human science, biology, etc. and obviously Organization science. Indeed, Order and Disorder are both needed to ensure that all organizations have the ability to survive and to evolve. The Disorder is, in the sense of Morin, a constitutive principle of every element in which there is Order (Fortin, 2000). The Order is a constraint which will determine the future evolution of the organization. Then the Order is always stable, consistent and systematic. The Disorder is much more than a simple hazard or chance. Indeed the Disorder is also characterized by accident,

disruptions, deterioration, loss and destructions (Morin, 1990). Order and Disorder are fundamentally linked, and then they are necessarily attached to the notions of organization and interaction. Indeed in the organization, interactions enable the confrontation of the Order and the Disorder which leads up to evolutions. For its part, the organization offers a protection to the Order against the Disorder (chaos) and is a necessary condition for the evolution (because of the confrontation of Order and Disorder) of the Order to another Order often more sophisticated, complex and more adapted to the environment.

In this respect, co-alignment appears as a necessary limitation, which admittedly allows the company "organization" to function in the short or medium term. It does, however, restrict its abilities to evolve in the long term. This notion can also be found in an article written by Sauer & Wilcocks (2003) in which they corroborate that the structure does not suffice to the implementation of a strategy. It is difficult to permute, especially for organizational structures. On the other hand, information technologies allow following the current processes while influencing the future evolution of the firm. Organizational structures and information technologies thus have a complementary role, seeing that according to Sauer & Wilcocks, if structure allows to organize the complexity of the processes, technology for its part, facilitates the management of the structure (in the present) and makes it more experimental (for the future). Therefore, we may conclude that what need to be done are arbitrations between alignment (order) and non-alignment, or in other words, arbitration between the efficiency of current affairs and its capacities to evolve.

This type of arbitration is particularly relevant for prospective firms and our results confirm this vision. Indeed, the characteristic of these firms is that they want to reach the largest market possible by innovating and widening their range of products or services. Consequently, they will: use complex mechanisms of coordination and communication, take decentralized decisions and be particularly influenced by marketing and research of new products. Therefore, these companies must specifically be reactive on their market and be able to adapt themselves to any threats or opportunities that may come their way. We can hence infer that for this type of company, a co-alignment may not be optimal if it is too consequential, meaning that it would reduce room to maneuver for their future development.

6. CONTRIBUTIONS AND LIMITATIONS

Beyond the limits of our empirical study, we can learn from this study in term of method, theory and management. In term of method we experience a new way to analyze data to verify the Croteau et al. (2001) model. In term of theory, our work is an alternative to the axiomatic conclusion of literature concerning the co-alignment issue. This survey, of 2000 questionnaires, shows us that the more the firms' prospecting characteristics are important, the less the co-alignment impacts the firms' performance. These results confirm our hypothesis because it appears that the firms adopting a non-prospective strategy benefit much more of the co-alignment between their strategic behaviors and Information System Choice and Management than those, which are exceedingly prospective. This provides a very interesting development approach since it supposes that it is not the co-alignment itself, which is a performance factor for prospective firms, but rather their ability to mediate between alignment and non-alignment and between their strategy and their structure. Then it confirms but with a different perspective the impact of co-alignment on performance, and opens new prospects for future researches with the assimilation of the co-alignment to the notion of Order and Disorder of Edgar Morin. Finally, in term of management, this study could be use as a warning about the temptation of a perfect alignment and the willing to always eliminate all the dimension of the IS structure and IS strategy which is not seen as useful or relevant by manager regarding their strategy.

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