

Exploring business and IT alignment mechanisms: toward a learning perspective

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Exploring Business and IT Alignment Mechanisms: Toward a Learning Perspective

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Abstract

Numerous studies have attempted to develop strategic alignment mechanisms. The strategic alignment mechanism is broken down into two categories namely: strategy process and strategy content. Our review shows that alignment research has been carried out in isolation. We see this as having had the effect of limiting the extent to which executives can understand elements of performance. We confer with a number of researchers in postulating that using a mechanism such as multilevel learning to combine strategy content and strategy process under one metaphor can greatly facilitate, through exploration and exploitation, the understanding not only of human interactions within a firm, but also of the interaction existent between a firm and its environment. The findings in this study further support the idea of integrating strategy process and content to have a better understating of alignment maturity and impact on business performance. It also elaborates the affect of misalignment in companies on performance.

Keywords: Alignment mechanisms, multilevel learning perspective, strategy content and strategy process

Introduction

A considerable amount of literature has been published on business and IT alignment by consultants and academicians, however, a number of problems remain unresolved (Min et al. 1999). For example, many business executives realize that some business successes are the result of accidental circumstances and that that implies the need for more control in the future (Ciborra 1994; Kearns and Lederer, 2001). According to Lee and Bai (2003) organizational mechanisms are necessary for effective strategic planning. They suggest that organizational mechanisms lead to stakeholder satisfaction and allow planning objectives to be met. Despite the fact that information systems research has applied a number of perspectives to study the nature of alignment, it is clear that a considerable amount of information systems literature has been greatly influence by the field of strategic management, particularly in strategy studies (Chan and Huff 1993). For example, alignment research has investigated the effect of the strategic dimension and the structural dimension on performance from a strategic management perspective (Henderson and Venkatraman, 1993; Chan, 2002). Others have used organizational learning as a fundamental source of competitive advantage in the field of strategic management (Kearns and Sabherwal, 2007). Lopez et al. (2005) highlights the importance of using organizational learning as a dynamic process of the creation, interpretation, sharing and utilisation of knowledge that aims to develop competences and resources that enhance performance.

Numerous studies have attempted to explain alignment mechanisms. Some, for example, have sought to do so using the social and intellectual dimensions Reich and Benbasat (2000), Miles and Snow strategy typology (Sabherwal and Chan, 2001). This has not happened without contradiction, though. Lee et al. (2008), for example, have argued that all of the previously mentioned studies do not show the explicit impact on performance since they lack well-established mechanisms for doing so. They subsequently developed a socio-technical framework which they used to claim that the content-process paradigm fits their approach. In fact, the social dimension could fit the strategy process, since it focuses on people who formulate strategy. The technical dimension, for its part,

focuses on functional integration within a firm and does not reflect strategy content as the latter is primarily concerned with the relationship between the firm and its external environment. The following sections describe the distinction between process and content in strategic alignment and their impact on performance.

Strategic Alignment Content

Strategy content focuses on what harmonises business strategy with IT strategy, whereas strategy process is concerned with how an organization establishes and implements its business and IT practices. Strategy content was built based on strategic management literature and work; this is in contrast with the single-loop and double-loop mechanism. As described earlier, strategy content was developed based on a number of strategic orientations such as the Mile and Snow (1978) typology; the five competitive forces (Porter, 1996); and exploration-exploitation (March, 1991) that share theoretical similarities (Thornhill and White, 2007).

Sabherwal and Chan (2001) draw attention to the use of the Mile and Snow (1978) strategy typology to predict the suitability of an IT strategy, evaluate a business strategy and gauge overall alignment. This typology is based on competitive strategic orientations and has been widely used. Sabherwal and Chan (2001) suggest that defenders are theoretically related to alignment for IS efficiency, prospectors are correlated with alignment for IS flexibility and analyzers are expected to see alignment for IS comprehensiveness. By the same token, Croteau and Bergeron (2001) highlight the need to define the link between strategic activities, technological positioning and business performance, based on the Mile and Snow (1978) strategy typology. They suggest that prospector or analyzer strategies are likely to enhance organizational performance. Prospector strategies acknowledge the role of IT, particularly as it relates to strategic goals, while analyzer strategies encourage the efficient use of new technologies. In support of this view Chan et al. (2006), found a direct relationship between type of business strategy and the importance of alignment. A recent study by Raymond and Bergeron (2008) suggests that further research should not only be limited to the Miles and Snow typology but also to other strategy typologies such as Porter's five forces. The contextual dimension of alignment is about the environment in which the business operates and hence relies on aligning strategy with industrial environment, macroeconomic environment and national cultural factors (Scott Morton, 1991 and Silvius et al. 2009). Alignment competes and develops strategies to enhance performance on the basis of industry structure (Porter, 1996). What this means is that alignment is not assumed to be static and should always be dealt with bearing in mind the looming occurrence of unpredictable challenges (Benbya and McKelvey, 2006). Other researchers (e.g. Kearns and Lederer, 2003) used the five competitive forces to measure the competitive advantage of IT. IT could be used as a strategic weapon to reduce costs, provide customers with unique products and services and fortify market entry barriers (Porter and Millar 1985). The resource based perspective defines the firm as a collection of resources, processes and knowledge that are integrally valuable. This view sees IT capabilities (e.g. IT human resources and IT infrastructure) as a source of competitive advantage (Spanos and Lioukas, 2001). In another study, Tallon et al. (2000) used operational effectiveness and strategic positioning as key objectives in pursuit of which firms should study the relationship between IT goals, business executives' perceptions of IT value and management practices (Porter, 1996).

The third perspective on strategy content is exploration and exploitation. Peppard and Breu (2003) argue that alignment outcomes do not only dependent on strategic and structural congruence to create IT value but also on exploration and exploitation. Tallon and Pinsonneault (2011) establish a link between strategic alignment and organizational agility through exploration and exploitation. The exploitation perspective of alignment enhances effective IT capabilities in an ongoing improvement mode, while the perspective of exploration fosters organizational growth and success by searching for new opportunities.

Strategic Alignment Process

The distinction discussed above suggests that the strategy process research approach was drawn into alignment research to understand how to achieve strategic alignment. Luftman et al. (1999) conducted a study for almost five years and identified enablers and inhibitors for business and IT alignment and referred to the complex nature of addressing both. The question of how to achieve

alignment was and still is a concern for alignment research. Therefore, understanding strategic alignment in an organizational context has encouraged researchers to use perspectives such as strategic management and organizational learning (see Table 1).

The behavioral interaction, which includes individuals, groups and organizations is a principle foundation for strategy process. Early attempts at explaining this were developed by Henderson and Venkatraman (1989), who used single-loop and double-loop learning concepts as mechanisms to describe strategic IS planning. Argyris (1977) defines single loop learning as the response of people toward any externally or internally induced change in the environment by correcting errors based on prevalent norms. Single-loop learning considers problems and their solutions to be close to each other in time and place. This perspective of learning assumes that people are mostly monitoring their own actions. As a result, they are able, to some extent, to apply minor changes to solve current or past problems. This form of learning attempts to bring about better changes without necessarily examining norms, strategies and assumptions. Double-loop learning goes beyond the limits of single-loop learning by becoming useful even when an organizational error entails modification of norms, values and strategies. Ginsberg (1988) points out that single-loop learning is related to changes in content while double-loop learning looks at changes in process. In this learning perspective, building strategies or actions is often done on the basis of working assumptions. It is worthy noting that both single-loop and double-loop perspectives of learning emphasize the organizational level. This is because people are strict observers of what they themselves do to enable organizational changes to take place amid adjustment of strategies, structures and processes. Reich and Benbasat (1996) combined business and IT alignment with Horovitz's (1984) duality of social dimension and intellectual dimension to explain alignment. Social dimension is defined as "the state in which business and IT executives within an organization's unit understand and are committed to the business and IT missions, objectives and plans" (Reich and Benbasat 2000). Intellectual dimension is defined as "the state in which a high quality set of interrelated IT and business plans exist" (Reich and Benbasat 2000). Social dimension is classified into long term and short-term alignment whereby long-term alignment refers to the mutual understanding between business and IT executives regarding the IT vision. It differs from short-term alignment which primarily dwells on fostering a common understanding of current and temporary goals of alignment. Baker and Jones (2008) argue that shared domain knowledge and strategic planning are vital foundations for long-term alignment if alignment is to be sustained over time. Chan and Reich (2007) found that studying social and intellectual dimensions as interrelated concepts could reduce the complexity of alignment. Both dimensions correspond to rational planning and logical incrementalism in strategic process literature. It must be pointed out, however, that their research model has ignored the psychological elements of knowledge sharing. For example, Cabrera et al. (2006) argue that individual engagement in knowledge sharing relies on psychological and organizational variables such as individual personality and commitment. Researchers such as Tan and Gallupe (2006) used the Personal Construct Theory and found that higher shared cognition lead to shared understanding and was related to higher levels of business and IT alignment. They defined shared cognition as the overlapping collection of individuals' cognition which means the more individuals interact and participate in groups the more understanding they will share over time (Langfield-Smith 1992). Other researchers have also found that experience and shared language play a vital role in executives' understanding, resulting in more mature alignment (Bassellier et al. 2003; Preston and Karahanna 2009).

In 2000, Luftman developed the Strategic Alignment Maturity Model (SAMM) to assess alignment at various stages of its development namely: as an ad hoc process, a committed process, an established process, an improved process, and, finally, an optimized process. Luftman's SAMM consists of six maturity criteria that include communications maturity, competency/value measurement maturity, governance maturity, partnership maturity, scope and architecture maturity and skills maturity. In our view, the six criteria do consider individual, group and organizational elements but not as a substantial part of the SAMM. For example, individual elements such as perception, awareness and experience are included in the SAMM but as independent criteria. Notably, there is no clear process that translates common executive understanding into strategy, plans and infrastructure. To make matters worse, measuring the influence of an organization on groups and individuals and vice versa is ignored and this affects the IT vision and its utilisation (Brabston et al. 2001). Many strategic processes of business and IT still emphasize the rational aspect (i.e. formal planning) and ignore the complexity that is ingrained in organizational situations

and is embedded in human behavioural problems (Lee and Bai 2003). For example, although the strategic alignment model may help business and IT managers to understand the strategic fit and functional integration between their two domains, the framework does not consider managerial and organizational issues that are necessary for the exploration of new strategic planning endeavors and the utilisation of current competence to that end. The following section describes the focus on types of strategic alignment content.

Strategic Alignment and Business Performance

Strategic alignment is increasingly acknowledged as a key factor in business performance (Schniederjans and Cao, 2009). As described above, strategic alignment has two central approaches which are process and content. Research in this regard has usually been concerned with either strategy process or strategy content, but this has only produced an unclear understanding of the impact of strategic alignment on performance (see Figure 1).

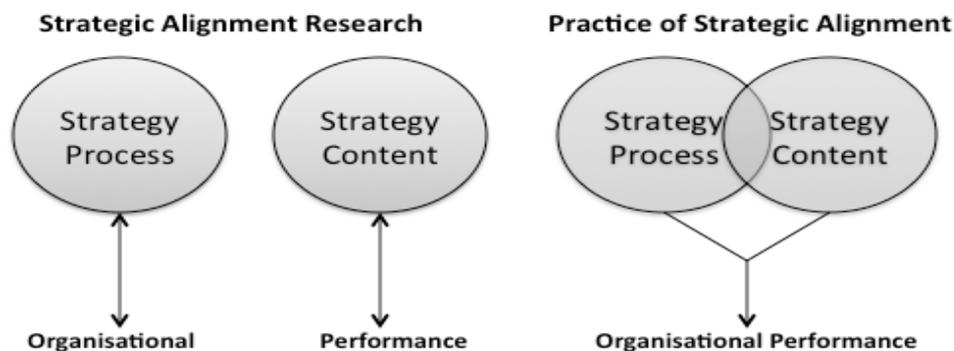


Fig 1. Strategic Alignment Research Versus Practice (Adapted from Robinson and Pearce, 1988)

Several studies investigating organizational performance have been carried out from the perspective of strategic alignment content. Sabherwal and Chan (2001) investigated the differential impact of alignment on performance (e.g. net profit, return on investment and reputation); they were able to establish a positive impact. In support of this view, research by scholars such as Cragg et al. (2002); Kearns and Lederer (2003); and Chan et al. (2006) has also reported positive effects of strategic alignment on performance. A major drawback of all of the above mentioned studies are that they overlook the process perspective (see Table 1).

Table 1: Examining the Impact of Alignment on Business Performance Using Strategy Process or Strategy Content Perspectives

Strategic Alignment	Sabherwal and Chan (2001)	Kearns and Lederer (2003)	Chan et al. (2006)	Luftman and Dorociak (2008)	Tallon and Pinsonneault (2011)
Process	-----	-----	-----	Strategic alignment maturity model	-----
Content	Miles and Snow strategy typology	Porter's five competitive forces	Miles and Snow strategy typology	-----	Exploration and exploitation perspectives
Financial Performance	Return on investment and net profit	Cost reduction or differentiate products	Return on investment and net profit	Return on investment and return on assets	Return on assets and net margin
Non-Financial Performance	Reputation	-----	Reputation, market share, product quality	-----	-----

Relatively few attempts have been made at investigating the strategic alignment process. In 2008, Luftman et al. demonstrated that the alignment process has a positive effect on business performance, particularly as far as return on investment and return on assets is concerned. Logically, these studies might have been more useful if the authors had included both strategic perspectives. The following section highlights the need for applying the multilevel learning perspective in business and IT alignment.

Alignment Emphasis on Multilevel Learning Perspective

As described earlier in this paper, business and IT alignment research has used a number of mechanisms, taken from strategic management literature (e.g. Horovitz 1984), to understand how best to achieve strategic alignment. It is clear that a strategic alignment process aims to align people, systems and processes within the firm, while strategic alignment content attempts to harmonise the firm with its business environment. The constant changes occurring in business environments have raised the need for organizations to be dynamically proactive in adapting to changes. Because of this, the process of creating knowledge from individuals, groups and organizations has become central to the creation of strategy (Muthusamy and Palanisamy, 2004); it is no longer just a process of conceptions. Undoubtedly, organizational learning has received increasingly more attention in relation to strategy research (Crossan and Bedrow, 2003). As already stated, strategic alignment is an on-going process (Henderson and Venkatraman, 1993) but should be further expanded to encompass multiple levels (Lambert and Peppard, 2012; Chan and Reich 2007; Reich et al. 2012). Despite a good coverage of the multilevel perspective in related literature, alignment research is still primarily oriented towards a single level of analysis regarding the individual, groups and the organization (Balhareth and Liu, 2012). Each level has unique characteristics and complexities that dictate the scope of research at a particular level. This concept has raised a number of questions regarding the interactive process among levels.

The conjectural relationship between information systems and organizational learning at each strategic alignment process level represents a learning stage. For instance, the adoption of new information technology is defined as a learning process (Attewell, 1992). Usually, formulating a strategic alignment requires a clear understanding of the link between business and IT and the ability to analyze any existing gaps. Mintzberg (1993) points out that formulating a strategy is not limited to formal planning; he emphasizes the role of strategic learning perspectives in this regard. Needless to say, implementation typically entails change in experience, cognitions, skills and roles. After the implementation stage, the need to use appropriate criteria to evaluate the success of strategic alignment emerges. The aim here is to make sure that once acquired, alignment is sustainable. This stage includes feedback mechanisms that make it possible for people to learn from their mistakes and experiences. These examples depict the different learning stages of the strategic alignment process, which are better described under one metaphor (Crossan et al. 2003). As stated by Huysman et al. (1994), the process of organizational learning can play a central role in strategic IS planning. The learning flow aims to facilitate understanding of IS/IT in terms of opportunities and ways of utilisation. For this reason, considering the learning perspective in IS/IT strategic planning becomes imperative (Auer and Reponen 1997). Although extensive research has been carried out on mechanisms of alignment, few studies exist which adequately cover alignment from a multilevel perspective. In addition, most of alignment studies do not explicitly show how strategic processes shape strategic content and how content is, in turn, sensitive to strategy (Ketchen et al. 1996). Ketchen et al. (1996) argue that maintaining the process-content dichotomy might affect understanding the relationship between strategy and business performance. They found that strategic alignment of process and content could increase performance particularly in a dynamic environment.

According to Lee and Bai (2003) strategy creation is a learning process in which strategists themselves are learning at multiple levels. In other words, the question of “how to create a strategic alignment” is addressed by the strategic process through planning methodologies that reflect peoples’ experience and knowledge (Reich and Benbasat 2000; Kearns and Lederer 2001). While noting that strategy content is based on issues that harmonise business strategy and IT strategy in response to business environment alterations, it is our asseveration that strategy process is perfectly in accordance with Crossan et al.’s (1999) definition that alludes to learning stock and includes individual learning, group learning and organizational learning. Multilevel learning is a process of

dynamic knowledge creation involving manager’s interactions at different organizational levels, particularly sharing personal experiences and organizational knowledge (Muthusamy and Palanisamy 2004).

Following this perspective, we find that many researchers are interested in investigating the strategy process from an organizational learning perspective to determine activities involved in strategy formulation and implementation. Contrarily, strategic alignment content describes the nature of actions that match the concept of exploration and exploitation of multilevel learning (Crossan et al. 2011). The multilevel learning perspective defines strategy at various levels, viewing it as a strategy process that interacts with the exploration and exploitation perspectives of strategy content. Consequently, multilevel learning can be used as a mechanism to overcome the shortcomings of alignment by not explaining the strategic perspective within a firm but also the firm and its business environment. Balhareth and Liu (2012) provide a preliminary understanding of business and IT alignment process from the multi-level perspective (see Figure 2). The individual level typically is concerned with the competences that allow one to achieve required tasks. The importance of having such capabilities which includes experience, awareness, confident and knowledge is vital for supporting business strategy and managing IT infrastructure. The next level is the group, which often struggles to develop shared knowledge. In order to develop a shared knowledge, it is important for business and IT to have regular meetings, share success and failure and involve right people. The last level is the organization, which typically aims to embed shared knowledge into non-human elements such as strategy, infrastructure, culture and structure. On the other hand, the findings emphasise the importance of “what strategy the firm is following?” to business and IT alignment. For example, strategy content in IS research has been used to study the impact of business and IT alignment on business performance. Strategic perspectives could lead to investment, utilization and efficiency. However, based on our review, the balance between strategic perspectives (e.g. exploration and exploitation) is indispensable for the survival and higher business performance.

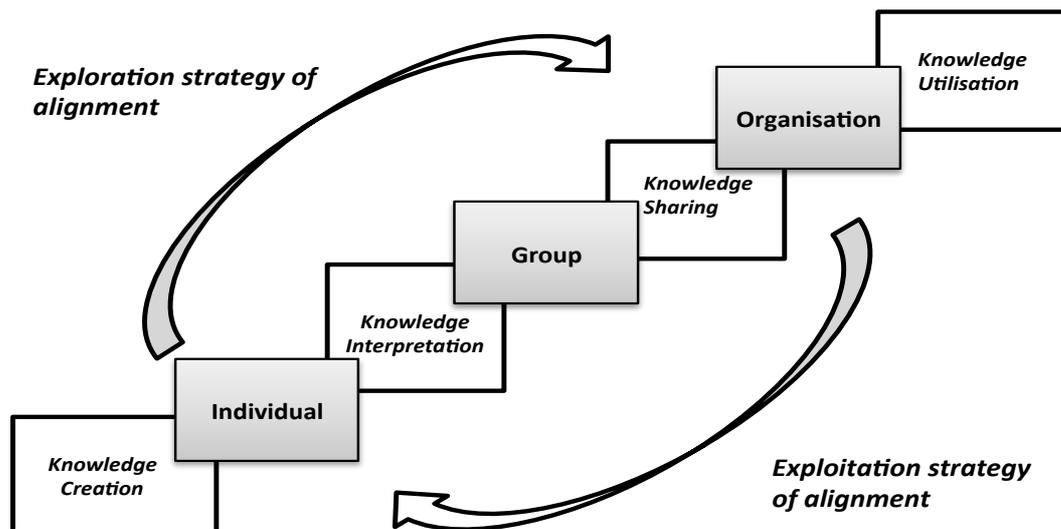


Figure 2 A Framework for Aligning Business and IT from Multi-level Learning Perspective (Source: Balhareth and Liu, (2012))

Misalignment between Strategy Content and Process

Now that we have a better picture of the relationship that ties individual learning to group and organizational learning, we are in a position to examine how they relate to process, content and performance from a strategic standpoint. Particular attention will be paid to examining misalignment between strategy process and strategy content viewed from a multilevel learning standpoint.

For the purpose of this research, misalignment is understood to mean the degree to which strategy

process and strategy content are mismatched. Going by Bonits et al. (2002) assertion, it is imperative that managers establish an alignment between process and content learning levels in their organizations, if they are to achieve smoothness and efficiency in the overall running of their organizational learning systems. A yawning gap misalignment between the two is indicative of lost learning opportunities; but is, for one reason or another, missing out on some them. A good example is a situation where individual learning suffers as a result of process strategy being far ahead of strategy exploration. In such cases the individual gets overwhelmed and is not able to apply their learning in then organization. Another example of misalignment is the situation where despite having a streamlined group learning process, the organizational has such a structure that it makes it hard or impossible for the right people to meet and share learning experiences. Reward systems that favor that recognize only individual effort, say on a project, are discouraging and contrary to spirit of team work where the group must share both successes and failures. We strongly argue that misalignment between strategy process of learning and strategy content has a negative association with business performance (Balhareth and Liu, 2012) regardless of the level at which it occurs. It is our view that firms can have identical exploratory and exploitation levels and yet the strategic alignment between their processes and contents may be very dissimilar. This suggests that alignment is unique to a firm and not easily replicable in another organization. This can be a determining factor in how well or badly the organization is performing. Misalignment creates learning bottlenecks and bottlenecks have a negative effect on the efficiency of the organization's learning system. This is why (Bontis et al. 2002) argues that by reducing misalignment, a firm can achieve greater relative performance.

Methodology

Design science research activities naturally occur in steps or phases (e.g. Hevner, 2004; Venable, 2006). Kuechler and Vaishnavi (2008) describe five basic phases of design science processes, namely: awareness of problems, suggestion, development, evaluation and conclusion. Becoming aware of problems is the ineludible initial step in efforts to find a solution. We reviewed a number of business and IT alignment mechanisms, and concluded or became aware that alignment is one of the topmost concerns of business and IT executives. We found that solutions to most of the problems are hard to come by simply because researchers fail to use a multilevel learning perspective to understand how individuals, groups and organizations formulate and implement strategies. We also studied strategic alignment and performance based on the dichotomy of strategy content vs. process. The evaluation phase ensures iterating development phase activities to derive a practice friendly framework and method. We evaluated the resultant final framework using the Kuechler and Vaishnavi (2008) steps, which are based on techniques such as case studies and surveys. We found that surveying is the most favored data collection technique. We involved business and IT executives and senior manager as target participants since they are the ones in charge of formulating and implementing strategies. The total of 106 completed surveys were used for analysis from 8 Saudi companies. The participation of business and IT executives to the assessment of alignment was from Banking (2), Telecoms (2), Power utility, Petrochemical (2) and Airline.

Data analysis

In factor analysis, we established validity (KMO) through the construct variables: individual, group, organization, exploration and exploitation. The validity of each construct surpassed .80, which is acceptable. While Cronbach alpha measured the internal consistency and exceeded .70 for all constructs. Thus, the framework presented validity and reliability. The multi-level constructs were measured using four items for each. In addition, seven financial and non-financial performance items were used to provide a better understanding of business performance. Under this conceptualization, financial performance relies on such measures as return on investment (ROI) return on assets (ROA), return on equity (ROE). On the other hand, non-financial performance refers to indicators that measure employee satisfaction, customer satisfaction, reputation and market share. Chenhall (2005) suggests that a combination of the two indicators allows different perspectives to be covered and that this, in turn, enables managers to better translate strategy into performance measures.

Discussion of results

This section describes the misalignment between strategy content and strategy process of business and IT. The perspective includes strategy process components, which are individual, group and organization while strategy process include exploration and exploitation. Aligning the strategy content and process is required not only for better understanding of strategic alignment but also for accurate estimation of business performance.

Therefore, misalignment as described earlier make the firm less effective and affect the performance. Thus, in order to define misalignment from a conceptual perspective, it is important to combine individual, group and organization as a strategy process and consider the difference with the level of strategy content. The total of strategy content should be subtracted from the total of strategy process (Bontis et al. 2002). For each construct, a SPSS calculated the mean of individual, group and organization as a one component and exploration and exploitation as another component. Table 2 illustrates the degree of misalignment for eight Saudi companies.

Table 2: The misalignment degree among a number of Saudi companies

Companies	Strategy Process	Strategy Content	Misalignment
A	3.858	3.937	-0.079
B	3.856	3.988	-0.132
C	3.86	3.6	0.26
D	4.173	4.217	-0.044
E	2.989	3.046	-0.057
F	3.48	3.315	0.17
G	3.16	3.31	-0.15
H	3.06	3.07	-0.01

It is apparent from table 2 that strategy content is higher than strategy process in most companies. This shows that exploration and exploitation are not fully absorbed by individual, group and organization. On the other hand, two companies (C & F) show a higher strategy process than strategy content, this represents that capabilities of individuals and group are not able to contribute in their companies. Figure 3 shows a strong relationship of integrating strategy content and process of alignment towards business performance. This study indicates that higher degree of misalignment will negatively impact performance. For instance, company C has the highest level of misalignment; the affect in Figure 3 is clearly high in non-financial performance, which in turn might not provide a better indication of financial performance particularly for long term. Other companies such as company A, B and D are aligned which resulted of higher performance. The most interesting finding is that non-financial performance is sensitive to the degree of strategy process. This shows the benefits not only combining financial and non-financial performance but also integrating strategy process and content of alignment.

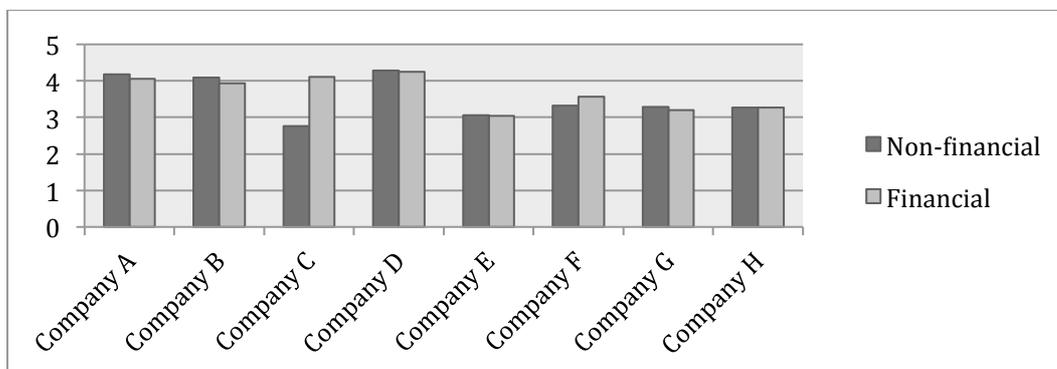


Fig 3. The financial and non-financial performance of companies

Research limitation

Our research needs more evidence to explain in more details the relationships between elements. For instance, surveys might provide a better understanding of the extent to which a problem or phenomenon being studied is prevalent, but case studies can be used to provide a richer and holistic understanding of survey finding to help researchers explain unclear issues emerging from survey results. This could be achieved by triangulation as it provides a comparative means of measuring and expounding convergence levels as well as divergences between findings (McLaren et al. 2011). For this reason, two Saudi companies should be chosen as case studies for this exercise; one is characterized by the highest level of alignment and the other, by the lowest such alignment. For each case study, we should compared qualitative and quantitative evidence to ensure reliability, usefulness and validity of not only the framework constructs but also of research techniques. In general, this process is used to show the importance of goals clarity, of fundamental constructs for artifact and of effective evaluation of the goals.

Conclusion

This paper describes the early research distinction between strategy process and strategy content has largely been responsible for restricting the ability of strategic alignment research to elaborate impact on performance. Recent evidence suggests that absence of either strategy process or strategy content may have a negative effect on firm performance. Consequently, there has been an increasing amount of research on both strategies, which are undoubtedly concerned with improving organizational performance, but under different perspectives. For this purpose, we align strategy content and process of alignment from multilevel learning perspective. One of the more significant findings to emerge from this study is that misalignment between content and process has a negative impact on performance. This study raised a number of unclear issues emerging from survey results, which could be answered by conducting case studies.

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