Classification of Research Results on Information Systems Alignment

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ABSTRACT: Information systems (IS) alignment has been rated one of the most important topics by senior management since the last decade. This paper defines IS alignment as the extent and appropriateness of one IS/IT construct (e.g. IS/IT plan, and IS/IT strategies) in relation to the other construct(s). However, alignment is a complex concept. Although several classification frameworks have been suggested, they are only useful to understand the nature of alignment constructs. None classifies the ways of discussing the final outcomes of an IS alignment assessment. This paper suggests a classification framework to demonstrate how alignment results can be discussed and what approaches are available. It is expected that this framework not only helps IS researchers initiate appropriate alignment research projects, but also deepens readers' (especially senior management) understanding of IS alignment research. Contributions, implications, future research projects are also discussed.

Keywords: Information Systems; Alignment; Strategic Fit; Classification Framework

1. INTRODUCTION

Information systems (IS) alignment has been rated one of the most important topics by senior management for the last two decade, and this has led to a great number of IS researchers dedicating academic publications on this topic (Chan & Reich, 2007). Research found that IS alignment has a strong impact on organizational performance both directly and indirectly. For example, while Dowlatshahi and Cao (2006) found that the alignment between virtual enterprise and information technology directly influences a firm's business performance, Celuch, Murphy, and Callaway's (2007) study revealed that aligning information technology capabilities with management requirements and internal business activities will indirectly contribute to firm performance. The lack of shared understanding of the alignment between business plan and information systems plan may prevent organizations from creating competitive advantages from their information systems investments (Kearns & Lederer, 2000).

Despite the importance of IS alignment, as Papp (1998) commented, alignment is a complex concept. Various terms are used interchangeably to describe alignment, such as "fit" (Chorn, 1991; Doty, Glick, & Huber, 1993; Miles & Snow, 1994), "link" (Insinga & Werle, 2000; Kaplan & Norton, 1996; Pyburn, 1983; Tan, 1994),

"congruence" (Karimi, Gupta, & Somers, 1996) or "match" (Scharl, Gebauer, & Bauer, 2001). In addition to various terms, various kinds of definitions of alignment have been found in the literature. Weill and Broadbent (1998) defined the alignment of organizational and information strategies as the extent to which the organizational strategies were enabled, supported, and simulated by information strategies. Chorn (1991) defined alignment in a broader context as the "appropriateness" of the various elements to one another. Based on Chorn's (1991) definition, this paper defines IS alignment as the extent and appropriateness of one IS/IT construct (e.g. IS/IT plan, and IS/IT strategies) in relation to the other construct(s). The word "construct" denotes the elements to be aligned or to be focused in any alignment research. Although the numbers of constructs vary among different IS alignment studies, the IS alignment research studied in this paper must include at least one construct which is considered as IS/IT related.

The major purpose of this paper is to introduce a classification framework which can be utilized to classify what alternatives are available presently for analyzing IS alignment results. Alignment results mentioned here refer to the final outcomes of an IS alignment assessment that describe the extent and appropriateness of various constructs to one another. Since the definitions of alignment are varied, the research

on IS alignment are carried out from diverse angles. Understanding IS alignment research is such a challenge to both youth alignment researchers and senior management. In order to enhance the applicability and validity of an alignment research, it is necessary to choose an appropriate approach for discussing and interpreting alignment results. Classification is a crucial foundation for generating insightful implications from existing research, and guiding the future research portfolios (Chiang, 2007). It is expected that this framework can not only help IS researchers initiate appropriate alignment research projects, but also help readers (especially senior management) understand IS alignment research.

This paper begins with an overview of IS alignment research. This is followed by a review of previous classification frameworks in IS alignment research. Next, the suggested framework is described. After this, the contributions, implications, and future research derived from this framework are discussed. Finally, a summary of this paper is provided.

2.   OVERVIEW OF IS ALIGNMENT RESEARCH

The underlying premise of alignment is that an organization should continually try to achieve a fit between itself and the environment, and among its internal structures and management processes (Miles & Snow, 1978; Venkatraman & Camillus, 1984).

Van de Ven (1979) reviewed prior studies concerning the theory of population ecology that were being applied to the relationship between organizations and the environment, and contended that the relationship can be either with or without a deterministic causation. Subsequent IS alignment studies followed both streams (e.g. Luftman, 1999; Pyburn, 1983; Tavakolian, 1989; Venkatraman & Camillus, 1984). In the stream focusing on causation, for example, Pyburn (1983) was interested in linking the MIS plan with organizational strategy, while Tavakolian (1989) focused on linking information technology structure with organizational competitive strategy. In the stream which disregarded causation, Luftman (1999) identified the enablers and inhibitors of business-IT alignment, and Teo and Ang (1999) found the critical success factors in the alignment of IS plans with business plans. Since the relationship between the constructs is not the focus, it can be disregarded. Apart from these two streams, Kearns and Lederer (2000) called for investigating a "two-way" relationship between a business plan (BP) and an IS plan (ISP), that is, both aligning an ISP with a BP and aligning a BP with an ISP. Their results revealed that studying the "two-way" relationship between two constructs provides insights for researchers to pursue a deeper understanding of the alignment concept.

In order to understand the meaning of alignment between business and IS strategies deeply, Henderson and Venkatraman (1993) proposed the Strategic Alignment Model (SAM) which comprises four main constructs: business strategy, IS strategy, business structure, and IS structure. Each of the four constructs in the model can be the driver and has the driving force to influence other constructs. Since the model was proposed, a number of IS studies expanded its applications and usages. Macdonald (1994) explained how misalignment of the constructs in the strategic alignment model can impede organizational development. Ho (1996) demonstrated how the strategic alignment model was adapted to manufacturing organizations. Papp (2001) pointed out four fusions (organization strategy, organization infrastructure, information technology strategy, and information technology infrastructure) within the strategic alignment model, and further developed a list of questions which can be used to measure the construct in the model and the fusions to help organizations to assess what type of alignment and fusions they are currently undertaking. Sabherwal et al. (2001) found that the combinations of any two of the four constructs in the model can be utilized to categorize the types of alignment in the literature of strategic IS management.

Another major group of alignment studies focuses on matching IS strategies with business typologies. Ward (1987) linked Parsons' Generic IT Strategies with Porter's (1985) generic competitive strategies. IT strategies of monopoly, leading edge, and central planning are suitable for the differentiation strategy whereas the scare resource, free market, and necessary evil strategies are matched with low cost producers. Atkins (1994) examined the relationship between the business typologies of Miles and Snow (1978) and the Parsons' Generic IT Strategies through a survey of the businesses in UK, and found that businesses adopt different IT/IS strategies to support the general business strategy. Rather than adopting Parsons' Generic IT Strategies, Sabherwal and Chan (2001) linked three types of developed IS strategies, which are IS for efficiency, IS for flexibility, and IS for comprehensiveness, with the Defender, Prospector, and Analyzer strategies respectively in Miles and Snow's (1978) typology. Bauer (2001) preferred Porter's (1985) strategy typology, and also developed three matched online distribution strategies namely adoption of open standards, non-adoption of online distribution, and implementation of a proprietary solution. Zahra, Sisodia, and Das (1994) chose to combine both Porter's (1985) and Miles and Snow's (1978) typologies into five types (defenders, cost leadership, analyzers, cost differentiation, and prospectors), and also provided a range of technology strategic options to match with each strategy type.

Developing the measurement instruments for assessing the extent of one construct being aligned with the other is a critical step in understanding the alignment between two constructs. Sethi and King (1994) developed the measures to assess the construct of "Competitive Advantage Provided by an Information Technology Application (CAPITA)" including efficiency, functionality, threat, pre-emptiveness, and synergy dimensions. Chan, Huff and Copeland (1998) developed an instrument, "Strategic Orientation of Information Systems" (STROIS), to measure the construct of IS strategic orientation. The instrument comprises four corresponding IT dimensions (Action, Analysis, Armor, and Anticipation) which are matched with the strategic dimensions included in the instrument of "Strategic Orientation of Business Enterprises" (STROBE) (Venkatraman, 1989). In a later work, Sabherwal and Chan (2001) confirmed that the four-category measures are also paralleled to the typology proposed by Miles and Snow (1978). Ragu-Nathan et al. (2001) also developed a measurement instrument, "Strategic Orientation of Information Management" (STROIM), for assessing the construct of information management strategy. Both STROIM and STROIS provide validated questions for future empirical research on IS and organizational strategy linkages.

In order to ensure the contributions of alignment research, a group of IS alignment researchers devoted time to examining the outcomes generated from IS alignment. Frequently, the value of alignment is justified by the increase of overall performance (Boulianne, 2007; Cowherd & Luchs, 1988; Lee, 2006; Luo & Park, 2001; Teo & King, 1996), financial performance (Powell, 1992; Segars, Grover, & Kettinger, 1995), profitability and competitive advantage (Papp, 1998), information system success (Nickerson, Eng, & Ho, 2001), and business success (Sabherwal & Chan, 2001). Teo and King (1996) found that the alignment between business planning and IS planning contributes to organization performance. Nickerson, Eng, and Ho (2001) confirmed that the alignment between global business strategy and global information systems will result in the success of information system success. Creating substantial outcomes is also used to test which kinds of match between the constructs are proper models of alignment. For example, Luo and Park (2001) examined what kinds of business typology in Miles and Snow's (1978) model are matched with the market in China. The results revealed that that the prospector and the defender orientations lead to poor financial performance because of the mismatch with China's market, which is highly dynamic and complex, while the analyzer orientation producing the highest performance.

3. PRIOR CLASSIFICATION FRAMEWORKS ON IS ALIGNMENT RESEARCH

Several classification frameworks have been suggested to help understand IS alignment research (e.g. Itami & Numagami, 1992; Nakayama, 2001; Reich & Benbasat, 1996; Sethi & King, 1994; Tan, 1999; Thomas & Dewitt, 1996; Venkatraman & Camillus, 1984). Venkatraman and Camillus (1984) distinguished the perspectives of fit into two major dimensions: conceptualization of fit and domain of fit. Conceptualization of fit can be further distinguished into content of fit (concerned with the elements to be aligned with organizational strategy), and pattern of integrations (concerned with the process of arriving at fit). Domain of fit can be further examined by external, internal, and integrated domains. By combining these two major dimensions, Venkatraman and Camillus (1984) proposed six detailed schools to classify strategic management literature: strategy formulation, strategy implementation, integrated formulation-implementation, interorganizational networks, strategic choice, and overarching "gestalt" schools. They argued that these six schools of thought would aid researchers in recognizing the strengths and weaknesses of the various approaches to investigating and employing "fit" in strategic management.

Itami and Numagami (1992) categorized the alignment between strategy and technology into three types: alignment between current strategy and current technology, between current strategy and future technology, and between future strategy and current technology. The effects derived from each kind of alignment alternatives are, respectively, strategy which capitalizes on technology, strategy which cultivates technology, and technology which drives cognition of strategy. As business environment becomes more complex, alignment is more dynamic than static and incorporates more than just the readily available structures (Chan, 2002). Businesses should consider more about aligning present capabilities with future conditions. A consideration of the alignment between what businesses are currently doing and what they can be doing in the future is necessary (Nakayama, 2001). Bergeron, Raymond, and Rivard (2001) have called for adopting a longitudinal perspective rather than cross-sectional operationalizations of alignment.

Thomas and Dewitt (1996) provided a framework for reviewing strategic alignment research. The framework comprises two major types of alignment research: concept building and concept testing. Research in each category can be descriptive, explanative, or predictive. In total, this framework defined six types of strategic alignment research. As Tan (1999) commented, this framework is excellent for

evaluating the status of any research topic, yet it had a focus on a rather narrow area of scholarly work. A more comprehensive framework is necessary to help categorize the large accumulation of alignment research.

Reich and Benbasat (1996) suggested two dimensions for measuring alignment: cause and effect. The effect dimension is the result or outcome produced from the alignment, whereas the cause dimension focuses on understanding and measuring the means to achieve the outcome. In comparison, the evaluation of the effect dimension is of little help in understanding "how" the alignment is achieved (Sethi & King, 1994). The cause dimension includes the explanations of the alignment, the process to achieve the alignment or the factors which cause the alignment. In addition to cause and effect dimensions, Reich and Benbasat (1996) also suggested social and intellectual dimensions. The social dimension emphasizes the people's profile and ability, degree of involvement and social factors in determination of alignment. Social alignment means that the units, personnel, and social factors, which are responsible and involved in the development of the constructs, are aligned. In contrast, the intellectual dimension is the methodologies and tools which can help a decisionmaker utilize the best way to formulate the alignment.

Tan (2001) reviewed previous classification frameworks, and suggested two new dimensions: behavioral and cognitive. These two focus on how organizations "behave" (behavioral dimension) and how organizations "think" (cognitive dimension). Each dimension is considered to have conceptual, content, and process levels. Tan (2001) argued that the two dimensions are inseparable in most of real world cases because managers behave according to their thinking. In comparison, the behavioral dimension has been adopted frequently in the alignment literature, and more focus should be added to the cognitive dimension to enrich the assessment of alignment. Table 1 summarizes the classification dimensions suggested in the literature.

<Table 1: Alignment dimensions and analogue terms or meanings>

Although the classification frameworks reviewed previously can help in understanding the nature of constructs, they seldom indicate or classify what alternatives and approaches are available for analyzing the final outcomes of an IS alignment assessment. A specific type of classification framework is necessary to help to gain insightful implications from a large amount of existing alignment research.

4.   THE CLASSIFICATION FRAMEWORK

This paper provides a classification framework, which includes four perspectives, to classify the methods and approached utilized to discuss IS alignment in the literature. This framework is based on two considerations – whether the discussion of alignment is based on a qualitative or quantitative approach, and whether the discussion of alignment is at the dimension or overall level. These two considerations specifically deal with how alignment results can be discussed and presented.

4.1   *Qualitative or Quantitative*

In general, the discussion of alignment results can be dichotomized into qualitative and quantitative approaches. When the qualitative approach is adopted, alignment results can be a form of qualitative descriptions (Schneider et al., 2003), qualitative terms (Chan & Huff, 1992; Macdonald, 1994), or alignment perspectives (e.g. Baets, 1992; Henderson & Venkatraman, 1993; Henderson, Venkatraman, & Oldach, 1996; Luftman, Lewis, & Oldach, 1993; Venkatraman, Henderson, & Oldach, 1993). When the quantitative approach is adopted, alignment results refer to the "appropriateness" of the various elements to one another (Chorn, 1991). The alignment results are represented as a degree rather than a set of descriptions. Frequently, a

quantitative approach employs the survey technique to collect data (e.g. Kathuria &

Porth, 2003; Schneider et al., 2003).

Schneider et al. (2003) contended that the richness and detail of information

necessary to fully understand and apply the concept of alignment is missing in the

statistical test of synergies existing among the practices. Thus, the qualitative

discussion of alignment is advantageous when studying the alignment system

involving a new notion. This approach can provide an intimate assessment of the

extent to which the alignment construct is enacted in ways that the management

actually experience it. In other words, it not only discusses what practices the

informants "say" about an alignment construct, but also how they "experience" it.

4.2 *Dimension or Overall Level*

The second consideration is whether the discussion of alignment is on the

dimension or overall level. Cragg and Hussin (2002) proposed nine items which can be

used to measure alignment between the constructs of business and IT strategies. They

argued that the alignment is discussed by the results of each item, and the contrast

between results of the nine items in overall. In other words, the discussion of alignment

can be at an overall level or on the dimension level (e.g. on the nine items).

In regard to the two considerations, the framework proposed by this paper comprises

four perspectives. Figure 1 shows this framework and the four perspectives.

<Figure 1: The proposed framework>

4.3   Perspective I: Qualitative Discussion on Dimension Level

When perspective I is adopted, the focus is on the qualitative discussion of

alignment at the dimension level. The most common method to discuss the alignment

of constructs is to create an "ideal profile". That is, to develop a profile to match the

dimension of one construct with the dimension of the other (Sabherwal & Chan, 2001).

A large number of IS alignment researchers have adopted this perspective to discuss the

alignment between two constructs (e.g. Bauer, 2001; McFarlan, Mckenney, & Pyburn,

1983; Miles & Snow, 1994; Sabherwal & Chan, 2001; Sabherwal & Kirs, 1994).

An example is the work proposed by Miles and Snow (1994). They identified the

ideal profile for matching the organizational characteristics with three typologies –

Defenders, Prospectors, and Analyzers. These characteristics are summarized in Table

2.

<Table 2: Ideal profile for matching organizational characteristics with

business typologies (Adapted from Miles and Snow (1994))>

As shown in Table 2, the typology and organizational characteristics represent two constructs. Those descriptions in the triangulated quadrants are the ideal profile which is used to match the specific organizational characteristics to each of the business typologies. When a company adopts one typology and has all the characteristics included in the typology's idea profile as shown in Table 2, it means that the company's characteristics are well aligned with its typology. When some company characteristics are not matched with the ideal profile, it implies that some characteristics of the company are poorly aligned while the rest are well aligned.

4.4   Perspective II: Qualitative Discussion on Overall Level

When perspective II is adopted, the focus is on the qualitative discussion of alignment results at the overall level. It is to generate the alignment discussion between the two constructs overall rather than on the dimensions of the two constructs. Two methods are utilized frequently in this perspective – the discussion on the alignment levels and alignment models.

In regard to the discussion on the alignment levels, alignment researchers developed levels for discussing the alignment between two constructs. For example, Woolfe (1993) proposed four stages of alignment to describe the alignment between IT plans and organizational plans: functional automation, cross-functional integration, process automation, and process transformation. In the first two stages, IT is used to automate business only, and the benefits are limited. However, in the final two stages, the core business processes are changed profoundly through IT-enabled reengineering. Luftman (2000) developed five levels to discuss the alignment maturity: initial/ad-hoc process, committed process, established focused process, improved/managed process, and optimized process. Burn and Szeto (2000) also discussed the alignment between the organization and IT strategies based on five levels: failure, few benefits, better than not doing it, successful but can improve, and highly successful.

In regard to the discussion on the alignment models, the qualitative discussion on the strategic alignment model is dominant in the IS alignment literature (Baets, 1992; Henderson & Venkatraman, 1993; Henderson et al., 1996; Luftman et al., 1993; Papp, 2001; Venkatraman et al., 1993). Discussion on the alternatives of aligning three of the four constructs in the model generate four alignment perspectives to achieve four objectives: to execute business strategies, to transform IT oriented business strategies,

to create potential competitive through the exploitation of emerging IT capabilities, and to build a world-class IT service organization. Kerr and Jackofsky (1989) also developed a contingency model, which was based on the assumption that organizational effectiveness is enhanced by aligning managerial talent with strategic demand, to discuss the alignment between managers and organizational strategy.

4.5   Perspective III: Quantitative Discussion on Dimension Level

When perspective III is adopted, the focus is to discuss the alignment results in the dimension level quantitatively. In other words, it is to quantify the degree of the alignment on each dimension. Pyburn (1983) argued that it was important to identify whether the IS plan addressed the critical needs of the organization and in what degree. As Ball et al. (2003) revealed, the degree of similarity of response on the dimensions determines the degree of alignment. The degree can also be seen as a unique continuum from low to high, rather than as polarities on a single scale (Van de Ven, 1979).

4.6   Perspective IV: Quantitative Discussion on Overall Level

When perspective IV is adopted, the focus is to discuss the alignment on the overall level on a quantitative basis. The researchers from this perspective quantitatively analyzed the alignment of the dimensions in the construct(s) first, and then discussed what level or type of overall alignment the results should be fit into. For

example, Miles and Snow (1994) first defined the degree of alignment as depending on how the alignment creates success for organizations. Then, they categorized the overall alignment into four levels: misfit (failure), minimal fit (survival), tight fit (excellence), and early, tight fit (hall of fame).

Tan (1994) also analyzed the degree to which IT was explicitly considered in organizations' strategy formulation first. Then, he categorized the overall alignment of IT and organizational strategy into three types: independent, supportive, and integrated. The results derived from the degree to which IT was explicitly considered in organizations' strategy formulation as being used to justify what type of IT-strategy alignment the case belongs to.

5. CONTRIBUTIONS, IMPLICATIONS, AND FUTURE RESEARCH

It is believed that the classification framework suggested by this paper provides contributions to both academics and practitioners. In terms of academics, this framework helps IS researchers, particularly the younger one, understand what alternatives are available while initiating analysis and discussion strategies on the alignment results. Although the dimension level approach (Perspective I and III) for analyzing alignment results explores the synergy between constructs into a greater

level, the overall level approach (Perspective II and IV) does have more convergent implications for readers. Selecting one which is pertinent to their research project, is critical. In order to generate useful outcomes, researchers need to consider the purposes of their research projects and interests of the target audiences when selecting an appropriate analysis perspective.

Several research questions are posed relating to this framework. Firstly, is there any interrelationship between the four perspectives? As discussed earlier, the qualitative discussion of alignment is advantageous when studying the alignment constructs which involve a new notion. Therefore, does one who is exploring a new notion tend to adopt the Perspective I (Qualitative Dimension Level) or Perspective II (Qualitative Overall Level)? And what perspective should be adopted in the next exploration? Secondly, what are the strengths, weaknesses, and limitations of each perspective? Thirdly, can this framework explain the reasons which cause different views on the meaning of alignment? Can different definitions and views on the meaning of alignment fit into this framework? These questions offer opportunities to conducting a series of future research projects, and also help us advance our understanding of the way to discuss IS alignment results.

In terms of practical circumstances, as top management becomes more directly involved in the organization's information systems, problems with the information flow around the organization receive more strategic focus. The opportunity arising to improve the alignment of the organization's information systems with strategic organizational goals has become critical to both IS and business functions (Hasan & Lampitsi, 1995). Management, therefore, must decide who should be responsible for the content and delivery of computer based information for strategic control and decision-making. If IS applications are not providing appropriate information to support business strategies, such as if there is a misalignment between IS and business strategies, both IS and business functions need to figure out the solutions to bring back alignment (Ragu-Nathan, Ragu-Nathan, & Shi, 2001). Those problematic situations encourage business functions to gain managerial and skillful knowledge about IS alignment. The suggested classification framework serves as a roadmap for business functions, particularly the senior management, to examine whether the perspective of result discussion employed by an IS alignment study is matched with what they expected to learn. Moreover, the framework also helps them initiate an appropriate research project on IS alignment to reconcile their managerial conflicts.

6. SUMMARY

This paper proposed a classification framework to help those who are initiating or planning to develop IS alignment research to select an appropriate perspective to discuss their alignment results, and to help those who are reading IS alignment research understand how research results for IS alignment were discussed. In a review of prior classification frameworks on IS alignment research, several frameworks and dimensions are identified. However, these are only useful for explaining the nature of alignment constructs and are not effective for developing a plan for discussing alignment results. The proposed classification framework rectifies this shortfall by posing two considerations to researchers: whether the discussion of alignment is based on a qualitative or quantitative approach; and whether the discussion of alignment is on the dimension or overall level. In line with these two considerations, four perspectives are identified: qualitative discussion on dimension, qualitative discussion on overall, quantitative discussion on dimension, and quantitative discussion on overall levels. How alignment results should be discussed when each perspective is adopted has been explained. The contributions, implications, and future research derived from the suggested classification framework are also provided. This paper concludes that this classification framework provides contributions to both academics and practitioners.

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TABLES AND FIGURES

Dimensions	Authors/Analogue terms or meanings included
Cause	Luftman, Papp, and Brier (1999)/Factor; Reich and Benbasat (1996)/Cause; Thomas and Dewitt (1996)/Explanation; Tan (1999) and Venkatraman and Camillus (1984)/Process.
Effect	Reich and Benbasat (1996)/Effect; Sethi and King (1994) and Venkatraman (1989)/Outcome; Tan (1999)/Content.
Social	Lederer and Mendelow (1989)/ Personnel linkage; Reich and Benbasat (1996)/Social.
Intellectual	Ball, Adams, and Xia (2003)/Subjective alignment; Reich and Benbasat (1996)/Intellectual; Shank, Niblock, and Sandalls (1973)/Organizational linkage.
Behavioral	Ball, Adams, and Xia (2003)/Objective alignment; Shank, Niblock, and Sandalls (1973)/Content linkage; Tan (1999)/Behavioral.
Description	Tan (1999)/Conceptual; Thomas and Dewitt (1996)/Description (both concept building and testing).
Cognitive	Tan (1999)/Cognitive
Current	Itami and Numagami (1992)/Current; Nakayama (2001)/Current
Future	Itami and Numagami (1992)/Future; Nakayama (2001)/Can be; Thomas and Dewitt (1996)/Prediction

Table 1: Alignment dimensions and analogue terms or meanings

Organizational Characteristic	Defenders	Prospectors	Analyzers
Product-market strategy	Limited, stable product line, market presentation	Broad, changing product line, first in to new markets	Stable and changing product line, second in with an improved product
Research and development	Process skills, product improvement	Product design, market research	Process and product adaptation
Production	High-volume, low cost specialized processes	Flexible, adaptive equipment and processes	Project development shifting to low-cost production
Organizational structure	Functional	Divisional	Mixed project and functional matrix
Planning process	Plan, Act, Evaluate	Act, Evaluate, Plan	Evaluate, Act, Plan

Table 2: Ideal profile for matching organizational characteristics with business typologies (Adapted from Miles and Snow (1994))

Figure 1:   The proposed framework

	Dimension level	Overall level
Qualitative	Perspective I: e.g. Idea profile	Perspective II: e.g. Alignment model, and alignment levels
Quantitative	Perspective III: e.g. Degrees	Perspective IV: e.g. Degrees and levels

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