

The 4th International Conference on Electrical Engineering and Informatics (ICEEI 2013)

A Model for Business-IT Alignment in Malaysian Public Universities

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Abstract

Business-IT alignment is defined as a stage where the mission, objective, and planning within business strategy is shared and supported by IT strategy. This definition is extended to cover the situation where business executive and IT executive comprehended and committed towards achieving the mission, objective, and plan for both business and IT. One important issue in business-IT alignment study is the absence of alignment. By identifying factors to achieve business-IT alignment, the problem on the absence of alignment could be addressed. Due to the complexity of business-IT alignment, there is possibility that successful alignment focuses on managing specific alignment dimension by investigating factors that encourage particular dimension. Past studies have shown the relationship between business-IT alignment and organisation performance. However, only few researchers tried to relate between the factors with organisational performance. Therefore, the aim of this research is to contribute to the formation of a theoretical model influencing alignment dimension that has impact on organisational performance. The model is important to provide empirical evidence that confirms the importance of categorizing factors into dimensions in achieving business-IT alignment and their influence on universities' performance.

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Selection and peer-review under responsibility of the Faculty of Information Science & Technology, Universiti Kebangsaan Malaysia.

Keywords: Alignment dimension; Business-IT alignment; Organisational performance

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1. Introduction

Business-IT alignment has been identified to permit IT investment to enhance organisational performance. However, there is fear that the return of investment in IT will not be achieved. Among the reasons of failure to generate return from IT investment is the absence of business-IT alignment in organisations. The main reason for the absence of business-IT alignment is the lack of understanding on alignment concept [1]. The absence of alignment causes the loss of opportunity and competitive advantage, and cost increment, hence creating an environment that is negative to IT investment [1]. Even though business-IT alignment is able to increase the return in IT investment, very few researchers studied the importance of factors that influenced the business-IT alignment [2]. Despite large investment in IT for the purpose of teaching and learning, as well as for improving the efficiency and effectiveness of administrative processes, only a small number of researchers studied the business-IT alignment in institutions of higher learning [2-6].

Earlier works in business-IT alignment in institutions of higher learning seemed to focus on strategic and structural dimension of business-IT alignment. This limitation could be due to the past researchers' dependency on the assumption that both universities and business organisations share similar organisational structure. Such assumption is not true since universities are extraordinarily complex [5]. University's operation is based on two different operation principles, i.e. structural and philosophical. Structural principle is practiced in the administration involving physical infrastructure, human resource and finance. Philosophical principle is used at the faculty level which is responsible for the content and quality of program/curriculum. The idiosyncrasy of university's organisational structure is more apparent with the conflict between university administration and faculty administration. University administration often compromise in order to achieve organisational integration, whereas faculty administration never compromise in its pursuit of academic excellence and innovation. Due to this, the challenge for university's business- IT alignment should not only run parallel with organisational planning, investment, and action that was created by the university's highest management council, but also run parallel with different groups of faculties that always change their aims in conquest for distinction. The rest of the paper is organized as follows. Section 2 discusses the literature review that focused on business-IT alignment models and antecedent factors which influenced alignment. Section 3 describes the research model advocated. Section 4 presents our conclusion.

2. Literature Review

Business-IT alignment has remained important for research due to practical challenges. These challenges relate to knowledge, locus of control and the status of IT, and organisational change. Challenges related to knowledge refer to the central problem that IT executives are not always privy to corporate strategy, and the organisational leaders are not always knowledgeable about IT [7]. Challenges related to locus of control and IT status refer to the managers' decision making based on their comprehension and authority, as well as the status of IT either as part of business unit or as a separate institution [7]. Alignment is a process of change over time and continuous adaptation [8]. Therefore, challenges related to organisational change can be explained as the ability to implement the IT plan in timely manner since the business environment changes so quickly [9]. Challenges related to knowledge, locus of control and IT status, and organisational change, makes business-IT alignment difficult to achieve.

Studies on business-IT alignment seem to focus on the state or outcome of alignment, with some researchers studying alignment using holistic perspective [11]. A few researchers developed models which integrate business domain and IT [8][11], while some developed method to evaluate strategic alignment level [12-13]. In the past decade, researchers have made improvement to the strategic alignment model by introducing the performance impact and antecedent factors which influenced alignment [2]. Husnayati and Mohd Adam [14] show positive IT impact on organisational performance based on their survey on small and medium enterprises (SME). A survey study by Hussin, King & Cragg [15] shows SMEs with high level of business-IT alignment indicate better performance than SMEs with low level business-IT alignment. In a survey study on large firms, Chan et al. [16] found positive relationship between business-IT alignment and organisational performance based on strategic perspective. On the contrary, there are studies that failed to show a relationship between business-IT alignment and organisational performance, probably due to organisational performance being dependent on several interacting

factors [18][19]. The IT impact on organisational performance is probably not direct, but with other intervening factors such as business-IT alignment.

2.1. Business-IT Alignment Dimensions

Studies towards the development of a new business-IT alignment model or extending the existing model has stretched business-IT alignment concept across many dimensions [20]. This expansion has motivated past researchers to categorize alignment's construct in order to clarify the models they developed. Strategic Alignment Model by Henderson and Venkatraman shows three stages where alignment could be applied, i.e. strategic stage (involving business strategy and IT strategy), operational stage (involving business infrastructure and IT infrastructure), and cross-domain stage (linking strategic stage and operational stage) [8]. Ross, Beath, and Goodhue's model presents business-IT alignment as integration between three IT assets i.e. human asset, relationship asset, and technology asset [21]. Human asset refers to technical skills, comprehension of IT executives in business, and problem solving orientation in all aspects to create high performance IT unit. Relationship asset refers to management and risk sharing by both business and IT to prepare for effective IT application. Technology asset refers to technical architectural platforms and data bases standard that can be shared between business and IT. Melville, Kraemer and Gurbaxani's model explains business-IT alignment as integration between IT human resource, IT technology resource and complementary organisational resource [22]. Human resource for IT includes technical and management skill. IT technology resource refers to business and infrastructure applications shared by all within organisation. Complementary organisational resource refers to all non-IT resources, when combine with IT will benefit the organisation. Hevner et al.[23] discusses business-IT alignment from the environmental perspective which includes human, organisation and technology. They emphasized the integration between the three environmental elements should be well managed to develop efficient and effective information systems that support business needs.

The result of scrutinizing the four different models showed business-IT alignment concept definition was based on many categories of construct which are vague and always overlap. The absence of clear and strong categorization caused overlapping in construct categorization in business-IT alignment [24]. It was discovered that construct categorization depended on the researchers' perspective. The overlapping of one category over another resulted in confusion in clarifying the business-IT alignment concept. Therefore it is necessary to have construct categorization that is clear and strong in business-IT alignment study. Chan and Reich [20] put forward construct categorization based on four different dimensions of business-IT alignment i.e. strategic dimension, structural dimension, social dimension and cultural dimension. Strategic dimension refers to formal planning which involves business strategy and IT strategy that complement each other. Structural dimension refers to the integration of business and IT infrastructure. Social dimension refers to situations where business executives and IT executives understand each other as well as are committed in achieving aims, objectives and business and IT plans. Cultural dimension refers to the integration of culture between business and IT. Reich and Benbasat [25] proved that business-IT alignment is the integration between strategic dimension, structural dimension, social dimension and cultural dimension. These four dimensions will be used as categorization construct in this study. Construct categorization using the stated dimensions make it possible a grid that enables the strong and weak construct in the business-IT alignment to be identified. Indirectly, the relationship between the antecedent factors that influence each business-IT alignment can be shown more clearly. Other than that, construct categorization can also identify gaps in business-IT alignment research that can be used in future studies.

2.2. Business-IT Alignment Antecedent Factors

Business and IT planning enables business and IT executives to cooperate in managing challenges as well as opportunities related to technology. IT strategy cannot be aligned with business strategy if organisations do not have formal planning processes and business strategies are not clear [27-29]. A study on IT planning in public organisation showed that strategic planning process contributed towards knowledge sharing which then influenced alignment between business and IT [31]. Reich and Benbasat also proved that knowledge sharing between business and IT executives enhanced involvement in business planning and IT. Without strategic business planning and IT, it

is impossible to achieve business-IT alignment [25]. On the other hand, a number of past studies showed that the absence of shared knowledge domain would hinder business-IT alignment [11][28].

In a study of small and medium size firms, only few achieved business-IT alignment. The structure of small and medium firms is based more on function, and the central structure is used for management. Central management limits the need for outside mechanism which in the end hinders alignment. On the other hand, big firms divide organisation into divisions and use decentralized management structure. Decentralized management for each division requires outside mechanism to integrate activities of each division in order to achieve organisational aim [35]. In addition, big firms possess resources that can be invested to identify and implement technologies that support business strategies [15].

Most of the business-IT alignment factors indicated by Luftman referred to the necessary management resources that enhance IT values in organization [12]. IT management resources is important especially towards the social dimension of business-IT alignment [25][36]. These management resources include management support towards IT initiative and IT leadership in business. Business-IT alignment showed improvement when top management encouraged business involvement in IT planning and the opposite happened if discouraged [37][38]. Business-IT alignment is also influenced by factors outside the organisation's control. Changes and turbulence in the organisation's environment, potential development impact, and choices of existing strategies increased the need for information processing and information system [40][41]. In the academic environment, indicators towards environmental instability, such as changes in courses' demand, competitors' innovation and government policy have strong influence on business-IT alignment [2]. Since IT enables organisations to acquire, process, store information in an uncertain environment, management will depend more on IT, hence increasing investment in IT. As a result, management will pay more attention on aligning IT and business strategies [42].

2.3. Business-IT Alignment and Organisational Performance

Several researches showed the implication of alignment on business performance and IT [16][43-45]. Business-IT alignment has shown to increase organisation profit, compared to using industry and strategy alone [46-47][15-16]. There is a significant relationship between business-IT alignment and organisational performance [10]. However, the relationship is complex and dependent on business strategy. Separating business from IT would cause organisation to fail managing and extracting the value of IT. When the separation between business and IT is substantial, the organisational performance would drop [48]. Chan, Sabherwal and Thatcher showed that organisations that achieved business-IT alignment performed better than those that failed [2]. Furthermore, business-IT alignment drives to a more focused and strategic use of IT, resulting in increased organisational performance [2].

3. Research Model

Research model shown in figure 1 is based on the theoretical lens as clarified in the literature review. The constructs and variables in the research model are as follows:

- Strategic dimension is defined as a situation where formal planning involves business strategy and IT strategy that complement each other. Factors identified to have potential to influence strategic dimension alignment are sharing of domain knowledge and business-IT planning integration.
- Structure dimension is defined as a situation where business and IT infrastructure is integrated. Factors identified to have potential to influence structure dimension alignment are IT sophistication, IT expertise, IT implementation process, governance, IT measurement and size of organisation.
- Social dimension is defined as a situation where business executives and IT executives understand each other as well as committed to achieve business and IT's aims, objectives and plans. Factors identified to have potential to influence social dimension alignment are effective business-IT executive communication, IT achievement record and uncertainty of environment.
- Cultural dimension is defined as a situation where cultural integration exists between business and IT. Factors identified to have potential to influence cultural dimension alignment are management commitment towards IT and IT leadership.

Factors in each of the alignment dimension above are independent variables whereas organizational performance is the dependent variable in this study. Though there are many methods to measure organisational performance, this study will use subjective measurement rather than objective measurement because the former gives organisational performance a wider concept. This study will use the instrument developed by Khandwalla [49] and four statements will be used to evaluate organisations' performances compared to their competitors: Total number of registered post-graduate students, post-graduate students-faculty ratio, the number of students with first class degree, image of organisation.

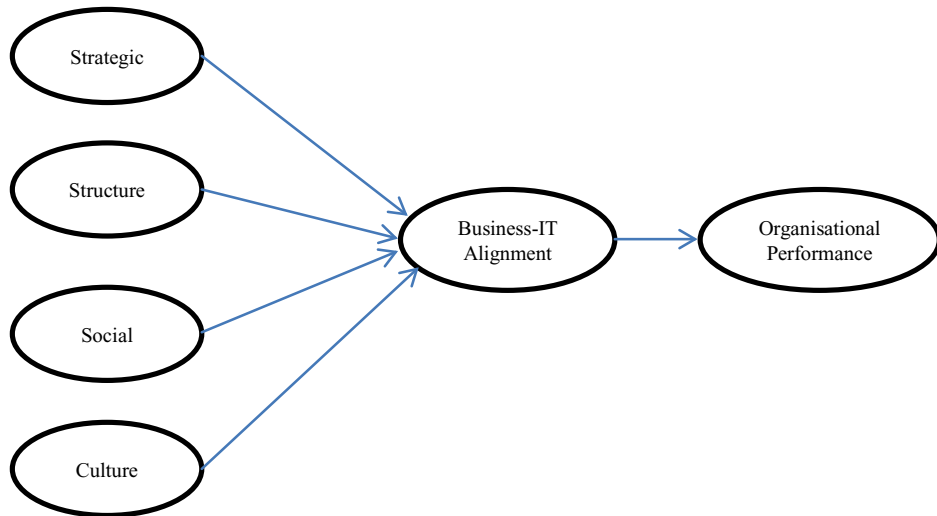


Fig. 1: Research model of business-IT alignment

4. Conclusion

Studies on business-IT alignment have developed models which integrate business domain and IT. Researchers have made improvement to the alignment model by introducing the performance impact and antecedent factors which influenced alignment. Past research findings revealed that successful alignment focuses on managing specific alignment dimension by investigating factors that encourage particular dimension. However, the findings revealed the absence of clear and strong categorization that had caused overlapping in construct categorization which resulted in confusion in clarifying the business-IT alignment concept. This research has studied four dimensions: strategic, structure, social and culture influencing alignment that can be used for categorization of constructs. Construct categorization using the four dimensions make it possible a grid that enables the strong and weak construct in the business-IT alignment to be identified. The categorization of construct is important to support the formation of a theoretical business-IT alignment model that has impact on organisational performance. The validated model can help analyse business-IT alignment relationship with Malaysian public universities so that these relationships and best practices can be better understood to help universities' achieve alignment. The model could also serve as compass to navigate Malaysian public universities' IT investments in line with National Key Economic Activities (NKEA) to make Malaysia a regional hub for higher education.

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