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Comparison of RBV-Based Information Technology (IT) Value and IBM-Based IT Value Model

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Abstract. IT values are the interests of organizations that invest the IT resources. Creating IT value can be carried out using the RBV-based IT value model and the IBM IT value model. The researchers stated that the major theory adopted to understand the relationship between IT and firm performance is Resource-Based View (RBV) theory. Drawing from the RBV, IT must be one of resources to build IT capability. The other methodology to do the relationship is IBM IT Value Model. This model is more practical than RBV-Based IT Value Model. However, both model can be combined in order to produce a complete model. As a results, IT will be able to create IT values to raise business performance. The better business performance leads to a firm sustainable competitive advantage.

1 Introduction

The existence of Information Technology (IT) within nowadays businesses is a common. Zee [24] explains that the role of IT is to enable strategic change and improve business performance in several dimensions. Also, IT enables the rapid delivery of top-quality, increasingly customized products and services, it carries organizations to support high standards in customer care, and provides the means to squeeze design and development times in order to be the first market. Furthermore, IT helps to launch new products more frequently, to explore and enter new markets faster, and to establish new distribution channels.

It is believed that there are ways to measure the value IT adds to an organization. Also, there are new metrics not only for measuring the contribution of IT staff, but also for valuing IT's links to business outcomes and to the intangible value of innovation [17].

2 IT and Business Value Factors

It may be difficult to find out an exact relationship between IT and organization's business values in practice. Therefore, to measure and valuate IT's impacts on the business, it should be used an approach measuring them from many viewpoints.

It is clear that IT investments don't affect organizations directly, they often have sequential, indirect, intangible and a times unrealized impacts on the firm [7, 12, 13]. Previous researches attempted the measurement of IT investment to business performance based on public data sets such as US Bureau of Economic Analysis, etc. [22]. It is so complex measures, accordingly Zee [24] simplified those measures into "BTRIPLEE" framework. It is intended that organizations in search of the value of their IT are able to determine related questions and find answers. The value questions will be on multiple.

Barney [1] proposed that a potential framework to augment the conceptual analysis of IT on organization's performance was the resource-based view (RBV) [2, 3, 4] . The RBV will link the performance of organization to resources and skills that are firm specific, rare, and difficult to substitute [5]. In addition, contemporary researchers have used the RBV as the main theoretical framework to comprehend the relationship between IT and its business value [6, 7, 8, 9, 10, 12, 13]. While in practice, IBM also releases IT value model, i.e. IBM IT Value Model [19]. With this model, it is possible to establish business/IT linkage and accumulate accurate and specific data about the intrinsic value IT brings to specific business activities and components as well as to an organization overall.

3 Resource-Based View

Studies to find out the IT impact on business performance have been already reported in a variety of researches [17]. The major theory that has been adopted to understand the relationship between IT and firm performance is the Resources-Based View (RBV). The fundamental reason of RBV is that firm performance is determined by the resources it owns [1]. The firm with more valuable scarce resources is more likely to generate sustainable competitive advantages. Based on this view, IT is considered as a valuable organizational resource that can enhance organizational capabilities and eventually lead to higher performance. In a recent study, in strategic management, Liang *at al*. [12] stated that argued that RBV "has emerged as a key perspective guiding inquiry into the determinants of organizational performance".

The RBV argues that is to achieve competitive advantage, a firm has to possess valuable and rare resources. Furthermore, the RBV will distinguish between information technology (IT) and information systems (IS). IT is asset-based, while IS is a combination of assets and capabilities resulted from a productive use of IT [6].

Barney [1] categorized resources as physical capital, human capital and organizational capital [6]. Further, he characterized resources to be strategically important to pursue firm's competitive advantage if they are [14]:

- Valuable – It means that the resource enables the firm to develop and implement strategies towards increasing efficiency and effectiveness.
- Rare – Large number of competitors is not simultaneously implementing the resource, so its usage could lead the firm to own a great different advantage or a sustainable competitive advantage.
- Inimitable – The resource is unique, so that competitors cannot obtain it because they would be imperfectly inimitable.
- Non-substitutable – The resource can enable the firm to exploit it efficiently or effectively, so that no other resources can replace the original resource.

According to some explanations above, the RBV approach will be able to generate sustained competitive advantage of the business. In other words, IT is a valuable organizational resource, which can enhance organizational capabilities and ultimately lead to high competence to generate competitive advantage as illustrated by conceptual model on figure 1.

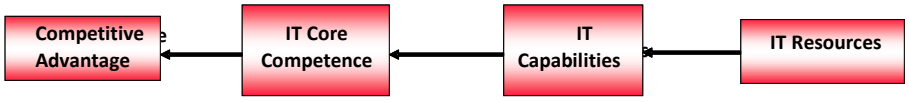

Figure 1 IT Value Conceptual Model [13]

4 IBM IT Value Model

This is a new way to view and manage the IT infrastructure. Until recently, IT investment decisions have been a "tops down" management issue. While organizations viewed IT as a necessary resource in helping to achieve and sustain competitive advantage in a global and dynamic marketplace, it was also viewed as an obvious target for cost efficiency improvements—through server consolidation or asset management, for example.

This type of value-informed decision making can help executives better contain costs, target investments, accelerate and optimize ROI (without negatively affecting business results), and drive profitability. Implicit in the IT Value Model is the recognition that just as businesses deliver value to their customers by way of business products and services, IT delivers value through IT products and services. The challenge lies in articulating the specific role of the IT processes, technologies and organization in business terms, and establishing the connection between the IT capabilities or "services" and the related business activities and components. Toward

these ends, IVM is designed to assist organizations in mapping the IT "nails" to the relevant business "battles" by help-ing enterprises:

- Connect IT services to their specific contributions to business value.
- Assess the potential business impact of infrastructure investments.
- Leverage IT to enable revenue growth and increase competitiveness.
- Discern which IT elements support specific business results.

The IVM (the IBM IT Value Model) enables organizations to directly link IT and business value by connecting related business and IT key performance indicators (KPIs). KPIs offer a tangible mathematical link between IT services and business processes by using financial, functional, performance and availability measurements, such as the cost per transaction or Web site transaction volumes. KPIs, then, are the mechanism with which we can quantify the business-IT linkages that are essential to the IT Value Model. In short, these KPI connections enable businesses to quantitatively assess the impact of IT investments on the business. Figure 2 views the IVM.

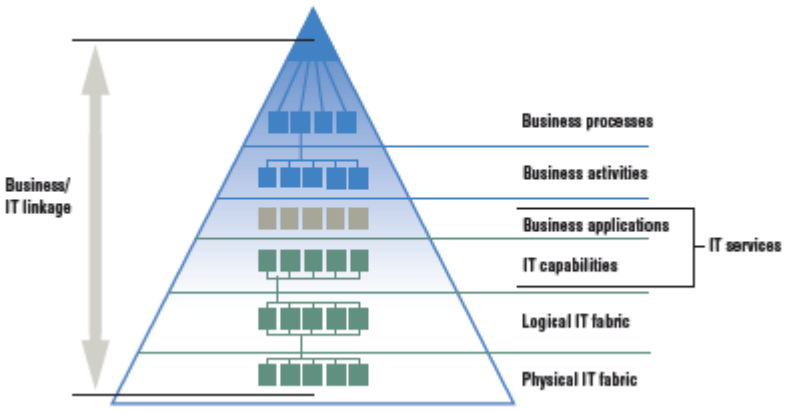

Figure 2 The IBM IT Value Model [19]

5 Comparison of IT Value Model between RIV versus IVM

The comparison between both models can be seen in table 1 as follows:

Table 1. IT Value Model Comparison

#	***Theme***	***RBV-Based IT Model (RIV)***	***IBM-Based IT Model (IVM)***
1	*Target*	*Competitive Advantage*	*Cost efficiency improvements*
2	*Linkage to business*	*Should be combined with other factors within business*	*Possible to establish business/IT linkage*
3	*Resources*	*IT Resources*	*IT Infrastructures*
4	*Capability*	*IT Capabilities*	*IT Services*
5	*Competency*	*IT Competence*	*Business application*
6	*Measurement*	*Qualitative basis*	*Key Performance Indicators*

Both models has similarities and differences at all. The RBV IT value model (RIV) has to combine with other component of business as well as the IBM IT value model (IVM) has to link to the business. In other words, both model propose strategic alignment with the business at large. However, the target of both is difference, the RIV requires to win competitive advantages, while the IVM is in order to achive cost efficiency improvements, even though at the end to win "the battle" as well.

The RIV resources are IT resources themselves, consisting of IT infrastructures, IT human resources, and IT-enabled intangibles. The IVM resources consist of IT infrastructures only. In here, the RIV model is more complex than the IVM model. Talking about capability theme, there is a little difference between both, however this difference is not too significant.

Competence theme has differences as well. The RIV bases the competence on IT competence itself, meaning that competences have to be developed by means of strengthening IT capabilities previously. In the IVM model, actually it does not clear enough addressing the competence. However, business applications could be a basis to build the competence.

On the other hand, measurements of the IVM model is better than the RIV model is. The IVM model has a measurement concept using key performance indicators (KPI), which have been generally recognized within industries. While, the RIV still

bases on qualitative measurement, which can change any time influenced by business environment.

Principally both models may strengthen one to another. It means that in practice both models can be blended into one comprehensive IT value model. On one hand, the RIV model has a complete concept and on the other one, the IVM model has already been available to be implemented.

6 Conclusion

Researches in terms of IT's relationship to firm performance have been studied for long time. This is based on the real business world that the utility of IT is universal. However, there are questions that always emerge on the brain of researchers or managers, whether the IT investment has business values for organizations or not.

The major theory in order to do the study is the resource-based view (RBV). The RBV could link the performance of organization to resources and skills indicated by researchers who have used the RBV as the main theoretical framework to comprehend the relationship between IT and firm performance. The RBV mentions some kinds of resources consisting of physical capital, human capital and organizational capital. Moreover, in context of IT the resources are IT infrastructure, human IT resources, and IT enables intangibles. Beside the RBV IT value model, IBM also released IBM IT value model. The IBM model is a means as more practical way than the RBV is. However, combination of both will strengthen IT value model itself.

The RIV views IT as resources, the IVM view IT as infrastructures. The RIV focuses on achieving organization's competitive advantage, the IVM focuses on improving organization's cost efficiency. The RIV uses IT resources for gaining organization's capabilities or organization's core competencies, the IVM uses IT infrastructures for delivering IT services to realize the better organization's performance.

The further research will combine the RVM and the IVM for developing a better IT value model.

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