IT Pay-Off:
Tracing the Antecedents

Probir Kumar Banerjee, Swinburne University of Technology, Sarawak, Malaysia

ABSTRACT

In-spite of intense research, the link between IT investment and IT pay-off in firms is still not well understood. Differences in ontological assumptions and inconsistent measures of IT pay-off are observed in prior research, leading to fragmented and inconclusive findings on return from IT investment. Difficulty in controlling for confounding factors of time lag between IT investment and availability of IT systems and IT enabled business processes, effects of non-IT managerial efforts such as marketing and finance, convolute findings from prior research. This research draws from stakeholder theory, goal-setting and expectancy theories of motivation, IT/Business alignment and IS success theories, and quality management literature and proposes a model of IT pay-off that partly controls for some of the stated confounding effects. Attempt is made to empirically demonstrate through the model that IT pay-off is better understood by shifting focus from dollar value of IT investment to the motivation for and qualities of systems and IT enabled business processes structured with the IT investment, and investigating their impacts on process quality, operational efficiency and specific firm performance measures that can be related to IT investment. Theoretical and practical implications are discussed.

Keywords: Business Process Quality, Firm Performance, IT-Business Alignment, IT Pay-Off, Organizational Motivation

INTRODUCTION

In-spite of intense research, the link between IT investment and IT pay-off in firms is still not well understood. Differences in ontological assumptions and inconsistent measures of IT pay-off are observed in prior research, leading to fragmented and inconclusive findings. For example, Farhoomand & Huang (2007) take a deterministic view in their study of IT investment impact on a bank and attribute increased customer numbers and sales growth to the impact of new technologies introduced in the bank. The same deterministic view is observed in the work of Rajan & Tamimi (2003), who compared the impact of IT investment on stock-price performance of ISO 9000 firms and those indexed in S&P Index and found that IT investment in ISO firms resulted in higher stock price compared to those listed in S&P indexed firms. However, in another similar research, Dobija et al (2012) observed that though IT investment decisions had some positive influence on stock price movement, the influence was more pronounced when procurement of IT was from global brand leaders, and the firms acquiring IT had good prior record of IT management. This suggests that IT investment impact is contingent on quality of services of IT providers and the firm’s ability to govern and use IT effectively in their decision to purchase stocks of a firm, which hinges on the social-constructionist view

DOI: 10.4018/ijthi.2015010101
of IT and its effects (Markus & Robey, 1988; Soh & Markus, 1995).

There is also an argument made by some researchers that it is not IT investment per se, but IT capability that drives financial firm performance. For example, IT capability is assumed to influence financial measures such as return on sales, return on assets, operating income to sales, operating income to assets, operating income to employees, cost of goods sold to sales, and selling and general administration expense to sales (Stoela & Wuhannab, 2009) and subsets of these measures (Nevo et al, 2007). However, these financial measures of performance may not be attributed to IT capability alone, since other organisational factors such as marketing and advertising capability, financial capability to leverage debt and equity etc. also influence these measures. We discuss this in detail in the literature review section of this paper. Others argue that it is not IT capability per se but IT-business alignment (achieved by knowledge sharing between business and IT managers and governance mechanisms) that determines IT pay-off. (Henderson & Venkatraman, 1993; Coleman & Papp, 2006; Masa’deh et al, 2008; Jia & Reich, 2013; Masa’deh et al, 2008; Akdere 2011; Ollila 2012).

In addition to inconsistent determinants and measures of IT pay-off used in prior research, lack of attention to factors such as time lag between IT investment decision and actual acquisition of IT assets, and between acquisition of IT assets and availability of appropriate IT systems and IT supported business processes also confound findings in IT pay-off studies. Recent research findings provide evidence to this effect. For example Dobija et al (2012) found that investors reacted more favorably to actual acquisition of IT assets compared to mere announcement of a firm’s decision to invest in IT. Banerjee et al (2011) show that some features of a technology may remain untried and unassimilated initially but may be used at later stages, indicating a time lag effect between availability of an IT system and its full usage to supported business processes. To account for time lag effects, researchers argue that the process of conversion of IT expenditure into appropriate stages and measures appropriate to the stages must be considered in IT pay-off studies (for example Mooney et al, 1996; Soh & Markus, 1995; Kohli and Devraj, 2003). It is evident therefore that a good model of IT pay-off must address the divergent views and confounding effects, and provide a common ground for holistic understanding of IT pay-off. This research attempts to fill this gap.

On the tenets of IS success theory (Delone & McLean, 2003) and business-IT alignment literature (Henderson & Venkatraman, 1993; Coleman & Papp, 2006; Masa’deh et al, 2008; Jian & Reich, 2013), this research argues for a shift in focus from IT investment and IT capabilities per se to the co-presence of systems and business process qualities, as suggested in business-IT alignment research. Evaluation of co-presence of systems and business process qualities at a point in time also helps to address the confounding effects of time lag between IT investment and availability IT enabled business processes. On the tenets of stakeholder theory, and the expectancy and goal-setting theories of motivation, this research justifies the need to assess the influence of organisational motivation on IT systems and business process qualities to capture the effect of IT investment on firm performance. With evidence from relevant literature on quality management and organization performance, this research further postulates that IT pay-off is best understood by assessing three effects of IT – on productivity, on operational efficiency, and on specific non-financial measures of firm performance that can be related to IT. Based on the review, a model of IT pay-off is proposed and tested. Through the model, an attempt is made to answer the following research questions: (1) How do IT systems and IT enabled business processes (components of business and IT alignment) influence IT payoff? (2) How does organizational motivation influence the qualities of systems and business processes? (3) What measures are appropriate for measuring IT payoff?

Data was collected from a sample of ISO firms. Since ISO firms are certified for their
Economic vs. Non-Economic Determinants of Diversification and Specialisation in Agriculture
[www.igi-global.com/article/economic-non-economic-determinants-diversification/62266?camid=4v1a](www.igi-global.com/article/economic-non-economic-determinants-diversification/62266?camid=4v1a)

Implementation of the Technology Plan
Howard Yocom (2013). *Technology Integration and Foundations for Effective Leadership* (pp. 102-123).
[www.igi-global.com/chapter/implementation-technology-plan/72604?camid=4v1a](www.igi-global.com/chapter/implementation-technology-plan/72604?camid=4v1a)