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出席國際學術會議心得報告及發表之論文

摘要

為了解國際上之最新之資訊技術與管理知識發展趨勢，加上與不同國家的學者進行國際化的交流，除增進本身的研究能力外，也希望能提升本身在該領域之教學以及國際合作之實力。

目次

一、目的

企業流程再造的興起造成企業活動的改變，而企業流程以及行為模式的改變都須借重受資訊科技之影響，進而提升企業的績效。但是：在企業開始禁行流程改造之時，同時引進新的資訊科技技術，員工績效是否也同時提升？是否需要藉著合適的員工評量機制，才可能達到預期的效果，這對於管理會計界是一個有趣的議題。 因此科技創新與產業管理學會(TIIM, Technology Innovation and Industrial Management Institute)不斷致力於會計、資訊科技與管理之研究與推廣。期待世界各國能經由不斷之研討與學習，將知識相互交流以提升之學術層次。因此，科技創新與產業管理學會(TIIM)創立國際研討會(Annual Conference)，由於會議研討兼具各類商學議題之學術性與產業性，因此已成為商管領域相當有權威之研討會，引有很多國際知名學者與業者參與會議。

今年科技創新與產業管理學會(TIIM, Technology Innovation and Industrial Management Institute)於波蘭的盧布林舉行，藉此機會可以更進一步探討會計、資訊科技與管理之最新發展趨勢，由於本人目前主要進行之研究為企業流程再造透過資訊科技與員工評量機制對員工績效之影響。因此；投稿至科技創新與產業管理國際研討會(Annual Technology Innovation and Industrial Management Conference)，希望能透過與國際學者之研究討論，能夠激盪出更新的研究創意。經過科技創新與產業管理學會(TIIM)之評審程序，論文很幸運能被接受並於研討會發表，而藉由國科會計畫的補助，亦使本人能順利參與此次「科技創新與產業管理國際研討會」，有機會聆聽來自世界各國菁英的先進論文發表，並接受其給予本人之研究論文相當有助益之評論，增進日後研究發展。

科技創新與產業管理國際研討會(Annual Technology Innovation and Industrial Management Conference)為會計、資訊與管理領域相當有權威之研討會，由於本人目

前之研究方向與會計資訊系統領域相關，因此相當期待能前往參與科技創新與產業管理國際研討會(Annual Technology Innovation and Industrial Management Conference)，與國際學者進行研究討論，廣納世界各國專家學者對於網路認證之學術經驗，透過知識分享、心得經驗交流，亦能對本人之研究有相當助益。

本研討會和下列的國際學術期刊合作，優秀的論文亦將被推薦至下列的期刊進行快速的發表。

- Journal of Computer Information Systems
- Industrial Management & Data Systems Journal
- International　Journal of Innovation and Learning
- Electronic Government：An International Journal
- International Journal of Business Development and Research

二、參加過程：

(1) 報到

科技創新與產業管理國際研討會(Annual Technology Innovation and Industrial Management Conference) 為了探討整管理界之趨勢，特地選在波蘭舉行，研討會地點於波蘭 Maria Curie-Sklodowska University 大學舉辦，為期四天的研討會，有來自世界各地的學者、業者等，包含商管領域之研究相關理論議題、模式、策略、價值創造與創新應用之討論及專題演講，提供來自世界各地學者一個有關商管研究之交流平台，可謂此領域之年度盛事。

此研討會來自世界各國之 30 餘個國家的專家學者參加齊聚一堂，主辦單位於 5 月 22 進行研討會註冊，因此本人於當日抵達研討會場後，完成註冊報到手續。

(2) 論文議題研討

5月23日一早即有多場研討場次進行論文發表，由於整個研討會議程之論文議題討論場次安排相當緊湊，因此本人主要參與聆聽與自身研究領域相關之場次，進行論文議題研討，本人的論文發表時間被安排在24日的下午場次，同時並擔任該場次之主持人，我本次的論文主要的內容摘要如下:

許多公司會透過進行企業流程再造(BPR)的方式來改善公司的績效，以前的文獻也指出許多公司透過企業流程再造來增加自身的競爭力與提升公司績效如Motorola，AT&T。

另外當公司導入企業流程再造時也會利用資訊科技技術(IT)來進行輔助。公司內部的各種不同性質的部門間的資訊傳送會因為資訊科技技術的輔助而變得精確且有效率(Gunasekaran and Nath, 1997)。

關於公司透過企業流程再造而增加公司的競爭力與改善公司的績效議題已經在許多文獻中被討論過了，企業流程再造技術與公司績效的關係也已經相當的清楚了。

因此本論文的重點在於討論企業流程在造與人員績效的關係探討。本研究相信公司執行企業流程再造可以增加員工的績效，但是由於公司執行企業流程再造時會將原有的流程做徹底的革新，員工對於這樣的轉變可能無法接受新的流程甚至會排斥公司進行企業流程再造。因此公司如果對於流程設立衡量指標會有激勵員工的效果，因為衡量指標的設置就如同設立一個目標讓員工去達成。根據目標設置理論，員工在有設置目標的情況下所達成的績效會比沒有設置目標的績效來得高 Lawrence and smith (1955)。

本篇研究是採用問卷的方式取得資料，問卷發放的對象是針對 2006 年台灣上市櫃的公司。

在會中有許多的學者對於本研究有許多的熱烈討論，他們對於台灣企業流程再造、資訊科技與員工績效評估表示出感到興趣，並且在會後與各國學者繼續進行本研究之深入討論，可見本議題在目前的學術環境下是備受矚目。

三、心得

本次會議共計百餘篇論文宣讀及多位專家學者專題演講，主要內容包括會計、審計、資訊科技經濟、財務、銀行、管理、行銷、財務、商業電子化等議題。這次會議來自30個國家的專家學者齊聚一堂探討未來研究發展趨勢，宣讀論文與邀請的專題演講都相當傑出，是相當成功的與會人士集結來自歐美、澳洲、紐西蘭、及亞洲等地之全球性重要研究議題，會議規模相當大。今年度的會議內容，包括會議論文發表以及分組討論會等，藉由本次會議之參加，不但有助於與會人士間之國際交流外，亦能擴展學者瞭解目前最新議題發展趨勢及未來研究方向，對於研究能力提昇及教材內容之豐富性將有所助益。會場中我們將研究之發現及其實務管理意涵與其他學者交流互動，藉由彼此的討論交換研究心得與經驗，其他時間我也聆聽其他學者的研究論文發表，了解目前的一些最新研究取向，以及與學者們交換名片，以利未來有機會繼續聯繫。

出席本次國際會議個人收穫頗為豐富，除和國際學者針對專業議題進行交流外，他們對於來自台灣的我非常和善，在會場中也結識幾位國外的教授，了解國內外學習環境與訓練方式的差異，這些寶貴經驗都有助於未來教學研究題材豐富性的提升，有機會參加此種大型的國際性會議，對本人未來在教學研究的人脈網路拓展有很好的奠立基礎，在後續研究議題之思考方面也有進一步的認知與構思方向。

四、建議

1. 未來定時參加大型之國際學術研討會，了解國際最新的資訊科技技術與管理課發最新知識與脈動，做為未來研究及相關跨領域人才培育之依據。
2. 多與國際知名學者互動，期望能建立學校實驗室互訪之機制，開拓與國外教育學術單位交流之管道，借著教授和學者間的互動，促進台灣與國外雙方跨國研究合作及師生合作交流，以落實國際化人才培育。

[附件] *2012 Technology Innovation and Industrial Management Conference*發表之論文

The Relationship between Information Technology, Business Process Reengineering, and Employee Performance Evaluation

Shaio Yan Huang, Chao-Hsiung Lee and An-An Chiu

Purpose:

Many companies have implemented Business Process Reengineering (BPR) as a management tool to improve their performance. Previous literature has also examined how companies have improved their performance through the implementation of BPR. In this study, the relationship between BPR implementation and employee performance is examined with the expectation that employee performance will be improved by BPR.

Design/methodology/approach

This study examined the relationship between BPR implementation, IT support, and employee performance evaluation. It is paid much attention in selecting organizations with the experience of embarking on BPR. The sample firms were restricted to companies listed on the Taiwan Stock Exchange in 2006. Data was collected through a specially designed survey instrument sent to sample firms. The questionnaire was sent to companies' senior managers who have more understanding of the companies' strategies and performance.

Findings

It is important to recognize that employees may not accept the new business processes which are created by BPR implementation or because they have not yet adjusted to them. In this study, it is considered likely that employee performance will be improved by performance evaluation, and here we consider establishing a performance evaluation process the same as employee goal setting. According to the theory of goal setting, employees will achieve higher performance in goal setting condition than with no goals.

Keywords: Business Process Reengineering (BPR), Information Technology (IT), Personnel Performance

1. Introduction

Many companies have considered adopting business process reengineering (BPR) for improved competitiveness. The researchers〔14〕presented BPR as a fundamental rethinking and redesign of business processes to achieve dramatic improvements in business performance BPR aims to make the processes more competitive by improving quality, reducing costs, and shortening the product development cycle〔11〕. Business processes can be identified as the type of commodities that flow through the system according to〔12〕and BPR focuses on the sequence of activities which form various processes involved in business〔2〕.

The study suggest streamlined business processes supported by information technologies (IT) can improve the collaborative relationships between functional areas (There is general agreement that BPR, when properly done with effective use of IT, can significantly improve the performance of because IT can save time and improve accuracy in exchanging information about company goals and strategies〔12〕.

Several studies have examined the critical success factors for understanding the impact of BPR as a management tool to improve organizational performance or for assessing the success of BPR implementation. Some companies were able to overcome the problems they encountered and improve their performance through the implement of BPR. For example, Motorola, in order to decrease the higher defect percentage and shorten their long cycle times, redesigned its parts and tooling process while simultaneously upgrading its manufacturing equipment〔15〕.

The relationship between BPR and employee performance is also examined in this study. Companies implementing BPR to restructure and simplify business processes will require

managers or line workers to utilize well-designed business processes created by BPR. Utilizing a well-designed business process should increase managers' or line workers' productivity and their performance should be improved. Thus, it is surmised that adopting BPR will also improve employee performance. However, managers or line workers may be reluctant to use the newly-designed business processes because have not yet adjusted to them. Companies that establish performance evaluations linked to BPR will encourage managers or line workers to utilize the new business processes. Researchers found that employees improved productivity in goal setting conditions compared to no goal setting conditions〔19〕. Managers' or line workers' performance can be measured by performance evaluations, and if managers want to motivate their employees to pursue the company's objectives, they have to reward them based on the performance levels evaluated and achieved.

1.2 The Research Framework

The framework of this research is as follow:

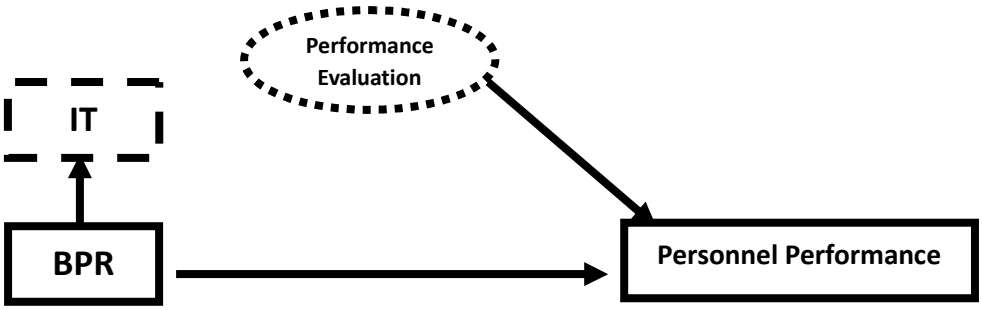

Figure 1: Research framework

2.1Variables Definition

3.1.1 Information Technologies (IT)

From the preceding discussion, it should be clear that companies would benefit from implementing BPR with the use of IT. The following questionnaire items were used to assess whether the companies studied have made IT investments in improving CRM, product development and cost reduction during BPR implementation in the past five years. The

measurements of these two variables are calculated by obtaining the mean of questionnaire value.

3.1.2 Business Process Reengineering (BPR)

It is considered that companies will implement BPR in any process or activity. The following questionnaire items were used to assess whether the companies studied implemented BPR in the past five years. The items examined are improving the whole process, improving partial process, adjusting the process, and without improving the process. Factor analysis was used to obtain the value of this variable from the questionnaire items.

3.1.3 Performance Evaluations

As previously discussed, the main objectives of BPR implementation are to achieve the goal of costs reduction, quality improvement, and lead-time shortening. This study examined the relationship between the performance of internal processes and external processes respectively and employee performance evaluations linked to costs reduction, quality improvement, and lead-time shortening.

3.1.4 Employee Performance

This research investigated how BPR affects employee performance through the establishment of performance evaluations. The following questionnaire items asked to measure whether the performance evaluations have reflected managers and line workers performance. The measurement of this variable is calculated by obtaining the mean of questionnaires value.

3.3 Statistical Estimation Model

In order to test the hypotheses presented above, the authors provide the following statistical model:

Hypothesis 1: IT investment is indispensable for BPR implementation..

Hypothesis 1a: IT investment on customer relationship maintenance and product development is indispensable for BPR implementation.

Hypothesis 1b: IT investment on costs reduction is indispensable for BPR implementation[1].

Model 1: $IT_{CRM\&PD} = \alpha_1 + \beta_{11}BPR + \beta_{12}SIZE + \beta_{13}AGE + \beta_{14}TMUS + \varepsilon_1$

Model 2: $IT_{CostRd} = \alpha_2 + \beta_{21}BPR + \beta_{22}SIZE + \beta_{23}AGE + \beta_{24}TMUS + \varepsilon_2$

Hypothesis 2: Employee performance will be improved by BPR implementation[2].

Model 3: $PP = \alpha_3 + \beta_{31}BPR + \beta_{32}SIZE + \beta_{33}AGE + \beta_{34}TMUS + \varepsilon_3$

Hypothesis 3: Employee performance will be motivated by performance evaluation.

Hypothesis 3a: Employee performance will be motivated by performance evaluation of costs reduction in internal process.

Hypothesis 3b: Employee performance will be motivated by performance evaluation of costs reduction in external process.

Hypothesis 3c: Employee performance will be motivated by performance evaluation of quality improvement in internal process.

Hypothesis 3d: Employee performance will be motivated by performance evaluation of quality improvement in external process.

Hypothesis 3e: Employee performance will be motivated by performance evaluation of lead-time shortening in internal process.

Hypothesis 3f: Employee performance will be motivated by performance evaluation of

[1] $IT_{CRM\&PD}$: IT investment for customers' relationship maintenance and product development; IT_{CostRd}: IT investment for costs reduction; BPR: Business process reengineering; SIZE: Firm's size; AGE: Firm's age; TMUS: Top managers' understanding and supporting.

[2] PP: Employee performance; BPR: Business process reengineering; SIZE: Firm's size; AGE: Firm's age; TMUS: Top managers' understanding and supporting.

lead-time shortening in external process[3].

Model 4: $PP = \alpha_4 + \beta_{41} PE_{cost-in} + \beta_{42} PE_{cost-ex} + \beta_{43} SIZE + \beta_{44} AGE + \beta_{45} TMUS + \varepsilon_4$

Model 5: $PP = \alpha_5 + \beta_{51} PE_{quality-in} + \beta_{52} PE_{quality-ex} + \beta_{53} SIZE + \beta_{54} AGE + \beta_{55} TMUS + \varepsilon_5$

Model 6: $PP = \alpha_6 + \beta_{61} PE_{time-in} + \beta_{62} PE_{time-ex} + \beta_{63} SIZE + \beta_{64} AGE + \beta_{65} TMUS + \varepsilon_6$

5. Conclusions and suggestions

5.1 Discussion of Research Results

There are three hypotheses in this research. The first hypothesis examines the relationship between IT investment and BPR implementation. Hypotheses 2 and 3 examine the relationship between BPR implementation, employee performance and performance evaluations. The empirical results of these three hypotheses tests are summarized in Table 20.

First, the empirical results support Hypothesis 1 suggesting that during BPR implementation, companies who make IT investments will improve customers relationships, improve product development, and reduce costs. The benefits of IT investment in BPR implementation have been discussed above. A strong case can be made that the relationship between IT investment and BPR implementation are positively related. With the help of IT, companies can more effectively gather information on customer needs and better meet market demands. This reduces the costs of producing unpopular products or discovers the potential market. By producing the right product, companies can better satisfy their customers and increase their market share. IT investment can also reduce transaction time, reduce paper work and better utilize human resources.

[3] PP: Employee performance; $PE_{cost-in}$: Performance evaluation of costs reduction in internal process: $PE_{cost-ex}$: Performance evaluation of costs reduction in external process; $PE_{quality-in}$: Performance evaluation of quality improvement in internal process; $PE_{quality-ex}$: Performance evaluation of quality improvement in external process; $PE_{time-in}$: Performance evaluation of lead-time shortening in internal process; $PE_{time-ex}$: Performance evaluation of lead-time shortening in external process; BPR: Business process reengineering; SIZE: Firms' size; TMUS: Top managers' understanding and supporting.

When top managers decide to implement BPR, it is expected that companies' performance will be improved and employee performance will be improved. Hypothesis 2 tested the relationship between BPR and employee performance. The empirical results support hypothesis 2 that employee performance will be improved through the BPR implementation.

The implementation of BPR will create a new working environment and the need for new employee work habits. It is not easy for employees to adapt to the new conditions, and linking employee performance evaluation to internal and external processes can encourage employees to utilize the ewly designed processes.

Hypothesis 3 examined how employee performance might be motivated by performance evaluations in BPR implementation. The empirical results support hypotheses 3a, 3c, 3d and 3e. Thus, employee performance should be improved by performance evaluations linked to cost reduction and lead-time shortening in internal processes. Employee performance should also be improved by performance evaluations linked to quality improvement in both internal and external processes. Most companies in Taiwan are original equipment manufacturers (OEM) who will increase their competitiveness by reducing product costs and production cycle time. Performance evaluations can be established to measure whether these goals are achieved or not.

Table 20: Empirical Results of Hypotheses Tests

Hypotheses	Results
Hypothesis 1: Companies will make IT investment during BPR implementation.	Supported
Hypothesis 1 a: Companies will make IT investment in customers' relationship maintenance and products development during BPR implementation.	Supported
Hypothesis 1 b: Companies will make IT investment in costs reduction during BPR implementation.	Supported
Hypothesis 2: Personnel performance will be improved by BPR implementation.	Supported
Hypothesis 3: Personnel performance will be motivated by performance evaluation.	Partially supported
Hypothesis 3 a: Personnel performance will be motivated by performance evaluation of costs reduction in internal process.	Supported
Hypothesis 3 b: Personnel performance will be motivated by performance evaluation of costs reduction in external process.	Not supported
Hypothesis 3 c: Personnel performance will be motivated by performance evaluation of quality improvement in internal process.	Supported
Hypothesis 3 d: Personnel performance will be motivated by performance evaluation of quality improvement in external process.	Supported
Hypothesis 3 e: Personnel performance will be motivated by performance evaluation of leadtime shortening in internal process.	Supported
Hypothesis 3 f: Personnel performance will be motivated by performance evaluation of leadtime shortening in external process.	Not supported

5.2 Future Research Suggestion

Companies can increase their competitiveness by successfully implementing BPR. They expect their company's performance will be improved by the BPR implantation. However, implementing BPR sometimes will redesign the original business process. It is not easy for employees to get used to the new process. Therefore, the performance evaluation establishment is expected as a factor to encourage employees to utilize the new process. Employees using the well designed process will improve their performance by becoming more competitive. To know that their performance has been improved also need to be measured by performance evaluations. Their reward are paid based on the performance which measured by performance evaluations.

The performance evaluation established by companies can also be viewed as a tool to

communicate companies' strategies to employees. According to the concept of Balance Scorecard that the performance evaluations are established based on the company's strategies. Employee achieved the expected performance of performance evaluations are helpful for achieved company's strategies.

5.3 Research Limitations

After analysis the data, there are some topics need to be pointed out that may require further research.

1. Self-report questionnaires are used in this research which may not produce objective data because it may be affected by the respondents' personality, etc.
2. The respondent companies in this research are listed on the Taiwan Stock Exchange; companies which are not listed on Taiwan Stock Exchange may not have the same outcomes found in this research.
3. This study only examined the relationship between IT investment, BPR implementation, performance evaluation, and employee performance. It is suggested that more variables could be included for further research.
4. There are only eight industries included in this research; different industry types can be compared and analyzed for further research.

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