

**IMPACT OF INTELLECTUAL HUMAN CAPITAL AND ICT ON BANK EFFICIENCY  
IN MALAYSIA**



**RESEARCH MANAGEMENT INSTITUTE (RMI)  
UNIVERSITI TEKNOLOGI MARA  
40450 SHAH ALAM, SELANGOR  
MALAYSIA**

**BY :**

**ASSOC. PROF. DR. ROSITA SUHAIMI  
DR. NURHANI ABA IBRAHIM  
DR. CHONG FEN NEE  
DR. VOON BOO HO**

**AUGUST 2012**

## Contents

1. Letter of Report Submission.....	iii
2. Letter of Offer (Research Grant).....	iv
3. Acknowledgements.....	v
4. Enhanced Research Title and Objectives.....	vi
5. Report.....	1
5.1 Proposed Executive Summary.....	1
5.2 Enhanced Executive Summary.....	2
5.3 Introduction.....	3
5.4 Brief Literature Review.....	4
5.5 Methodology.....	15
5.6 Results and Discussion.....	23
5.7 Conclusion and Recommendation.....	36
5.8 References/Bibliography.....	39
6. Research Outcomes.....	51
7. Appendix.....	52

## **5. Report**

### **5.1 Proposed Executive Summary**

(Original proposal – 300 words) – 1 page only

This paper attempts to identify the significance of Information and Communications Technology (ICT) and intellectual human capital to the profit efficiency of commercial banks in Malaysia. The profit efficiency of commercial banks in Malaysia was estimated using the Stochastic Frontier Approach (SFA) on a sample of unbalanced panel data, covering 23 commercial banks, between 1995 to 2009. Based on the empirical results, both ICT and non ICT stock expenditure were found to exert significant positive impact on profit inefficiency, whereas intellectual human capital, size and ownership were negatively significant contributors.

### 5.3 Introduction

In the 9th Malaysian Plan (9MP), it was mentioned that the application of ICT in the service industries, such as e-banking and e-commerce, particularly in the banking and telecommunication subsectors, contributed a great deal to productivity (Malaysia, 2006). It is well recognized that a trained, skilled and well-educated workforce is critical in enhancing work and economic performance and sustaining competitiveness as Malaysia transforms into an ICT-driven and knowledge-based society. By using technology as a tool, ICT has emerged as an enabler in creating, manipulating and distributing information and communication to improve the quality and effectiveness of both the public and private sector programs and Services. Previously, under the Seventh Malaysia Plan 1996-2000, and more so under the Eighth Malaysia Plan 2001-2005, the government has placed much emphasis on ICT utilization during the implementation of policies and programs and the need to use this process as a means for the creation of new technologies. However, with increasing competition, ICT, being a basic infrastructure element for financial institutions, may no longer be regarded as a competitive edge, as every bank has already extensively embraced ICT in their operations to serve their customers better.

In the 10th Malaysian Plan (10MP), human intellectual capital is one of the main agenda. The government will focus on efforts to develop human capital development such as skills development and strong innovation capabilities. As mentioned in the 10MP, skilled and knowledgeable workforce is the cutting edge of a nation's competitiveness. In order to achieve skilled and knowledgeable workforce, education and training systems will have to be strengthened from early childhood to tertiary education.

In the era of globalisation and liberalisation, the commercial banks might be facing challenges in order to be cost and profit efficient. Human intellectual capital might play the role of achieving bank efficiency. Yildirim and Philippatos (2002) in their study of European countries, and Nikiel and Opiela's (2002) study of banks in Poland, found that the banks

were able to achieve cost efficiency but not profit efficiency because they were facing stiff competition and were forced to sacrifice their profits to gain more market share. In Malaysia, Mohd. Zaini et. al (2001, 2003), and Mariani Abdul Majid et. al. (2003) estimated the cost efficiency of Malaysian banks. However, the relationship between a bank's cost efficiency and specific factors such as intellectual human capital and ICT has not been explored so far.

Yildirim dan Philippatos (2002) in his study in the European countries and Nikiel dan Opiela (2002) study on banks in Poland found that the banks were able to achieve cost efficiency but not profit efficiency because they were facing stiff competition and were forced to sacrifice their profits to gain more market share. In Malaysia, Mohd. Zaini et. al (2001, 2003), dan Mariani Abdul Majid et. al. (2003) estimated cost efficiency while Rosita Suhaimi (2008) estimated profit efficiency in relation to some K-economic variables. However, again the relationship between bank's efficiency (both cost and profit efficiencies) and specific factors like, intellectual human capital and ICT has not been done.

## **5.4 Brief Literature Review**

Earlier studies that used the parametric approach in the 1960s and the 1970s included Aigner and Chu (1968), Afriat (1972), Richmond (1974), and Timmer (1971). In general, most of the earlier studies investigated technical efficiency, scale, production scope and cost efficiency. Among those studies of technical efficiency were Atkinson and Cornwell (1993, 1994a, 1994b), Kumbhakar (1996a, 1996b, 1997) and Berger and Humphrey (1991). As this study is related to technical efficiency, that is cost and profit efficiency, the literature review discussion will focus on these areas..

### **5.4.1 Cost and Profit Efficiency Studies**

According to Huang (1999), cost efficiency analyses economies of scale and scope by using the cost function in the Cobb Douglas form as was used by Benston (1965). Berger and