

THE INFLUENCE OF IT INFRASTRUCTURE IN BUSINESS PROCESS REENGINEERING PROJECT PERFORMANCE IN ISLAMIC BANKING.

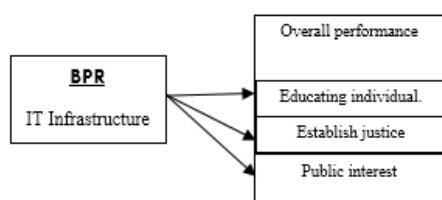
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Graphical abstract



Abstract

The purpose of this study is to investigate the relationship between IT infrastructure and performance of Islamic banking branches in Kedah from the perspective of Maqasid al-Shari'ah. IT infrastructure is critical factor to Business Process Re-Engineering (BPR). Maqasid al-Shari'ah is defined in terms of educating individual, establishing justice and promoting public interest. The questionnaires were sent directly to banks' branches and collected by hand. 59 questionnaires were returned; however, only 54 samples were used for further data analysis. The data were analyzed using the simple regression analysis. Collectively, the result showed that IT infrastructure significantly influences the overall performance of Islamic banking branches in Kedah from the perspective of Maqasid al-Shari'ah as well as in terms of educating individual, establishing justice and promoting the public interest. The outcomes of this study provide an important understanding to both managers and researchers about the relationship between IT infrastructure and bank performance from the perspective of Maqasid al-Shari'ah.

Keywords: IT Infrastructure, business process re-engineering, Maqasid al-Shari'ah

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1.0 INTRODUCTION

The fierce competition in the globalized business world has forced financial institution to change their operation processes. To succeed in this global economy, most of organizations must have a unique strategy and distinctive structure and processes which are fast, high quality, flexible as well as low cost [1].

The performance of banks is not solely based on the financial performance, but also closely tied to their customers and the wellness of their relationship with other stakeholders. Hence, the traditional performance which is mainly on financial point of view is no longer adequate to be used as the only indicator of a company's performance. In Islam, the organizational performance can be measured based on the Maqasid al-Shariah. As a result, the performance should focus on giving education and knowledge for individual as well as public interest in order to enhance customer relationship. This study is applying the measurement of

Islamic banking performance by using the Maqasid al-Shari'ah Framework [2]. The Islamic principle emphasizes the profit and loss sharing and it prohibitions of the collection of interest [3]. Based on the Maqasid al-Shari'ah framework, the performance of Islamic banking is measured into three broad areas includes; (1) educating individual, (2) establish justice and (3) public interest.

Malaysian government aspiration is to have a strong Islamic banking [4]. In order to establish a strong Islamic banking in the world, the banking industry need to establish an effective strategy to realize the aspiration. One of the best approaches that have long been applied in the manufacturing industry to improve performance is the implementation of Business Process Re-engineering (BPR). BPR is a radical changes in business processes that would help organizations to achieve a quantum leap of improvement in cost reduction, speed, productivity, and profitability [5]. Nowadays, BPR became one of the popular approach

in dealing business in rapid technological advancement, and any changes or transformation among organization because it helps to improve the performance of companies [6].

BPR was found to lead to successful organizational performance [7]. In the new global challenges, BPR is highly beneficial to the banking industry because it may lead to significant increased satisfaction of their clients [8]. However, BPR is a risky approach as many organization fail after implementing BPR in their organizations. To be successful in implementing BPR, one of the important factors that need to be concerned is to fit the project with organizational culture and information technology (IT) [9].

Organization needs IT infrastructure because it will integrate and connect other departments and their systems together and minimize the processed errors [9]. Organizations are effective when they are capable to align between IT infrastructure and BPR strategy to develop an effective IT infrastructure, maintenance, computers and software, and organization which are linked between computer and customers [10]. The success of IT applications will enhance the effectiveness of BPR implementation and will improve the banks performance [8]. This study will investigate the relationship between IT infrastructure in BPR and performance of Islamic Banking branches in Kedah from the perspective of Maqasid al-Shari'ah.

1.1 Islamic Bank Performance and BPR

Islamic banking must be Shariah-compliant or be based on Islamic law in accordance to the Quran and Sunnah of Prophet Muhammad p.b.u.h. Islamic banking system encourages and teaches Muslim community to follow the right guidelines for financial activities. The development of Islamic banking institution in Malaysia was caused by both internal and external factor [11]. The internal factor can be from the group of people who urged the government to develop an Islamic banking institution after the establishment of "Lembaga Tabung Haji" in 1963. Meanwhile, the establishment of Islamic banking in the Middle East in mid-1970s and the development of "Islamic Development Bank" in Saudi Arabia became the external factor which provides a major influence to the Islamic banking in Malaysia.

Globalization and high demand from customers has led financial institutions in Malaysia either conventional banking or Islamic banking to improve their capability by adopting reengineering and engaging in-process change. This is known as Business Process Reengineering (BPR).

BPR concept was introduced by Michael Hammer on 1988s. The concept of BPR is first proposed in a Harvard Business Review article entitled "Re-engineering Work: Don't Automate, Obliterate". The re-engineering concept give meaningful knowledge to the respective readers in which can be acquired from a book "Reengineering the Corporation" written by Hammer and Champy [5]. Michael Hammer defines re-engineering as "Fundamental rethinking and radical redesign of business processes to achieve a dramatic

improvement in a critical quantum leap of contemporary measures of performance, such as cost, quality, service, and speed" [12].

Most of the previous research focus on examining the performance of banking industry in terms of financial and non-financial, cost reduction, service performance, operations efficiency, profitability and customer satisfaction. This study is applying the measurement of Islamic banking performance by using the Maqasid al-Shari'ah Framework: (1) educating individual, (2) establishing justice and (3) promoting public interest [2].

The contradictory finding between scholars in terms of the role of IT infrastructure in BPR studies creates a research gap for the study. In one hand, IT infrastructure is deemed as a necessity for the BPR, while on the other hand some argue that the BPR can be successful without involving technology [13]. Therefore, the objectives of this study are as follows:

- a.To investigate the relationship between IT infrastructure and Bank Performance in terms of overall performances.
- b.To investigate the relationship between IT infrastructure and Bank Performance in terms of educating individual.
- c.To investigate the relationship between IT infrastructure and Bank Performance in terms of establishing justice.
- d.To investigate the relationship between IT infrastructure and Bank Performance in terms of promoting public interest.

2.0 LITERATURE REVIEW

2.1 BPR Project Performance in Banks (in terms of Maqasid al-Shariah)

Ibn Ashur clarifies the objective of Shariah is to promote welfare, prevent corruption, maintaining stability, establish justice and develop harmony of life [2]. Meanwhile, Ilal al-Fasi argued that objective of Shariah is giving benefit to all, renewal human mind, use natural resource, maintaining order, land development and develop justice to all people. Further, Abu Zahra has classified the objective of Shariah in details into three areas such as (1) Tahdhib al-Fard (Educating the individual), (2) Iqamah al-'Adl (Establishing justice), and (3) Jalb al-Maslahah (Promoting Welfare) [2].

- (1) **Tahdhib al-Fard** (Educating the individual)

Educating individual is divided into three dimension which include advancement knowledge (education grant or scholarship and research funding), instilling a new skills and improvements (training) and create awareness of Islamic banking (publicity).

(2) **Iqamah al-`Adl** (Establishing justice)

Establishing justice is divided into three dimensions such as fair returns (profit equalization reserves and net investment income), elimination of negative elements that cause injustices (interest free product) and unreasonable price for products and services (total investment in mudarabah and musharakah).

(3) **Jalb al-Maslahah** (Promoting Welfare or public interest)

Promoting welfare is also divided into three dimensions that include profitability of bank (net income and total assets), redistribution of income and wealth (zakkah and net income) and investment in vital economic sectors (investment in real sector and investment in services).

Business process re-engineering (BPR) is currently becomes an integral part of business improvement approach. However, as reported by the previous literature, 50 to 70 percent of BPR approaches fail to achieve the performance objective. The reason of failure includes the lack of focus on the right issue, lack of delivery of right information about BPR, and lack of management commitment [14].

Moreover, BPR is very suitable to be a performance improvement method due to its benefits to the manufacturing and service firms [15]. Furthermore, from the empirical study, it clearly shows that BPR will improve organization performance drastically if it is aligned with business strategy, communicating effectively throughout organization, and use of information technology in managing organization. Additionally, BPR is also suitable to be implemented in Islamic banking system as a performance improvement method.

2.2 IT Infrastructure

IT infrastructure is defined as the expenditure from organization to develop IT infrastructure such as IT training, consultant, computer, software, and physical infrastructure of IT in an organization. IT infrastructure uses the electronic technology to undergo activities and basic business needs in all level [16]. In other words, IT infrastructure is an automation of the new processes, activities, operation, information, telecommunication, using the electronic technology. IT infrastructure enables organizations to share the resource using organizational technical and company capability [17]. IT infrastructure is considered as a vital component of successful BPR efforts.

A study by Ringim, Razalli, and Hasnan found that majority of the respondents agreed that banking industry must enhance its IT software to efficiently and effectively manage daily operational activity [16]. Therefore, IT infrastructure is an important aspect because IT infrastructure enables banks to transform its manual or traditional to a more advanced approach. Examples of IT infrastructure include the role of

automated teller machine (ATM) in connecting customers and banks, the use of credit and debit card, and the online banking application. Therefore, the development of IT infrastructure will increase the level of public interest stake and satisfaction, and provide assistance to community in doing transaction activity and improve knowledge and skills of employees to apply technology as a new method.

The availability of appropriate IT infrastructure is expected to increase the profit and quality services and eventually improve the performance of the organization [18]. Furthermore, it also enables organizations to develop BPR to analyze model, map, evaluation and process need, and ensure the interest to help organization to continuously be better in their performance.

The research framework of the relationship between IT infrastructure and Performance of Islamic Banking Branches in Kedah from the Maqasid Al-Shari'ah Perspective is as follows:

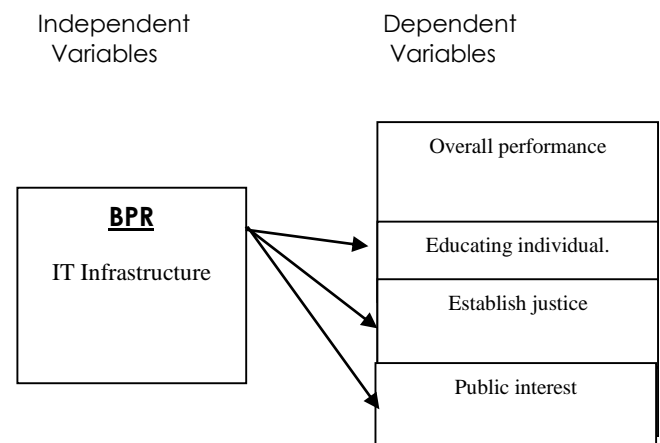


Figure 1 Research framework

Based on previous findings, the research hypothesis and its sub-hypotheses were formulated as follows:

H1: There is a significant relationship between IT infrastructure and bank performance in terms of overall performance.

H1a: There is a significant relationship between IT infrastructure and bank performance in terms of educating individual.

H1b: There is a significant relationship between IT infrastructure and bank performance in term of establish justice.

H1c: There is a significant relationship between IT infrastructure and bank performance in term of public interest.

3.0 METHODOLOGY

A quantitative approach was chosen to achieve the study's objectives. This was a cross-sectional survey where questionnaire was used as a research instrument. The survey was conducted via a face-to-face interaction with the managers of the banks. The unit of analysis was organization, which was deemed appropriate for measuring organizational performance [19]. A simple random sampling was applied in distributing the questionnaires to the Islamic banking branches in Kedah. The completed questionnaires were returned by hand.

The Islamic banking branches in Kedah were chosen because the state of Kedah has a significant number of Muslims (77%) [20]. In addition, Kedah also has a promising future prospects to be further developed and has a significant number of Islamic full-pledged banks.

The total population of Islamic banking in Kedah at the time of study was 63. Statistically, it is recommended that for the sample size for such population, 56 samples which represented 89% of the total population would be adequate [21]. The questionnaire was adapted from previous prominent study in the BPR [13] (Table 1) and performance in terms of Maqasid al-Shari'ah [2] in Table 2. A five-point Likert scales with a rating of 1 to 5 were used. Seven questions were also asked in terms of demographic characteristic (gender, years of experience, position, total employee, location organization, and question related to BPR implementation). The questionnaire was tested by experts from banks and academician for readability, structure, completeness, and ambiguity [13].

Table 1 The survey instrument for IT infrastructure

Item	
IT INFRASTRUCTURE	
1	The bank aligns IT infrastructure and BPR strategy.
2	The bank builds an effective IT infrastructure.
3	The bank has sufficient budget for a purchase of an updated hardware and software for operational processes.
4	The bank has achieved proper integration of IT.
5	The bank makes effective use of software tools.

Table 2 The survey instrument for Islamic banking performance based on Maqasid al-Shari'ah Perspective

Item	
EDUCATING INDIVIDUAL	
1	The bank annual expense budget allocation for community service relationships on students scholarship that study on subject related to Islamic banking
2	The bank annual expenses on scholarship for Islamic banking and finance student as a ratio to annual total expenses
3	The bank yearly budget on new research activities for Islamic transactions
4	The bank annual expenditure for researches in the field of Islamic finance and banking as a ratio to annual total expenses
5	The bank annual budget on publicity for Islamic products and services
6	The bank yearly expenses on advertisement of Islamic product and services as a ratio to annual total expenses
ESTABLISH JUSTICE	
1	The periodic amount paid to stakeholders by the bank as share of profit from investment
2	The annual amount allocated to bank profit equalization reserve
3	The contribution of income from interest free product to the bank total annual income
4	The contribution of interest free income toward minimization of wealth disparity as a result of exploitation
5	The bank volume of current account product such as Al-Wadi'ah
6	The bank volume of expensive fund such as Musharakah investment
PUBLIC INTEREST	
1	The annual contribution of net income as a ratio to bank total assets
2	The amount paid for Zakkah by the bank
3	The bank annual exposure of investment to real sector
4	The bank annual exposure of investment to service sector
5	The fee based income on transaction services
6	The annual contribution on community service relationship

Data were analyzed using the Statistical Package for Social Science (SPSS) version 21. 54 or 86% responses were used for the analysis after the process of data cleaning and elimination of outliers. Descriptive analysis, validity and reliability test, normality test, correlation analysis, simple regression analysis were used to assess the four hypotheses of the study.

Preliminary assumptions such as linearity, normality and homoscedasticity were examined as requirements for regression analysis. Simple regression analysis is conducted to examine the relationship between the IT infrastructure as independent variables and the Islamic banking performance as dependent variable. To determine the influence or significant relationship between independent and dependent variables, significant values and t-values were used. In this case, if the significant value is below than $p < 0.05$ and the t-value is more than $t > 1.645$, we conclude that there is a significant relationship between the variables [22].

4.0 DISCUSSION

The finding of correlation analysis between IT infrastructure with overall performance of Islamic banking branches showed a positive correlation where $r = 0.571$. Specifically, in terms of each aspect of Maqasid al-Shariah, educating individual, establishing justice and public interest, there were also positive correlations found where $r = 0.390, 0.521$ and 0.512 respectively. The correlation between IT infrastructure and banks performance is significant at the 0.01 level. Table 3 shows the summary of the correlation analysis.

Table 3 Pearson's Correlation between the Constructs

	IT Infrastructure
Overall Performance	.571**
Educating Individual	.390**
Establish Justice	.521**
Public Interest	.512**

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Based on the result of simple regressions, hypothesis H1, H2, H3 and H4 were accepted because the values of p were found to be less than 0.01 ($p < 0.01$) as shown in Table 4. In other words, the variables are strongly and positively related. It means that the IT infrastructure positively influences the Islamic banking performance in terms of Maqasid Al-Shari'ah in terms of overall performance as well as in terms of educating individual, establishing justice, and promoting public interest.

Table 4 Results of simple regression analysis between IT infrastructure and banks performance

	Performance (β)	Sig.	t
Overall Performance	0.571	0.000	5.014
Educating Individual	0.390	0.004	3.050
Establish Justice	0.521	0.000	4.404
Public Interest	0.512	0.000	4.302

Table 5 Showed the summary of all hypotheses based on the simple regression result in this study.

Hypothesis	Results
Simple Regression Analysis	
H1 There is a significant relationship between IT infrastructure and bank performance in terms of overall performance.	Accepted
H1 _a There is a significant relationship between IT infrastructure and bank performance in terms of educating individual.	Accepted
H1 _b There is a significant relationship between IT infrastructure and bank performance in term of establish justice.	Accepted
H1 _c There is a significant relationship between IT infrastructure and bank performance in term of public interest.	Accepted

In this study, we have found that IT infrastructure influences the performance of banks in terms of the overall performance and in terms of all dimensions of Maqasid al-Shari'ah. Hence, it provides another evidence of the importance of IT infrastructure in successful BPR implementation. Organizations that have failed to integrate IT strategies with other strategy will cause the failure in organization to improve the performance [23].

The findings concurs with other previous studies such as from Ringim, Razalli and Hasnan who have also found positive relationship between IT infrastructure and banking performance [16]. However, organizations

must keep enhancing its IT software to efficiently and effectively manage daily operational activity [16]. There is also a need to continuously align the IT infrastructure and BPR strategy for effectiveness. Salimifard, Abbaszadeh, and Ghorbanpur also agreed that the success of IT applications will enhance the effectiveness of BPR implementation [7]. Al-Mashari and Zairi also emphasize IT as a very important factor in organization to attain objective of BPR implementation [18].

5.0 CONCLUSION

The purpose of this research is to investigate the relationship between IT infrastructure in the Business Process Re-Engineering (BPR) and performance of Islamic banking branches in Kedah from the perspective Maqasid Al-Shari'ah.

The overall result shows that IT infrastructure influences overall performance of Islamic banking. Specifically, IT infrastructure has also positively influenced the dimensions of performance (educating the individuals, establishing justice and public interest). Therefore, management of Islamic banking should give its full attention to IT infrastructure when implementing a BPR project. IT infrastructure is a must for organizations to develop innovation. As cited by Ramirez, Melville, and Lawler new innovation in product and service will make organization became unique and reach competitive advantage in marketplace in term of sales and services [24].

The scope of the study was limited to the state of Kedah. Hence, generalization of the findings must be made with caution. Moreover, the banks were represented by a single person, hence, the answer may be subject to his or her own past experience not the organization. In future study, the researchers are suggested to select multiple respondents to avoid bias, balanced the perspective of BPR variables, and concern with negative or positive feeling about the research topic [13]. Future researchers may also apply a mix-mode method in a wider coverage and investigate the role of a moderating variable in the relationship.

In conclusion, Islamic banks needs to build an effective IT infrastructure for success BPR implementation. Without proper management of IT infrastructure, BPR initiatives of any organizations would likely to be failed. The study is unique in the sense that organizational performance is viewed from the Islamic perspectives. Even so, the findings support that IT infrastructure is critical to the BPR implementation in the Islamic banks.

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