Title: A Critical Review of "Performance Effects of Innovative IT Applications Over Time"

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Abstract: A paper titled "Performance Effects of Innovative IT Applications Over Time" is critically reviewed in this individual report.

A Critical Review of " Performance Effects of Innovative IT Applications over Time"

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Individual Research Paper
Performance Effects of Innovative IT Applications over Time

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I. Concept Studied

This paper indicates the effects of innovative information technology application, which change over time by looking on an investment of automated teller machine (ATM). With the concept of competition and organizational learning will impact the innovative investment by using many models to describe the benefits in market shares and bank performance of ATM's adopters. The models that used to describe the benefits of ATM investment in each year are the linear model, exponential model and logistic model. The results show that the early adopters of ATM can increase their market share and income performance. However, the benefits they gain are small at the primary but have increased gradually after many years of adoption. And also, the early adopters will gain more benefits than the followers. Nevertheless, some companies don't want to be an innovator since they don't want to risk and also investment in information technology (IT) application is expensive and the companies cannot predict the exact result. Therefore, in order to evaluate information technology application, the benefit should be measured many years after implementation. Moreover, at the end of this paper, they indicate that after the year of the study, the result has changed to another way. The followers can gain the benefits more than the early adopter can by improving the technologies close to customers' need.

II. Methodology

The paper sampled 2534 banks, then measured the impacts on market share and overall bank performance in the period from 1971 to 1984 of the United States. It uses the data from four sources, which are ATM adoption data from a survey of the Federal Deposit Insurance Corporation (FDIC), bank performance data from the Report of Condition and Income (RCRI), the survey data of the installation of ATM's of each bank between 1971 and 1974. Also, other relevant data on state regulations governing bank branching from the Federal Reserve board of Governors' Annual Statistical Digest [3] and the Conference of State Bank Supervisors [1], [2].

For the market share, the study uses personal loans to measure the impact of ATM investment on market share and also uses income before income taxes and securities gains or losses as a measure of a bank performance. The analysis of whether the early ATM adoption that helps bank to increase both market share and bank performance is separately but in the similar model. The model that has been used is the multivariate linear regression model. This paper also uses linear model, exponential model and S-shaped logistic model to compare market share and income effects between the banks that adopted in each year during 1971 to 1974. Nevertheless, the best model that is more suitable for the market share and income effects is the exponential and logistic model. From these two models, indicate that the performance effects to the bank were different depending on different years. And also, the result shows that the early ATM's adopters will gain market share and income performance more than the followers.

III. Contributions to the Literature

Learning affects for IT investments is similar to investment of other innovations, which is the organizations will not gain benefits immediately after the new investments is being used. On the contrary, it will take some time to earn the profits. Also, early followers can earn the same learning effects as the innovator and enable innovators to get long-term competitive advantages. Since the earlier the company apply the new innovation, more companies are interested to apply and most companies will select to use it at the first time. When the followers imitate the innovators, it will take time and risky to convey the customers from innovators. In addition, it gives evident that impacts of IT innovations changes over time. Consequently, in order to measure impacts, the company will take a long time to conclude whether the new IT applications make a profit to organization.

IV. Compare to other Research

According to the other research of investment IT application. The research surveys many companies in various businesses that use new technology in IT investment to gain competitive advantages in many countries, such as The United Kingdom and United States. They found that many companies like American Airlines, American Express and The American Hospital Supply Company gained the competitive advantages after adopting new technology for their company. The company can gain benefit in a short time after implementation and the profits are high. Anyway, the studies also indicate that the innovator will gain much more profit than the followers [4], [5], which this result relates to the research of 'Ken Peffers and Brian L. Dos Santos'. Therefore, we can conclude that the innovative of IT applications of company deliver them a large amount of profits, reputation for technical leadership and also gain high market share.

The finding of this paper supports the result of other research that the early adopter of innovative IT applications gain much more benefits. Similar to the reputation for technical leadership getting market position, which results in the competitive advantages of company. Since the early adopter gain much interests from the customers who want to try something new. When other companies try to initiate, the customers will not feel stimulated and wish to try anymore. By the way, there is the idea that refutes other research. Due to this research, the innovative of IT application expends a long time to gain benefits. The company cannot decide whether the new IT application will gain profits in a short time. It will take a long time that may affect the internal operation of the company. On the other hand, the finding we get from other research indicates that the profits getting can be measured in a short time after the new technology is being introduced. These two results are contradict, may be because the adoption of ATM is a big topic with more risky that many banks in United States want to implement. Hence, it takes a long time to gain benefits while the adoption of other applications implement just only in their companies so that the benefits are gained in a short time.

This research studies the results of adopting IT application over a period of time during 1971 to 1974. The result shows a view only on that period but after that we cannot predict whether the benefits of the early adopters still increase. The conclusion of the study makes the finding less reliable because the writers give the contradict ideas. Other researches usually emphasize on their points, state clearly and also give the conclusion and information that are more believable

V. Strengths and Weakness of the Paper

The strengths of this paper in the concept, which state that the organizational learning and competitor's action will affect the innovative of IT applications on firm performance. In view of organization learning, company can develop the application close to customers' need. And also, competitor can choose the better strategy and also less risk to get better performance on their companies. For methodology, this paper uses three models, which is linear model, exponential model and S-shaped model to analyze the market share and bank performance. These three models get the same result, which is the early ATM's adopter gain market share and bank performance more than the followers. However, there are the weakness of this methodology, the data was gathered only in United States. Hence, they cannot conclude that the early ATM's adopter will gain benefits more than the followers for other countries and also for other IT applications. Other weakness for methodology is the data was gathered only during 1971 to 1984, which maybe too short to conclude in that way. Due to the weakness of methodology, it leads to the weakness of the result. They cannot conclude that the early adopters gain benefit more than the followers.

VI. Conclusion

This paper concludes that the early ATM's adopter will gain benefits more than the followers. And also to measure benefits of investment in IT application, they should take many years to evaluate. The later adopters cannot change their company faster than the early adopters because to take full advantage of ATM's, banks have to improve the processed of transaction and dealt with customers. The early adopters can gain approach to the best site for ATM's. In the discussion section, indicate that after the year 1984, they cannot determine that the early adopters will continue to increase. By reason of after 1984, ATM terminal were expansively shared and a bank's own ATM machines are less important for gaining and keeping market share, network membership and the bank's ATM use fee policy are more important. And also, to understand how new IT applications change over time, helps us to evaluate of potential investments in IT applications after implementation.

They are not well stated because the research report supports these conclusions only in the field of ATM's and just in the period of time (1971 to 1984). The research supports in the area of measuring benefits of the company, which takes many years after implementation and the early adopter will gain benefits more than the followers. They need strengthen by gathering data of longer period and other fields of IT application. Moreover, the information about the operations within the firm after adopting new IT applications is also important.

VII. About References

For this paper, the references are not adequate because this paper has only one example of IT application and then they conclude that the early ATM's adopter gained benefits more than followers. However, in the conclusion and future research found that after the year of this research finished, it is not necessarily that the early ATM's adopters will gain benefit more than followers. Moreover, other investments of IT application, such as American Airlines, American Express and The American Hospital Supply Company (AHSC), which found that after installed IT application they gained benefit not long time after implementation.

American Airlines developed the SABRE airline reservation system and the benefits derived from SABRE better than those of the airline just in the short time. American Express developed 'The Authorizer's Assistant', an dexterous system, to support credit control clerks to achieve the objectives, by speeding its response to retailers for purchase approval and to diminish credit card abuse. The American Hospital Supply Company coeducational with Baxter Healthcare, which was the first supplier to provide computer screen to allow hospitals to order supplies through their computer system [4], [5]. These three investments in IT application gain benefit not long time after implementation.

VIII. Future Work

After studying this paper and other research, the ideas that I can identified for future investment in IT application is that we should have a good planning, methodology and strategy in order to gain more benefits from investment IT application. And also, we have two ways to choose, which are an innovator or follower. To be an innovator, we are at risk in adopting new technology and gaining benefit. However, if the IT application is success, the company will gain a lot of profits. On the other hand, the follower can select to adopt the technology that other companies already gain the benefits but the profits gaining may not as much as the innovator.

IX. References

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