

## Study of Using Balanced Scorecard to Measure the Effect of Banking Information Technology to Sustain the Banking Performance (A Comparative Study)

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**Abstract:** This study aims to assure the role of information technology in raising banking sector performance using Balanced Score Card (BSC). The research was applied to Commercial banks in Egypt. A sample of six banks that represents public and private sector banks were taken (National Bank of Egypt (NBE), Commercial International Bank, Bank of Alexandria, Credit Agricola Egypt, Union National Bank, and QNB Egypt), where all the workers in different managerial levels (Top management, Middle management, and first line management) represented the sample unit in the chosen bank. From our study, we find that the information technology has a positive effect on banking performance. It also showed that the more IT applications available, the higher the performance in banks. The researcher recommended that top management should implement strategic programs that help in raising banking performance, i.e. technological programs that facilitate the work in banks.

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### I. Introduction

The information technology of the most important factors affecting the banking institutions, and examples (banking innovations telephone - devices automated teller (ATM)) in order to facilitate dealing with customers, and has become a deal with the bank through electronic technology, such as computers, telecommunications, networks and others in the field of banking services of the reasons that led to the change in traditional ways for banks to do business, and have led modern technology the potential to deal with the bank services from home and allows customers to get the service from anywhere, and gained online banking wide acceptance locally and internationally [1].

The quality of the data is an important and a strong indicator of the quality of information and so as the data are the system inputs and information are the main outputs, while for the operating systems have evolved in recent times and with tangible progress in methods and technological factors Modern, where the world we live in is to become a world of information and has information have the power, where internet networks and communication technologies have emerged and become information available all the time and after that inflation projects size and increased problems which led to the existence of information is in databases that provide for the management of data collection, both from within the project or beyond then processed to provide useful information systems and connect periodically to sound administrative decision-makers, and to provide sufficient flexibility for the various administrative levels of decision-making to the fullest [2].

The financial sector different in its institutions, led by the banks of the major sectors covered by the information technology, and offers modern banking thought new concepts for contemporary banks look through predominantly automated nature of example, the bank knows the talk that letter port offers a variety of banking services without interruption and without human [3,4] see that the banks must be seen As an electronic delivery service for groups of integrated system is done via the Internet or private networks, a room with a range accommodates both cases, the customer's needs and satisfy the aspirations of prospective customers.

And for the continuous improvement of operations in performance emerged as the importance of the Balanced Scorecard method, where the Balanced Scorecard works on the basis of integration between financial metrics that reflect the results of the financial performance and standards of non-financial, which reflects the performance of engines, is also based on the balance between the four dimensions underlying measure, the balance between short-term and strategic goals for long-term goals [5].

### The Problem of Our Study

Banks are considered at the forefront of organizations that use information technology and technological advances in banking expansion in the use of modern technology in various activities landmarks, the banking sector is one of the leading in the use of information technology sectors because of its vital role in the national economy.

And became IT primary engine of development in the banking institutions and through the expansion of the use of electronic computers and rely on automatic teller machines, and the development of the payment of

salaries and other system of modern systems, and then the banking sector of the leaders in using information technology sectors. The results of the survey carried out by the researcher, which reached a weak concept of technology among workers in banks, differing views on modern technology which they work in spite of the remarkable evolution in the tools and technologies of modern, relying mainly on the financial performance of the banks and the neglect of other aspects that have shown no less important than the financial aspect, an aspect customers and internal education and growth processes, which already can Bloch study the problem through the following key question.

## **II. Methodology**

### **2.1 RESEARCH QUESTIONS**

**What is the role of information technology in raising the efficiency of the banking performance using the Balanced Scorecard (BSC)?**

The main question can be divided into the following sub-set of questions.

- 1- What is the relationship between the use of information and efficiency of the banking performance IT degree?
- 2- What is the relationship between the use of information technology and balanced performance?
- 3- What is the relationship between the use of the Balanced Scorecard performance and efficiency of the banking and degrees?

### **2.2 RESEARCH LIMITATION**

•**Samples:** had been selected according to Total Assets:

- 1- National Bank of Egypt (NBE).
- 2- Commercial International Bank.
- 3- Bank of Alexandria.
- 4- Credit Agricola Egypt.
- 5- Union National Bank.
- 6- QNB Egypt

•**Time series:** 2013- 2015

•**Human limits**

All employees in all administrative levels (senior management, middle management and executive management) in branches of public sector banks and private Egyptian commercial banks under study.

### **2.3 Hypotheses:**

#### **First Hypothesis:**

There is no significant effect statistically significant between the use of information technology and the efficiency of the banking performance.

#### **Second Hypothesis:**

There is no significant effect statistically significant between the use of information technology and balanced performance.

We can divide this hypothesis into a set of sub-hypotheses, as follows:

**2/1-**There is no significant effect statistically significant between the use of information technology and customer satisfaction in banks into practice.

**2/2-**There is no significant effect statistically significant between the use of information technology and the efficiency of internal operations of banks into practice.

**2/3-**There is no significant effect statistically significant between the use of information technology and the efficiency of the creativity and innovation of banks into practice.

**2/4-**There is no significant effect statistically significant between the use of information technology and financial performance of banks into practice.

#### **Third Hypothesis:**

There is no significant effect statistically significant between the use of performance and efficiency of the banking Balanced Scorecard.

We can divide this hypothesis into a set of sub-hypotheses, as follows:

**3/1-**There is no significant effects statistically significant between customer satisfaction with banks and application replace the banking performance efficiency.

**3/2-**There is no significant effect statistically significant between the efficiency of internal operations of banks into practice and the efficiency of the banking performance.

3/3-There is no significant effect statistically significant between the efficiency of the creativity and innovation of banks and place of the application between the banking performance efficiency.

3/4-There is no significant effect statistically significant between the financial performance of banks and the banking application performance efficiency.

### 2.4 Balanced Scorecard performance management in commercial banks System Mechanism

When it develops BSC, the commercial banks should turn organizational and operational strategies into a series of objectives and measurable indicators. At this time, bank manager needs to re-examine and modify the strategy, and BSC provides the opportunity and means of communication about business strategy on the specific meaning and the implementation. At the same time, because the process of the strategy formulation and implementation of the strategy is an interactive, the bank manager can test and adjust the strategy after using BSC and knowing about implementation of the strategy. Balanced Scorecard reflects the balance of many aspects, such as the financial and non-financial measure, long-term goals and short-term goals, external and internal, results and the process, and management. Performance and operating results. Hence it can reflect the integrated operation of organizations, so that it can balance and perfect the performance evaluation, and is conducive to long-term development of the organization.

### 2.5 Variables

1. Information Technology (Independent Variable)
2. Banking performance efficiency (Dependent Variable)
3. Balanced Scorecard (Intermediate Variable)

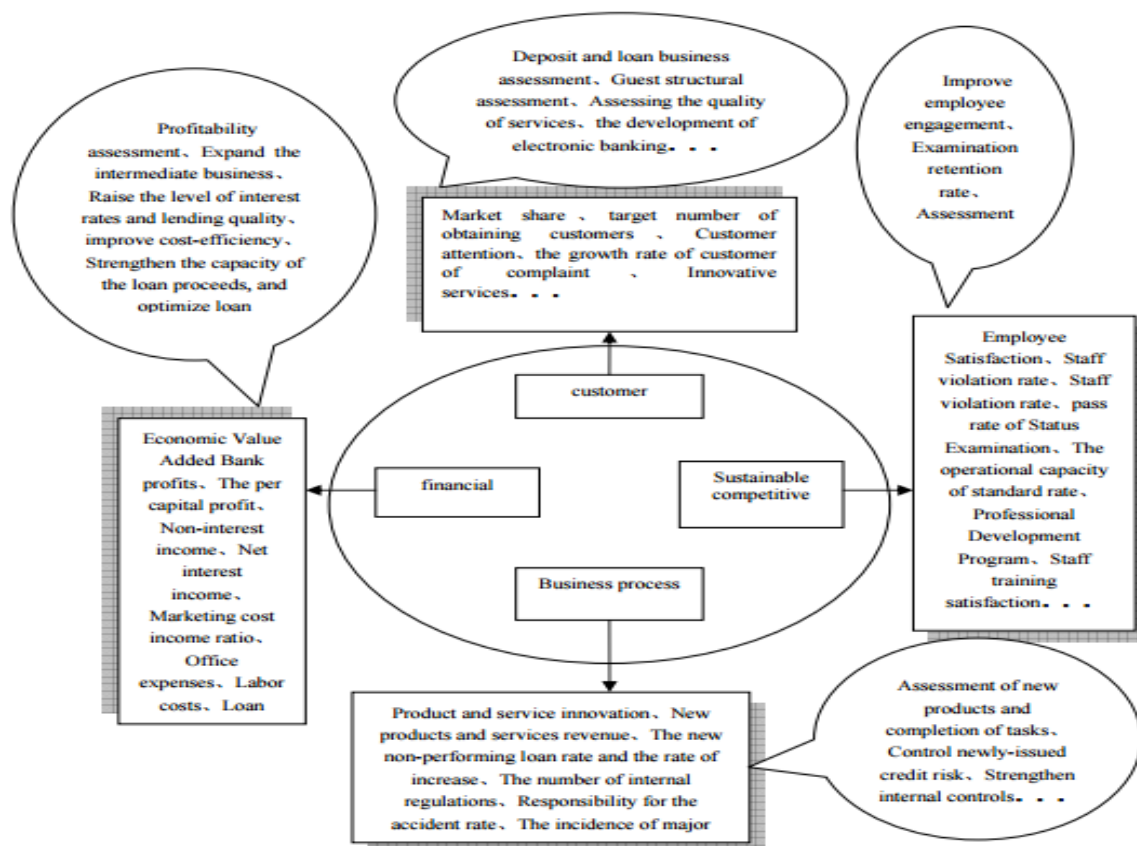


Figure 2. The four indicators of commercial banks Bank of evaluation index system

### III. Results And Discussion

Through this Research, the Researcher uses the following relation to determine the size of the sample.

$$n = \frac{Z^2 \pi (1 - \pi)}{e^2}$$

**n** = Sample size.

**Z** = Standard error limits, a 1.96 at a confidence level of 95% [6].

**π** = The percentage who meet the subject of study in the research community property.

$(1 - \pi)$  = The percentage who do not meet the subject of study in the research community property.

$e$  = The amount of allowable error when the estimate of 0.05.

$$\pi(1 - \pi) = 50\%(1 - 50\%) = 0.25$$

$$n = \frac{(1.96^2)(0.25)}{0.5^2} = 384.$$

And a researcher depend on the sample size determination on the following table, including that an expectation that the sample results differ from the research community, it is research design on the basis of allowing a maximum of the difference between the sample results and the results of the research community using the sampling error (5%), the acceptable limits and the degree of confidence (95%) and in the community of more than 100,000 vocabulary for the sample size to reach the desired level of precision as the following table shows [7].

**Table 1:**

The Original Size of the Community	Appropriate Sample Size	The Original Size of the Community	Appropriate Sample Size
10	10	550	226
30	28	650	242
70	59	900	269
110	86	1100	285
170	118	2000	322
210	136	6000	361
250	152	15000	375
360	186	75000	382
420	201	1000000	384

We take a sample consist of 384, the largest single representative sample of the research community [8]. And we clarify a number of distributed lists excluded from the banks under study, and by which they can clarify the response rate each bank of these banks, as follows:

**Table 2:**  
**Distribution lists questionnaire on the banks of the study and the proportion of their response**

No	Name of the bank	Lists Distributed	Correct Menus			Range	
			number according to the levels				
1	NBE	177	top management	26	130	%57	
			middle management	39			
			executive management	65			
2	Commercial International Bank	62	top management	7	35	%15	
			middle management	10			
			executive management	18			
3	Bank of Alexandria	35	top management	4	18	%8	
			middle management	5			
			executive management	9			
4	Credit Agricole	37	top management	4	20	%9	
			middle management	6			
			executive management	10			
5	Union National Bank	19	top management	2	10	%4	
			middle management	3			
			executive management	5			
6	Qatar National Bank Al Ahli	54	top management	3	17	%7	
			middle management	5			
			executive management	9			
Total		384				230	%100

**Then we have the following results of our Study:**

(A) Relating to the results of the relations between the variables under study:

The field study resulted in the existence of a significant relationship between the variables under study, the researcher can clarify the relationship between each variable and the other is the correlation coefficient between them as follows:

1. There is a relationship between information technology and the efficiency of the banking performance coefficient of correlation (61.2%).
2. There is a relationship between information technology and the Balanced Scorecard correlation coefficient (76.7%).

3. There is a relationship between information technology and customer satisfaction coefficient of correlation (71.4%).
4. There is a relationship between information technology and the efficiency of internal processes correlation coefficient (78.6%).
5. There is a relationship between information technology and the efficiency of the creativity and innovation by a factor of correlation (66.7%).
6. There is a relationship between information technology and financial performance coefficient of correlation (63.5%).
7. There is a relationship between the Balanced Scorecard and efficiency of the banking performance coefficient of correlation (68.8%).
8. There is a relationship between customer satisfaction and efficiency of the banking performance coefficient of correlation (72.5%).
9. There is a relationship between the efficiency of internal operations and efficiency of the banking performance coefficient of correlation (66.9%).
10. There is a relationship between the efficiency of creativity, innovation and efficiency of the banking performance coefficient of correlation (55.9%).
11. There is a relationship between financial performance and efficiency of the banking performance coefficient of correlation (55%).

(B) Relating to the results of tests of hypotheses: the researcher can clarify the results of hypothesis tests:

- 1- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically significant between information technology and the efficiency of the banking performance.
- 2- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between information technology and the Balanced Scorecard.
- 3- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between the use of information technology and customer satisfaction in banks into practice.
- 4- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between the use of information technology and the efficiency of internal operations of banks into practice.
- 5- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between the use of information technology and the efficiency of the creativity and innovation of banks into practice.
- 6- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between the use of information technology and financial performance of banks into practice.
- 7- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between the use of the Balanced Scorecard performance and efficiency of the banking.
- 8- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between customer satisfaction with banks and application replaces the banking performance efficiency.
- 9- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between the efficiency of internal operations of banks into practice and the efficiency of the banking performance.
- 10- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between the efficiency of the creativity and innovation of banks and place of the application between the banking performance efficiency.
- 11- **Rejected the null hypothesis and accept the alternative hypothesis** has no significant effect statistically between the financial performance of banks and the banking application performance efficiency.

#### IV. Conclusions And Recommendation

- 1- The needs for senior management to pursue the application of strategic programs that help raise the efficiency of the banking business, and this strategic programs and technological programs that facilitate the performance of the banking application.
- 2- The need for senior management sought identifying technological requirements to ensure the continued to keep pace with modern technology and its developments, meaning whenever existed modern applications and various information technology whenever led to the increased efficiency of the banking performance.
- 3- The need for the executive management sought the definition of the customers of the importance of technology and the advantages of their use, and the expansion of dealing with them through it, that whenever the application of information technology whenever led to higher satisfaction rates among customers.

- 4- The need for senior management sought to provide potential crisis for the completion of work to the fullest, meaning that whenever the application of information technology whenever led to an increase in the efficiency of internal processes.
- 5- Top management must not rely on just the investment in information technology resources, but must use them as follows:
  - Improve the quality of banking services.
  - Innovative banking products and services a new suit different customer segments and needs.
  - Access to new banking markets.
  - The expansion of the current banking markets.
  - Improve the mental image of the Bank to the customers.
- 6- Necessity sought senior management of banks applying the Balanced Scorecard accepted dimensions in performance evaluation card resulting in the lifting of banking performance efficiency of banks.
- 7- The senior management using policies and strategies that helps to achieve the internal customer satisfaction, a staff member, which in turn will help to achieve the activation of the current external customer satisfaction by maintaining it and seek to attract potential customers.
- 8- The need for the formulation of organizational vision in clear and understandable manner postings from all employees of the organization.
- 9- the senior management using brainstorming, which helps the regeneration of the existing technology and innovation and take advantage of different ideas I have a working method, as well as their sense of participation in a business career.
- 10- Quest for empowerment and participation of workers in maintaining the reputation of the bank and draw a vision and mission clearly to customers dealing with the bank.
- 11- The need for human cadres that combine dealing with information technology and banking skills.

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