The Current State of ERP Systems in Banking Sector

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***Abstract*—Enterprise resource planning (ERP) systems integrate the organizations business functions allowing efficient information sharing across all business divisions. Through the information sharing is achieved not only better coordination but also faster and more efficient adjustment to the potential risks and business opportunities alike. This paper examines the particularities of ERP systems implementation and operation for the banking sector by considering a wide range of sources such as journal and conference papers, empirical studies and reports. Finally, through the thorough examination of the available literature, we draw conclusions about the effect by the implementation of ERP systems in the banking sector.**

***Index Terms*: Information systems; ERP systems; banking sector.**

I. INTRODUCTION

The implementation of ERP system in an organization supports the information sharing between the various sections which is crucial for the daily operation of every company. ERP systems should not be considered solely as technologic tools, as their implementation entail the consideration of different aspects so diverse as finance, human resource, information systems, operations management and organization culture. Thus, an ERP system should be considered as a technological and management tool alike. The introduction of ERP systems into an organization should embrace the people and culture of the organization in order to create a positive impact for the company. The involvement of users and even more the satisfaction of users is very important for system success [18]. Globalization, makes more urgent the more efficient coordination of geographically remote resources and raises new challenges for modern ERP systems.

Despite the undeniable necessity of ERP systems in the contemporary business world, there is a number of cases that ERP systems implementation failed to meet its targets. It is well-known the case of Dell Computers that has failed in achieving ERPs implementation benefits despite of spending a lot of funds for its implementation [6].

According to another report the success rate of ERP systems implementation in China is only 10% [19], while at the same time the success rate in Indonesian organizations by the implementation of ERP systems in both private and public sector reaches 40% [2].

Although the existence of notable cases of corporate underperformance after ERP system implementation, we should not overlook potential long-run benefits, such as lower operational costs, data integration and information sharing, for an organization by the successful implementation of ERP systems. Market seems to have faith in ERP systems, for that exact reason, according to Hestermann et al. [5] the sale of ERP systems from $ 23.6 billion in 2004 increased to $ 24.5 billion in 2009.

ERP is a relatively new phenomenon and its implementation methodologies are still developing. By following commonly accepted practices during the implementation phase, the organization increases the chances of successful implementation [1]. The implementation of an ERP system involves a mix of business process change and software configuration to align the software with the business processes [4].

This paper presents the current state of ERP systems with a focus on ERP implementation in banking sector. In particular, we attempt to identify the reasons of ERP failure in banking sector by focusing on factors that are generally overlooked or least focused but may be the reasons of ERP project failure. Our aspiration is to increase organizations' knowledge about the potential problematic areas during the implementation and operation phase of an ERP system, to highlight ERP systems limitations and generally to increase organizational awareness around ERP systems.

II. BENEFITS FROM THE ADOPTION OF ERP SYSTEMS

The days before the advent of ERP systems, organizations were utilizing separate standalone systems by functional area. Data used to be stored in multiple locations, without guarantee that all storage locations will be updated simultaneously, leaving room for compromise of data. One of the most significant features of an ERP system is that all of the information kept by a company, including within functional areas, is retained in one central data repository, all corporate information is saved in a single database.

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Through the central database, ERP systems decline data redundancy. The data is kept in one location where all authorized users have access. Data redundancy is common when the same data is placed in two or more separate systems [17].

To provide an example imagine the case that a customer needs to change his bank contact details. If the bank maintained separate functional area systems (e.g. current accounts, saving accounts, debit and credit cards, insurance, home loans, business loans, equity etc), the customer's contact details would have had to be updated in all the places it was stored. Please notice that potential for human error becomes a factor at this point. For example, the employee could miss a location where the customer's contact details needed to be updated, or the employee could have mistyped the correct information in any one of the change points. Having one central place for the information to be stored reduces the likelihood of human error and not using the correct information for future transactions (Fig. 1).

According to Ranganathan and Brown [16] the use of a centralized data repository in an ERP system will result in an integrated database for multiple functions and business units, providing management with direct access to real-time information at the business process, business division, and enterprise levels (Fig. 2).

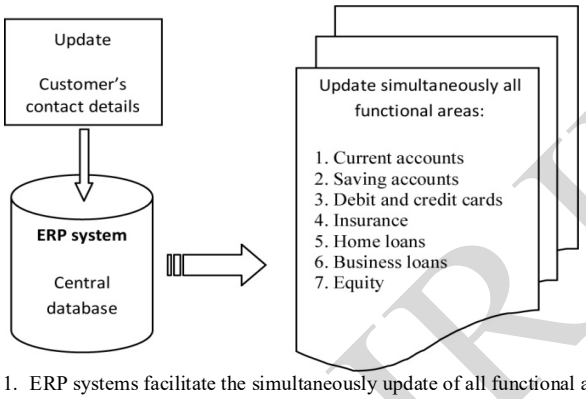


Fig. 1. ERP systems facilitate the simultaneously update of all functional areas of an organization

An ERP system allows users and the company to formulate a better understanding of the overall business picture. With access to multiple functional areas in one system, it becomes easier to generate the necessary reports. Management and executives can formulate better business decisions because of all the data readily available within an integrated system. Business performance can improve since the ERP system integrates business processes that traverse multiple business functions, divisions, and geographical locations [16].

Another benefit of ERP systems is their ability to manage potential growth within the organization. IT costs can be significantly reduced when implementing an ERP system [3].

In particular, for the banking industry, merging banks can shorten post-merger integration time by 12 to 18 months, with a cost savings of potentially $60 to $80 million. Also, ERP systems can assist banks with the continuous industry-specific pressures, such as governmental regulations and globalization, faced by the banking industry. ERP systems can help a global bank run smoothly and adhere to compliance.

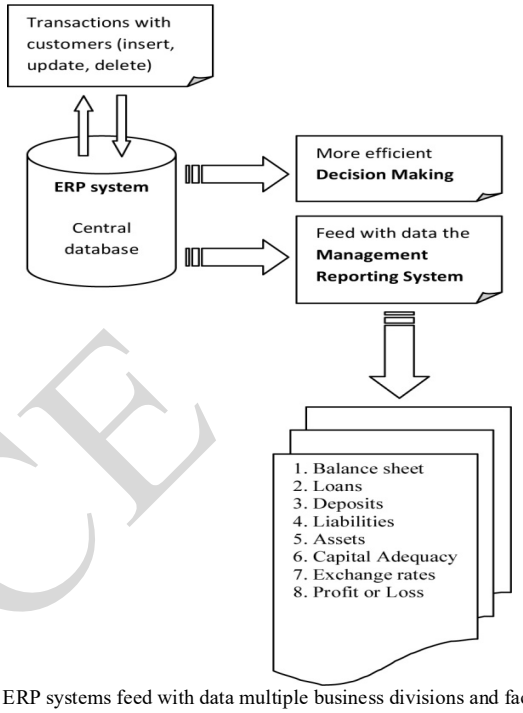


Fig. 2. ERP systems feed with data multiple business divisions and facilitate the decision making into the organization

III. THE CURRENT STATE OF ERP SYSTEMS IN BANKING SECTOR

On a daily basis the banks fulfil several obligations towards their customers. ERP systems with their capabilities can provide useful aid towards that direction. A financial institution as part of its typical responsibilities needs to receive a customer's money and cheques as collection and to credit his account with them. It also needs to provide a statement of account and a statement of the balance on request. Banks are supposed to honour their cheque up to the credit balance or overdraft limit, provided they are in order and there is no stop [14]. Needless to say, that all the aforementioned processes must be executed with strict secrecy about customer affairs.

The banking industry is highly data-oriented and offers enormous potential for ERP applications. An ERP system offers wide-ranging integration between different banking system modules. ERP integrates users, information, processes, and applications for higher productivity. It facilitates decision making with simulations for enhanced responsiveness and change. It uses portal technology, business intelligence,

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knowledge management, and mobile technologies that save time and reduce costs. It enables banking employees interact with bank's top management for reduced time and effort and reverses the usual communication 'top-down' to 'bottom-up'

ERP system provides complete end-to-end solution covering payment processing, cash accounting, cash management, technical analysis, index tracking and portfolio optimization [7], [8], [9], [10]. Revamping payment processing needs a high quality understanding on how banks make payments. This may be clear cut for one branch at particular location but may become more complex while dealing with multiple branches in different countries and operating under country specific legislations. Similarly, cash accounting complexity increases with multiple locations and currencies. As for cash management, there is a need to administer available account on regular basis so that investments of funding decisions can be made in an appropriate manner.

Loans, advances and bills discounted or purchased are the principal components of bank assets and main source of income of banks. Collectively they represent total bank credit to the commercial sector. While advances are in the form of cash credits and overdrafts, loans may be demand loans or term loans. Demand loans are more or less temporary financial arrangement granted to customers to meet unforeseen situation but customers are required to pay heavy rate of interest.

On the other hand, term loans are extended for longer time period such as 2 to 30 years. Term loans are usually secured and granted for a variety of purposes such as renovation, expansion and modernization of industrial units, meeting requirements of core working capital, and for repayments of bonds preference shares, etc. Term loans have a fixed or floating charge against the assets of a company. They are granted on the basis of a formal agreement, which contains the terms and conditions of providing loans.

Modern ERP systems include modules for efficient portfolio management. Fundamental analysis tools focus exclusively on the company's performance in order to determine whether or not the stock should be bought or sold. On the other hand, technical analysis disregards completely the value of financial statements analysis and focuses exclusively on the movement of the stock prices in order to determine whether to buy or sell a particular stock. While techniques for selecting stocks can be traced back to the 19th century, it was not until the 1952, when Markowitz introduced his pioneering Mean - Variance (MV) portfolio selection model, that the field attracted considerable attention. Markowitz's theory suggests maximizing portfolio expected return for a given amount of portfolio risk or solving its dual problem minimizing portfolio risk for a given level of expected return [11], [12], [13], [15]. Modern ERP systems make use of a plethora of tools for efficient portfolio management.

ERP system offers facility of sharing bank processes with vendors, customers, and other partners for optimum use of bank assets. It combines planning, reporting and analysis of all bank assets in one process. ERP for banking solutions makes available on one platform a widespread variety of functions, numerous industry-specific features, a wide collection of augmentation options, and support for bank assets.

An ERP system is essentially module based, multi-currency, multi-language, multi-user and multi-firm in operation. It provides online support, online trading and can generate online manuals. In banks it can be integrated with all financial systems and back-office systems. It can simplify processing of incoming and outgoing payments for efficient cash flow (Fig. 3).

ERP system provides a far-reaching range of services and tools to monitor all financial accounting transactions in real time. It strengthens the logistical capability in handling bank notes, valuable metals, and non-banking specific goods and services for a more efficient, streamlined business.

ERP systems for banking industry are generally very helpful for operational planning, tactical planning and strategic planning decisions. Accounting and financial management functions of the banking industry using ERP system may cover a number of important responsibilities such as monitoring and analyzing an enterprise financial condition, managing accounting systems, and preparing financial statements and reports (Fig. 4). Bottom level (operational) planning is done by employees at lower level in the hierarchy who are generally assigned with responsibilities to complete day-to-day tasks such as payroll, banking inventory and fixed assets.

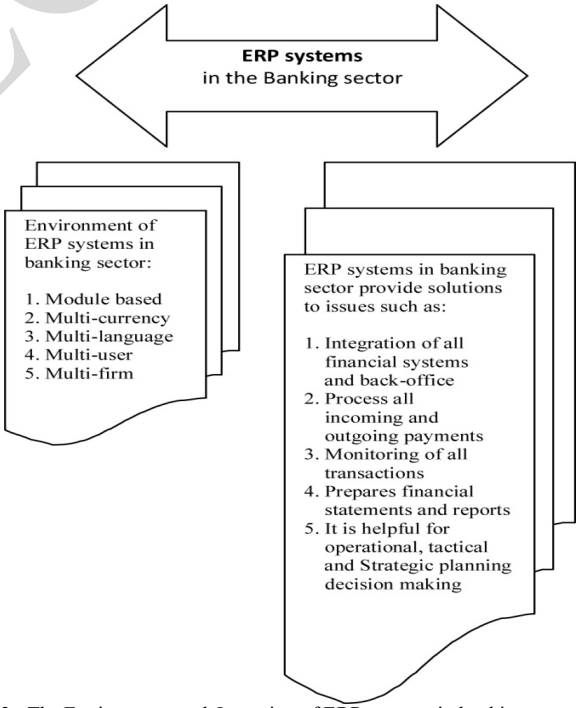


Fig. 3. The Environment and Operation of ERP systems in banking sector

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Middle level (tactical) planning is done by middle level employees in the hierarchy who are concerned with decision support systems such as resource allocation. Top level (strategic) planning is done by the bank's top management who are concerned with strategic directions and long term strategic goals of a bank.

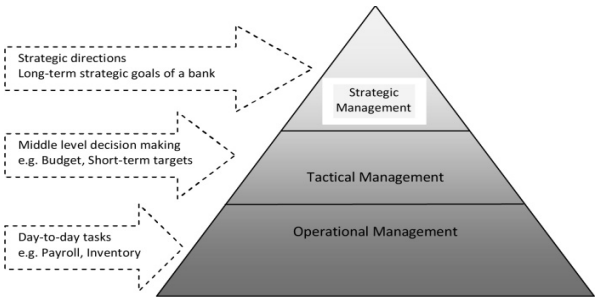


Fig. 4. Top to Bottom management levels that are supported by an ERP systems in banking sector

IV. CONCLUSIONS

ERP systems in banking sector allow the faster and more efficient information sharing among the various banking divisions and thus it is achieved not only better coordination but also faster and more efficient adjustment to the potential risks and business opportunities alike. On the downside, ERP systems require significant investment for development and maintenance and their implementation can be far more complex than any organization can perceive. For the successful implementation of ERP systems in the banking sector it is necessary to customize the ERP system to individual banking needs and integrate it with other banking systems.

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