CHAPTER 1

INTRODUCTION
1. Introduction

The recent decade had seen an enormous growth in information technology (IT). Organizations have decided to invest in information technology for various reasons including: pressure to cut costs, increasing production without increasing costs, and simply to improve the quality of services or products in order to stay in business. IT has evolved from simple business support function in the 1960s to Information System (IS) as a part of business strategy in the millennium. There has been a revolution in hardware, software, data and communication trends. The various necessary components for complete IT architecture including Infrastructure, Data Architecture and Management Practices, were revolutionized and used for greater advantage to the business. As an impact it is also changing the dimensions of modern business. Information System changes the approach business is being done.

Information Systems can help a firm (1) improve its operational efficiency, (2) promote business innovation, and (3) build strategic information resources. These three strategic roles support a firm’s use of competitive strategies against the competitive forces from competitors, customers, suppliers, substitutes, and new entrants.

Investments in Information System could help make a firm’s operations significantly more efficient which further allows a firm to adopt a low-cost leadership strategy. A firm would be better able to deter competitive threats and its industry rivals. The firms seeking to enter the industry using similar or substitute products would have a harder time beating an efficient competitor.
The relation between IT investments and business performance or knowledge management has yet to be established: the same dollar spent on the same system may give a competitive advantage to one company but only expensive paperweights to another.

A key factor for high returns from IT investment in few companies is the effective utilization of information to improve organizational performance. How industry executives should go about defining “effective utilization?” remains a main issue.

A Strategic approach could classify business related IT operations into critical, strategic or supportive applications. Value chain analysis helps in identifying opportunities for value-added IT investments. IT investments could be related to business needs like business expansion, Risk minimization and enhanced productivity. IT investments could be classified based on objectives and kind of projects undertaken.

Ideally, the IS success is based on integration of IS into managerial functions. There are various characteristics like management orientation, business driven, integrated, common data flows, etc, for successfully managing with Information Systems. There should be a proper feedback system for IS focusing on various input, processing, output and storage activities. IT helps in improving performance, productivity, customer satisfaction, and value to customer. All these benefits are very difficult to quantify and are known as intangible benefits from IT. Also, sometimes the IT investments are
made in one department, while the benefits of the same are seen in another business function. These types of benefits are known as indirect benefits. It has thus become difficult for organizations to calculate or keep track of these benefits.

Organizations are spending a substantial amount of their financial and managerial resources in implementing Information System (IS); however, very few of them have been able to realize the actual benefits out of such investment. Various studies reveal that up to 90% of IS projects failed to meet their goals; 80% are time and cost overrun; and about 40% are abandoned. It has also been argued that although the technological configuration of IS is necessary, it is not sufficient. The organizations using IS are under pressure to effectively use it and deliver the results. They must evaluate it and improve it as per feedback.

The performance of the Information System (IS) could be measured by two factors, viz., the efficiency and the effectiveness. An Information System has to be effective and efficient for the highest utility to the user of the IS inside as well outside the organization. Broadly speaking, the effectiveness is a measure of the goodness of the output of IS, while the efficiency is a measure of the productivity of IS, i.e., the measure of the output against the input. The practical way of doing this measurement is to identify Key Performance Indicators (KPI) of the IS in an organization and to evaluate them to find whether IS is effective in an organization or not. Performance Indicators could act as benchmarks for performance measurement.
The challenge for organizations today is how to identify and match and align performance measures or indicators with business strategy, structures and corporate culture, the type and number of measures or indicators to use, the balance between the merits and costs of introducing these measures or indicators, and how to deploy the measures or indicators so that the results are used and acted upon. To address this challenge, organizations are advised to devise a performance measurement system that provides a set of rules or guidelines for selecting and deploying performance measures or indicators. These indicators or measures would be key to the success of organization in today's world.

The metrics for evaluation for the technology domain are insufficient for intangible benefits such as process improvement and customer satisfaction because they stress more on the IT infrastructure and assets than the performance parameters of processes that are being enabled using this infrastructure. The impact of Information Systems on business effectiveness can be measured based on cost, business value, performance, and benchmarking for competitiveness.

The success and failure of information system are ambiguous in theory as well as in practice. Numerous studies have been conducted to identify the factors or to formulate a strategy that may distinguish between successful and unsuccessful IS projects. The technology acceptance model (TAM) examines the mediating role of perceived ease of use and perceived usefulness in the relation between system characteristics and the probability of system use.
TAM is a useful model but limited to the technology domain. It lacks both human and social change processes in the organizational context.

Another approach to IS success factors includes system quality, information quality, IS use, user satisfaction, individual impact, and organizational impact.

An alternate approach focuses on the variance aspects of the interrelationship among the taxonomic categories. It considers three of interrelated variables; measures of information and system quality, general measures of net benefits of IS use, and behavior with respect to IS use. Another approach considers IS use to be the behavior that reflects expectation of net benefits from using an information system and therefore considers it a resulting behavior of IS success. Therefore IS use as a behavior is separated out from the IS success model, and IS related behavior is modeled as caused by IS success. The first two classes of interrelated variables - measures of information and system quality and perceptions of net benefits of IS use – constitutes the IS success model, while a third class of variables focusing on IS use constitutes the partial behavior model of IS use. The success of Information System can be analyzed on different dimensions such as technological, organizational, and transformational. Some of the critical success factors for IS are top management commitment, project teamwork, effective communication, BPR, and change management.

The evaluation of IS is not a stand-alone process but it needs an integrated approach that monitors the IS from various views involved in its designing and implementation.
Measuring and evaluating performance is a very critical factor for ensuring the success of any business organization and indeed for making IS payback. Performance evaluation and management is an integrated holistic concept. It has to embody the whole organization and capture tangible and intangible aspects, cover soft and hard elements, and include aspects of synergy through integration.

Based on the review of literature, it was emphasized that evaluation of IS needs a comprehensive approach that monitors the IS from various perspectives. Detailed review is given in Chapter 2. A proper system or a model is required for evaluation process. The proposed model should evaluate the Information System on the basis of some identified Key Performance Indicators and further improve it as per needs. Keeping in view the non-availability of any comprehensive approach, the following research study has been undertaken... “Evaluation of Key Performance Indicators of Information System in Indian Banking Sector”.

1.2 Objectives of the Study

The research objectives for the present work are given below.

- To identify the Key Performance Indicators of an IS for Banking sector.
- To propose a model for evaluating the Information System in a Bank.
- To test the proposed model on IS in Banking sector.
- To study the factors or causes of success and/or failure of IS in Banking sector.
1.3 Scope of the Study
The evaluation model based on Key Performance Indicators has been restricted to the post implementation process. This evaluation model could be used for various organizations but for the moment it had been developed for and tested on the Banking industry in the tricity region of Chandigarh, Mohali, and Panchkula of India. This industry was chosen as it has been one of the early adopters of technology. In this industry the processes are more standardized and mature. The proposed evaluation of Key Performance Indicators (KPIs) were made compatible with the existing evaluation approaches used at post implementation stage of IS.

1.4 Research Methodology
The research work had been carried out in the banking industry in the tricity region of Chandigarh, Mohali, and Panchkula of India using Questionnaire cum Interview approach. Questionnaires were designed based on the study of the literature and modified based on the discussions held and the testing done with the end users. Primary data was collected through questionnaire-cum-personal interviews method from the randomly selected managers working at various levels of the banks chosen. Banks located in Chandigarh region were chosen for primary data collection. There were 48 Public, Private and Foreign Banks operational in Chandigarh. Each bank was having one or more branches in Chandigarh. 165 respondents from different functions and managerial levels of the banks were taken from 55 randomly selected branches in tricity or Chandigarh region. The study was conducted keeping two perspectives in mind. Firstly it provided data for identifying Key
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Performance Indicators, i.e. KPIs for evaluation process. Secondly, it provided test data for the proposed model for evaluation. SPSS package was used for analyzing the data. Techniques of Pearson correlations and factor analysis were applied on the gathered responses. More details on the research methodology applied are provided in Chapter 3.

1.5 Outline of the Thesis Work

The thesis work is focused primarily on providing Key Performance Indicators of IS to the banking Industry for evaluation and further develop an evaluation model based on KPIs. The evaluation model brings out the composite or integrated effectiveness score of IS and also gave segregated score at the strategic level, functional level, technical level.

Chapter 1 emphasized the importance of Information System in growing organizations. It further stressed that evaluation of IS is of paramount importance so as to perform well and as per business needs.

Chapter 2 provided review of literature to analyze different studies that are available and could help in developing the framework for the present work. It provided deeper insight into parameters that could be used for evaluation of IS. The gaps in the existing literature were analyzed and used as guiding criterion for this research work.

Chapter 3 is elaborated on the research methodology that was applied to carry out the research work. It gave insights into details of the sampling and
the analysis techniques applied. It also presented a brief profile of the participant bankers. The key responsibilities of each level of user of IS in each bank were outlined. This chapter detailed about hierarchy of IS users for analysis of the findings.

Chapter 4 talked about the Key Performance Indicators of IS in the bank. In this chapter the KPIs were identified by applying appropriate statistical tools on the data collected through the questionnaire.

Chapter 5 talked about most important component of the thesis as it provided the structure of model for IS evaluation considered for this work. The proposed model was explained in regard to its design, way of its usage for evaluating effectiveness on the basis of Key Performance Indicators.

Chapter 6 described the validity of the model proposed in chapter 5 and also gave the findings after applying the model to the participant banks.

Chapter 7 provided important inputs about the current status of Indian Banking Industry and also highlighted the weak points that need to be nurtured. It talked about various success or failure factors of IS after its implementation in any particular bank.

Chapter 8 summarized the entire research work and gave important findings. It talked about limitations of the study. It also gave directions for future research work.
1.6 Beneficiaries of this work

The main benefit of this work would go to the banks that have already invested in IT or in process of investing with associated expectation of results. The various stakeholders of the bank like investor, developer of IS, top management, bank employee / end user and the customer of bank services would be in a position to understand the IS of their organization better and evaluate the IS. The proposed evaluation model helps them see where they stand; what to do for improving it further.

The various stakeholders especially System Analysts, System Auditors and Consultants will get a guiding tool for Information System evaluation in post implementation phase, its monitoring and development to maturity stage.

The academicians and the research workers could use the work done here for removing the technology usage dilemma and could provide important insights into achieving the integration of business and IT.

This chapter has emphasized the importance of Information System in business world. It stressed that all the organizations are turning to technology for getting competitive advantage. It further concludes that impact of IS on business effectiveness could be measured on basis of cost, business value, performance, and benchmarking. This chapter includes objectives of the study; Scope of the study; research methodology. The outline of the thesis work has also been described in this chapter. Finally a mention of beneficiaries of the study has also been given.