Chapter – 1

Introduction
1. Introduction

The objective of this chapter is to give a theoretical overview about concepts like background of the research, statement of the problem, need for the study, purpose of the study, significance of the study, objectives of the study, hypotheses of the study, research methodology, scope of the study, limitations of the study and an overview of the thesis.

1.1 Background of the Research

In today’s information-intensive economy where continual knowledge renewal is the basis of competitive advantage, it is strategically important for organizations – be it local, regional, or multi-national – to manage its internal information so as to augment its capacity to learn. This knowledge imperative is further accentuated by the hyper-competition of a fast-changing environment brought about by globalization and the advent of Internet technology. As shorter product life-cycles and dynamic market forces drive the need for innovation, it is likewise vital for organizations to keep abreast of developments in the external environment. This will allow them to deploy strategic maneuvers so as to respond appropriately in a timely.

In fact, organizations today are faced with the dual challenge of managing intra-organizational information and monitoring a vast reservoir of information from the external environment. Survival requires the effective use of information and decision technologies to gather, manage, and exploit knowledge.

Moreover, for companies which are maintaining direct contact with large numbers of customers, a new data management challenge will be created: that is effective way of integrating enterprise applications in real time. To learn from the past and forecast the future, many companies are adopting business intelligence. Companies have understood the importance of enforcing achievements of the goals defined by their business strategies through business intelligence concepts. It describes the insights on the role and requirement of real time business intelligence by examining the business needs.

On the other hand, it should be noted that information management in and of itself is insufficient to create a strong competitive position – the mere acquisition and
sharing of new information or knowledge do not automatically lead to improved firm performance. Rather, information has to be first internalized and transformed into new knowledge, which then has to be exploited or applied in new processes, products or services, before firm performance can be improved.

There is growing use of business intelligence for better management decisions in industry. Since late 2000s, business intelligence has become a revived hot topic in industry and practice. Business Intelligence was at the top of the priority agendas in organizations (Gartner, 2008; Gartner, 2009; LaValle et al., 2011). Business Intelligence skills are highly pursued (Brandel, 2009). Business Intelligence is the top application and technology under development in 2009 (Luftman and Ben – Zvi, 2010). However, empirical studies on business intelligence are still scarce in academic research. Existing business intelligence studies show inconsistent results of business intelligence’s contribution to organizational performance (Watson et al., 2002; Gessner and Volonino, 2005; Watson et al., 2006).

Nowadays, most organizations are information technology enabled, especially in industries with rapid product and customer changes. Prior studies (e.g., Akkermans et al., 2003; Sambamurthy et al., 2003; Tiwana and Konsynski, 2010; Lin, 2010; Bush et al., 2010) have shown that information technology infrastructure is a key factor for business intelligence, organizational agility, higher performance of organization, and competitive advantage. Information technology infrastructure is a key enabler for timely integration and reconfiguration. Therefore, information technology infrastructure can be a direct contributor to business intelligence, and organizational agility.

Business intelligence is an information technology – enabled system that is built on top of an organization’s information technology infrastructure. Human resource of information technology department and an information technology infrastructure will improve business intelligence performance by providing more accurate and timely data and information with easily integrated data sources. Therefore, this study also investigated the relationship between information technology infrastructure and business intelligence practices.

The infrastructure component encompasses all of the physical information technology assets. This includes servers, storage, network hardware,
telecommunications hardware, desktop hardware, peripheral equipment, such as printers and accompanying operating software. It should be noted that the infrastructure is the equipment and operating software, the foundation, on which the application software operated.

Organizational agility is the capability of a company to rapidly change or adapt in response to changes in the market. A high degree of organizational agility can help a company to react successfully to the emergence of new competitors, the development of new industry changing technologies, or sudden shifts in overall market conditions. Moreover, organizational agility is an on-going capability for real time strategic sensitivity, quick collective commitments, and fast and strong resource deployment.

In the strategic management literature, there is a long stream of research on sources of competitive advantages. The resource-based view (RBV) of the firm was developed to emphasize firm-level specific capabilities and assets (resources) that lead to a firm’s competitive advantages (Penrose, 1959; Wernerfelt, 1984; Barney, 1991; Mahoney and Pandian, 1992). These resources need to be valuable, rare, inimitable, and no substitutable (VRIN), to qualify as sources of a firm’s competitive advantages. RBV has been criticized for its static nature. The dynamic capability framework was introduced to explain how competitive advantages are gained and held for the long term (Teece et al., 1997; Eisenhardt and Martin, 2000; Teece, 2007).

Furthermore, the result is that the necessary data (usually in the form of different reports) must be obtained from various departments and employees. This often requires the cooperation of human resource from the information technology department, who are requested to make complex queries from different databases in order to provide the requisite data. In extreme cases, the collection of such data can take several days or even weeks, a period in which much of the data may become too old to still be useful. The remark that organizations are rich in data but poor in information seems completely appropriate. The challenge is how to transform data into useful information (Carver & Ritacco, 2006).

There is no single definition for insurance. Insurance can be defined from the viewpoint of several disciplines, including law, economy, history, actuarial science, risk theory and sociology. A working definition of insurance and the one that captures
the essential characteristics of a true insurance plan by the Commission on Insurance Terminology of the American Risk and Insurance Association is defined as: “Insurance is the pooling of fortuitous losses by transfer of such risks to insurers, who agrees to indemnify insured people for such losses, to provide other pecuniary benefits on the occurrence, or to render services connected with the risk” (Rejda, 2008).

Indian life insurance industry has experienced major changes in terms of market structure, size and operational practices. So, the life insurance industry has undergone significant changes during the recent decades. This is because there is a perceptible shift in the fundamentals of the insurance industry. Some of the major changes are:

The insurance companies have now become more efficient as they focus more on technology related processes and are modifying their business techniques according to the changing requirements. There has been a considerable growth in premium. The insurance penetration and density has increased manifold. Earlier the insurance market was a single market but now it covers multiple markets.

In the past, the major clients included the retail industry and the rich people but now a normal person can afford insurance. So the insurance industry has strengthened the existing customer base and acquiring new customers. There is an increase in the number of channels. This has led to an increase in the number and variety of products offered. The earlier products included standard products such as term life policies, whole life policies etc. But now the trend is towards designing tailor made products. The expanding market requires a large number of agents. So, the insurers have been recruiting agents on a continuous basis after elaborate training and testing arrangements which are controlled by the IRDA (Rao, 2007).

The significance of business intelligence is uncertain both in industry and in academic. The present study will focus on the fundamental question of whether business intelligence has a significant impact on competitive advantage in life insurance companies or not. Drawing on the systems theory, dynamic capabilities framework, and literature on competitive advantage, organizational agility, business intelligence, human resource, and information technology infrastructure, we hypothesize that business intelligence is major source of competitive advantages. We
developed a research model to examine the effects of business intelligence on competitive advantages. This model also examines how organizational agility mediates the effects of business intelligence on an organization’s competitive advantage. Through the mediation role of organizational agility, we connect business intelligence with competitive advantage and illustrate the strategic values of business intelligence.

1.2 Statement of the Problem

The use of business intelligence to make better management decisions is becoming more prevalent in organizations of different industries, especially in insurance industry. Business intelligence is an umbrella term that “describes the technologies, applications, and processes for gathering, storing, accessing, and analyzing data to help users make better decisions” (Wixom and Watson, 2010).

Recent studies have shown that companies that invested in business intelligence and coupled it with scrupulous practices have seen increased revenue and enormous cost savings (Watson et al., 2006). Nevertheless, some other companies that invested in business intelligence did not reap the promised benefits (Watson et al., 2002; Gessner and Volonino, 2005; Lonnqvist and Pirttimaki, 2006). Jourdan et al. (2008) reviewed the business intelligence literature up to 2006 and indicated that although there had been much published business intelligence research, much of the research was still in the early stage (i.e., exploratory state). Although business intelligence – based organization has been proposed (Watson, 2009; Wixom and Watson, 2010), there is a lack of empirical studies on why organizations need to be business intelligence – based and how other internal resources interact with business intelligence to deliver a superior return on investment.

Business intelligence has become a new information system since the late 2000s. However, there is a large discrepancy between the industry popularity of business intelligence and the extent of academic research on business intelligence. Although business intelligence has been a hot topic in practice, there is a paucity of empirical business intelligence academic research on why business intelligence is important. The lack of empirical research on why business intelligence is important makes the rationale to invest in business intelligence weak, especially when researches show inconsistent returns on investment in business intelligence. In the
present study, based on the gaps found, an attempt will be made to investigate and answer the problems of why business intelligence is critical in business regarding to competitive advantages and how business intelligence interacts with other business resources in order to create strategic values.

1.3 Need for the Study

In fact, in a highly competitive environment, it is very important for life insurance companies to differentiate themselves from each other. The insurance industry has considerably been growing in recent years, but it lags far behind its global counterparts. The main reasons of this problem are lack of products as per market requirements, low awareness, low returns, inefficient management, and many more.

Moreover, there are huge competitions in Indian life insurance sector between public and private players. And most of the insurance companies have jumped in life insurance such as ICICI Prudential Life Insurance Co. Ltd, SBI Life Insurance Co. Ltd., and many more. There is also a high – class competition between these private life insurance players.

In the other hand, two challenges faced by the life insurance companies are maintenance and growth. They need to improve performance of organization by making good decisions by helping of especially business intelligence and information technology infrastructure.

Since, the profile of insurance sector has changed from traditional plans to market linked plans, there are various challenges related to changing organization performance scenario. In order to handle uncertainties of share market, to maintain respective position, to grow and satisfy insurants, to match their expectations, and create competitive advantage, knowing and using the business intelligence system is quite important for insurance companies. Hence, with particular attention to the problem of the study the present topic “Business Intelligence for Competitive Advantage: A case Study of selected insurance companies in India” is contemporary and selected for the present study.
1.4 Purpose of the Study

The main purpose of this study was to investigate the importance of business intelligence on competitive advantages, and also the effects of information technology infrastructure, human resource of information technology department, organizational agility, and environment turbulence among them to create strategic values. As mentioned in the forefront of the Introduction, business intelligence is a new information system in industries. Idea entrepreneurs (e.g., consultants, gurus, journalists, and vendors) have made substantial efforts to promote its use.

Organizations spend millions, if not billions, of dollars and sometimes make organizational structure changes to implement business intelligence. While business intelligence is popular in industries and practices, business intelligence academic research is still in its early stage. Existing business intelligence studies focus on definition, case studies of business intelligence best practices in leading companies (Wixom and Watson, 2010), critical success factors (Yeoh and Koronios, 2010), and maturity models (Lahrmann et al., 2011).

However, information system research lacks empirical business intelligence studies on the significance of the business intelligence. The fundamental question of whether business intelligence has important or critical business values was left unanswered in academic literature or not. This question is especially pertinent because prior research showed inconsistent results of business intelligence impacts on business performances.

The study aimed to theoretically evaluate the significance of business intelligence and empirically tested its importance in creating business values. It aimed to build a theoretical model that was based on information system theories and strategic management fields in order to examine the relationships between business intelligence, information technology infrastructure, organizational agility, environment turbulence, and competitive advantages. Finally, this research attempts to suggest guidelines for life insurers, life insurance policy makers and provide as well as background for further studies in this field.
1.5 Significance of the Study

Business intelligence and competitive advantages among some of industry markets have separately been documented. But, in the case of insurance industry there has been little research to investigate relationships among business intelligence, competitive advantages, information technology infrastructure, human resource of information technology department, organizational agility, and environment turbulence, especially with life insurance companies in India.

The present study attempts to investigate the relationship between business intelligence and competitive advantage in India among LIC of India, ICICI Prudential Life Insurance Co. Ltd., and SBI Life Insurance Co. Ltd., and also measure the effects of information technology infrastructure, human resource of information technology department, organizational agility, and environment turbulence among them. In this study there are some key factors of significance. The prime significance of the study lies in providing an analysis of influences of business intelligence on competitive advantages which can show characteristics of selected companies and organizational behavior. This study also has location significance, because the country under study includes notable opportunities towards other countries in Middle East.

This study should help to provide some much needed feedback about the relationship between selected life insurance companies and their organizational behavior. This study also can help to determine the usefulness and ability of the insurance companies as a signaler to both insures and insurants, and alerting the policy makers to adopt appropriate policies in different situations with varying degrees of instability by help of business intelligence system. Another significance of this study is that it would help to provide latest information about the organizational and competitive performances of these insurance companies on business intelligence, competitive advantages, information technology infrastructure, organizational agility, and environment turbulence.

1.6 Objectives of the Study

In the light of assumption that use of business intelligence system in organizations can encourage considerably the creating of strategic values, and also the researcher in order to make study scientific and systematic, the overall objective is to
examine the “importance of business intelligence on competitive advantage in life insurance companies.” To achieve main objective, various sub–objectives have been framed as follows:

- To analyze theoretical and fundamental effects of business intelligence on competitive advantage.
- To assess the effects of information technology infrastructure on business intelligence, business intelligence on organizational agility, and organizational agility on competitive advantage.
- To examine the effects of environmental turbulence on the relationship of information technology infrastructure with business intelligence, business intelligence with organizational agility, and organizational agility with competitive advantage.
- To investigate and compare the use of business intelligence, information technology infrastructure, organizational agility and competitive advantage among life insurance companies under study.
- To suggest appropriate strategies for improving the operational efficiency of selected life insurance companies.

1.7 Hypotheses of the Study

Hypothesis is usually considered as the principal instrument in research. Its main function is to suggest new experiments and observations. Hypothesis may be defined as a proposition or a set of proposition set forth as an explanation for the occurrence of some specified group of phenomena either asserted merely as a provisional conjecture to guide some investigation of accepted as highly probable in the light of established facts. Hypothesis states what someone looking for and it is a proposition which can be put to a test to determine its validity (Kothari, 2004).

Basic concept in the context of testing of hypothesis need to be explained null hypothesis and alternative hypothesis. If someone is to compare method A with method B about is superiority and if someone proceed on the assumption that both methods are equally good, and then this assumption is termed as null hypothesis. As
against this, someone may think that the method A is superior or the method B is inferior, someone then stating what is termed as alternative hypothesis. The null hypothesis is generally symbolized as $H_0$ and the alternative hypothesis as $H_a$ or $H_1$.

Alternative hypothesis is usually the one which wishes to prove and the null hypothesis is the one which someone wishes to disprove. Thus, a null hypothesis represents the hypothesis someone trying to reject and alternative hypothesis represents all other possibilities.

In order to have scientific profile of importance of business intelligence on competitive advantage in select life insurance companies, the following null and alternative hypotheses with reference to objectives and developed model were formulated:

- $H_{01}$: Business intelligence will not impact on competitive advantage more strongly in highly organizational agility conditions.
- $H_{a1}$: Business intelligence will impact on competitive advantage more strongly in highly organizational agility conditions.
- $H_{02}$: Information technology infrastructure will not positively impact on business intelligence.
- $H_{a2}$: Information technology infrastructure will positively impact on business intelligence.
- $H_{03}$: The level of business intelligence is not positively related to organizational agility.
- $H_{a3}$: The level of business intelligence is positively related to organizational agility.
- $H_{04}$: The degree of organizational agility is not positively related to competitive advantage.
- $H_{a4}$: The degree of organizational agility is positively related to competitive advantage.
- $H_{05}$: Environment turbulence will not reinforce the positive impact of information technology infrastructure on business intelligence.
- $H_{a5}$: Environment turbulence will reinforce the positive impact of information technology infrastructure on business intelligence.
• **H_{06}:** Environment turbulence will not reinforce the positive impact of business intelligence on organizational agility.

• **H_{a6}:** Environment turbulence will reinforce the positive impact of business intelligence on organizational agility.

• **H_{07}:** Environment turbulence will not reinforce the positive impact of organizational agility on competitive advantage.

• **H_{a7}:** Environment turbulence will reinforce the positive impact of organizational agility on competitive advantage.

• **H_{08}:** There are no significant differences towards the degree use of business intelligence, information technology infrastructure, organizational agility and competitive advantage among life insurance companies under study.

• **H_{a8}:** There are significant differences towards the degree use of business intelligence, information technology infrastructure, organizational agility and competitive advantage among life insurance companies under study.

1.8 Research Methodology

Extant academic research on business intelligence empirically focused on investigating the importance of business intelligence on competitive advantages. In order to achieve the above stated objectives, the researcher has collected both primary as well as secondary data. For collection of primary data an appropriate questionnaire has been framed and administered on selected sample profile.

In additions, in investigating the effect of business intelligence systems on Competitive advantage, this study employed a cross – sectional field study. Cross – sectional field studies involved limited depth studies conducted at sites nonrandom selected and lie between in – depth case studies and broad – based surveys (Lillis & Mundy, 2005). When there is insufficient knowledge about the relationships between well – defined constructs and their empirical interpretation, cross – sectional field studies help to refine and re – specify those relationships. By validating well – defined constructs and relations these cross – sectional field studies enhance the credibility and generalisability of field – based theory refinement.

A cross – sectional survey was used to test the conceptual research model. The study developed a survey instrument for collecting data. This survey instrument
included a new measurement scale for measuring business intelligence. The other measurement scales for measuring other constructs in the model were adapted from existing scales that have been published and have passed reliability and validity tests. A Likert scale was used in this research to capture responses. The scale of responses had a range over 1 through 7. The survey was based on 300 responses received. The sampling process was based on convenience and judgment since users were considered to be in a layering architecture. Sample respondents also were convenience and judgment in order to assess their contribution to the process preparedness based on their role in the organization.

The survey participants were managers, employees, and experts from three life insurance companies (LIC of India, ICICI Prudential Life Insurance Co. Ltd., and SBI Life Insurance Co. Ltd.) from Karnataka State of India. In order to test the given hypotheses and survey findings scientifically, the researcher was keen to analyze data by using appropriate statistical methods like weighted average, correlation, frequency distribution and suitable tests of significance.

1.9 Scope of the Study

The scope of present study was confined only to life insurance companies in India. The empirical analysis was based on the data obtained from three life insurance companies (LIC of India, ICICI Prudential Life Insurance Co. Ltd., and SBI Life Insurance Co. Ltd.) in Karnataka State, three cities are as follows:

(1) Bangalore
(2) Mysore, and
(3) Mangalore

1.10 Limitations of the Study

The researcher was aware about the limitations of research and this research was not an exception. The present research work was undertaken to maximize objectivity and minimize the errors. However, there were certain limitations of the study, which were to be taken in to consideration for the present research work. In carrying out the present research, the researcher faced some limitations, the important of which are presented hereunder:
• One of the limitations that the researcher faced was lack of similar research on the relationship between business intelligence and competitive advantage; hence the researcher had some difficulties to gather inferences from similar research works.

• Differences in the types of answering the questionnaire by the manager, employees, and experts of the selected life insurance companies also added to the constraints of the study.

• The study was confined to Indian insurance industry and includes only top three leading companies in their respective segment.

• The sample was drawn from Karnataka State, only assuming that rest of country following the same trends of strategic and organizational performances. Collecting primary and secondary data were difficult for the researcher to obtain due to some confidential or unknown reasons.

• Though the researcher has incorporated significant theories and frameworks of business intelligence in the study, yet a few more upcoming theories and frameworks could also be accommodated.

Those limitations notwithstanding, the researcher has made the best possible efforts to make the study as systematic and methodical as possible.

1.11 An Overview of the Thesis

For analytical convenience, the present dissertation has been organized into six chapters. A short overview of each chapter was presented in the following and as shown in Figure 1.11.1.

In this chapter, an introduction to concepts of business intelligence, information technology infrastructure, organizational agility, and competitive advantages were provided. It then went on to present the background of the study, statement of the problem, need of the study, purpose of the study, significance of the study, objectives, hypotheses, methodology of the research, scope and limitations of the research, and also the chapter scheme of the thesis.

In the second chapter, relevant theoretical areas and review of literature were presented. It also reviewed certain topics related to the research and research variables used in the present study. In the third chapter, research design appropriate for
achieving the defined objectives was explored. In the fourth chapter, the data were analyzed and interpreted. In analyzing the data, certain statistical tools and also software packages such as Statistical Software Package (SPSS), and Excel Software of MS Office were used.

In the fifth chapter, summary of the findings was presented and finally, in the chapter six, conclusions as well as contributions and implications in addition to recommendations for further research was brought up.

![Diagram of thesis structure](image)

**Figure 1.1.1** An Overview of the Thesis