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**A GENERAL BALANCED ORGANIZATION STRUCTURED
MODEL IMROVEMENT**

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ÖZET

GENEL BİR DENGELİ ORGANİZASYON YAPISAL MODELİ GELİŞTİRME

Günümüzde bilgi teknolojileri sürekli gelişmekte ve teknoloji geliştikçe işletmelerin de rekabet avantajını kazanmak için kendi iş süreçlerini geliştirmeleri ve optimize etmeleri gerekmektedir. Özellikle üretim işletmeleri açısından, müşteriyle iletişim, ürün maliyetlerini düşürmek, yüksek kalitede üretim yapmak ve süreçlerin kontrollü yönetimi zorunluluktur. İşletme kaynak yönetimi, işletmenin ana süreçlerini bütünleştiren ve yöneten entegre bir stratejik yönetim aracıdır.

Bu çalışmayla, işletme kaynak yönetimi kullanımının işletmenin stratejik performansı üzerine etkisi çalışan randımanı, takım/departman performansı ve işletme verimliliği baz alınarak teorik bir model geliştirilmiştir. Çalışmanın sonucunda, ERP kullanan ve Türkiye’de sektöründe önde gelen üç üretim firması üzerinde ERP’nin randıman, etkinlik ve verimlilik üzerindeki etkisi sorgulanmıştır. Böylece, sonuçlarının üretim firmalarına rehber olması amaçlanmıştır.

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ABSTRACT

A GENERAL BALANCED ORGANIZATION STRUCTURED MODEL IMPROVEMENT

In today's business, Information Technologies growing continuously and companies need to improve and optimize their business processes to gain the competitive advantage. Especially for the manufacturing firms, the necessity for customer interactions, product cost reductions, product quality and carefully managed processes is paramount. Enterprise resource planning, is a strategic integrated tool that unifies and manages the core processes of an organization.

In this study, a theoretic model developed based on using Enterprise Resource Planning 's impact on strategic business performance through employee effort, team/department efficiency and productivity of the organizations. At the end of the study, ERP's impact on effort, efficiency and productivity queried. Thus, guiding results were obtained for the manufacturing organizations to improve their strategic business performance level.

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CLAIM FOR ORIGINALITY

In this study, ERP's impact on strategic business performance researched through its impact on effort(employee level), efficiency(department/team level) and productivity(organization level) and whether it affects positively to the organization's profitability, annual sales, product costs and as a result organization's strategic business performance.For this purpose, strategic management and ERP concepts were evaluated and a general model developed based on the ERP's impact on overall business performance.

And finally, Turkey's three leading manufacturing organizations's employee, department and organization level survey results analyzed for the developed model. The relationships between ERP implementation and effort, efficiency, productivity, product quality, customer satisfaction, and strategic business performance is researched in a single model.

Thus, guiding results were obtained for the manufacturing organizations to improve their strategic business performance level.

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PART I: INTRODUCTION AND OBJECTIVES

In this section, based on the the extensive literature review ,research objectives with problem definition and the structure of the thesis is defined.

In today's competitive business environment, companies must constantly monitor their markets, competitors, suppliers, and customers in order to recognize market opportunities or react to environmental changes as **Van der Wiele** said in 1995" Even if an organisation is successful today it will always have to develop and get better [1]" .Strategic management, is concerned with a flexible, proactive planning process and a supporting organization which can adapt quickly to these changes.

In all organisations goal setting and strategic planning activities should be aimed at answering three fundamental questions (**Povey, 1996**) [1]:

- Where are we?
- Where do we want to go?
- How do we get there?

To answer these questions the organisation must determine its goals, strengths and weaknesses. The process of doing this is often called strategic management process. A carefully performed strategic management will give management the possibility to base decisions on facts instead of perceptions.

Based on the research objectives, the extensive literature review , the following research questions have been proposed. They are listed as follows:

- **Question 1:** What is Strategy and Strategic Management?
- **Question 2:** What are the effects of ERP implementation on overall business performance especially in manufacturing firms?
- **Question 3:** What kind of strategic business performance model should be developed in order to guide manufacturing firms in improving strategic business performance?

Based on the strategic business performance analysis in Turkey's manufacturing firms, this research aims at achieving the following research objectives:

- To obtain the effects of ERP implementation on overall business performance in manufacturing firms;
- To obtain a strategic performance excellence implementation model for Turkey's manufacturing firms and define the impact of ERP on overall business performance through effort, efficiency and productivity levels of the company.

After reviewing the existing strategic management and ERP literature, it has become very clear that this research project is the only one that systematically examines the effects of ERP implementation with the emphasis on the efficiency, productivity and effort characteristics in manufacturing firms in one single model

PART II: GENERAL BACKGROUND

This part focuses on the identification of the concept of strategy on the basis of the literature review. And continued with the the concept of strategic management , strategic planning and the strategic management tootls that the organizations's used for the strategic Analysis and in decision making. ERP and its advantages defined and a theoric model developed to achive strategic business performance based on ERP.

II.1 DEFINITIONS

Companies world-wide recognize the importance of meeting customers' needs to succeed in the competitive market-place. They realize that optimizing operations within their enterprises is not enough to achieve business excellence.Strategic planning and management becomes the key concepts to gain business excellence.

II.1.1 THE CONCEPT OF STRATEGY

The organization interacts with its environment. Strategy of an organization must be appropriate for its resources, environmental circumstances, and core objectives to put the organization into a position to carry out its mission effectively and efficiently.In other words, a good corporate strategy should integrate an organization's goals, policies, mission & vision statements and must be based on business realities.

The knowledge of a firm should be the central consideration on which to ground the organization's strategy and the primary basis on which a firm can establish its identity and frame its strategy and the primary basis on which a firm can establish its identity and frame its strategy, as well as one of the primary sources of the firm's profitability (Grant, 1991). Therefore, firms need to identify and develop their intellectual resources in order to establish and maintain a competitive advantage and to increase their performance (Petergraf, 1993; Prahalad and Hamel, 1990; Teese et al., 1997). This has led to the development of the knowledge-based view of the firm that considers knowledge as the principal source of economic rent (Grant, 1991; Grant and Spender, 1996; Spender, 1994). [7]

There is a huge number of definitions for the concept of strategy. Some known definitions are as follows:

Despite the early existence of the word strategy, its reference in the corporate world is relatively recent. There have been several accounts depicting the origins of strategy in the corporate world (cf. Bracker, 1980; Mintzberg et al., 1986; Rumelt et al., 1994). It is difficult to pinpoint the definitive roots of the discipline – that is not our intent – however the integration of several key points in history is predominant in the accounts. The word strategy has masculinist roots (Kanter, 1989), coming from the Greek word, *strategia*, meaning 'generalship'. The Greek verb *stratego* means to 'plan the destruction of one's enemies through effective use of resources' (Bracke, 1980, p. 219). It was first used in English in 1688 (Bracker, 1980; Whipp, 1996) and its modern day equivalent reflects its antiquated definition. Thomas (1993; quoted in Whipp, 1996, p. 263), for example, defines strategy as 'something an organization needs or uses to win, or establish its legitimacy in a world of competitive rivalry [3].

The actual strategy concept can be approached and interpreted from several points of view. It can be seen as a plan, a ploy, a pattern, a position or a perspective (Mintzberg, 1987). The most dominating viewpoint is to see strategy as a plan and strategy making as a process of planning (Näsi, 1996)[14]

A strategy, in its most basic form, means the long-term direction and scope of an organisation whose ultimate goal is to achieve a competitive advantage for the organisation through management of its resources within a demanding environment of stakeholders and markets (Johnson & Scholes, 1999). The definition in Robbins (1990) reiterates this as:

“the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals (p. 121).” [21]

Classical approach to strategy has been defined by Chandler (1962) as:

“...the determination of the basic, long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of measures necessary for those goals.” (Chandler, 1962:13) [23]

Based on Chandler's definition, the linear approach assumes three basic tenets [23]:

- Strategy formulation should be a controlled process of thought, derived directly from the notion of rational economic man- strategy as product of a single entrepreneurial individual acting with perfect rationality to maximise 'his' economic advantage.
- Strategies emerge from the decision-making process fully formulated, explicit and articulated: strategies are in a sense orders for others to carry out
- Implementation is a distinct phase in the strategy process only coming after the earlier phase of explicit and conscious formulation. (Mintzberg, 1990)

Several authors have defined strategy in terms of the relationship between an organisation and its environment. One such definition is:

"The positioning and relating of the firm/organisation to its environment in a way which will assure its continued success and make it secure from surprises" (Ansoff, 1984) [23]

A strategy can be defined as a set of decision making and behavioural processes within organisations directed at securing objectives. Mintzberg, for example, defines strategy as ‘a pattern in a stream of decisions’; where ‘a decision

is defined as a commitment to action, usually a commitment of resources' (Mintzberg 1978) [2] .

It is widely accepted that three conceptualisations of strategy have been used to describe decision making and behaviour of organisations: explicit or planned strategy, implicit or emergent strategy, and interpretative or normative strategy (Chaffee 1985, Johnson and Scholes 1993, Hax and Majluf 1991 and Rumelt, et al. 1994) [3].

- **Explicit strategy** is best conceptualised and defined by game theory which views strategy as 'a complete plan of action that describes what a player will do under all possible circumstances' (Davis 1993). In organisational Analysis, following the work of Chandler and others, explicit strategic decision making refers to decision making that is long term in nature and involves plans for purposive action within organisations. This long range planning and decision-making usually refers to explicit decisions or deliberate actions initiated at the corporate level of the organisation (Chandler 1962, Andrews 1980 and Hax and Majluf 1991). This may be contrasted with an *implicit or emergent* strategies, which only become apparent or emerge over time, and after social actors' behaviour has been observed. (Mintzberg 1978). [3]
- **Implicit strategy** is seen as incremental, and the result of adaptive learning as expectations change with experience. In contrast to explicit strategy models, empirical studies have found inconsistencies between long range planning decisions made within organisations (intended strategy) and actual or realised strategy, particularly given problems associated with limited individual actor volition in the context of organisational complexity, constrained organisational cognitive capacities, and uncertain and fluid environmental contexts in which organisations formulate strategies (Mintzberg 1973 and 1979 and Zan and Zambon 1993). [3]
- **The interpretative or normative strategy** relates to the role and functions which corporate culture and 'symbolic management' play in the creation of incentive mechanisms within organisations. Rather than focusing on actual

behavioural outcomes, the interpretative strategy model concentrates on the role of normative symbols within organisations which form the basis for legitimising actions subsequently taken (Chaffee 1985 and Cauwenbergh and Cool1982).[3]

II.1.2 STRATEGIC BALANCING

Strategic Balancing is a methodology to integrate the vision, mission, strategy, tactics and operations of the firm while simultaneously balancing the foundational values of profit, re-investment, long term goals and short term needs. In all it provides a decision making framework. At it's core, Strategic Balancing is based on a complete association between authority and responsibility and is applicable to all types of organizations; hierarchical or flat, centralized or decentralized. It uses both qualitative measures and quantitative tables to link the foundational values with authority nodes and the vision and mission with responsibility nodes. When applied in its entirety, the Strategic Balancing process unifies the firm, enabling management to make more accurate and timely decisions on all levels (**Cogliandro, 1991**). [8]

Strategic Balancing also provides higher levels of corporate identity (both internal and external), increased market efficiency, higher levels of employee and customer satisfaction and higher profit potential. It can be applied successfully to either the service or manufacturing sector .It can be applied either to the organization as a whole, to an individual project, or optimally to both. Some of the used tools for strategic balancing include Quality Functional Deployment (QFD), Integrated Definition(IDEF), Requirements Management, strategic planning, operations management and supply chain management. [8]

II.1.3 STRATEGIC PLANNING

Planning is a process that involves defining the organisations goals, establishing an overall strategy for achieving those goals and developing a comprehensive set of plans to integrate and coordinate organisational work and it is used throughout organisations for improving employee focus, reducing wastage,

preparing for and minimising the impact of change and setting standards used for controlling. The organization's managers use different plans dependant on their breadth, timeframe, specificity and frequency of use. Strategic plans are those which look at the organisation as a whole then decide on the organisations overall goals and the position in the current and future markets that organisation would like to achieve.

Mintzberg (1979, 11) argued that strategic planning is a multifaceted phenomenon which is impossible to define in a short essential definition. He rejects any definition of strategy that restricts it to explicit, *a priori* guidelines and expands restrictive definitions by including evolved, *a posteriori*, consistencies in decisional behaviour as strategy. Mintzberg advocates a phenomenological approach and defines strategy as a plan, ploy, pattern, position and perspective. (Mintzberg 1987). In addition, Strategic planning is the *formal* process, or set of processes, used to determine the strategies (actions) for the organisation (Hill et al. 2004, 5). Not all strategy is, however, derived from a formalised process. Hill et al. (2004, 23) distinguish, following Mintzberg, between *intended strategy* and *emergent strategy*. In intended strategy, the formal strategic planning process, strategic choices are based on rigorous Analysis of external and internal factors.[20]

II.2 STRATEGIC MANAGEMENT

Because of economic recessions, organizations must control their costs and accept lower margins as supply potential exceeds demand in many industries. Profits fall. Paradoxically, those organizations which are able to consolidate and invest strategically during the recession will be best prepared for the economic upturn.

In Today's constantly changing and unstable business environment, managers of organisations must understand planning and strategic management and look forward to anticipate change within their organisation to hold a competitive edge or even to survive.

Generally, the term strategic management has been used to symbolize the entirety of the discipline, incorporating business policy and strategy (Alvesson and Wilmott,1995).[37]

By Strategic management an organization establishes its objectives, formulates actions designed to achieve these objectives in the desired timescale, implements the actions and assesses progress and results.

Effective strategic management requires an organization to be (always) considering the following issues:

- Where are we now?
- Where do we want to go?,
- How are we going to get there?
- What do we have to do?
- Have we got there? If not, why not?

In most (large) corporations there are several levels of strategy. **Strategic management** is the highest in the sense that it is the broadest, applying to all parts of the organization. It gives direction to corporate values, corporate culture, corporate goals, and corporate missions of the organization and consists of the analysis, decisions, and actions an organization undertakes in order to create and sustain competitive advantages.

Strategic management is the process of specifying an organization's objectives, developing policies and plans to achieve these objectives, and allocating resources so as to implement the plans. It is the highest level of managerial activity, usually performed by the company's Chief Executive Officer (CEO) and executive team. It provides overall direction to the whole enterprise.[5]

Overall, Johnson & Scholes defines Strategic Management as the combination of Strategic Analysis, Strategic choice and Strategic implementation as follows[41]:

- Strategic Analysis
- Strategic Choice
- Strategic Implementation

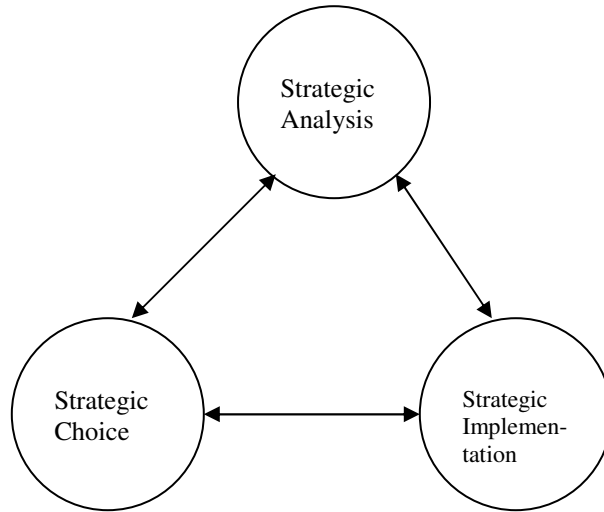


Figure II.1: The major elements of strategic management [41]

Strategic Analysis is broken down into three key areas:

- **The Environment** : Using a number of analysis tools (such as SWOT, life cycle , Porters five forces analysis...etc), the organization must look into the external items
- **Expectations, Values, Objectives and Culture** : This is a multiple step process that starts with an interpretation of the company's culture, and continues with the analysing of the organization's objectives and values.
- **Resources:** In this step, the organization's resources are analyzed to understand the organizations strategic capability.

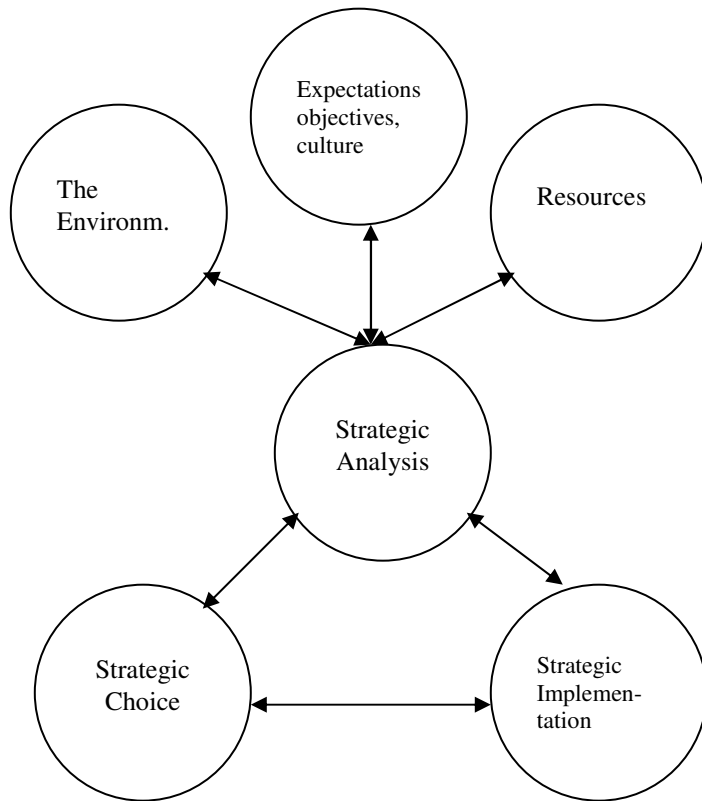


Figure II.2 Expanded View of Strategic Analysis [41]

Strategic Choice is broken down into three key areas:

- **Generation of Options** : The goal of the option generation phase is to generate as many viable alternate courses of action.
- **Evaluation of Options** : In this stage, a mixture of rational, analytical and subjective, implicit processes are applied to the generated options in order to help select a strategy. Options must be evaluated on how they fit with the company, how feasible they are and finally how desirable they are.
- **Selection of Strategy** : The final strategy, or set of strategies are selected and ready for implementation

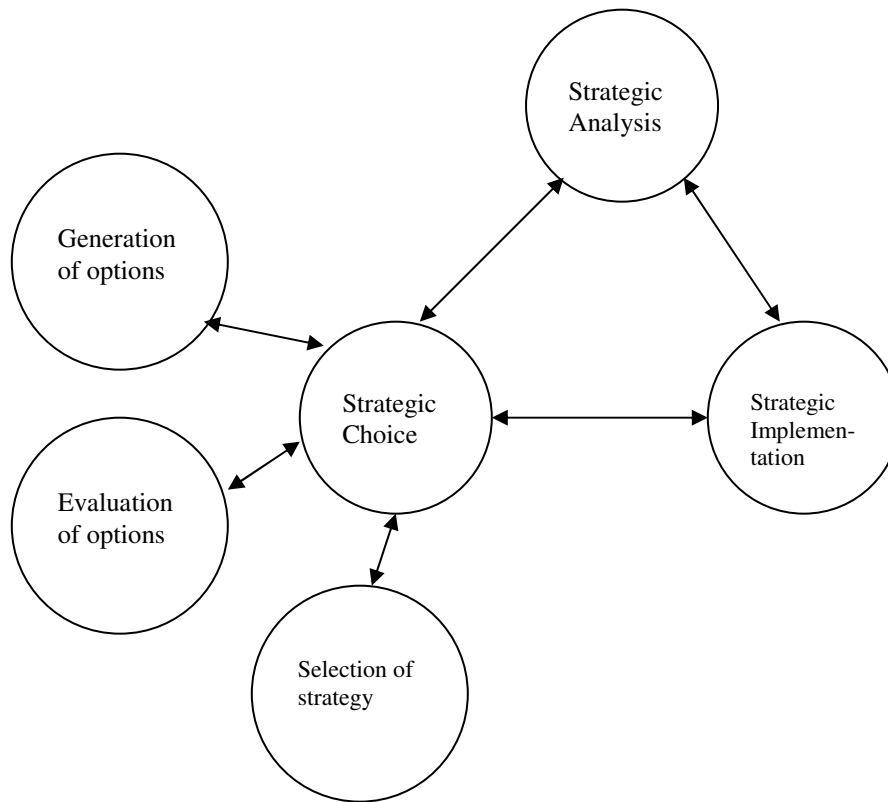


Figure II.3: Expanded View of Strategic Choice[41]

Strategic Implementation is broken down into three areas:

- **People and Systems** : In business, people operate activity systems to implement strategy - therefore, it is critical that businesses maintain some form of control structures to ensure proper implementation of the new business strategy. Gaining acceptance with the staff of a business is also critical to the success of new strategy.
- **Resource Planning** : The implementation of a new strategy may require changes to existing resource (i.e. Human Resources, Money, Infrastructure, etc) allocations
- **Organizational Structure**: This refers to the formal (i.e. the organisational chart) and informal structure (i.e. more likely reality) of the business. It is

important to note that there is infact a two-way relationship between strategy and organisational structure

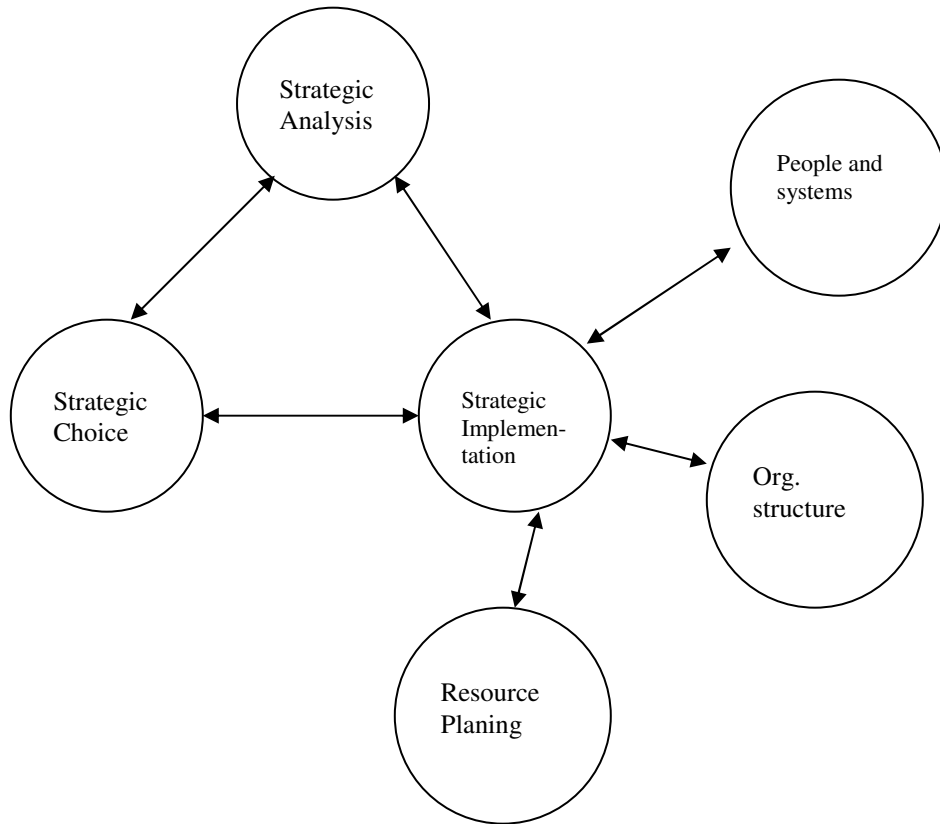


Figure II.4: Expanded View of Strategic Implementation[41]

In other words, the strategic management of an organization entails three ongoing processes: *analysis*, *decisions*, and *actions*. That is, strategic management is concerned with the *Analysis* of strategic goals (vision, mission, and strategic objectives) along with the analysis of the internal and external environment of the organization.

II.2.1 HISTORICAL DEVELOPMENT OF STRATEGIC MANAGEMENT

Strategy could firstly be divided into corporate, business unit and functional strategies. There could also be separated such concepts as strategic planning, strategic management, strategy formulation and strategy implementation or more broadly strategic thinking (Näsi 1987)[24].

Any glance through the management literature of the last decade or two shows the prominence of ‘strategic management’ and ‘strategy’. The two, although not synonymous, are often considered as such. Strategic management is the name of an academic field of study, strategy is the main topic of study (Schendel 1994).[22]

Strategic management as a discipline originated in the 1950s and 60s. In fact, the development process of strategy and strategic management exactly reflects the changing business environment.

Alfred Chandler recognized the importance of coordinating the various aspects of management under one all-encompassing strategy. Prior to this time the various functions of management were separate with little overall coordination or strategy. Interactions between functions or between departments were typically handled by a boundary position, that is, there were one or two managers that relayed information back and forth between two departments. Chandler also stressed the importance of taking a future looking long term perspective. In his groundbreaking work *Strategy and Structure* (1962), Chandler showed that a long-term coordinated strategy was necessary to give a company structure, direction, and focus. He says it concisely, “structure follows strategy”. Today we recognize that this is only half the story: strategy also follows from structure (Tom Peters, *Liberation Management*).

Philip Selznick (1957) introduced the idea of matching the organization's internal factors with external environmental circumstances. This core idea was developed into what we now call SWOT analysis by Learned, Andrews, and others

at the Harvard Business School General Management Group. Strengths and weaknesses of the firm are assessed in light of the opportunities and threats from the business environment.

Igor Ansoff built on Chandler's work by adding a range of strategic concepts and inventing a whole new vocabulary. He developed a strategy grid that compared market penetration strategies, product development strategies, market development strategies and horizontal and vertical integration and diversification strategies. He felt that management could use these strategies to systematically prepare for future opportunities and challenges. In his classic Corporate strategy (1965) he developed the “gap Analysis” still used today in which we must understand the gap between where we are currently and where we would like to be, then develop what he called “gap reducing actions”.

Peter Drucker was a prolific strategy theorist, author of dozens of management books, with a career spanning five decades. His contributions to strategic management were many but two are most important. Firstly, he stressed the importance of objectives. An organization without clear objectives is like a ship without a rudder. As early as 1954 he was developing a theory of management based on objectives. This evolved into his theory of management by objectives. According to Drucker, the procedure of setting objectives and monitoring your progress towards them should permeate the entire organization, top to bottom. His other seminal contribution was in predicting the importance of what today we would call intellectual capital. He predicted the rise of what he called the “knowledge worker” and explained the consequences of this for management. He said that knowledge work is non-hierarchical. Work would be carried out in teams with the person most knowledgeable in the task at hand being the temporary leader.

E. Chaffee (1985) summarized what he thought were the main elements of strategic management theory by the 1970s:

- Strategic management involves adapting the organization to its business environment.

- Strategic management is fluid and complex. Change creates novel combinations of circumstances requiring unstructured non-repetitive responses.
- Strategic management affects the entire organization by providing direction.
- Strategic management involves both strategy formation (he called it content) and also strategy implementation (he called it process).
- Strategic management is partially planned and partially unplanned.
- Strategic management is done at several levels: overall corporate strategy, and individual business strategies. Strategic management involves both conceptual and analytical thought processes.[5]

Porter (1980 and 1985) introduced five competitive forces, which determine each industries and furthermore he specified three general bases for companies to obtain sustainable competitive advantage, cost leadership, differentiation and focus strategy and the concepts of value chain and strategic cost analysis. The pivotal choice between differentiation and cost leadership strategies has since been criticized by some academics and practitioners and it has been said that in modern competition you have to be strong in both dimensions. This simultaneous differentiation and cost strategy has been called outpacing strategy by Horvath et al. (1997), meanwhile Porter (1996) has replied that the ongoing and intensifying raid for the operational efficiency could not be interpreted as strategy at all. Cooper (1996) has introduced such concepts as survival zone, confrontation strategy and simultaneous importance of product functionality, quality and price under intensive competition. Miles and Snow (1978) categorized different strategic archetypes, defenders, prospectors, analyzers and reactors, according to their responding to the environment and ways to configure technology, structure and processes. Furthermore, three strategic missions for the strategic business units have been categorized by Buzzel, Gale and Sultan (1975) and Hofer and Schendel (1978). Prahalad & Hamel (1990) introduced the concept of core competence, and suggested the building of the global strategic organizational architecture, which relies on these organizational core competencies.[38]

II.2.2 STAGES OF GROWTH AND STRATEGIC MANAGEMENT

Firm growth is a central focus area in strategy, organizational and entrepreneurship research. Much research effort has been targeted particularly at investigating the factors affecting firm growth, but to date there is no comprehensive theory to explain which firms will grow or how they grow (e.g. Garnsey, 1996).[19]

There is a fairly broad range in the number of stages specified as the organisation emerges from birth, through maturity and eventually decline. Many growth models have been presented, for example, by Greiner (1972), Scott and Bruce (1987), Churchill and Lewis (1983) and The Kazanjian model of growth of technology-based companies (Kazanjian 1984, Kazanjian and Drazin, 1990). Notable in Kazanjian model is the pre start-up phase (also often called 'a seed phase') that is missing in most of the other general growth models. [14]. Smith et al. suggest a three stage model. Kazanjian [14] and Quinn and Cameron consider a four stage model. Churchill and Lewis, Galbraith, Greiner, Miller and Friesen and Scott and Bruce theorised a five-stage model. Finally, Adizes proposed the most complex model, suggesting ten life-cycle stages.[16]

In spite of the differences between the various life cycle models, their developers typically feel that the growth and development of enterprises is a progressive and linear process, and that all enterprises must face certain key problems during each stage (Kaulio, 2003; Kazanjian, 1988; Kazanjian and Drazin, 1990).[15]

Entrepreneurs strive to understand stages of development, in which their enterprises operate, since growth models are used as diagnostic tools in analysing a firm's present position and to plan what will be required as the firm progresses from one stage to the next (growth process) in the life cycle (Kazanjian & Drazin 1990; Scott & Bruce 1987). Life cycle models can be used as effective predictive tool for long range planning (Scott & Bruce 1987; Barrie 1974). As management

understands the issues, challenges (current and future) and problems at each stage, plans and strategies are reviewed to prepare for the future (Churchill & Lewis 1983).[17]

Until today, improved organization life cycle models can be summarized as follows:

Table II.1: Organization Life Cycle Models[17]

Model	Contextual Dimensions	Structural Dimensions
<p>Adizes (1991) Organisations have life-cycle just as living organisms do; they go through the normal struggles and difficulties accompanying each stage of the organisational life-cycle and are faced with the transition problems of moving to the next stage of development. Organisations learn to deal with these problems by themselves or they develop abnormal diseases which stymie growth – patterns that usually cannot be resolved without external professional intervention.</p>	<p>Age; size; normal problems and transitions.</p>	<p>Structural form; formalisation of policies and procedures; Leadership characteristics; depth of management; diversity and complexity.</p>

Table II.1: Organization Life Cycle Models[17]

Model	Contextual Dimensions	Structural Dimensions
<p>Churchill e Lewis (1983) Delineates five stages of development. Each stage is characterised by an index of size, diversity and complexity and described by five management factors: managerial styles organisational structure, extent of formal systems, major strategic goals and the owners involvement in the business.</p>	<p>Age; size; growth rate; major strategies</p>	<p>Management style; organisation (form and levels) extent of normal systems and business/owner relationship.</p>
<p>Galbraith (1982) The stage of development and the business ideadetermine the basic task to be performed. For different tasks, different structures, decision processes, reward systems and people are needed in order to execute that task. Each of these dimensions is connected to the others.</p>	<p>Age; size; growth rate; task</p>	<p>Structural form; specialisation level; reward system; formalisation; centralisation leadership style.</p>

Table II.1: Organization Life Cycle Models[17]

Model	Contextual Dimensions	Structural Dimensions
<p>Greiner (1972) Growing organisations move through five distinguishable stages of development, each of which contains a relatively calm period of growth that ends with a management crisis. Each evolutionary period is characterised by the dominant management style used to achieve growth, while each revolutionary period is characterised by the dominant management problem that can be continued.</p>	<p>Age; Size; industry growth rate.</p>	<p>Organisational structure; formalisation level; top management style; control system; management reward emphasis.</p>
<p>Kazanjian (1988) The firms faced strategic operational problems from the time of product conceptualisation through organisational maturity. Further, some of these problems seem to have been more dominance seemed to exist. The particular problems faced at a given time appeared to be strongly associated with a firm's position in a particular stage of the growth.</p>	<p>Age; size; growth rate; dominate management problems.</p>	<p>Structural form; formalisation; centralisation; top management composition.</p>

Table II.1: Organization Life Cycle Models[17]

Model	Contextual Dimensions	Structural Dimensions
<p>Miller e Friesen (1984) A review of literature on the organisational life-cycle disclosed five common stages: birth, growth, maturity, revival and decline. Each stage would manifest integral complementarities among variables of environment (“situation”), strategy and structure and decision making methods; that organisation growth and increasing environmental complexity would cause each stage to exhibit certain significant differences from all other stages along these four classes of variables.</p>	<p>Age; number of employees; size (relative to competitors) concentration of ownership; stakeholder influence; environmental dynamics, hostility and heterogeneity; strategy variables reflecting: - extent and frequency of product innovation; - diversification; - geographical expansion; - marketing orientation.</p>	<p>Basis of organisation; participate management sophistication of information systems; performance controls; action planning; environmental scanning; formal controls; internal communications; centralisation of power; delegation for routine decisions; technocratisation; resource availability; differentiation; decisionmaking style.</p>
<p>Quinn e Cameron (1983) Changes that occur in organisations follow a predictable pattern that can be characterised by developmental stages. These stages are (1) sequential in nature; (2) occur as a hierarchical progression that is not easily reversed; and (3) involve a broad range of organisational activities and structures. A variety of bases of organisation members to organisational structures and environment relations.</p>	<p>Age; size; criteria of organisational effectiveness.</p>	<p>Structural form; formalisation; centralisation; leadership; culture.</p>

Table II.1: Organization Life Cycle Models[17]

Model	Contextual Dimensions	Structural Dimensions
<p>Scott e Bruce (1987) As a small business develops it moves through five growth stages, each with its own distinctive characteristics. Because the transition from one stage to the crisis or another. Crises tend to be disruptive and the problems of change can be minimised if managers are proactive rather than reactive.</p>	<p>Age; size; growth rate; industry stages; key issues: - source of finance; - cash generation; - major investments; - products/market scope.</p>	<p>Structural form; formalisation of systems and controls; top management role/style (centralisation).</p>
<p>Smith et al. (1985) Models of life cycle stages presuppose that there are regularities in organisational development and that these regularities occur in such a way that the organisations developmental processes lend themselves to segmentation into stages or periods of time.</p>	<p>Age; size (sales); size (employees); growth rate; top management priorities.</p>	<p>Structural form; reward system (formalisation); centralisation; top management composition.</p>

II.2.3 STRATEGIC MANAGEMENT TOOLS

The framework of strategic management and planning, the essential constituent and sustaining element is specifically the tools of strategic analysis. Nevertheless strategic management tools play an important role in the process of strategic management, where they perform a number of different functions, sometimes even at a time (Eilon 1980; Day, 1986; Langley, 1988 and 1991; Dyson, 1990).

These functions include information generation, structuring of the object for the analysis, facilitating the exchange of ideas, assistance in coordination and control of strategic planning processes and symbolic significance (Clark and Scott, 1995). Properly selected strategic analysis tools and strategic planning techniques can ensure enough simple application of strategic planning in the decision-making process of the organizations. Strategic Management Tools are shown in the following table [26]:

Table II.2: Strategic Management Tools[26]

Strategic Management Tools Used for Strategic Analysis by Organization

IDEOLOGICAL NATURE OF THE TOOL	NAME OF THE TOOL	TOOL'S ROLE IN DECISION MAKING PROCESS		NATURE OF RELATIONSHIP BETWEEN THE TOOL AND THE ENVIRONMENT				THE NECESSARY FACTUAL AND LOGICAL JUSTIFICATION	
		Decision-making tools	Data collection tools	Tools designed for internal environment analysis	Tools designed for the operating environment analysis	Tools designed for the analysis of uncontrolled remote environment of the company	Indifferent with respect to environment and/or universal tools	Rationalistic	Sophistic
Strategic management tools	Balanced scorecard		+	+				+	
	Benchmarking		+				+	+	
	Core competences		+	+					+
	Critical success factors		+		+				+
	Driving force		+		+				+
	Experience curves		+	+				+	
	Future study		+				+	+	
	Life cycle analysis		+				+	+	
	McKinsey 7-8		+	+					+
	Multiple scenarios	+			+				+
	Outsourcing	+		+				+	
	PEST		+			+		+	
	Porter's 5F		+		+				+
	Portfolio classification analysis		+		+			+	
	Reengineering	+		+				+	
	Simulation technique	+			+				+
	SPACE		+		+			+	
	SPIRE		+		+			+	
	Strategic gap analysis	+		+					+
	Value chain analysis		+	+				+	
SWOT		+				+		+	
Technology assessment analysis		+				+	+		
Vulnerability analysis		+		+				+	

II.2.3.1 Balanced Scorecard

Balanced Scorecard is a management system, not just a measurement system that enables organizations to clarify their vision and strategy and translate them into action. Balanced Scorecard provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and results.

Since the early 1990s when Robert Kaplan, a professor at Harvard University and David Norton, a consultant from the Boston area, developed the Balanced Scorecard, there have been many different Balanced Scorecard applications in all types of industries both in the United States and internationally. Several articles and books have been written on the Balanced Scorecard methodology and there are a variety of software products to assist and expedite implementation of this performance measurement process. Historically, performance improvement systems have focused on measurements and indicators alone. What is unique about the Balanced Scorecard approach, in contrast to other methods, is that it links strategy with performance and goes beyond the traditional financial metrics in determining whether or not an organization has been successful.[27]

In literature, the **balanced scorecard** defined as” an industry-recognized best practice for measuring the health of an organization. It can be used as a management tool for translating an organization’s mission and strategic goals into a comprehensive set of performance measures that provide the framework for an enterprise measurement and management system”[9]. In other words, it is a tool that translates an organization's mission and strategy into a comprehensive set of performance measures that provides the framework for a strategic measurement and management system.

What is unique about the Balanced Scorecard approach, in contrast to other performance improvement methods, is that it links strategy with performance and goes beyond the traditional financial metrics in determining whether or not an organization has been successful and also it is an integrated management system consisting of three components: 1) strategic management system, 2) communication tool, and 3) measurement system.

The Balanced Scorecard [8]:

- Translates vision and strategy
- Defines the strategic linkages to integrate performance across organizations.
- Communicates objectives and measures to a business unit, joint venture, or shared service.
- Aligns strategic initiatives
- Aligns everyone within an organization so that all employees understand how what they do supports the strategy
- Provides a basis for compensation
- Provides feedback to senior management if the strategy is working

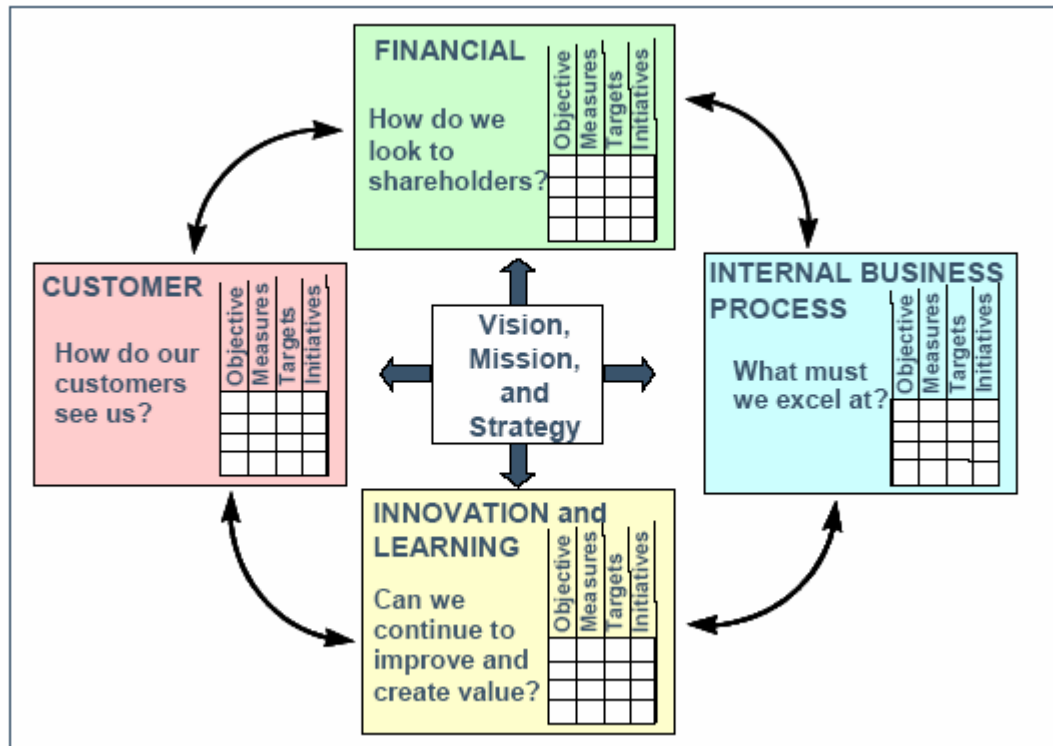


Figure II.5: Balanced Scorecard [9]

The Balanced Scorecard is part of a Performance Management system to enable organizations to achieve their goals.

Balanced Scorecard benefits according to Kaplan & Norton, 1992 [8]:

- Make strategy operational by translating strategy into performance measures and targets.
- Helps focus entire organization on what must be done to create breakthrough performance.
- Integrates and acts as an umbrella for a variety of often disconnected corporate programs, such as quality, re-engineering, process redesign, and customer service.
- Breaks down corporate level measures so local managers, operators, and employees can see what they must do well in order to improve organizational effectiveness.

Organizations that use the Balanced Scorecard methodology get a more accurate, comprehensive view of their business performance. Balanced Scorecard approach relies on the monitoring of critical business-strategy-oriented metrics, such as quality, customer satisfaction, innovation, and market share—measurements that can often reflect a company’s economic conditions and growth prospects better than its reported earnings.

II.2.3.2 Benchmarking

There are few important management concepts which are used extensively in many organizations and **benchmarking** is one of them. Benchmarking is a highly respected practice in the business world. It is an activity that looks outward to find best practice and high performance and then measures actual business operations against those goals. Benchmarking measures an organisation’s products, services and processes, to establish targets, priorities and improvements, leading to competitive advantage and/or cost reductions.

The word “*benchmark*” is a reference or measurement standard used for comparison and “*Benchmarking*” is the continuous activity of identifying, understanding and adapting best practice and processes that will lead to superior performance.[28]

The benefits of conducting a benchmarking exercise can include [28]:

- Creating a better understanding of the current position
- Increasing awareness of changing customer needs
- Encouraging innovation
- Developing realistic, stretching goals
- Establishing realistic action plans

There are four basic types of benchmarking[27] :

- **Internal** - a comparison of internal operations and processes.
- **Competitive** - specific competitor to competitor comparisons for a product or function.
- **Functional** - comparisons of similar functions within the same broad industry, or to industry leaders.
- **Generic** - comparisons of business processes or functions that are very similar, irrelevant of the industry.

There are four main steps, as illustrated by the following Benchmarking Roadmap and explained more fully in the following section:

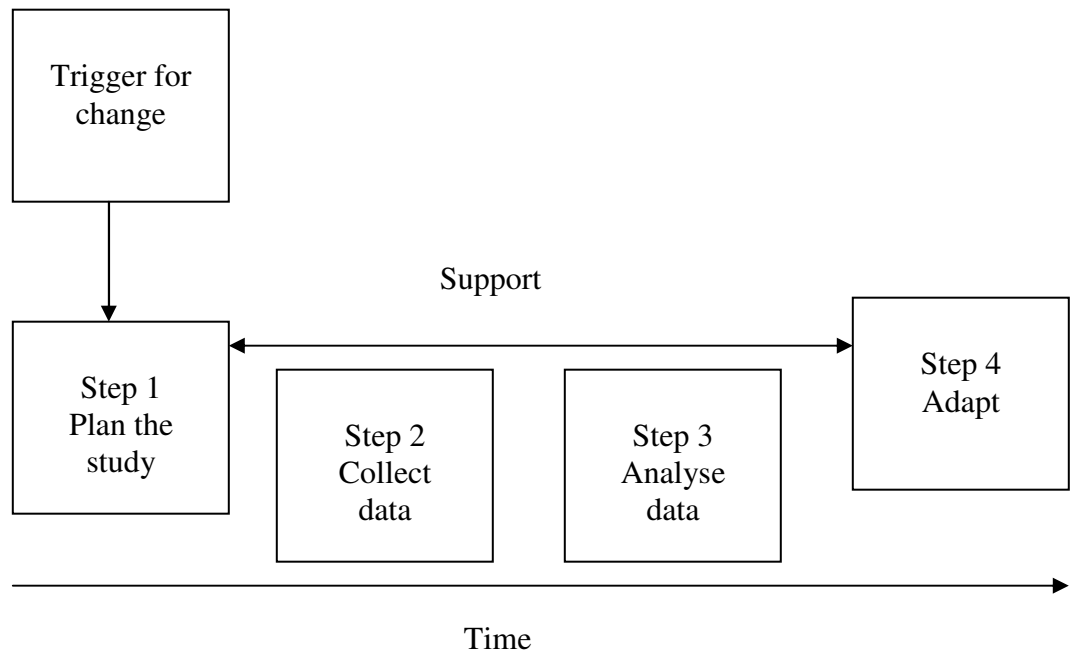


Figure II.6: Benchmarking [27]

The steps can include [28]:

Step 1 – Plan the study

- Establish benchmarking roles and responsibilities
- Identify the process to benchmark
- Document the current process
- Define the measures for data collection

Step 2 – Collect the data

- Record current performance levels
- Find benchmarking partners
- Conduct the primary investigation
- Make a site visit

Step 3 – Analyse the data

- Normalise the performance data
- Construct a comparison matrix to compare your current performance data with your partners' data
- Identify outstanding practices
- Isolate process enablers

Step 4 – Adapt enablers to implement improvements

- Set stretching targets
- “Vision” an alternative process
- Consider the barriers to change
- Plan to implement the changes

II.2.3.3 Portfolio Analysis

Portfolio Analysis analyzing the accounts receivable will help the credit professional understand the company's exposure to risk at any point in time. Portfolio Analysis will also help us determine what sort of customers we should seek to serve and which business segments best fit the mission and capabilities of the organization. This value-added service provides information that can be used by the organization in deciding which markets to serve.

Portfolio Analysis serves as a good planning system that provides information for use in strategic business decisions to maximize long-term earnings growth and to minimize bad debt. It encourages management to evaluate the business along multiple dimensions on an aggregate basis and explicitly raises the issue of the cash flow implications as management plans for growth.

Benefits of Portfolio Analysis:

- Enables managers to analyze diverse activities of multi-business company in a systematic way,
- Highlights cash-flow implications and requirement of different business activities,
- Prods managers to make adjustments in composition of the company's portfolio for long-term health of company.

Why we need Portfolio Analysis: In today's competitive business atmosphere organizations are under pressure to take rapid decisions on hardware, software and application requirements. The basic agenda - "do more with less". There are many Business & Portfolio Analysis companies and consultancies available for helping you.

To derive the best benefits out of Portfolio Analysis services, specialist skills, tools, methodologies, etc. with non-biased professional inputs are needed. They works in liaison with your team(s) to analyze business process flow, identify needs and implement appropriate IT strategy and solutions.

They have experienced business analysts, both technical and functional. They bring to you superior skills, best practice methods and techniques and are able to provide optimum solutions.

For the typical company, the following information should be available from their accounting records: sales, gross margin dollars, gross margin percentage, product line, industry sold to and geographical location. Another key element of Portfolio Analysis is the credit-risk score. The customer's risk score is available from third-party vendors in two ways: by acquiring the credit risk score for each customer or by purchasing a credit scoring system, or you can manually develop one yourself.

Through the use of Portfolio Analysis, the marginal and successful segments the business will surface, and discussion can be initiated to determine if there any lessons that can be learned.

II.2.3.4 Reengineering

BPR was first introduced to the business world by Frederick Taylor when he published his article *The Principles of Scientific Management* in the 1900s. Following on from the earlier ideas of Time and Motion Studies pioneered by Frank and Lillian Gilbreth, Scientific Management was the first step to the introduction of BPR which turned out to be unsuccessful due to the many issues which were not resolved. During Taylor's time, not many knowledgeable workers were employed in the manufacturing workforce, which at the time was the main wealth generator. Scientific Management involved breaking the manufacturing process down to a thoughtless cycle of simple sequences which were to be carried out in the least amount of time possible with the minimum amount of effort. This often raised the factory workers' salaries but also cause the workers to work just as hard in back-breaking manual labour. This practice of improving efficiency in manufacturing often raised the concern of "dehumanization of the workplace" (Kock, 2002).[25]

BPR Business Process Reengineering is a set of techniques a company uses to design its business according to specific goals. This set of techniques includes step-by-step procedures to design (characterize) the business, notations that describe the design, and heuristics or pragmatic solutions to find the right design. BPR Business Process Reengineering seeks to organize a commercial undertaking in a competitive way, viewing the construction of an enterprise as an engineering activity. Companies or business are viewed as entities that can be formed, designed or redesigned according to engineering principles.[29]

In summary, BPR Business Process Reengineering seeks first to define and understand the current business process ("As Is") and then, after modeling and Analysis, to formulate a future ("To Be") business process. Basically, BPR is reengineering of the process to enhance customer service and substantially cut operating costs and it is increasingly used by today's organizations to evaluate information processes and investments.

II.2.3.5 Swot Analysis

SWOT is an abbreviation for **Strengths, Weaknesses, Opportunities and Threats** and it is an important tool for auditing the overall strategic position of a business and its environment.

A SWOT Analysis looks at the organization's:

- Strengths - to build on
- Weaknesses – to cover
- Opportunities – to capture
- Threats – to defend against

Strengths and weaknesses can be compared to determine where the company stands internally. Opportunities and threats can be compared to summarize the external environment **Strengths and weaknesses are Internal factors**. A firm's strengths are its resources and capabilities that can be used as a

basis for developing a competitive advantage in the market. On the other side, the absence of certain strengths may be viewed as a weakness. For example, a strength could be the organization's marketing expertise or a good reputation among customers. In contrary, a weakness could be the lack of a new product or a weak brand name.

Opportunities and threats are external factors. The external environmental Analysis may reveal certain new opportunities for profit and growth or Changes in the external environmental also may present threats to the organization For example, an opportunity could be a developing distribution channel or arrival of a new technology such as the Internet that potentially increase demand for a company's products. In contrary, a threat could be a new competitor in an important existing market or a technological change that makes existing products potentially obsolete.

The SWOT analysis provides information that is helpful in matching the firm's resources and capabilities to the competitive environment in which it operates. As such, it is instrumental in strategy formulation and selection. The following diagram shows how a SWOT Analysis fits into an environmental scan [30]:

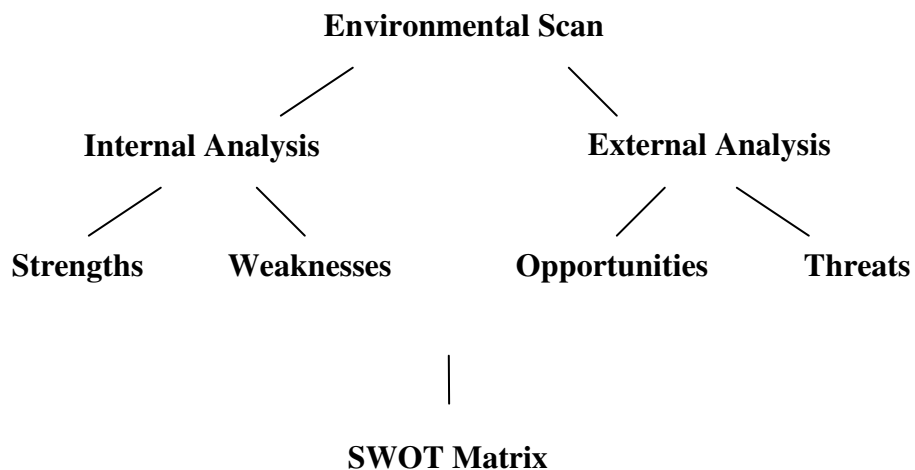


Figure II.7: Swot Analysis Framework [30]

In some cases, a weakness may be the flip side of a strength. Take the case in which a firm has a large amount of manufacturing capacity. While this capacity may be considered a strength that competitors do not share, it also may be considered a weakness if the large investment in manufacturing capacity prevents the firm from reacting quickly to changes in the strategic environment[30].

A firm should not necessarily pursue the more lucrative opportunities. Rather, it may have a better chance at developing a competitive advantage by identifying a fit between the firm's strengths and upcoming opportunities. In some cases, the firm can overcome a weakness in order to prepare itself to pursue a compelling opportunity.

To develop strategies that take into account the SWOT profile, a matrix of these factors can be constructed. The SWOT matrix (also known as a **TOWS Matrix**) is shown below[30]:

SWOT / TOWS Matrix

	Strengths	Weaknesses
Opportunities	S-O strategies	W-O strategies
Threats	S-T strategies	W-T strategies

Figure II.8: Swot Matrix [30]

- **S-O strategies** pursue opportunities that are a good fit to the company's strengths.
- **W-O strategies** overcome weaknesses to pursue opportunities.
- **S-T strategies** identify ways that the firm can use its strengths to reduce its vulnerability to external threats.
- **W-T strategies** establish a defensive plan to prevent the firm's weaknesses from making it highly susceptible to external threats.

II.2.3.6 Mc Kinsey's 7-S Model

The 7-S Framework is a valuable tool to support management thinking and planning when implementing organizational change. The 7-S Framework first appeared in "The Art Of Japanese Management" by Richard Schonberger and Anthony Athos in 1981. They had been looking at how Japanese industry had been so successful, at around the same time that the 7-S Framework model was born at a meeting of the four authors in 1978. It went on to appear in "In Search of Excellence" by Peters and Waterman, and was taken up as a basic tool by the global management consultancy McKinsey: it's sometimes known as the McKinsey 7S model[32].

The 7-S Framework can be defined as[32]:

- **Strategy** -- Plan or course of action leading to the allocation of a firm's scarce resources, over time, to reach identified goals (i.e., distributed vs. centralized processing, technology migration, service level goals, customer relationship management, technology investment, etc.)
- **Structure** -- Characterization of the organization chart (i.e., functional, decentralized, process based, levels of support, functional delineation of duties, etc.)
- **Systems** -- Manual and automated system, procedures, tools and processes which direct the performance of work (i.e., business process infrastructure, standards, policies, procedures, guidelines, software tools, standard services, etc.).
- **Staff** -- "Demographic" description of important personnel categories within the organization (i.e., staff size, compensation, working conditions, career advancement, attitude toward and of the staff, etc.)
- **Style** -- Characterization of management behavior in achieving the organization's goals. Also includes the "cultural" style of the organization (i.e.,

empowerment, work distribution, proactive vs. reactive focus, measurement orientation, business approach, professionalism, etc.)

- **Skills** -- Distinctive capabilities of key personnel or the organization as a whole (i.e., recruiting proficiency and effectiveness, training, cross-training, knowledge transfer, knowledge capture, skills inventory, etc.)
- **Shared Values** -- The significant principals or guiding concepts that an organization instills as values in its members (i.e., Customer-Orientation, Service-Orientation, Results-Orientation, respect, recognition, reward, fairness, betterment, teamwork, community, charity, etc.)

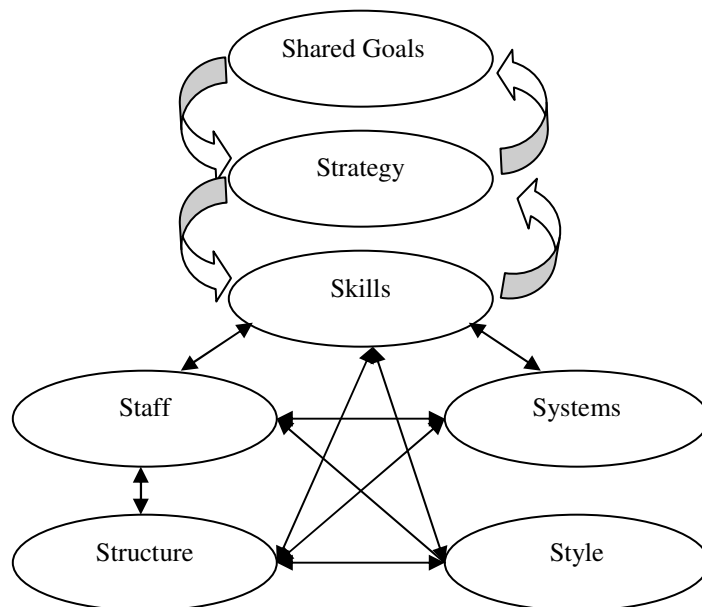


Figure II.9: Mc Kinsey 7-S Framework [31]

By using the MCKINSEY'S 7-S MODEL, the organizations gain the following benefits[32]:

- The 7-S Framework stresses the importance of interaction between all elements of the organization. Managers need to consider all the factors when implementing changes. Every organization has its strengths and weaknesses. The idea of the 7-S Framework is that Structure organization's international

effectiveness depends on the interaction of structure, systems, staffing, skills, style, strategy, and super ordinate goals. These elements are all interconnected and have to be coordinated properly in order to avoid conflicts and bottlenecks. The 7-S Framework is a valuable tool to support management thinking and planning when implementing organizational change.

- The 7-S Framework Structure is the emphasis on the co-ordination of the tasks within the organization. The challenge lies in focusing on those dimensions which are important to the organizations evolution. The organization must be able to refocus as crucial dimensions shift
- The 7-S Framework Systems are the processes which are put into place in order to run the organization from to day to day. Systems can help to make the organization to be more efficient but can also be restrictive or even disruptive. Typical examples of systems are accounting systems and budget systems. Systems can also be technological
- The 7-S Framework is a tool for managerial Analysis and action that provides a structure with which to consider a company as a whole, so that the organization's problems may be diagnosed and a strategy may be developed and implemented. The Seven-S is a Framework for analyzing organizations and their effectiveness. It looks at the seven key elements that make the organizations successful, or not: strategy; structure; systems; style; skills; staff; and shared values.
- To be effective, your organization must have a high degree of fit or internal alignment among the entire 7-S Framework. Each S must be consistent with and reinforce the other Ss. All Ss are interrelated, so a change in one has a ripple effect on all the others. It is impossible to make progress on one without making progress on all. Thus, to improve your organization, you have to pay

attention to all of the seven elements at the same time. There is no starting point or implied hierarchy - different factors may drive the business in any one organization. [32]

II.2.3.7 Pest Analysis

PEST Analysis is an analysis of the external factors that affect a firm's development. PEST Analysis is the acronym for Political, Economic, Social and Technological Analysis.

The PEST Analysis factors combined with external macro-environment factors can be classified as opportunities. The number of macro-environment factors is virtually in practice. The organization must prioritize and monitor those factors that influence its industry[33].

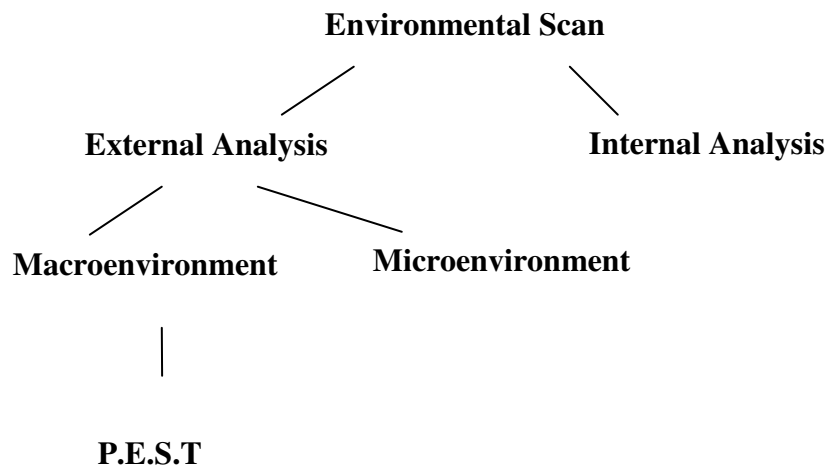


Figure II.10: PEST Analysis PEST Analysis can be expressed in the terms of the following factors[33]:

Political: It includes the legal issues and government regulations. Both formal and informal rules under which a firm must operate are defined by this factor. Political stability is another major factor for industrial growth. Various examples of the laws which effect the industry are:

- Tax policy
- Anti –trust law
- Pricing Regulations
- Employment Laws
- Trade restrictions and tariffs

Economic Factor: A firm's financial stability depends on the type of economic system in countries of operation. The economic factor affects the customer's purchasing power and firm's cost of capital. Various economic factors affecting the growth of a firm are:

- Interest rates
- Exchange rates
- Labor costs
- Skill level of workspace
- Inflation rates

Social Factor: Social factor defines the society which includes demographic and cultural aspects of the external micro – environment. It also plays a key role by affecting the needs of the customer and the size of the potential market. Various examples of social factors are:

- Class structure
- Educational Structure
- Age distribution
- Career Attitudes
- Health consciousness

- Population growth rate

Technology: Last but not the least Technology can lower the barriers to entry and can also reduce minimum efficient productive levels. Various examples are:

- R & D activity
- Impact on cost
- Automation
- Technology incentives
- Rate of Technological change

II.2.3.8 Porter's Five Forces Of Competitive Analysis

Michael Porter has developed a useful frame-work for analyzing a company's immediate and future competitive environment from the customer's point of view. Organizations use Porter's Five Forces to analyze their industry and to create a competitive strategy. This tool attempts to realistically assess potential levels of profitability, opportunity and risk based on five key factors within an industry. This model may be used as a tool to better develop a strategic advantage over competing organizations within an industry in a competitive environment. It identifies five forces that determine the long-run profitability of a market or market segment.

The Competitive Forces Analysis is made by the identification of 5 fundamental competitive forces[33] :

1. **Entry of competitors.** How easy or difficult is it for new entrants to start competing, which barriers do exist.

Barriers to entry deter new competitors from entering the market and creating more competition for established firms. . One example of an industry with high barriers to entry is computer chip manufacturing. The extremely high cost of building a fabrication plant makes entry into this industry very risky. The restaurant industry on the other hand has considerably fewer barriers to entry since

almost everything can be leased and employees need not be highly experienced and trained. (Porter) There are several major barriers to entry and they includes the followings:

- Absolute cost advantages
- Proprietary learning curve
- Access to inputs
- Government or other binding policy
- Economies of scale
- Capital requirements
- Brand identity
- Switching costs
- Access to distribution
- Expected retaliation
- Proprietary products

2. **Threat of substitutes.** How easy can a product or service be substituted, especially made cheaper. **Threat of Substitutes** exist when the demand for a product declines due to either lower prices of a better performing substitute product, low brand loyalty, new current trends, or low switching cost. When threat of substitutes is low the outcome is favorable to the industry, because fewer alternatives exist. Threat of substitutes depends on:

- Switching costs
- Buyer inclination to find alternatives
- Price-performance
- Trade-off of the available substitute products or services

3. **Bargaining power of buyers.** How strong is the position of buyers. Can they work together in ordering large volumes. The power of buyers describes the impact customers have on an industry. When buyer power is strong, the relationship to the producing industry becomes closer to what economists term

a **monopsony**. A Monopsony is a market where there are many suppliers and one buyer. Under these market conditions, the buyer has the most influence in determining the price. Few pure monopsonies actually exist, but there is often a connection between an industry and buyers that determines where power lies.

The supplier power of an industry can be altered in many ways:

- Bargaining leverage
- Buyer volume
- Buyer information
- Brand identity
- Price sensitivity
- Threat of backward integration
- Product differentiation
- Buyer concentration vs. industry
- Substitutes available
- Buyers' incentives

4. **Bargaining power of suppliers.** How strong is the position of sellers. Do many potential suppliers exist or only few potential suppliers, monopoly? An industry that produces goods requires raw materials. This leads to buyer-supplier relationships between the industry and the firms that provide the raw materials. Depending on where the power lies, suppliers may be able to exert an influence on the producing industry. They may be able to dictate price and influence availability. **Supplier power** is the ability of a supplier to control the cost and supply of the inputs in the market. The supplier power of an industry can be altered in many ways:

- Supplier concentration
- Importance of volume to supplier
- Differentiation of inputs

- Impact of inputs on cost or differentiation
- Switching costs of firms in the industry
- Presence of substitute inputs
- Threat of forward integration
- Cost relative to total purchases in industry

5. **Rivalry among the existing players.** Does a strong competition between the existing players exist? Is one player very dominant or are all equal in strength and size. **Degree of rivalry** or the intensity of competition is the final force of Michael Porter's Five-force theory. It depends on:

- Exit barriers
- Industry concentration
- Fixed costs
- Perceived value add
- Industry growth
- Overcapacity status
- Product differences
- Switching costs
- Brand identity
- Diversity of rivals
- Corporate stakes

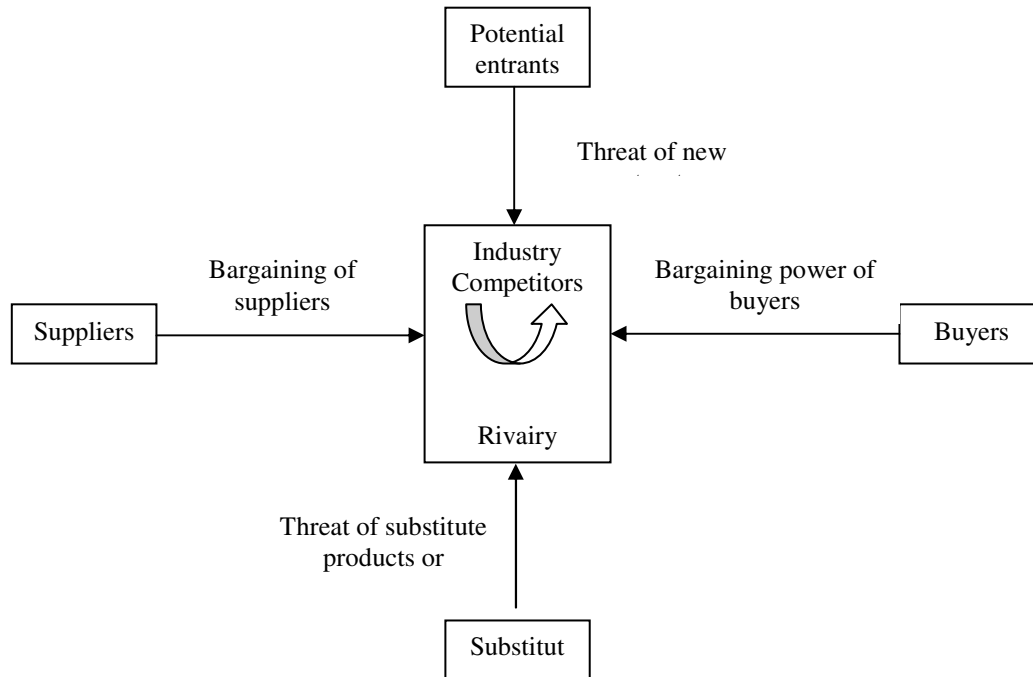


Figure II.11: Porter's Five Forces of Competitive Analysis

II.2.3.9 Core Competence Hamel Prahalad

The core competencies model of Hamel and Prahalad is an inside-out corporate strategy model that starts the strategy process by thinking about the core strengths of an organization. Core Competencies are those capabilities that are critical to a business achieving competitive advantage. The starting point for analyzing core competencies is recognizing that competition between businesses is as much a race for competence mastery as it is for market position and market power. Senior management cannot focus on all activities of a business and the competencies required undertaking them. So the goal is for management to focus attention on competencies that really affect competitive advantage.

A company's core competency is the one thing that it can do better than its competitors. A core competency can be anything from product development to employee dedication. If a core competency yields a long term advantage to the company, it is said to be a sustainable competitive advantage.

The concept of core competencies was developed in the management field. C K Prahalad and Gary Hamel (1990) introduced the concept in a Harvard Business Review article, so called Core Competence Hamel Prahalad. They wrote that a core competency is "an area of specialized expertise that is the result of harmonizing complex streams of technology and work activity." In Core Competence Hamel Prahalad, as an example they gave Honda's expertise in engines. Honda was able to exploit this core competency to develop a variety of quality products from lawn mowers and snow blowers to trucks and automobiles. To take an example from the automotive industry, it has been claimed that Volvo's core competence is safety.

Core Competence Hamel Prahalad has three characteristics:

- A Core Competence provides potential access to a wide variety of markets.
- A Core Competence should make a significant contribution to the perceived customer benefits of the end product.
- A Core Competence should be difficult for competitors to imitate

Core competencies tend to be rooted in the ability to integrate and coordinate various groups in the organization. While a company may be able to hire a team of brilliant scientists in a particular technology, in doing so it does not automatically gain a core competence in that technology. It is the effective coordination among all the groups involved in bringing a product to market that result in a core competence.

It is not necessarily an expensive undertaking to develop core competencies. The missing pieces of a core competency often can be acquired at a low cost through alliances and licensing agreements. In many cases an organizational design that facilitates sharing of competencies can result in much more effective italicization of those competencies for little or no additional cost.

To better understand how to develop core competencies, it is worthwhile to understand what they do not entail. According to Prahalad and Hamel, core competencies are not necessarily about:

- Outspending rivals on R&D
- Sharing costs among business units
- Integrating vertically

While the building of core competencies may be facilitated by some of these actions, by themselves they are insufficient.

It is important to distinguish between individual competencies or capabilities and core competencies. Individual capabilities stand alone and are generally considered in isolation. Gallon, Stillman, and Coates (1995) made it explicit that core competencies are more than the traits of individuals. Core Competence Prahalad Hamel defined as "aggregates of capabilities, where synergy is created that has sustainable value and broad applicability." That synergy needs to be sustained in the face of potential competition and, as in the case of engines, must not be specific to one product or market. So according to this definition, core competencies are harmonized, intentional constructions.

Core Competence Hamel Prahalad can be described as the collective learning and knowledge a business has. The works of Hamel & Prahalad (1989) first brought the notion of core competencies to attention. They take the view that the market, environment, and industry of any business is always turbulent, therefore making it impossible to develop a strategy. The logic of the core competencies was based on applying SWOT and Porter models to identify resource based strategies for growth, in other words your business strategy should be based on the organizations internal environment.

Core competencies are those capabilities that are critical to a business achieving competitive advantage. The starting point for analyzing core competencies is recognizing that competition between businesses is as much a race for competence mastery as it is for market position and market power. Senior

management cannot focus on all activities of a business and the competencies required undertaking them. So the goal is for management to focus attention on competencies that really affect competitive advantage.

Core Competence Hamel Prahalad is present throughout any business, they are often described in relation to competitors, and they would like to state that they see core competencies as being internal to the business. Again the marketing section observes a business in relation to competitors[35].

II.3 ERP

Enterprise Resource Planning systems (ERPs) integrate (or attempt to integrate) all data and processes of an organization into a single unified system. A typical ERP system will use multiple components of computer software and hardware to achieve the integration. A key ingredient of most ERP systems is the use of a single, unified database to store data for the various system modules.[44]

The term ERP originally implied systems designed to plan the utilization of enterprise-wide resources. Although the acronym ERP originated in the manufacturing environment, today's use of the term ERP systems has much broader scope. ERP systems typically attempt to cover all basic functions of an organization, regardless of the organization's business or charter. Business, not-for-profit organizations, governments, and other large entities utilize ERP systems.[44]

Enterprise resource planning is a term derived from manufacturing resource planning (MRP II) that followed material requirements planning (MRP). MRP evolved into ERP when "routings" became major part of the software architecture and a company's capacity planning activity also became a part of the standard software activity. ERP systems typically handle the manufacturing, logistics, distribution, inventory, shipping, invoicing, and accounting for a company. Enterprise Resource Planning or ERP software can aid in the control of many

business activities, like sales, delivery, billing, production, inventory management, quality management, and human resources management.[43]

ERPs are cross-functional and enterprise wide. All functional departments that are involved in operations or production are integrated in one system. In addition to manufacturing, warehousing, logistics, and Information Technology, this would include accounting, human resources, marketing, and strategic management.[43]

In the late 1990s, ERP became the accepted solution for larger organizations, as they sought to gain corporate advantage from the automation and integration of the separate parts of their businesses as well as solving business problems. Installing ERP is fundamentally about business change, re-engineering and automatically linking activities across the organization to form processes, changing working practices and delivering information electronically across the organization. The impact of these technological developments on the organization is profound. The new systems are changing not only the method of operation by adding a few new features and some extra functionality but the whole structure of the traditional organization. The major suppliers of ERP systems include SAP, Oracle, BAAN and Peoplesoft in the large-company marketplace down to Sage in the SMEs and dozens in between including JD Edwards and Scala.

Organizations depend on the measurement and Analysis of performance. ERP systems provide support to execute strategic plans for even to the smallest manufacturing company. the future competitive advantage is based on a series of uncertain events: the company' dealing way with those events is important for the company' success. Enterprise Resource Planning is a comprehensive tool for integrating accounting, strategic planning, sales order management, quality control, manufacturing, logistics and warehousing.

Such measurements should derive from business needs and strategy, and they should provide critical data and information about key processes, outputs, and results. Many types of data and information are needed for performance

management. Performance measurement should include customer, product and service performance; comparisons of operational, market, and competitive performance; and supplier, employee, and cost and financial performance(in other words, strategic business performance).

II.3.1 ERP IMPLEMENTATION

Because of their wide scope of application within the firm, ERP software systems rely on some of the largest bodies of software ever written. Implementing such a large and complex software system in a company used to involve an army of analysts, programmers, and users. This was, at least, until the development of the Internet allowed outside consultants to gain access to company computers in order to install standard updates. ERP implementation, without professional help, can be a very expensive project for bigger companies, especially transnationals. Companies specializing in ERP implementation, however, can expedite this process and can complete the task in under six months with solid pilot testing. Enterprise resource planning systems are often closely tied to supply chain management and logistics automation systems. Supply chain management software can extend the ERP system to include links with suppliers.[45]

By implementing ERP software, among other things, combined the data of formerly disparate applications. This made the worry of keeping employee numbers in synchronization across multiple systems disappear. It standardised and reduced the number of software specialties required within larger organizations. It enabled reporting that spanned multiple systems much easier. And it allowed for the development of higher level Analysis functions enabling larger organizations to identify trends with in the organization and make appropriate adjustments more quickly.

Miller and Cardinal (1994) argue that strategic planning positively influences financial performance of an organisation. They investigated how firm size, capital intensity and environmental turbulence influence performance in firms with different degrees of formal strategic planning. The authors concluded that the mean correlations support the thesis that planning positively affects growth and profitability. The correlations show a fairly large fluctuation ($-0.30 < R^2 < 0.71$), but are skewed towards positive performance. They also concluded that stronger planning-profitability correlations emerge when firms face turbulent environments (Miller and Vaughan 2001, 1658).[20]

The following framework determines the problems and challenges managers face and have to solve in order to gain sustained ERP advantages. The end product is the ERP resource management process framework illustrated below[42]:

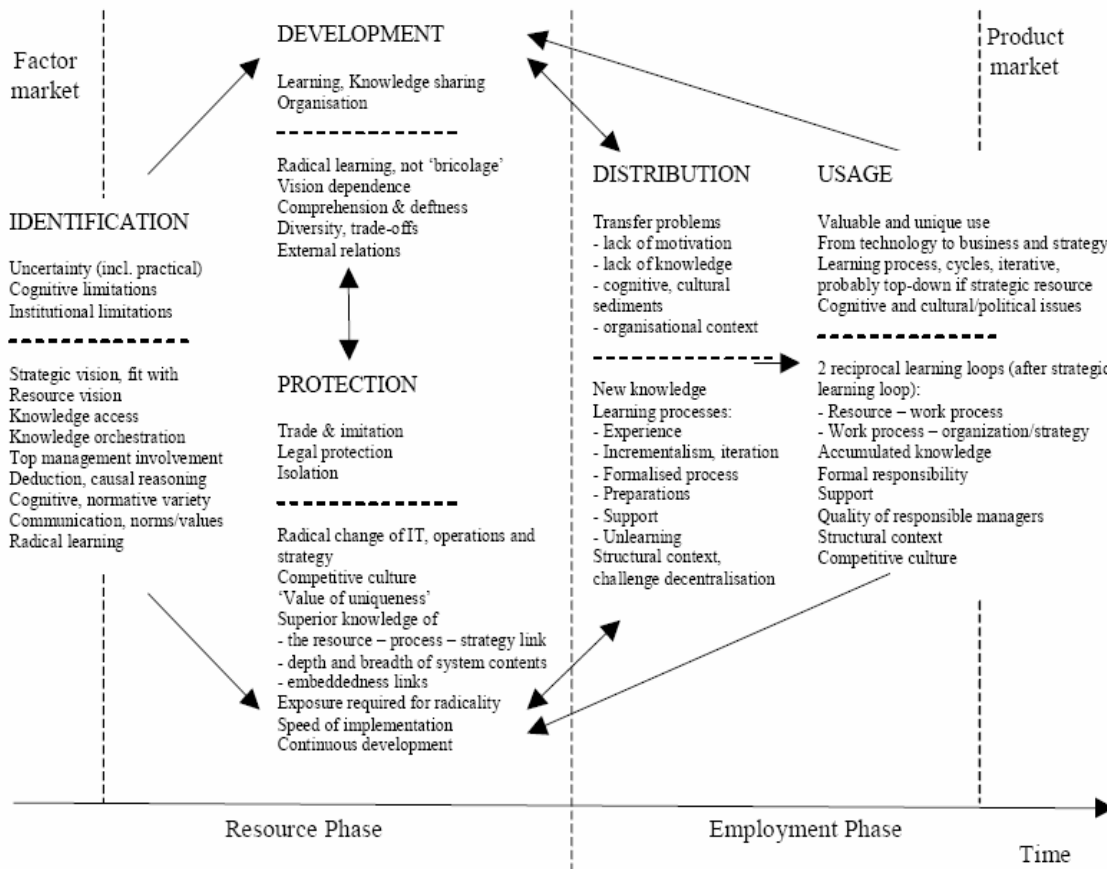


Figure II.12: Enterprise resource Planning Process Framework

In the above framework, during **identification** phase, uncertainty, cognitive limitations and social limitations affect decision-making. identification is about managing knowledge and culture to ensure that resource ventures are related to strategy and fit with the knowledge and culture of the organisation.

In **protection** resource phase, is important to protect resources from being acquired or otherwise obtained by competitors. Unique historical conditions, social complexity and causal ambiguity are factors that hinder imitation and substitution(Barney, 1991). Roughly, there are two ways to protect resources: by legal arrangements or by 'isolating' the resource (Collis, 1996). However, legal protection can be costly. Property rights and patent applications require costly administration and still have limited duration, a more undisclosed organisation

constrains communication, and so forth (Liebeskind, 1996). Other ways to protect resources include isolationistic measures, e.g., preservative actions such as external resource acquisition and deterrence. However, apart from isolating the resource by means of increasing social complexity and causal ambiguity, organisations can also sustain uniqueness by continuously developing the resource. Flexible, modular resources and the ability to create alternative resources may help firms to ‘protect by developing’ (Rotem & Amit, 1997). In the **resource development** phase, a resource is valuable if it helps the firm implement strategies that reduce costs or increase sales turnover (Barney, 1991). Protection is costly and about making sure to balance spending on patenting, deterrence, etc. with the benefits of uniqueness. Certain resources are not worth protecting. In the **internal distribution** of resources phase; Strategic resources need to be organised and leveraged across intraorganisational boundaries and used in as many product applications as relevant, given the costs associated with internal resource transfers (Prahalad & Hamel, 1990; Barney, 1994; Szulanski, 1996). Resource distribution requires efforts both by the source and the recipient of knowledge. It also requires a facilitating management style, supporting through incentives and structure. Finally, with the **usage** phase, the case implies that usage consists of attempts to have a *valuable and unique use* of the system. The superior knowledge of the system and the interrelations between the system, the operations and strategy served as the platform for advantages.[42]

II.3.2 ERP IMPACT ON OVERALL BUSINESS PERFORMANCE

Resources, described as the “life’s blood of an enterprise” (Kefalas 1979), have been identified as necessary components for the accomplishment of any entrepreneurial activity and achievement of desired firm performance (Penrose 1972). The resource-based view of the firm identifies resources as the sources of competitive advantage of firms (Penrose 1972, Barney 1991) hence the relevance of identifying resources that would enhance competitive advantage. Although

entrepreneurs may begin to pursue entrepreneurial opportunities without regard to resources currently under their control (Stevenson and Jarillo 1990), they have to acquire resources to fully exploit discovered opportunities, and combine the resources to maximize on the opportunities at a profit (Shane and Venkataraman 2000, Shane 2003). The resource dependence theory highlights resource acquisition strategies that firms take to so as to avoid being controlled by the resource providers (Pfeffer and Salancik 2003, Oliver 1991)[10]

Today, organizations that are leaders in their markets and industries (“Market Leaders”) are better at using IT to enable business strategy. Market Leaders deploy IT more strategically, and in doing so maximize the impact IT has on corporate performance. Companies recognized as leaders in their market or industry (“Market Leaders”) were selected based on their overall business performance (revenue growth and profitability), as well as their business performance within their respective industries (revenue, net income, gross margin, operating expenses, and market share). Optimizing business performance by using ERP is getting more important.

Studies show improvements, such as business process improvement, increased productivity and improved integration between business units (Davenport, 2000; Hedman & Borell, 2002; Hitt, Wu, & Zhou, 2002; Howcroft & Truex, 2002; Masini, 2001; Murphy & Simon, 2001; Poston & Grabski, 2001; Shang & Seddon, 2000). In order to achieve these benefits, organizational changes are required (Van der Zee & De Jong, 1999). Thereby, ERP systems are often assumed to be a deterministic technology, since organizations have to align their organizational structure, business processes and workflow to the embedded logic of the ERP system (Glass, 1998). However, the casual relationship between ERP systems and organizational change has been questioned (Boudreau & Robey, 1999). The impact and benefit of ERP systems is unclear (Andersson & Nilsson, 1996). [12] The purpose of this study is to evaluate the market leading ERP system, i.e. SAP R/3 Enterprise, JD Edwards, in order to increase the understanding of how ERP systems may affect organizations strategic business performance.

The attempt to totally eliminate process variation has recently influenced the development of process management technologies that, in maintaining an integrated view of the effects of business decisions, are identifying opportunities to eliminate waste through the decision process based on integrated and shared awareness. The result expected would be an improved decision process, fewer errors, improved communication, better inventory control, improved customer satisfaction and consequently improved performance.

Through the advances in information technology, a number of enterprise software packages have hit the business market; products that help enhance decision making for optimal performance and competitive advantage, e.g., SAP, Baan, PeopleSoft, and Oracle (Jeffery and Morrison 2000; Brady, Monk et al. 2001). These are examples of software proposed as fully integrated families of business management-applications that [45]:

- Improve business decisions and coordination through increased knowledge,
- Extend supply chain support beyond the boundaries of an organization, and
- Provide operational flexibility that businesses require in order to be leaders in their marketplace.

These and similar technologies provide the organization with a knowledge-foundation and cooperative thinking that facilitates the decision process. Not only does the right hand know what the left hand is thinking, but also, both act in concert. Consequently, all parts of the system focus on achieving the same result (Lingle&Nygreen,2001).[45]

The Possible advantages of ERP on overall business performance can be defined as the following:

- Integrate data to one single enterprise database, ensuring just one version of the truth.
- Standardize systems and processes across the whole organization.
- Optimize the processes.
- Save time.
- Reduce costs.

- Increase productivity.
- Reduce headcount.
- Improve profitability.
- Improve competitiveness.
- Facilitate a culture change within the organization.
- Improve communications throughout the business.
- Improve the customer relationship by providing a more efficient and effective service.
- Improve relationships with suppliers and other partners.
- Enable e-business and e-commerce.

PART III: THESIS

III.1 RESEARCH METHODOLOGY

The model developed in this study consider the ERP as a key factor for the company' strategic management. For that purpose, it investigates the impact of ERP on effort, efficiency and productivity of the company. In the initial phase, hypotheses defined and specific questionnaires prepared in Likert scales(1-9 scale). And finally analysis of these questionnaires is accomplished by applying Minitab.In this section applied methods and the key definitions will be briefly overviewed.

III.2 MODEL DEVELOPMENT

III.2.1 VARIABLE DEFINITIONS

In this section, the main variables which are the basis of the developed model are defined. This study investigating the ERP's impact on these variables. For instance; ERP provides effective management and organization's strategic analysis tools and managers are able to analyse their organizations more transparently which influence the directions of the management.Strategic leadership, to maintain the balance of the socio-technical system, will influence employees, teams and the organization's attitudes of behaviour and motivation, and thereby the level of organisational performance and strategy effectiveness.The survey questions established based on the ERP advantages which has potential to

affect the strategic business performance level of the firm including the following variables for developing a theoretic model .

III.2.1.1 Effort

Employee satisfaction can be defined as the degree to which employees like their jobs ;it is simply how employees feel about their jobs and different aspects of their jobs. It is the extent to which employees like (satisfaction) or dislike (dissatisfaction) their jobs.In this study, employee satisfaction is one of the key factors affecting the effort of the employee.

Many factors may affect employee job satisfaction or effort. Effort is not a static state but is subject to influence and modification from forces within and outside an individual, which are related with his or her own personal characteristics and the working environment . Among them are, for example; job , position satisfaction . In this study effort variable is defined for the use of physical or mental energy of the employee(the effort of the employee)

III.2.1.2 Efficiency

The effectiveness of an organization is its ability to create acceptable outcomes and actions. Efficiency can be defined as the quality or property of being efficient of a division of a business specializing in a particular product or service. In this study, efficiency variable defined as the measure of how well a division (such as production, sales &marketing department) uses its inputs to produce its outputs.

Inputs incorporate all the resources used to produce goods or deliver services. These may be human and financial, as well as the use of assets e.g. office space.

Outputs are the goods produced or services provided by an organisation. Crucially, outputs should be measured for both quality and quantity. The quality of outputs is often harder to determine than their quantity. However, with the correct techniques, quality can be measured by considering factors such as the reliability, accuracy and timeliness of outputs.

III.2.1.3 Productivity

Productivity is a measure of how efficiently the inputs of an organisation converted to outputs. In this study productivity variable is considered as measure of how well an organization uses its inputs to produce its outputs.

III.2.2 HYPOTHESES DEVELOPMENT

The environment of organisations has changed over the years and is changing continuously. Business is done at global level now more than ever before. It means that competition is also increasing in local markets. ERP has been widely implemented in various firms around the world. ERP is now considered by virtually all leading firms and quality practitioners as the way forward, to gain a competitive edge. There are many discussions about the benefits of implementing ERP. Many organisations have arrived at the conclusion that effective quality management can improve their competitive abilities and provide strategic advantages in the marketplace. In recent years, much research has been conducted on the positive effects of ERP implementation positive effects on employee satisfaction, product quality, customer satisfaction. So far to the best of my reading knowledge I have not found any impact of ERP on effort, efficiency and productivity. Thus, in this thesis we're going to show and prove that there is relationship between the ERP and the effort, efficiency and productivity as a result organization overall performance.

Based on these research findings, the following five hypotheses were proposed for understanding whether ERP has a positive effect on strategic business performance:

- **Hypothesis H11** : ERP implementation has a positive effect on employee effort.

- **Hypothesis HI2** : ERP implementation has a positive effect on division efficiency.
- **Hypothesis HI3** : ERP implementation has a positive effect on company's productivity.
- **Hypothesis HI4** : Employee effort has a positive effect on business division efficiency.
- **Hypothesis HI5** : Division efficiency has a positive effect on company's productivity.

In a company, with their extra efforts, employees are the ones who can produce high quality products and deliver satisfaction to customers. As a result, employees will contribute to improving product quality and customer satisfaction and contribute their best performance to ensure the success of the company through improving product quality and customer satisfaction. Many researches proved that product quality has many benefits on strategic business performance. Primrose and Leonard (1988) suggested that product quality has a direct effect on sales, and consequently profits, and Anderson et al. (1994) suggested that product quality has a positive impact on customer satisfaction, providing high quality products and high customer satisfaction is rewarded by economic returns. Therefore, the following two hypotheses were proposed:

- **Hypothesis HD1**: Employee effort has a positive effect on product quality.
- **Hypothesis HD2**: Employee effort has a positive effect on customer satisfaction.
- **Hypothesis HD3**: Division efficiency has a positive effect on product quality.
- **Hypothesis HD4**: Division efficiency has a positive effect on customer satisfaction.
- **Hypothesis HD5**: Company's productivity has a positive effect on product quality.

- **Hypothesis HD6:** Company's productivity has a positive effect on customer satisfaction.
- **Hypothesis HD7:** Product quality has a positive effect on customer satisfaction.
- **Hypothesis HD8:** Product quality has a positive effect on strategic business performance.
- **Hypothesis HD9:** Customer satisfaction has a positive effect on strategic business performance.

III.2.3 MODEL FORMULATION

Based on the above five hypotheses, a theoretical model of ERP implementation and overall business performance was developed, and is displayed in Figure. The links between ERP implementation, employee effort, division efficiency, company's productivity, customer satisfaction, and strategic business performance are incorporated in one single model.

In these five hypotheses, ERP implementation is an independent variable and employee effort, division efficiency, company's productivity, product quality, customer satisfaction, and strategic business performance are dependent variables. In the first five hypotheses (HI1, HI2,.. HI5), the relationships between the independent variable (ERP implementation) and dependent variables are examined. In the last nine hypotheses (HD1, HD2,...HD9), the relationships among the six dependent variables are studied. To the best of my knowledge, the relationships between ERP implementation and employee effort, division efficiency, company's productivity, product quality, customer satisfaction, and strategic business performance is not researched in a single model.

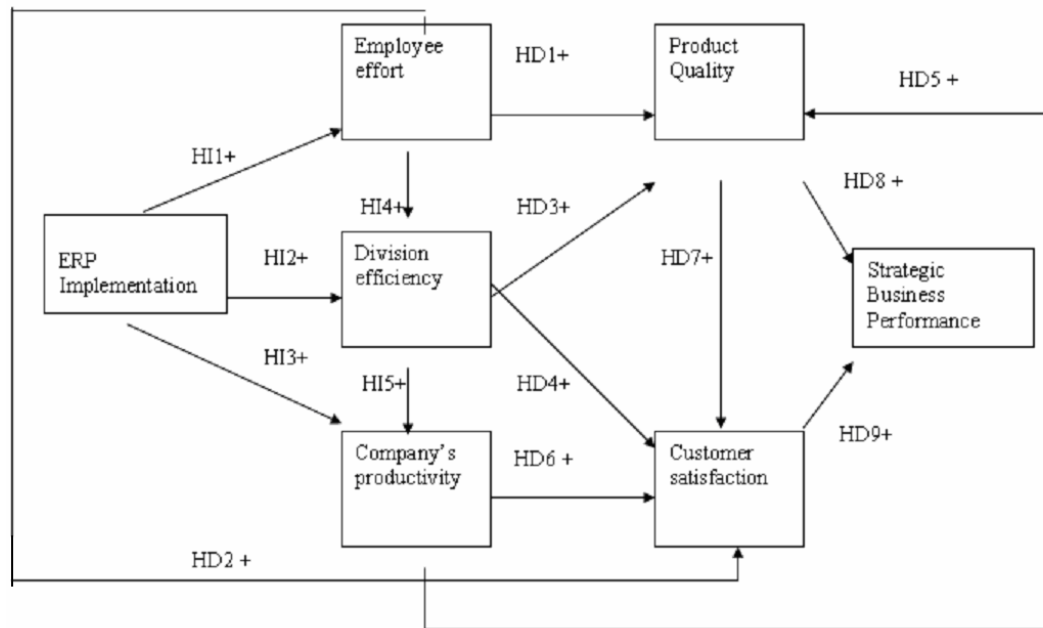


Figure III.1: Theoretical Model of ERP impact on Strategic Business Performance

PART IV: RESULTS

The first part of this study includes the extensive literature review on strategic management and business performance including employee satisfaction, product quality, customer satisfaction, and strategic business performance (annual sales, sales growth, profits, market share, and exports) within the organizations. The evolution of strategic management and ERP is reviewed.

Thus, a model of ERP implementation and overall business performance was formulated on the basis of the hypothesis. The links between ERP implementation and effort, efficiency, productivity, product quality, customer satisfaction, and strategic business performance are incorporated in a single model and supported with the surveys to the manufacturing firms from different sector. The one of the organization is the leading global manufacturing company in Turkey, Amcor Whitecap is a leading global packaging company focused on packaging solutions to the consumer products .The second one is Kutahya Porcelain, which is the leading manufacturing company in its sector.The company's principal activities are the production and marketing of porcelain, tile and ceramic products . The third one is Arçelik The leader manufacturing firm of the household appliance sector in Turkey. All the three organizations are using ERP more than a year. Likert scale(1-9) and minitab used for analysing the surveys for the theoric model.

The measurement instruments were empirically evaluated using the data from 155 employees ,the related departmens of these manufacturing firms and.Correlation Analysis, Descriptive Analysis and Regression Analysis were used for instrument evaluation. Finally, it was concluded that the instruments for measuring ERP implementation and strategic business performance are reliable and valid.

The objective of implementingERP is to improve the company's overall business performance.Therefore, overall business performance should be

evaluated regularly. Otherwise, the effects of implementing ERP remain unclear and more effective ERP implementation approaches cannot be formulated. Strategic business performance is the highest level of a firm's business performance, The model based on the reflecting the firm's efforts in implementing ERP, enhancing employee satisfaction, improving product quality, and increasing customer satisfaction. Typical measures of strategic business performance are as follows:

- Annual sales;
- Annual sales growth;
- Profits;
- Product costs;
- Return of investment

The survey results evaluated by using descriptive, correlation and regression Analysis. Minitab was used to test the statistical Analysis. As a result from the correlation Analysis it is determined that:

<i>Correlation Analysis</i>	Effort	Efficiency	Productivity
ERP implementation	0,375	0,518	0,945

Table IV.1: Correlation analysis between Effort, Efficiency and Productivity

From the above results, it is clear that there is no strong correlation between ERP implementation and the effort. This result can be interpreted with the regression result as;

$$\text{EFFORT} = 3,35 + 0,464 \text{ ERP}$$

$$\text{ERP coefficient } 0,464 \text{ and } R\text{-Sq} = 14,1\% \quad R\text{-Sq(adj)} = 13,1\%$$

The R-square value of about 14,1% says that about 14,1% of the variability in EFFORT can be "explained" in terms of the ERP. As a result ERP implementation has no strong positive impact on effort as stated in the hypothesis HI1: ERP implementation has a positive effect on employee effort. Also ERP → Efficiency has the following result from the regression analysis with R-Sq = 26,8% and ERP coefficient 0,2679. Similarly, we can say that ERP → Efficiency has no strong positive impact on Efficiency as stated with the Hypothesis HI2: ERP implementation has a positive effect on division efficiency as a result of the following equation;

$$\text{EFFICIENCY} = 5,70 + 0,268 \text{ ERP}$$

On the contrary, there is a positive correlation between ERP implementation → Productivity. As seen from the above correlation Analysis, it is clear that there is a strong correlation between especially ERP implementation and Productivity. From the regression Analysis, it can be seen that R-Sq = 89,3% says that about 89,3 % of the variability in PRODUCTIVITY can be "explained" in terms of the ERP. And the equation supports the correlation Analysis with the coefficient of ERP 0,7143 ;

$$\text{PRODUCTIVITY} = 3,29 + 0,714 \text{ ERP}$$

As a result, it is clear that ERP implementation has a positive effect on company's productivity as stated in Hypothesis HI3. The regression Analysis results are summarized in the following table:

Table IV.2: ERP implementation direct relationship between Effort and Efficiency

<i>R2</i>	<i>Equation</i>	<i>Coefficient</i>	<i>Dependent Variable</i>
14,1%	EFFORT = 3,35 + 0,464 ERP	0,464	EFFORT
26,8%	EFFICIENCY = 5,70 + 0,268 ERP	0,268	EFFICIENCY
54,9%	EFFICIENCY = 3,36 + 0,629 EFFORT	0,6290	EFFICIENCY

Because of the sample size ($n < 10$), the other hypothesis couldn't be tested with regression analysis.

PART V: DISCUSSIONS AND EVALUATIONS

In this section , research findings, limitations and future research perspectives are discussed.

V.1 CONCLUSIONS

Using perceptual measures, this study aims to investigate the influence of integrated ERP implementation impact on the strategic business performance through effort, efficiency and productivity variables. For this purpose, the theoretic model developed based on relationship between ERP and effort, efficiency , productivity. Survey questionnaires were gathered from 155 users from three manufacturing firms located in Turkey. From the notes field of the surveys, it is clear that some of the employees insists to use the old IT sytem and there is a lack of adaptation to the new ERP system even these firms use ERP more than one year. As a result employee satisfaction level is not correlated with the ERP implementation. On the other hand, from the managers perspective (department and company's manager) , ERP's advantages overweigh its costs and ERP provides effective management tools to optimize the organization's productivity level.

V.2 RESEARCH LIMITATIONS

The research has been completed. It is necessary to evaluate this study in the context of its limitations. First, data used to test the theoretical models came from only 155 employee of three manufacturing firms which using ERP more than a

year. One of the disadvantages of the study is the employee satisfaction related survey questions. Many companies did not want to give their secure organization data such as employee satisfaction , profitability level...etc. Second, the measure of perceived employee satisfaction in particular is relatively weak, because it asked respondents for their general perception of employee satisfaction in their respective firms. Customer satisfaction data were obtained from respondents (managers of the firms) rather than customers.As a result, the number of surveys which queries the strategic business performance level, product quality, customer satisfaction and productivity is limited with the number of the manufacturing firms.In other words, the company' strategic business performance related questions were filled by only one respondent for each firm.

V.3 FUTURE RESEARCH PERSPECTIVES

In an exploratory study such as this, recommendations for future research would address the issues generated from this study. Based on these findings, future research may start from a relatively higher level of knowledge. Further empirical studies using larger sample sizes, greater geographical diversity, and firm type diversity would be helpful in validating specific parts of the theoretical models proposed in this study.

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APPENDICES

APPENDIX A : SURVEYS AND SAMPLE RESPONSES

**APPENDIX B : DESCRIPTIVE STATISTIC ANALYSIS
OF SURVEY RESPONSES**

**APPENDIX C : CORRELATION ANALYSIS OF SURVEY
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RESPONSES**

APPENDIX A: SURVEYS AND SAMPLE RESPONSES

A.1. EFFORT SURVEY

Please state the perceived overall employee effort and satisfaction level comparing with the situation before ERP implementation in your firm. Check the number between “1” and “9” to 1 decimal place (Ex. [X]7) **Scale chosen will reflect importance you load on the item with following expressions (Ex. 1= strongly disagree- 9= Strongly agree)**

1. After using ERP, I m more satisfied with the company I work for.

[]1 []2 []3 []4 []5 []6 []7 []8 []9

2. After using ERP, I m more satisfied with the position I work for.

[]1 []2 []3 []4 []5 []6 []7 []8 []9

3. I would refer a friend to apply for a job at this company

[]1 []2 []3 []4 []5 []6 []7 []8 []9

4. The company clearly communicates its goals and strategies to me.

[]1 []2 []3 []4 []5 []6 []7 []8 []9

5. I receive enough opportunity to interact with other employees on a formal level.

1 2 3 4 5 6 7 8 9

6. I believe that my colleagues use the information technology tools effectively

1 2 3 4 5 6 7 8 9

7. I believe that my colleagues use the ERP functions which is related to their work effectively

1 2 3 4 5 6 7 8 9

8. My job requirements are clear and it affects my effort positively .

1 2 3 4 5 6 7 8 9

9. I find the system easy to use

1 2 3 4 5 6 7 8 9

10. My colleagues are more motivated and more affected to see the division succeed

1 2 3 4 5 6 7 8 9

Notes:

A.2. SAMPLE EFFORT SURVEY

Departman: Bilgi İşlem

Lütfen ERP kullanımı öncesinde ki çalışan memnuniyeti ve performansı ile karşılaştırarak , aşağıdaki soruları yanıtlayan tüm seçeneklere 1 ile 9 arasında puan veriniz.(Ör: [X] 7) .Verdiğiniz değer, ilgili soruya yüklemiş olduğunuz değeri belirlemektedir.(Ör: 1= Hiç Katılmıyorum - 9= Tamamen katılıyorum)

1. ERP kullanmaya başladıktan sonra çalıştığım şirketten daha fazla memnunum .

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [X] 9

2. ERP kullanmaya başladıktan sonra, şirketteki pozisyonumdan daha fazla memnunum.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [X] 8 [] 9

3. Arkadaşıma bu firmada çalışmasını öneririm.?

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [X] 8 [] 9

4. Çalıştığım firmayı hedeflerini ve stratejilerini gerçekleştirmeye daha yakın buluyorum.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [X] 9

5. İş ortamında, diğer çalışanlarla daha fazla iletişim kurabiliyorum

1 2 3 4 5 6 7 8 9

6. İş arkadaşlarım, bilgi teknolojilerini (bilgisayar araçları/ fonksiyonları) etkin kullanabiliyor.

1 2 3 4 5 6 7 8 9

7. İş arkadaşlarım, kendi iş tanımı kapsamındaki ERP fonksiyonlarını etkin kullanabiliyor.

1 2 3 4 5 6 7 8 9

8. İş tanımım belirgin ve bu daha etkin çalışmamı sağlıyor.

1 2 3 4 5 6 7 8 9

9. Sistemin kullanımı kolay .

1 2 3 4 5 6 7 8 9

10. İş arkadaşlarımın, çalıştığım departmanın/takımın başarıya ulaşmasına etkisi ve iş performansları arttı.

1 2 3 4 5 6 7 8 9

Notlar:

A.3. EFFICIENCY SURVEY

Department:

Please state the perceived overall division/team efficiency level comparing with the situation before ERP implementation in your firm. Check the number between “1” and “9” to 1 decimal place (Ex. [X] 7) **Scale chosen will reflect importance you load on the item with following expressions (Ex. 1= strongly disagree- 9= Strongly agree)**

1. The division I worked for, clearly communicates its goals and strategies.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

2. I believe that ERP provides better management tools for the division performance Analysis (e.g. decision-making, planning)?

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

3. I believe that ERP solution has enhanced division’s efficiency.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

4. I have noticed positive changes in my friends perceptions of job understanding.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

5. I believe that teamwork is increased by using ERP?

1 2 3 4 5 6 7 8 9

6. I believe that spent idle time is decreased by using ERP?

1 2 3 4 5 6 7 8 9

7. I think that turnovers decreased?

1 2 3 4 5 6 7 8 9

8. Do you think that absences increased after ERP implementation?

1 2 3 4 5 6 7 8 9

9. The company' supply and demand volume is increased .

1 2 3 4 5 6 7 8 9

10. I m satisfied with my employee' effort?

1 2 3 4 5 6 7 8 9

11. I m satisfied with my division' efficiency.

1 2 3 4 5 6 7 8 9

12. Are you getting any other satisfaction/opportunities from the ERP implementation? Yes/ No

Yes No

Notes:

A.3. SAMPLE EFFICIENCY SURVEY

Departman:

Lütfen ERP kullanımı öncesinde ki departman/takım performansı ile karşılaştırarak , aşağıdaki soruları yanıtlayan tüm seçeneklere 1 ile 9 arasında puan veriniz.(Ör: [X] 7) .Verdiğiniz değer, ilgili soruya yüklemiş olduğunuz değeri belirlemektedir.(Ör: 1= Hiç Katılmıyorum - 9= Tamamen katılıyorum)

- (1) Çalıştığım departman/takımı hedeflerini ve stratejilerini gerçekleştirmeye daha yakın buluyorum

[] 1 [] 2 [] 3 [] 4 [] 5 [X] 6 [] 7 [] 8 [] 9

- (2) SAP nin departman/takım performansını analiz eden daha faydalı yönetim araçları sağladığını düşünüyorum (ör: karar-verme, planlama).

[] 1 [] 2 [] 3 [] 4 [] 5 [X] 6 [] 7 [] 8 [] 9

- (3) SAP kullanımıyla birlikte departman/takım performansının arttığını düşünüyorum.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [X] 9

- (4) Çalışanlarda işi algılama şeklinde pozitif değişim farkettim.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

(5) Takım çalışmasının arttığını düşünüyorum.

1 2 3 4 5 6 7 8 9

(6) Harcanan atıl/boş zamanın azaldığını düşünüyorum.

1 2 3 4 5 6 7 8 9

(7) Daha fazla iş miktarının daha kısa sürede tamamlandığını düşünüyorum.

1 2 3 4 5 6 7 8 9

(8) Çalışanların iş değiştirme oranında azalma olduğunu farkettim.

1 2 3 4 5 6 7 8 9

(9) Firmanın tedarik ve talep hacminin arttığını ve bu nedenle yapılan iş miktarının arttığını düşünüyorum

1 2 3 4 5 6 7 8 9

(10) Çalışanın performansının arttığını düşünüyorum

1 2 3 4 5 6 7 8 9

(11) Departman/takımın performansından memnunum.

1 2 3 4 5 6 7 8 9

(12) SAP uygulaması sonrasında başka edinilen fırsatlar/memnuniyetleriniz var mı?
(Eğer evetse, lütfen aşağıya bu fırsatları/memnuniyetleri belirtirmisiniz) .

Evet Hayır

Notlar: SAP uygulaması ile dünya çapında temeli sağlam firmaların kullandığı teknolojinin bir eşini daha kullanmaya başladık. Her geçen gün yeni çıkış noktaları yakalamak için sürekli çalışmamız sayesinde IT departmanı dinamizm kazanmıştır.

A.4. PRODUCTIVITY SURVEY

Please state the perceived overall company's productivity level comparing with the situation before ERP implementation in your firm. Check the number between "1" and "9" to 1 decimal place (Ex. [X] 7) **Scale chosen will reflect importance you load on the item with following expressions (Ex. 1= strongly disagree- 9= Strongly agree)**

1. The company clearly communicates its goals and strategies

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

2. ERP solution has enhanced company' productivity.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

3. ERP affected the organization' planning and organizing positively?

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

4. ERP affected the organization' directing and coordinating positively?

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

5. I believe that the benefits of implementing an ERP system outweigh the costs.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

6. I believe that ERP solution has reduced the company's business risk?

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

7. I believe that ERP Provide better management tools for the company's performance analysis (e.g. decision-making, planning).

1 2 3 4 5 6 7 8 9

8. I believe that the company is more motivated to succeed.

1 2 3 4 5 6 7 8 9

9. Division/team performance increased.

1 2 3 4 5 6 7 8 9

10. Division /team performance positively affected the company's productivity

1 2 3 4 5 6 7 8 9

11. If my company had the opportunity to implement a non-ERP solution again today, our approach would be largely the same?

1 2 3 4 5 6 7 8 9

Notes:

A.4. SAMPLE PRODUCTIVITY SURVEY

Lütfen ERP kullanımı öncesinde ki firma verimliliğiyle karşılaştırarak , aşağıdaki soruları yanıtlayan tüm seçeneklere 1 ile 9 arasında puan veriniz.(Ör: [X] 7) .Verdiğiniz değer, ilgili soruya yüklemiş olduğunuz değeri belirlemektedir.(Ör: 1= Hiç Katılmıyorum - 9= Tamamen katılıyorum)

1. İşletmeyi hedeflerini ve stratejilerini gerçekleştirmeye daha yakın buluyorum.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [X] 8 [] 9

2. ERP kullanımı (işletme kaynak yönetimi) firmanın verimliliğini arttırdı

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

3. ERP kullanımı(işletme kaynak yönetimi) işletmenin planlama ve organizasyonunu pozitif etkiledi.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

4. ERP kullanımı(işletme kaynak yönetimi) işletmenin yönetim ve koordinasyonunu pozitif etkiledi

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

5. ERP kullanımının (işletme kaynak yönetimi) avantajları/kazanımları, maliyetlerini aşmaktadır.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

6. ERP çözümünün işletmenin riskini azalttığını düşünüyorum

1 2 3 4 5 6 7 8 9

7. ERP çözümünün, işletmenin performans analizinde (ör: karar verme, planlama) daha iyi yönetim araçları sunduğuna inanıyorum.

1 2 3 4 5 6 7 8 9

8. İşletmenin başarıya ulaşması için gerekli motivasyon arttı.

1 2 3 4 5 6 7 8 9

9. Departman /takım performansı arttı.

1 2 3 4 5 6 7 8 9

10. Departman /takım performansı, işletme verimliliğini arttırdı.

1 2 3 4 5 6 7 8 9

11. Eğer işletmenin bugün yine ERP dışı bir çözüm uygulama olanakı olsaydı, yaklaşımımız büyük olasılıkla aynı olurdu ve ERP kullanımını tercih ederiz.

1 2 3 4 5 6 7 8 9

Notlar:

A.5. PRODUCT QUALITY SURVEY

Please state the perceived overall product quality level comparing with the situation before ERP implementation in your firm. Check the number between “1” and “9” to 1 decimal place (Ex. [X] 7) **Scale chosen will reflect importance you load on the item with following expressions (Ex. 1= strongly disagree- 9= Strongly agree)**

1. The performance of your primary products is increased.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

2. The conformity rates of your primary products is increased.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

3. The reliability of your primary products is increased.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

4. The durability of your primary products is increased.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

5. The defect rates of your primary products is decreased.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

6. The internal failure costs as a percentage of annual output value is decreased.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

7. The external failure costs as a percentage of annual sales is decreased.

1 2 3 4 5 6 7 8 9

8. Employee effort positively affected product quality.

1 2 3 4 5 6 7 8 9

9. Division/team efficiency positively affected product quality.

1 2 3 4 5 6 7 8 9

10. Company productivity positively affected product quality

1 2 3 4 5 6 7 8 9

Notes:

A.6. SAMPLE PRODUCT QUALITY SURVEY

Lütfen ERP kullanımı öncesinde ki ürün kalitesiyle karşılaştırarak , aşağıdaki soruları yanıtlayan tüm seçeneklere 1 ile 9 arasında puan veriniz.(Ör: [X] 7) .Verdiğiniz değer, ilgili soruya yüklemiş olduğunuz değeri belirlenmektedir.(Ör: 1= Hiç Katılmıyorum - 9= Tamamen katılıyorum)

(1) Üretilen ana ürünlerin üretim performansı arttı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

(2) Üretilen ana ürünlerin ideale uygunluk oranı(conformity rate) arttı

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

(3) Üretilen ana ürünlerin güvenilirliği (reliability) arttı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

(4) Üretilen ana ürünlerin dayanıklılığı arttı.

[] 1 [] 2 [] 3 [] 4 [] 5 [X] 6 [] 7 [] 8 [] 9

(5) Üretilen ana ürünlerin hata oranları azaldı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

(6) Dahili hata maliyetlerinin yıllık üretilen değere oranı azaldı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [X] 8 [] 9

(7) Harici hata maliyetlerinin yıllık satış değerine oranı azaldı.

1 2 3 4 5 6 7 8 9

(8) Çalışan performansı ürün kalitesini arttırdı.

1 2 3 4 5 6 7 8 9

(9) Departman/takım performansı ürün kalitesini arttırdı.

1 2 3 4 5 6 7 8 9

(10) İşletme verimliliği ürün kalitesini arttırdı.

1 2 3 4 5 6 7 8 9

Notlar:

A.7. CUSTOMER SATISFACTION SURVEY

Please state the perceived overall customer satisfaction level comparing with the situation before ERP implementation in your firm. Check the number between “1” and “9” to 1 decimal place (Ex. [X] 7) **Scale chosen will reflect importance you load on the item with following expressions (Ex. 1= strongly disagree- 9= Strongly agree**

1. The customer satisfaction level for product quality provided by your firm is increased?

1 2 3 4 5 6 7 8 9

2. The customer satisfaction level for service quality provided by your firm is increased?

1 2 3 4 5 6 7 8 9

3. Do you think that the cost of the product, positively affected the price ?

1 2 3 4 5 6 7 8 9

4. Employee effort positively affected customer satisfaction level.

1 2 3 4 5 6 7 8 9

5. Division/team efficiency positively affected customer satisfaction level.

1 2 3 4 5 6 7 8 9

6. Company productivity positively affected product quality

[]1 []2 []3 []4 []5 []6 []7 []8 []9

Notes:

A.8. SAMPLE CUSTOMER SATISFACTION SURVEY

Lütfen ERP kullanımı öncesinde ki müşteri memnuniyeti ile karşılaştırarak , aşağıdaki soruları yanıtlayan tüm seçeneklere 1 ile 9 arasında puan veriniz.(Ör: [X] 7) .Verdiğiniz değer, ilgili soruya yüklemiş olduğunuz değeri belirlenmektedir.(Ör: 1= Hiç Katılmıyorum - 9= Tamamen katılıyorum)

1. Firmanın sağladığı ürün kalitesi nedeniyle müşteri memnuniyeti arttı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [X] 8 [] 9

2. Firmanın sağladığı hizmet kalitesi nedeniyle müşteri memnuniyeti arttı

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

3. Ürün maliyetinin fiyata pozitif etkisi nedeniyle müşteri memnuniyeti arttı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

4. Çalışan performansı müşteri memnuniyetini arttırdı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

5. Departman/takım performansı ürün kalitesini arttırdı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [X] 9

6. İşletme verimliliği ürün kalitesini arttırdı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [X] 8 [] 9

Notlar:

A.9. STRATEGIC BUSINESS PERFORMANCE SURVEY

Please state the perceived overall strategic business performance level comparing with the situation before ERP implementation in your firm. Check the number between “1” and “9” to 1 decimal place (Ex. [X] 7) **Scale chosen will reflect importance you load on the item with following expressions (Ex. 1= strongly disagree- 9= Strongly agree**

1. Comparing with the previous years, the company’s annual sales increased.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

2. Company’s internal rate of return increased

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

3. Company’s annual profitability increased

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

4. Company’s product costs decreased.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

5. In last financial year, company’s customer satisfaction level increased

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [] 7 [] 8 [] 9

6. In last financial year, company's Product quality level increased

[]1 []2 []3 []4 []5 []6 []7 []8 []9

Notes:

A.10. SAMPLE STRATEGIC BUSINESS PERFORMANCE SURVEY

Lütfen ERP kullanımı öncesinde ki stratejik işletme performansı ile karşılaştırarak , aşağıdaki soruları yanıtlayan tüm seçeneklere 1 ile 9 arasında puan veriniz.(Ör: [X] 7) .Verdiğiniz değer, ilgili soruya yüklemiş olduğunuz değeri belirlemektedir.(Ör: 1= Hiç Katılmıyorum - 9= Tamamen katılıyorum)

1. Son mali yılda, önceki yıllara kıyasla işletmenin yıllık satışlarında artış gerçekleşti

[] 1 [] 2 [] 3 [X] 4 [] 5 [] 6 [] 7 [] 8 [] 9

2. İşletmenin yatırımın geri dönüş oranı (internal rate of return) arttı.

[] 1 [] 2 [] 3 [] 4 [] 5 [X] 6 [] 7 [] 8 [] 9

3. İşletmenin yıllık karlılığında artış gerçekleşti.

[] 1 [] 2 [] 3 [X] 4 [] 5 [] 6 [] 7 [] 8 [] 9

4. İşletme /ürün maliyetlerinde azalma sağlandı.

[] 1 [] 2 [] 3 [] 4 [] 5 [X] 6 [] 7 [] 8 [] 9

5. Son mali yılda, işletmenin müşteri memnuniyetinde artış sağlandı.

[] 1 [] 2 [] 3 [] 4 [] 5 [] 6 [X] 7 [] 8 [] 9

6. Son mali yılda, işletmenin ürün kalitesinde artış sağlandı

1 2 3 4 5 6 7 8 9

Notlar:

APPENDIX B: DESCRIPTIVE STATISTIC ANALYSIS OF SURVEY RESPONSES

B.1. DESCRIPTIVE ANALYSIS OF EFFORT SURVEYS

94 respondents selected from 155 respondents of three manufacturing firms according to the level of the using functions of the ERP(observation selected if response >6).

Table B.1 Descriptive statistics for Employee Effort

Descriptive Statistics: EFFORT; observations by observations						
Variable	observat	N	Mean	Median	TrMean	StDev
EFFORT	1	8	5,000	5,500	5,000	1,512
	2	8	5,25	7,00	5,25	3,58
	3	8	6,375	6,500	6,375	1,768
	4	8	8,375	9,000	8,375	1,188
	5	8	7,375	7,000	7,375	1,408
	6	8	8,0000	8,0000	8,0000	0,0000
	7	8	7,000	7,500	7,000	1,852
	8	8	7,875	8,000	7,875	0,641
	9	8	5,000	5,000	5,000	1,852
	10	8	6,750	7,000	6,750	1,669
	11	8	5,88	7,50	5,88	3,00
	12	8	7,125	7,000	7,125	1,126
	13	8	7,250	7,000	7,250	1,282
	14	8	6,375	7,000	6,375	1,506
	15	8	7,625	8,000	7,625	0,916
	16	8	6,375	6,500	6,375	1,598
	17	8	3,750	3,500	3,750	2,816
	18	8	7,750	8,000	7,750	0,707
	19	8	7,125	7,000	7,125	0,641
	20	8	6,125	6,000	6,125	0,641
	21	8	6,375	7,000	6,375	1,506
	22	8	7,500	7,500	7,500	1,195
	23	8	4,875	6,000	4,875	2,416
	24	8	7,000	7,000	7,000	1,773

25	8	8,000	8,500	8,000	1,195
26	8	7,625	8,000	7,625	0,916
27	8	6,375	6,500	6,375	1,188
28	8	3,500	2,500	3,500	2,777
29	8	7,250	7,000	7,250	1,035
30	8	6,375	7,000	6,375	1,506
31	8	7,875	8,000	7,875	1,126
32	8	7,375	7,000	7,375	0,916
33	8	3,000	3,000	3,000	1,773
34	8	5,000	6,000	5,000	2,673
35	8	2,625	2,500	2,625	1,598
36	8	5,375	6,000	5,375	2,387
37	8	3,625	3,500	3,625	2,066
38	8	3,750	3,500	3,750	1,669
39	8	6,375	6,500	6,375	1,188
40	8	6,375	6,500	6,375	1,188
41	8	7,875	8,000	7,875	1,246
42	8	7,375	7,500	7,375	1,061
43	8	7,375	8,000	7,375	0,916
44	8	7,875	8,000	7,875	0,835
45	8	7,125	7,000	7,125	0,991
46	8	7,500	8,000	7,500	0,756
47	8	5,500	5,000	5,500	1,512
48	8	7,375	7,500	7,375	1,061
49	8	6,625	7,000	6,625	0,916
50	8	4,500	4,000	4,500	1,852
51	8	6,125	6,000	6,125	1,458
52	8	6,875	7,000	6,875	0,835
53	8	6,750	7,000	6,750	0,707
54	8	7,875	8,000	7,875	0,641
55	8	7,875	8,000	7,875	0,641
56	8	7,000	7,000	7,000	0,926
57	8	7,375	7,000	7,375	1,408
58	8	6,500	6,500	6,500	0,535
59	8	7,125	7,000	7,125	0,641
60	8	8,000	8,000	8,000	0,756
61	8	7,000	7,000	7,000	1,309
62	8	6,375	6,000	6,375	0,518
63	8	7,625	7,500	7,625	1,302
64	8	6,500	6,500	6,500	0,535
65	8	7,125	7,000	7,125	0,835
66	8	6,250	6,000	6,250	0,707
67	8	6,875	7,000	6,875	0,835
68	8	6,250	6,000	6,250	0,463
69	8	6,250	6,000	6,250	0,463
70	8	6,250	6,000	6,250	0,463

71	8	6,625	7,000	6,625	0,518
72	8	6,625	6,500	6,625	0,744
73	8	5,875	6,000	5,875	0,641
74	8	5,750	6,000	5,750	0,463
75	8	6,375	6,000	6,375	0,518
76	8	4,500	5,000	4,500	2,390
77	8	8,125	8,000	8,125	0,641
78	8	5,125	6,000	5,125	2,588
79	8	8,250	8,000	8,250	0,707
80	8	7,500	7,500	7,500	0,926
81	8	7,125	8,000	7,125	2,031
82	8	8,000	8,000	8,000	0,535
83	8	7,625	8,000	7,625	1,188
84	8	6,125	6,500	6,125	1,458
85	8	7,250	7,000	7,250	0,707
86	8	7,250	7,500	7,250	0,886
87	8	7,125	7,500	7,125	1,356
88	8	6,250	6,000	6,250	0,463
89	8	7,125	7,000	7,125	0,835
90	8	6,875	7,000	6,875	0,835
91	8	8,000	8,000	8,000	0,756
92	8	8,250	8,500	8,250	1,035
93	8	7,250	7,000	7,250	0,886
94	8	7,625	7,500	7,625	0,744

B.2. DESCRIPTIVE ANALYSIS OF EFFICIENCY SURVEYS

Table B.2 Descriptive statistics for Efficiency(Department level)

Descriptive Statistics: Observations; Efficiency						
Variable	N	Mean	Median	TrMean	StDev	SE Mean
Efficien	150	7,407	8,000	7,500	1,357	0,111
Variable	Minimum	Maximum	Q1	Q3		
Efficien	2,000	9,000	6,750	8,000		
Descriptive Statistics: Observations; Efficiency by Observations						
Variable	Observat	N	Mean	Median	TrMean	StDev
Efficien	1	10	7,300	7,500	7,250	1,252
	2	10	8,000	8,000	8,125	0,943
	3	10	7,400	7,500	7,375	1,174
	4	10	8,000	8,000	8,125	0,943
	5	10	7,300	7,000	7,250	1,059
	6	10	6,800	7,000	6,750	0,632
	7	10	7,400	7,000	7,375	0,843
	8	10	7,300	7,000	7,250	0,949
	9	10	6,600	7,000	6,750	2,221
	10	10	6,800	8,000	7,125	2,821
	11	10	7,900	8,000	8,000	1,101
	12	10	8,000	8,500	8,125	1,247
	13	10	7,200	7,000	7,125	1,229
	14	10	7,300	7,000	7,250	0,949
	15	10	7,800	8,000	7,875	1,135
Variable	Observat	SE Mean	Minimum	Maximum	Q1	Q3
Efficien	1	0,396	6,000	9,000	6,000	8,250
	2	0,298	6,000	9,000	7,750	9,000
	3	0,371	6,000	9,000	6,000	8,250
	4	0,298	6,000	9,000	7,750	9,000
	5	0,335	6,000	9,000	6,750	8,250
	6	0,200	6,000	8,000	6,000	7,000
	7	0,267	6,000	9,000	7,000	8,000
	8	0,300	6,000	9,000	6,750	8,000
	9	0,702	3,000	9,000	5,250	8,250
	10	0,892	2,000	9,000	5,000	9,000
	11	0,348	6,000	9,000	7,000	9,000
	12	0,394	6,000	9,000	6,750	9,000
	13	0,389	6,000	9,000	6,000	8,250
	14	0,300	6,000	9,000	6,750	8,000
	15	0,359	6,000	9,000	6,750	9,000

B.3. DESCRIPTIVE ANALYSIS OF PRODUCTIVITY SURVEYS

Descriptive Statistics: Observation; Productivity by Observation

Table B.3 Descriptive statistics for Efficiency(Company level)

Variable	Observat	N	Mean	Median	TrMean
StDev					
Producti	1	7	7,857	8,000	7,857
0,690	2	7	6,571	6,000	6,571
1,618	3	7	8,143	8,000	8,143
0,378					
Variable	Observat	SE Mean	Minimum	Maximum	Q1
Q3					
Producti	1	0,261	7,000	9,000	7,000
8,000	2	0,612	4,000	9,000	6,000
8,000	3	0,143	8,000	9,000	8,000
8,000					

B.4. DESCRIPTIVE ANALYSIS OF PRODUCT QUALITY SURVEYS

Table B.4 Descriptive statistics for Product Quality (Company level)

Descriptive Statistics: observations; Product quality by observations					
Variable	observat	N	Mean	Median	TrMean
Product	1	10	7,500	7,500	7,500
0,850	2	10	3,0000	3,0000	3,0000
0,0000	3	10	7,000	7,000	7,000
1,054					
Variable	observat	SE Mean	Minimum	Maximum	Q1
Product	1	0,269	6,000	9,000	7,000
8,000	2	0,0000	3,0000	3,0000	3,0000
3,0000	3	0,333	6,000	8,000	6,000
8,000					

B.5. DESCRIPTIVE ANALYSIS OF CUSTOMER SATISFACTION SURVEYS

Table B.5 Descriptive statistics for Customer Satisfaction (Company level)

Variable	observat	N	Mean	Median	TrMean
Customer	1	3	7,333	7,000	7,333
0,577	2	3	4,0000	4,0000	4,0000
0,0000	3	3	6,667	6,000	6,667
1,155					
Variable	observat	SE Mean	Minimum	Maximum	Q1
Customer	1	0,333	7,000	8,000	7,000
8,000	2	0,0000	4,0000	4,0000	4,0000
4,0000	3	0,667	6,000	8,000	6,000
8,000					

B.6. DESCRIPTIVE ANALYSIS OF STRATEGIC BUSINESS PERFORMANCE SURVEYS

Table B.6 Descriptive statistics for Strategic Business Performance (Company level)

Descriptive Statistics: observations; SBS by observations					
Variable	observat	N	Mean	Median	TrMean
SBS	1	4	7,500	7,500	7,500
1,291	2	4	4,500	4,000	4,500
1,000	3	4	7,500	7,500	7,500
1,291					
Variable	observat	SE Mean	Minimum	Maximum	Q1
SBS	1	0,645	6,000	9,000	6,250
8,750	2	0,500	4,000	6,000	4,000
5,500	3	0,645	6,000	9,000	6,250
8,750					

APPENDIX C: CORRELATION ANALYSIS OF SURVEY RESPONSES

C.1. CORRELATION ANALYSIS BETWEEN ERP AND EFFORT

Correlations: ERP; EFFORT

Pearson correlation of ERP and EFFORT = 0,375

P-Value = 0,000

C.2. CORRELATION ANALYSIS BETWEEN ERP AND EFFICIENCY

Correlations: ERP; EFFICIENCY

Pearson correlation of ERP and EFFICIENCY = 0,518

P-Value = 0,048

C.3. CORRELATION ANALYSIS BETWEEN ERP AND PRODUCTIVITY

Correlations: PRODUCTIVITY; ERP

Pearson correlation of PRODUCTIVITY and ERP = 0,945

P-Value = 0,212

APPENDIX D: REGRESSION ANALYSIS OF SURVEY RESPONSES

D.1. REGRESSION ANALYSIS BETWEEN ERP AND EFFORT

Table D.1 Regression Analysis for Effort vs. ERP

Regression Analysis: EFFORT versus ERP						
The regression equation is						
EFFORT = 3,35 + 0,464 ERP						
Predictor	Coef	SE Coef	T	P		
Constant	3,3498	0,8525	3,93	0,000		
ERP	0,4639	0,1195	3,88	0,000		
S = 1,144	R-Sq = 14,1%	R-Sq(adj) = 13,1%				
Analysis of Variance						
Source	DF	SS	MS	F	P	
Regression	1	19,712	19,712	15,06	0,000	
Residual Error	92	120,421	1,309			
Total	93	140,133				
Unusual Observations						
Obs	ERP	EFFORT	Fit	SE Fit	Residual	St
Resid						
17	7,00	3,750	6,597	0,118	-2,847	-
2,50R						
28	7,00	3,500	6,597	0,118	-3,097	-
2,72R						
33	6,00	3,000	6,133	0,173	-3,133	-
2,77R						
35	6,00	2,625	6,133	0,173	-3,508	-
3,10R						
37	6,00	3,625	6,133	0,173	-2,508	-
2,22R						
38	6,00	3,750	6,133	0,173	-2,383	-
2,11R						
R denotes an observation with a large standardized residual						

D.2. REGRESSION ANALYSIS BETWEEN ERP AND EFFICIENCY

Table D.2 Regression Analysis for Efficiency vs. ERP

Regression Analysis: EFFICIENCY versus ERP						
The regression equation is						
EFFICIENCY = 5,70 + 0,268 ERP						
Predictor	Coef	SE Coef	T	P		
Constant	5,6964	0,8360	6,81	0,000		
ERP	0,2679	0,1228	2,18	0,048		
S = 0,4746 R-Sq = 26,8% R-Sq(adj) = 21,2%						
Analysis of Variance						
Source	DF	SS	MS	F	P	
Regression	1	1,0714	1,0714	4,76	0,048	
Residual Error	13	2,9286	0,2253			
Total	14	4,0000				
Unusual Observations						
Obs	ERP	EFFICIEN	Fit	SE Fit	Residual	St Resid
11 X	9,00	8,000	8,107	0,304	-0,107	-0,29
12 X	9,00	8,500	8,107	0,304	0,393	1,08
X denotes an observation whose X value gives it large influence.						

D.3. REGRESSION ANALYSIS BETWEEN EFFORT AND EFFICIENCY

Table D.4 Regression Analysis for Efficiency vs. Effort

Regression Analysis: EFFICIENCY versus EFFORT						
The regression equation is						
EFFICIENCY = 3,36 + 0,629 EFFORT						
Predictor	Coef	SE Coef	T	P		
Constant	3,360	1,241	2,71	0,018		
EFFORT	0,6290	0,1581	3,98	0,002		
S = 0,5566 R-Sq = 54,9% R-Sq(adj) = 51,5%						
Analysis of Variance						
Source	DF	SS	MS	F	P	
Regression	1	4,9065	4,9065	15,84	0,002	
Residual Error	13	4,0269	0,3098			
Total	14	8,9333				
Unusual Observations						
Obs	EFFORT	EFFICIEN	Fit	SE Fit	Residual	St Resid
5	7,00	9,000	7,763	0,191	1,237	
2,37R						
R denotes an observation with a large standardized residual						

CURRICULUM VITAE

Esin SAYIN was born in Kozluk /Batman in 1979. In 1997, she was graduated from Hayrullah Kefođlu High School, and in 2002 she was graduated from Yıldız Technical University with Bsc in Mathematical Engineering and has enrolled in the Industrial Engineering master program in 2002. Esin SAYIN is a student of Industrial Engineering , Institute for Graduate Studies in Pure and Applied Sciences in Marmara University.

In 2003, she employed by Garanti Leasing as Management Trainee. In 2004 she continued her career as ERP consultant in Elsys Consulting Services. For two years, she is continuing to working in the same enterprise in the same position .