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APPLICATION OF A CYBERNETIC MODELLING: VIABLE SYSTEM DIAGNOSIS (VSD)

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by

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To my mother and father…

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The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.

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ABSTRACT

Yüksel AYDEN **July 2009**

APPLICATION OF A CYBERNETIC MODELLING: VIABLE SYSTEM DIAGNOSIS (VSD)

This study gives an account of a cybernetic modelling of an organisation by using Viable System Diagnosis (VSD) developed by Stafford Beer. The model that Beer proposed guides practitioners to design organisations by using cybernetic principles and tools in order to create adaptive and responsive organisations to their environments which possess all features of viability. In this thesis, a brief history of systems thinking, its embedded theory, and systems thinking and practice in management realm are explained. Cybernetic principles and tools which are used in organisational cybernetics are analysed. A descriptive situation of a company—Erk Marketing Inc.—operating in the textile industry in Turkey is portrayed. For the purpose of capitalising on our understanding of VSD, an application to the company to diagnose its concerns, if they exist, is made. Based on the empirical findings of this diagnosing process, the organisational structure of the company has been redesigned and some limitations of this cybernetic model have been featured.

Key words:

Viable System Diagnosis, Viable System Model, Organisational Cybernetics, Erk Marketing, Colin's

KISA ÖZET

Yüksel AYDEN **Temmuz 2009**

BİR SİBERNETİK MODELLEME UYGULAMASI: YAŞAYAN SİSTEM TEŞHİSİ (YST)

Bu çalışma Stafford Beer tarafından geliştirilen Yaşayan Sistem Teşhisi (YST)'nin kullanılması ile bir organizasyon yapısının sibernetik modellemesi hakkında bilgi vermeyi amaçlamaktadır. Beer'in önerdiği model, uygulamacılara sibernetik prensipleri ve araçları kullanarak, çevrelerine uyumlu ve canlılığın bütün özelliklerine sahip organizasyonların oluşturulması konusunda fikir vermektedir. Bu tezde sistem düşüncesinin kısa bir tarihi, teorik altyapısı ve yönetim alanındaki uygulamaları açıklanmış; organizasyonel sibernetik alanında kullanılan sibernetik prensipler ve araçlar incelenmiştir. Türkiye'de tekstil sektöründe faaliyet gösteren Erk Pazarlama A.Ş.'nin mevcut durumu tanıtılmış, modelin daha iyi anlaşılması ve organizasyonel problemlerin teşhisi amacıyla, bu şirkete YST'nin bir uygulaması yapılmıştır. Bu teşhis sürecinde elde edilen amprik bulgulara dayanarak şirketin organizasyon yapısı yeniden şekillendirilmiş ve bu sibernetik modellemenin kısıtları ortaya konulmuştur.

Anahtar Kelimeler

Yaşayan Sistem Teşhisi, Yaşayan Sistem Modeli, Organizasyonel Sibernetik, Erk Pazarlama, Colin's

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LIST OF ABBREVIATIONS

GST	General System Theory
VSD	Viable System Diagnosis
VSM	Viable System Model
IT	Information Technologies
S1	System 1
S2	System 2
S3	System 3
S4	System 4
S5	System 5

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INTRODUCTION

In today's rapidly changing business world, organisations must respond to changes occurring both in their external environments and also in their internal environments. On the one side, they have to compete with their rivals, seek new trends in the market, and follow new technological developments in the industry. On the other side, they have to overcome internal conflicts, maintain continuous controlling, and provide a creative environment for their members. Classical organisational structures which are highly centralised, tall, and bulky are not appropriate to realise these functions simultaneously. Thus, more useful and creative models in designing organisations are needed. This study focuses on one of these innovative models called "Viable System Model (VSM)" which is used in diagnosing organisational problems and in redesigning organisations in a creative way.

This thesis aims to examine the usefulness of a cybernetic modelling methodology; Viable System Diagnosis (VSD) developed by Stafford Beer. The VSD is a methodology which is used to design organisations by using system principles and cybernetic tools in order to diagnose organisational problems and to enable them to become adaptive to their environments. Even tough it has been widely used in abroad, to our knowledge the model and the methodology which are explained in this thesis have been hardly ever applied to the organisations in Turkey. This study is going to be one of the first applications of the VSD in Turkey.

The Viable System Diagnosis is based on the ideas coming from systems thought and cybernetic science. So this study starts with Chapter one, called "Systems Thinking". It includes a brief description of systems thought, its philosophy, and its methodologies. The place of the VSD within the systems approaches and the problem contexts in which VSD gives most appropriate solutions are also highlighted in the first chapter.

Chapter two, called "Organisational Cybernetics", explains the origins of cybernetics, its principles, and cybernetic tools so as to have a better understanding about the model which will be used in further parts of the study. Then it introduces the philosophy of VSD, its model, and its methodology.

In Chapter three, called "The Description of Erk Marketing Inc.", the company on which this study mainly focuses for the application of the VSD is described. It deals with the main operations performed by the Erk Marketing Inc. and underlines the observed problems within the organisation.

The Chapter four, called "The Application of the VSD to the Erk Marketing", includes the application of the model to the company. It handles the diagnosing process of the organisational problems and redesigning of the company's structure according to the model.

As conclusion, critiques that stem from our application about the VSD are highlighted. Negative and positive aspects of the VSD and its limitations are discussed. For further researches the major questions are brought to the fore.

CHAPTER 1

SYSTEMS THINKING

This chapter includes an introduction to the classical scientific thinking and its principles that are used to explain the world phenomena. In a comparison with the holistic view, a critique is made about the methods of traditional reductionism in understanding complex problems. The reasons behind the need for a holistic view are explained and the origins of systems thinking in different disciplines such as philosophy, sociology and biology are revealed. Particularly, main contributions of systems thinking to management field are discussed and systems methodologies that are used to solve management problems are introduced. For a better understanding of organisational problems, organisational metaphors are briefly explained. Lastly, according to their compatibility to the real-world problem contexts, a system of systems methodologies is presented.

1.1. The Historical Development of Systems Thinking

1.1.1. Why Systems Thinking?

It was Descartes who proposed reductionism as a simple method of simplifying and dividing problems into their components for a better understanding and comprehension of the world's problems (Descartes and Sutcliffe, 1968). That was a mechanistic view and after the publication of *Newton's Principia*, which built the foundations of today's classical physics, mechanistic thought dominated scientific thinking for centuries (Schoderbek,

Kefalas, and Schoderbek, 1975). Mechanists used analytical thinking and reductionism in dealing with events and objects, because they believed that whole can be divided into its parts and these parts can be optimised. This deterministic approach as Flood and Jackson (1991) stated "leads to the view that the Universe is constructed of "building blocks" arranged in a hierarchy, making up a giant machine". It is doubtless that for some type of problems analytical thinking can be helpful. However, when we start to deal with complex real-world problems that have social, behavioural and exploitative elements, problems occur with the use of reductionism and the classical scientific method (Jackson, 2000).

Since they consist of interconnected parts and relationships between these parts, complex problems have different natures. The interconnection between parts creates "emergent properties", which means properties arise from the way the parts organised. An analytical approach to this complexity may result in the loss of emergent properties. Also contrary to natural sciences, in social sciences it is not possible to make experiments or tests with real-world problems. Cause and effect relationships can not easily be observed in complicated difficulties and repeatable experiments are hard to perform (Jackson, 2000). Furthermore, in many cases problem solvers are unavoidably included in the situation as a part of the problem and it becomes one-step harder to produce a proper solution (Senge, 1990). For all these reasons, the application of the reductionism and the natural scientific method to complex social problems gives limited success (Jackson, 2000).

It is obvious that the failure of mechanistic thinking is resulted from its way of looking at whole. Mechanistic thought assumes whole as it is equal to sum of its parts and it can be broken into these parts. However, interrelatedness among parts creates a complexity that can not be interpreted with the use of deterministic and reductionist approaches. Thus, a more holistic approach is necessary to conceptualise this complexity and the need for systems thinking is recognised.

1.1.2. The Birth of Systems Thinking

As classical physics developed, its laws and principles were applied to other disciplines and this resulted in birth of many subdisciplines that aimed to specialise in a certain area. However, these subdisciplines were isolated from each other. This situation brought about a lack of communication between scientists of disciplines, even among related subdisciplines (von Bertalanffy, 1968; Schoderbek et al. 1975).

After it was realised that a single disciplinary approach was insufficient in explaining real-world phenomena, a need for an interdisciplinary approach emerged. Thus, hybrid disciplines such as biochemistry and biophysics appeared. That was the first step toward an interdisciplinary movement. But, significant shift from analytical view to synthetic view occurred when scientists became aware of that most phenomena have shared systemic characteristics (Schoderbek et al. 1975)

System means a set of elements that are connected together and form a whole showing properties different from its component parts. The

systems view assumes that there are structured wholes in our world that exhibit certain general principles of wholeness. Systems thinking tries to clarify these principles so that a healthier understanding of happenings in our world is achieved. It is a meta-discipline which can be applied within virtually any other discipline (Checkland, 1981).

Even though systems thinking became popular and started to affect the scientific world in the 1940s and early 1950s, its origins can be observed in different disciplines through the history. Various disciplines such as; philosophy, sociology, biology, and engineering shaped today's systems thought and also were influenced by systems ideas.

In ancient Greek thought, Aristotle used systems ideas to express relationships between human body and organs. He stated that parts of body; such as eye, hand obtained their meanings when they are connected to the body. He made an analogy between the human body and the state. He claimed that similarly to parts of human body, individuals must be a part of a State in order to accomplish their objectives. Also, he looked at the whole as it was greater than sum of its parts. Another well-known philosopher in ancient Greece Plato brought the Greek word "kybernetes", which means art of the steersmanship, into the systems thought. In *The Republic*, he used it to refer to the governance of the State (in Jackson 2000), and after centuries the word "kybernetes" was given to the science of control and communication.

Many other Western philosophers interpreted the world with systems ideas. Spinoza stated that the universe is a whole and governed by the same rules for a unique purpose. Since it is composed of a single substance, it is unreasonable to study on its parts by breaking its wholeness. Contrary to mechanists, Kant suggested that while it is useful to understand the nature in a mechanistic way, it is not adequate to understand living organisms in a similar fashion. He claimed that organisms could be better understood as self-organising systems. According to Kant, self-organisation means interaction between parts and this interaction causes the emergence of the whole (in Jackson, 2000). Furthermore, Kant claimed that deterministic law of nature can not be applied to rational human action because humans are autonomous and have a soul (in Stacey, 2007). On the other hand, Hegel interpreted the universe as a whole and he suggested that separate things exist, but they are only aspects of a whole which he called "The Absolute" (in Jackson, 2000).

In sociology, society is viewed as an organism that is made up of interconnected parts working to maintain the whole (Durkheim, 1933, 1938; Spencer, 1969). As Jackson stated (2000) Pareto described the society as a system in a state of equilibrium and even changes occur, society tries to turn to its original state. According to Henderson (1941, 1942) a change in one factor causes a long series of change and is followed by other changes in a social system. As a result of the connections and mutual interactions between social systems' components the equilibrium in society and stability is

maintained. This was the mechanical equilibrium model. Spencer (1969) and Durkheim (1938) developed an analogy between society and human body. They looked at the society as a whole that consisted of dependent elements that are functioning to maintain the whole. Jackson (2000) argued that after the studies of Malinowski and Radcliffe-Brown, this organismic analogy was given a new expression as "structural-functionalism". Structural functionalism assumed that happenings in a society can be explained by the function that they contribute to the maintenance of that society. Later, this analogy affected management and organisation theories after the work of Selznick (1948). Moreover, Talcott Parsons (1956) tried to build a system model to comprehend the elements of social world in his "equilibrium-function model". According to Parsons (1956), for the existence of a system, four significant needs or functional imperatives must be satisfied by its subsystems. These are "adaptation" (establishing continuous relationship with environment), "goal attainment" (setting explicit, specific goals, and mobilising resources), "integration" (regulating organisation activities), and "latency" (determining pattern of interaction among organisation activities). As a result of recursive nature of the systems, he claimed, these needs can be searched in all levels of society.

As it is mentioned earlier scientific world was dominated by physical principles until it recognised the need for a holistic approach and contrary to its subjects' nature, biology used these principles to explain organisms. Vitalists came out against this reductionism and claimed that there should be

something different leading organisms to grow that they called vital spirit (Jackson, 2000). Broad (1923) suggested the theory of emergence and emphasised the different levels of reality. Smuts (1926) also pointed out the idea of complexity in organisms and underlined the importance of connections between the parts of an organism. Henderson (1941), a biochemist and a system thinker, gave importance to three characteristics of living organisms; complexity, durability, and activity. Since the ability to sustain equilibrium through self-regulating mechanisms gives organisms viability, organisms must respond and adopt their environment continuously in order to keep this viability.

It is doubtless that the most noteworthy systems thinker in biology field was Ludwig von Bertalanffy who assumed that living organisms consisted of interrelated parts aimed to maintain stability and to adapt to their environments. He explained living organisms as open systems that take in inputs, transform them and release them as outputs to their environments. So, conventional physical principles, he claimed, can not be applied to the living organisms (von Bertalanffy, 1950, 1968).

Ludwig von Bertalanffy was accepted as one of the founders of systems thinking because of his well-known study "General Systems Theory". Although his studies in general systems theory (GST) started in 1920s and 1930s, in 1950s GST became popular in scientific world. According to von Bertalanffy (1968), there were general principles and universal laws that can be applied to all systems to explain their behaviours. His ideas were

originated from biology but he searched for the ways to apply these principles to all kinds of systems.

Another significant general systems theorist was Kenneth Boulding (1956) who argued that GST could have two possible aims. The first one was to seek similarities in the theoretical constructions of different disciplines and the second one was to develop models applicable to at least two different disciplines. In his work *The Skeleton of Science* he tried to construct a system of systems and classify them in an increasing way of complexity (Table 1.1).

Level	**Description**	**Characteristic**	**Example**	**Discipline**
1	Structure and frameworks	Static, spatial pattern	Bridge, mountain, crystal, atom	Descriptive elements of all disciplines
2	Clockworks	Predetermined motion	Clocks, machines, solar system	Physics, astronomy, Engineering
3	Control mechanisms	Closed-loop control	Thermostat, homeostasis	Cybernetics
4	Open systems	Structurally self-maintaining	Flames, cells	Theory of metabolism

5	Genetic-societal systems	Society of cells, functional parts	Plants	Botany
6	Animals	Nervous system, self-awareness	Birds and beasts	Zoology
7	Humans	Self-consciousness, knowledge, language	Human beings	Biology, psychology
8	Socio-cultural systems	Roles, communication, values	Families, boy scouts, clubs	History, sociology, Anthropology
9	Transcendental	Inescapable unknowables	God?	Philosophy, religion

Table 1.1. Boulding's Hierarchy of Complexity (Mingers, 1997)

The picture Boulding paints is not an empirical finding but it can be a good source to look inside the systems based on their complexity levels. However, there is no definition of the scale of systems complexity (Checkland, 1981). Later, Mingers (1997) developed a new version of Boulding's classification by suggesting being concerned with the types of the relations in each level.

Based on the assumption that there are general characteristics that systems have, GST aims to uncover these general laws and order in systems. By using these principles in order to explain the behaviours of living or

nonliving systems, general systems theorists use biological analogies (Schoderbek et al., 1975).

General Systems Theory made a significant impact on system thought in the twentieth century by explaining fundamentals of systems and their basic principles. However, GST was not alone in the first half of the 1900s in developing systems theories. There was another pathway from which systems theories emerged. After Wiener's (1948) and Ashby's (1956) studies on control and communication, new science cybernetics was born. Cybernetics dealt with in control and communication in animal and machine (Wiener, 1948). It was first developed by control engineers, however, after the recognition of "the ubiquitous nature of control processes" (Jackson, 2000), cybernetic principles were transformed into other fields of study.

Since the subject of this study is mainly interested in a cybernetic modelling, core concepts of cybernetics and its principles will be dealt with in the following chapter.

1.2. Systems Thinking in Management

According to August Comte, human thought in any discipline passes through three stages. These are the theological stage, the metaphysical stage, and the positive stage. He pointed out that parallel to human thought, in order of their complexity the sciences developed in this order; mathematics, astronomy, physics, chemistry, biology, psychology and sociology. This sequence shows that each science is involved with more complex topics when compared to the former ones—especially social

sciences have more complex matters of subject. As it is a social science, management has to deal with complicated problems and needs methods that provide solutions to these kinds of problems.

Since the day that management science emerged in the social sciences, different approaches appeared and suggested different theories for successful organisation management. Traditionally, these approaches are classified as classical theory, human relation theory, and systems theory.

The classical approach was mainly based on the studies of Taylor's (1947) scientific management theory, Fayol's (1949) administrative approach, and Weber's bureaucracy theory (Weber, 1964). Taylor tried to find the best way of accomplishing the repetitive and routine tasks whereas Fayol introduced the main principles of administrative management. Weber's bureaucracy theory attempted to regulate the formal interactions in an organisation. However, classical theory perceived organisations as they were machines. The importance was given to the performance of the employees and theorists attempted to find a theory that is general and valid for all types of organisations. So, classical theory was criticised as ignoring the human needs.

On the basis of these critiques, human relations theory developed after the studies of the theorists such as Mayo (1945), Herzberg (1968), Maslow (1954) and McGregor (1960). In his well-known Hawthorne studies Mayo (1945) highlighted the social factors that affected employees' productivity. Maslow (1954) and Herzberg (1968) argued motivation factors

and emphasised human side of organisations. McGregor (1960) defined two different theories, X and Y theories, approaching employees with different assumptions. Similarly to classical approach, despite its significant contributions to management field, human relations or neoclassical approach was criticised of overemphasising on human needs and of neglecting of organisational goals and structure.

According to systems approach both theories focused on only one aspect of organisation to enhance organisational performance. The classical approach is focused on tasks and structure and the behavioural approach on people. Systems approach suggests being "holistic" and sees organisations as wholes. Contrary to classical and neoclassical theories, systems thinking examines organisations as open systems to their environments (Jackson, 2000).

Systems thinking emerged in management field first after Barnard (1938) claimed that organisations are cooperative systems and have functions that serve their goals. In order to survive, management has a sensitive task to maintain the equilibrium between these functions. Another theorist that emphasised equilibrium within organisations was Herbert Simon (1947) who considered organisations as decision-making entities and tried to build equilibrium between motivational and structural approaches. Barnard-Simon's conceptualisation of organisations can be regarded as onset of systems thinking (Schoderbek et al. 1975)

By transforming structural functionalism to management theory Selznick (1948) claimed that organisations are cooperative systems and adaptive structures that behave like organisms and the best way of understanding their behaviours is structural functionalism. He emphasised the organisational needs or "functional imperatives" that make the organisations to survive and claimed that these needs must be satisfied by the organisations' subsystems for their existence.

Katz and Kahn (1978) deriving ideas from von Bertalanffy approached organisations as they are open systems. They proposed that organisations are open to their environments where they acquire inputs, transform them, and send them as outputs to their environments. There are five types of subsystems that meet organisations' functional needs. These are production or technical subsystem, supportive subsystem, maintenance subsystem, adaptive subsystem, and managerial subsystem.

The theoretical development of the systems philosophy and some of the conceptual considerations have been already explained in management field. However, the study of systems includes not only the development of system ideas but also the application of systems approaches to management and organisation theory.

1.3. Systems Practice in Management

Systems thinking made a significant impact on theorists' and practitioners' perceptions about organisations. By looking at organisations as "open-systems" and "wholes" being consisted of mutually dependent parts,

one can begin to realise the complexity that must be managed (Schoderbek et al. 1975). However, such a shift in our understanding of organisations is not adequate to solve the complex problems. Thus, numerous systems methods were developed by systems theorists.

According to Schoderbek et al. (1975) some of the potential benefits of systems thinking to managers are as follows;

1- It frees the managers from viewing their tasks from a narrow functional viewpoint and coerces them to identify other subsystems.
2- It permits the managers to view their goals as being related to larger sets of goals.
3- It permits the organisation to structure the subsystems in a manner consistent with subsystems goals.
4- The system viewpoint with its goal attainment model allows for evaluation of organisational and subsystems effectiveness. (Schoderbek et al., 1975:26)

The attempt to use the systems methods to solve the real-world problems began around the Second World-War. It was during the Second World-War first systems methodologies like operational research, systems analysis and systems engineering were born. These methodologies were mostly developed by engineers (Jackson, 2003). Checkland (1981) recognised the similarities between these approaches and named these kinds of systems as "hard systems". Hard systems aimed to optimise the performance of a system by employing scientific modelling, rational testing, implementation, and evaluation processes (Jackson, 2003).

Until 1970s systems thought was dominated by positivism and functionalism characteristic of the traditional scientific method. These

systems studies can be defined as traditional systems approach. Organisations as systems, operational research, management cybernetics, systems analysis, system engineering are some examples of these kinds of studies. However, during 1970s and 1980s the traditional systems approach was criticised as being unable to solve ill-structured and strategic problems. Thus, alternative systems approaches emerged (Jackson, 1991).

As a reaction to the failing of operational research and other management science techniques, Forrester (1961) introduced his study named industrial dynamics– later systems dynamics and suggested that interrelationships between feedback loops create the structure of the system which determines the behaviour of that system. Recently, Senge (1990) explained organisational learning by using systems dynamics principles and feedback loops. Stafford Beer (1972, 1979, 1981 and 1985) transported the cybernetics principles and concepts to organisation theory and set out cybernetic modelling called "viable system model". Inspired by Lorenz ideas about chaos, complexity theorists claimed that the long-term future of an organisation is unpredictable and even they show temporary stabilities, organisations are in a state of flux (Stacey; 1993, 2007). By emphasising chaos, complexity theory suggests managers to recognise the patterns that develop the behaviours of systems.

As a result of dissatisfaction with the development and limitations of hard systems thinking, the soft systems approach emerged. In soft systems thinking human aspects of complexity such as perceptions, values, and

interests were emphasised. The social world in soft systems thinking is seen as construction of human being (Jackson, 1991). The significant contributions to soft systems thinking came from Churchman, Mason and Mitroff, Ackoff, and Checkland. Churchman (1970) suggested looking at the whole system having as many perspectives as possible so that a close view to the whole is obtained. By contributing their own ideas to Churchman's philosophy Mason and Mitroff (1981) developed "strategic assumption and surfacing testing" in order to tackle with the problems that have lack of clarity about purposes, conflict, uncertainty and that are complicated (Jackson, 2003). After his many contributions to operational research and social systems science Russell Ackoff developed a new model for planning. He claimed that objectivity can be reached through the participation of individuals with different values and perspectives to the matter. Thus, Ackoff suggested a new type of planning for organisations called "interactive planning" that consists of the design of the desirable future and selection of ways of bringing it (Ackoff, 1999). Inspired by Churchman's and Ackoff's works, Checkland developed "soft systems methodology" aimed to solve ill-structured and messy problems where there is no clear view on what constitutes the problem and what action should be taken. (Checkland, 1999)

All of these system approaches emphasised different subject of matters and looked at managerial problems in different ways by resting upon different sociological and philosophical paradigms. For a clear understanding

of their problem-contexts organisations can be viewed behind different organisational metaphors.

According to Morgan (1997), there are eight metaphors that can be employed to look at organisations. These are "mechanical", "organismic", "neurocybernetic", "cultural", "political", "prison", "flux and transformation", and "instruments of domination" metaphors. All of these images look at organisations from different perspectives.

Mechanical metaphor or closed system view puts emphasise on the effectiveness and efficiency of organisations and looks at them as they are machines. For organisations that accomplish repetitive tasks in a stable environment this view can be useful. Organic metaphor or open system view emphasises the survival and adaptability of organisations and perceives them as organisms that are open to their environment. This view is helpful for organisations that have strong relationships with their environments and that have operations in a complex and turbulent environments. Neurocybernetic metaphor or "viable system" view emphasises active learning rather than passive adaptability and gives attention to control and communication processes in organisations. It focuses on the information flow within the organisation and organisational viability. This metaphor assumes the brain as a good model for control systems and it is developed on the principles of a standard cybernetic model that has a transformation process, an information system, a control unit, and an activating unit. Neurocybernetic metaphor is useful for organisations that face a high degree of uncertainty and that need

creativity. Culture metaphor offers a perspective from organisations' shared beliefs, norms, and values. All organisations have culture whether formal or informal and people behave according to their perceptions about the real-world. Another metaphor that Morgan suggests is political. It focuses on issues of interests, conflict, and power. According to political metaphor, participants of a situation can be unitary, pluralist or coercive. Psychic prison metaphor puts emphasises on both processes of unconscious such as repressed sexuality, anxiety, and fear of death and ideological traps that alienate us. Flux and transformation metaphor is concerned with the "logics of change" that shape behaviours within the organisation. Lastly, organisations as instruments of domination is concerned with issues of structural conflict, modes of domination, contradiction, and emancipation and considers groups of class type within the organisation and gives attention to groups that are exploited by other groups in the organisation (Morgan, 1997). These organisational metaphors are helpful for a better "reading" and understanding of ambiguity and complexity in organisations. Once the contexts of the problems are clarified it becomes easier to find convenient solutions to managerial problems through system approach that privilege certain systems metaphors.

As there are numerous systems methods that concerned with managerial problems and each offers applicable solutions to organisational problems, a question arises that has to be answered; "When these systems methods should be used?" Therefore, a system of systems methodologies is

necessary to use these methods in an appropriate way. The system of system methodologies was originally developed through the works of Jackson and Keys (1984) as an ideal framework relating different system methodologies to each other on the basis of assumption they make about problem contexts. According to Jackson (2003) complexity, change and diversity of a problem originates from two sources; the "system" in terms of its complexity and relationship between "participants" involved in the problem.

Systems dimension looks at the complexity that constitutes the problem and is grouped systems into two category; simple systems and complex systems. Simple systems are characterised by having a small number of elements, a few and highly organised interactions between these elements and sub-systems that do not follow their own goals. Complex systems are characterised by having a large number of elements which are interrelated, are probabilistic, open to volatile environment and have purposeful parts.

Participants dimension looks at the relationships between participants in three types; unitary, pluralist or coercive (Table 1.2).

Unitary	• participants share common interests, values and beliefs • they agree on objectives and act to perform these objectives • they are all participants of decision making process

Pluralist	• participants have a basic compatibility of interests, values and beliefs • they agree on some of the objectives and act to perform these objectives • they are all participants of decision making process
Coercive	• participants have irreconcilable interests, values and beliefs • they do not agree on objectives and they do not act to perform these objectives • some coerce others to accept decisions

Table 1.2. The Characteristics of Participant's Relationships (Flood and Jackson, 1991)

A combination of the dimensions of systems and participants develops a six-celled matrix as shown in the following table (Table 1.3.);

	Unitary	**Pluralist**	**Coercive**
Simple	Simple-Unitary	Simple-Pluralist	Simple-Coercive
Complex	Complex-Unitary	Complex-Pluralist	Complex-Coercive

Table 1.3. The Grouping of Problem Contexts (Flood and Jackson, 1991)

The framework developed does not suggest that real-world problems must be fitted into one of these boxes. However, it presents some capacity for classifying problems contexts (Jackson, 2003) so that appropriate models that will be used by practitioner can be selected easily. According to their

compatibility to different problem contexts systems methodologies can be grouped as follows (Table 1.4);

	Unitary	**Pluralist**	**Coercive**
Simple	Operational Research Systems Analysis System Engineering	Social Systems Design SAST	Critical Systems Heuristics Team Syntegrity
Complex	System Dynamics Organisational Cybernetics Complexity Theory	Interactive Planning SSM	Postmodern Systems Thinking

Table 1.4. The Systems Approaches Related to the Problem Contexts in the System of Systems Methodologies (Jackson, 2003)

This study concentrates on the "Viable System Diagnosis (VSD)"; one of the system methodologies that provides solutions which have complex-unitary contexts. The VSD was developed by Stafford Beer upon systems ideas and cybernetic principles. It focuses on control and communication processes within the organisations and can be used for diagnosing the problems of organisations. Thus, in the following chapter the cybernetic principles are explained in order to have a better understanding of the philosophy that underlying the organisational cybernetics in which the VSD is mentioned.

CHAPTER 2

ORGANISATIONAL CYBERNETICS

This chapter includes a brief explanation about conceptual and practical development of cybernetics. It introduces the cybernetic principles that are used in control and communication processes and discusses the contributions of cybernetics to managerial field. Later the application of cybernetic principles in designing organisations and the well-known study of Stafford Beer's "viable system model" and its diagnosing methodology is explained.

2.1. What is Cybernetics?

The term cybernetics originates from the Greek word "kybernetes" which means "the art of steersmanship". In his Republic Plato used "kybernetes" in a metaphorical sense to refer the piloting of the ship of the state. It was transformed to Latin as "gubernator" then to English language as "governor". In 1790s James Watt used the word "governor" to name the self-adjusting valve mechanism that stabilises the steam engine in a constant speed (in Schoderbek et al. 1975). The word "cybernétique" was also used in 1834 by the physicist André-Marie Ampère to denote the sciences of government in his classification system of human knowledge (in Jackson, 2000). In its all usages in different times and in different forms the term "kybernetes" had a meaning of control.

Contemporary cybernetics began as the study of control systems, electrical network theory, and mechanical engineering. Until the 1950s, the field of control science focused on control processes only in non-living systems and was dominated by the field of engineering. However, both the non-living systems and the living systems had control processes in their own. So the domain of cybernetics should have been enlarged as much as possible and not to be restricted only in certain disciplines (Schoderbek et al., 1975). It was Norbert Wiener (1948) who defined cybernetics as "the science of control and communication in the animal and the machine" and an inter disciplinary study was born. According to Wiener (1954), the purpose of cybernetics is to develop solutions to the problems of control and communication and to cover certain principles and techniques that govern control and communication in general. He also highlighted two terms; control and communication. In control process the idea of feedback comes further as means of control. The other term is communication and it is significant because if a system is tended to be controlled, the controller must communicate with it, whether it is a machine or a human being.

Another significant contributor of cybernetics field was Ross Ashby (1956) who introduced the notion of "variety" –the number of distinct elements in a system or the number of possible states a system can show– and formulated "the law of requisite variety" which signifies that "only variety can destroy variety". Ashby (1956) also put emphasis on the general applicability of cybernetics to the different fields of study.

Even though it emerged firstly in engineering, cybernetics principles and concepts had an impact of many different areas such as sociology, physiology, psychology, and political sciences. After the British cybernetician Stafford Beer's (1959) studies, cybernetics started to attract the interests of management scientists and practitioners.

2.2. Cybernetics in Management

In his classification of systems Beer (1964) categorised systems based on their complexity and predictability (Table 2.1.). In terms of complexity he used three subclasses; simple, complex, and exceedingly complex systems. Simple systems have few components and few interrelations whereas complex systems consist of many components and have many interactions among their parts. Exceedingly complex systems are the systems that can not be described in a certain manner.

	Simple	**Complex**	**Exceedingly-Complex**
Deterministic	Pulley Billiards Typewriter	Computer Planetary system	Empty set
Type of control required	Control of inputs	Control of inputs	Control of inputs

Probabilistic	Quality control Machine breakdowns Games of chance	Inventory levels All conditional behaviour Sales	Firm Human Economy
Type of control required	Statistical	Operations research	Cybernetic

Table 2.1. Beer's Classification of Systems (Schoderbek et al., 1975)

The second criterion that Beer (1964) used to classify the systems was predictability. From the perspective of predictability, systems can be classified as deterministic or probabilistic systems. Deterministic systems are the systems of which parts act in a predictable way and they can be controlled through controlling of their inputs. Contrary to deterministic systems, probabilistic systems can not be predetermined and may exhibit different states. These types of systems, Beer claimed, should be controlled according to their complexity level. He proposed statistical methods for simple-probabilistic systems and operations research methods for complex-probabilistic systems. Regarding the control of exceedingly complex-probabilistic systems, Beer suggested cybernetic principles. Firms, individuals, and economies can be illustrated as examples of exceedingly complex-probabilistic systems. In addition to complexity and probabilism, Beer introduced another characteristic of the complex-probabilistic systems

which is called self-regulation. As illustrated in Table 2.2. for each of these three characteristics three different cybernetics tools can be used in order to define and control the systems (in Schoderbek et al., 1975).

Characteristics of Systems	Tools for Analysis
Extreme complexity	Black box
Self-regulation	Feedback principle
Probabilism	Variety engineering

Table 2.2. Characteristics and Tools for Analysis of Cybernetic Systems (Schoderbek et al., 1975)

2.3. The Cybernetics Tools

2.3.1. The Black Box Technique

Exceedingly complex systems are the systems of which behaviour cannot be easily predetermined and predicted. These systems have many processes and it is hard to describe which of the processes in the system is responsible for which of the behaviour that the system shows. In cybernetics, these types of systems are called "black boxes". Organisations, firms, and their environments are exceedingly complex systems and can be defined as black boxes (Jackson, 2000). In order to deal with black boxes, according to Ashby (1956), the reductionist method cannot generate an appropriate understanding about the whole system because the whole system is divided into parts that obliges the practitioner to become unable to grasp the whole interactions. Thus, instead of analysis, the black box of input manipulation and output classification technique as well as monitoring should

be used (Jackson, 2000). Since it is not possible for a manager to understand all interactions in a black box, the observer should manipulate the inputs of the system, observe the outputs of the system and make the necessary regulations to obtain the desired state. It is vital for the practitioner to observe the system behaviour for a certain length of time (Beer, 1979) and then discover some regularities and repetitions that make the system predictable. The technique provides a way for managers to tackle with the complex organisational problems without being confused in details (Jackson, 2000).

2.3.2. Variety Engineering

Organisations live in probabilistic environments where they experience many unexpected situations. They have to continuously adapt to these unexpected situations in order to survive and to become successful. To deal with the probabilistic systems, like organisational environment, cybernetics suggests variety engineering (Jackson, 1991).

The term variety was coined by Ashby (1956) and in cybernetics it means the number of possible states that a system may exhibit. According to Ashby's "law of requisite variety" only variety can destroy variety. In a system the variety of a controller must be at least as great as the variety of controlled system. As Beer stated;

> "In cybernetics, the number of distinguishable items (or distinguishable states of some item) is called the 'variety'. So we may sum up by saying that the output variety must (at least) match the input variety for the system as a whole, and for the input arrangement and the output

arrangement considered separately. This is a vitally important application of Ashby's Law of Requisite Variety (Beer, 1981:41)."

So managers that are trying to control their organisations and make them adaptive to their environments must command as much variety as these systems themselves demonstrate. In order to cope with massive variety of systems managers have to either increase their own variety (variety amplification) or decrease the environmental variety (variety reduction). This process of balancing varieties is called "variety engineering" (Jackson, 2000).

In the Brain of the Firm Beer (1981) emphasised some of the organisational variety reducers in three subclasses that can help manager to reduce environmental variety (Table 2.3.);

Class	Name	Meaning
Structural	divisionalisation	by factories or products
	specialisation	by market segments
	functionalisation	by profession or service
	massive delegation	top men free think
	utter involvement	immediate problem-solving
Planning	short-term horizon	ignore distant future
	long-term horizon	let immediate problems solve themselves
	settling priorities	sequential attention
	very detailed planning	well-oiled machinery
	management by objectives	decide where we are going

Operational	management by exception	ignore routine chance results
	close administration	cut down argument and anomalies
	averaging/aggregating	taking one year with another, etc.
	sacking innovators	prevent rocking the boat
	management auditing	keep a continuous check

Table 2.3 Some Organisational Variety Reducers (Beer, 1981)

In addition to variety reducers for organisation management, Beer also recommended some of the organisational variety amplifiers in another three subclasses; structural, augmentation, and implementation. He proposed the actions that can be followed by the managers in order to amplify the managerial variety (Table 2.4.);

Class	Name	Meaning
Structural	integrated teamwork	share knowledge and experience
	work through henchmen	amplifiers of the boss
	diversification/acquisition	generate/acquire new areas of business
	reorganization	broadening everyone's experience
Augmentation	recruit managers	add to existing managerial capability
	recruit experts	enhance existing managerial capability
	consultants to advise	gain form best practice
	consultants to implement	increase power to hatchet
	consultants to absorb variety itself	inhibit action while *sub judice*

Informational	Conferences	Encourage participation
	Improve management information systems	Enrich specific knowledge
	Training	Enrich general knowledge
	Management development by T-Groups	Enrich self-knowledge
	Open door arrangement	Employees come first

Table 2.4. Some Organisational Variety Amplifiers (Beer, 1981)

2.3.3. Negative Feedback

The third characteristic of a cybernetic system is self-regulation and in order to provide self-regulation negative feedback can be used as a mean of control. The feedback control system is characterised by its closed-loop structure (Schoderbek et al., 1975). Based on the continuous information flow about organisational outputs, regularities are made about inputs of the system to obtain desired output. In this process the output of the system is compared to the predetermined goals and adjustments are made to realise the organisational goals. For effective usage of feedback principle, managers must ensure the continuous information flow and continuous comparison between actual output and desired output. In order to maintain the stability, on the basis of the information derived it is also important to take corrective actions and to make adjustments if necessary (Jackson, 2000).

The application of cybernetic principles to the managerial field gave birth to two different approaches that can be named as "management cybernetics" and "organisational cybernetics".

Management cybernetics was influenced by the machine or organism analogies and looked at the organisation as a model of input-transformation-output schema (Jackson, 1991) and emphasised regulation by using black boxes and feedback mechanisms. They described the basic operational activities of organisations and showed how organisations should be regulated that does not deviate from these externally determined goals. However, management cybernetics was unable to offer new solutions to managerial problems. It can be criticised for its inability to deal with the subjectivity and with the extreme complexity (Jackson, 1991).

Organisational cybernetics, even though Beer did not use this term, was developed by Stafford Beer studies (1979, 1981, and 1985) about cybernetic modelling of organisations and it broke the mechanistic view of cybernetics to organisations. The result of Beer's studies was the most comprehensive and well-known cybernetic modelling of organisations; "viable system diagnosis" (VSD).

2.4. Viable System Diagnosis

According to Beer the traditional organisation chart is inappropriate for understanding and interpreting real organisations. Since organisations experience increasing complexity and have to respond their environments quickly, he claimed, a more responsive and adaptive organisation model that holds all the characteristics of viability is needed. He defined cybernetics as "the science of effective organisation" (Beer, 1985) and used cybernetic principles to create an applicable and useful model for designing

organisations. Beer (1981) suggested that in order to understand viability the best and richest model is human nervous system. Thus, by breaking the machine metaphor and deriving ideas from cybernetics and neurophysiology he developed the "viable system model". The Viable System Model (VSM) proposes a method for innovative design of the organisations and it can be used to diagnose organisational problems. So the term "viable system diagnosis (VSD)" can be used to name the methodology that Beer introduced (Flood and Jackson, 1991).

2.4.1. The Viable System Model

The human nervous system is a two-dimensional system that consists of one vertical command axis and lateral axes that integrate autonomic organs and muscles into the organic balance (Beer, 1981). It performs five different functions of viability. These functions are performed by different organs and by different subsystems within the human body. First, organs and muscles are the autonomic units that actually "do" something. Second, the sympathetic nervous system is responsible for stabilising the organs' and muscles' activities. Third, the internal controlling is performed by pons and medulla (base brain). Fourth, through the senses the body is in connection with its environment and perceives external stimulus. And fifth, the cortex performs the higher brain functions and closes the whole system on itself. According to Beer, these ideas can be employed to design real organisations. Thus, inspiring from the human nervous system and using cybernetic

principles Beer developed his neurocybernetic model that consists of five different functions of viability (Figure 2.1.).

These five functions are named System 1 to 5 and all of them are related with performing different functions of viability. They are implementation, coordination, control, intelligence, and policy making.

The model Beer developed is unique and it is applicable for all types of organisations even they are small or big. As Beer stated (1981) even the firm is consisted of one-person all five functions can be performed by the same one person. Followings are the characteristics of System 1 to System 5.

System 1

System 1 (S1) is the operational unit or element of the organisation and related with implementation. It is concerned with the task that the organisation is supposed to perform. Thus, there may be more than one S1 in an organisation. Each S1 has its own localised management that is connected to upward management from where it receives instructions and each part of S1 is free to deal with their sub-environments. Parts can respond to changes in the environment according to their own goals. S1 receives its goals and objectives from System 5, interprets them for its operations, receives feedback information on performance, and takes corrective actions. It is controlled by System 2 and System 3 (Jackson, 2000). Restrictions on S1 come from S2-S5. S2 protects the autonomy of S1 elements through audit.

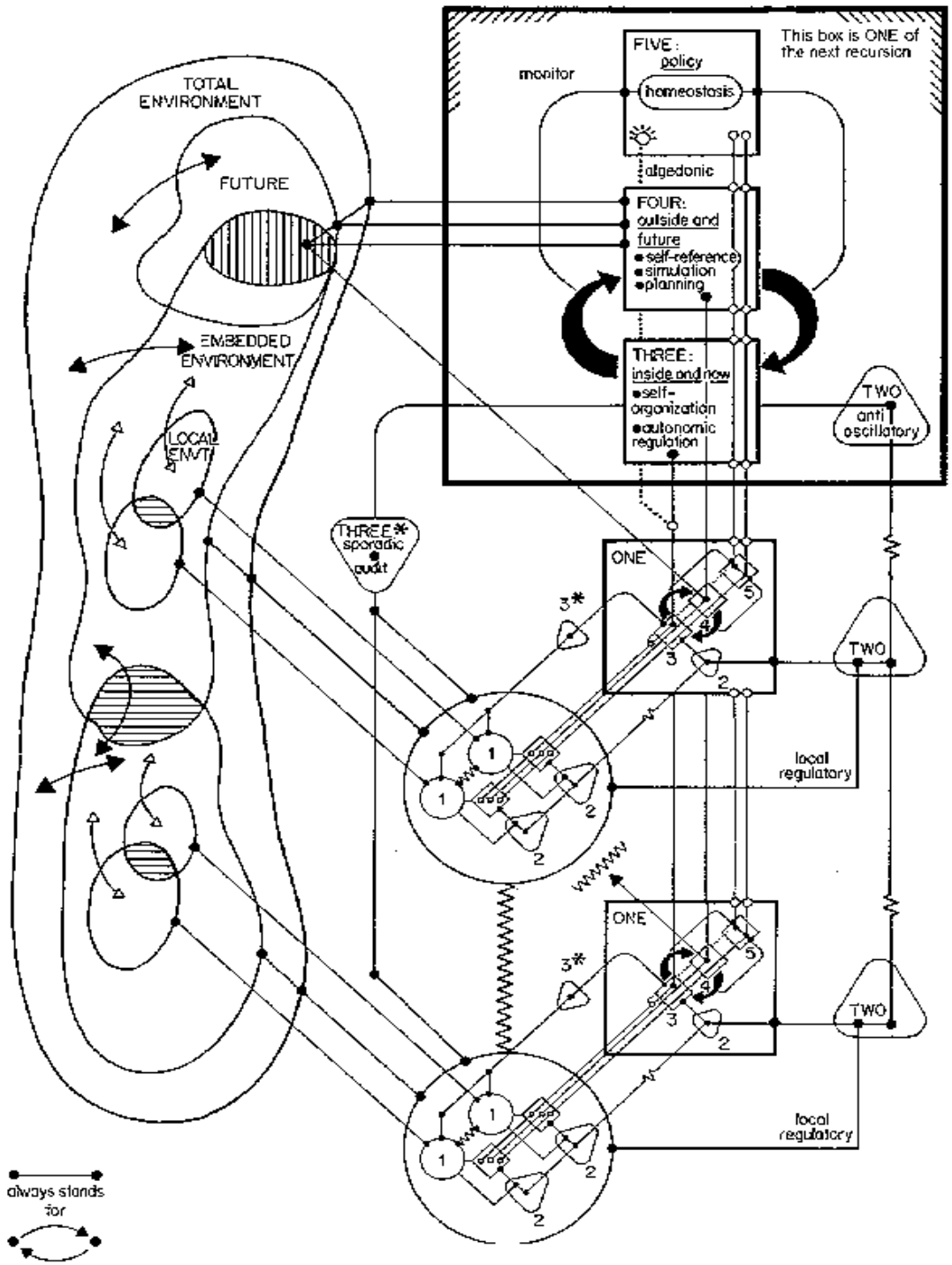

Figure 2.1. The Viable System Model (Beer, 1985)

System 1 must have autonomy on its operations. It is the distinctive characteristic of the VSM. So that it can absorb the environmental variety that would otherwise flood higher management levels (Jackson, 2000). According to Beer, autonomy means "a law unto itself". In the firm the autonomic function or branch means that it is responsible for its own regulation (Beer, 1981). Beer also highlighted the importance of the autonomy as follows;

> "If a division of the firm were really and truly autonomous it would not be part of the firm at all. In the same way, if the heart or the liver were really and truly autonomous, they might decide to renegue on the body. On the other hand if the heart and the liver were not more or less autonomous, we would have to remember to tell them what to do all the time – and we would be dead in ten minutes. In the same way, if a division of the firm is not more or less autonomous, the main board has to run it directly – which is equally, impossible (Beer, 1981:75-76)."

So in order to provide autonomy to the elements of S1 each part of S1 must be designed as a viable system. This shows the recursive characteristic of the VSM. If all operational elements are designed as viable systems then the whole system becomes recursive.

System 2

System 2 (S2) is the coordination function. It is responsible for coordinating System 1 activities. In an emergency each operational element (System 1) acts according to its own interests. However, they have only local information and actions performed by S1s based on this limited information may damage the whole system. Thus, a coordinating function S2 must ensure harmony between the operational elements in the system. S2 works

through feedback mechanism. It receives the information from operational units and their localised managements and responds them in order to optimise their activities (Jackson, 2000). S2 imposes various rules and regulations on parts of S1 to ensure that they are cohesive. S2 also provides legal requirements and prescriptions.

System 3

System 3 (S3) is responsible for controlling. It ensures that the S1 activities adhered to rules and regulations by S2 and directed to goals specified by System 5. S3 also monitors the performance of the S1s' activities and allocates resources to the operational elements and engage in resource bargaining. S3 interprets the policies of the higher management to the operational units and provides information about the subsidiaries' activities to the System 5 for policy making. It receives external data through System 4 that is necessary for controlling (Jackson, 2000). Besides as a close controlling function S3 has a vertical axis that is called System 3* (S3*). S3* continuously audits the operational activities by getting immediate information from operational units.

System 4

System 4 (S4) has two important tasks in the organisation. Firstly it is responsible for gathering and reporting information from total environment of the organisation. Secondly, it transmits the received information to upward (S5) or downward (S3) according to its importance (Jackson, 2000). S4 seeks continuously the organisational environment and collects the

relevant data for organisational planning, decision making, and operational activities that are being performed inside the organisation. After the data collected S4 classifies the data and the data about long-run activities of the organisation are delivered to S5, whereas the data about, the short-run activities are delivered to S3. S4 also brings external and internal information together, filters them and makes them ready for policy making. Furthermore, it is responsible for creating a decision making environment for System 5. The urgent information from System 1, 2, and 3 is transmitted by S4 to System 5 and alerts the System 5 through an algedonic (pleasure and pain) signal (Flood and Jackson, 1991).

System 5

Making organisational policy and directing the whole organisation are the roles of the System 5 (S5). S5 represents the identity of the whole system to any wider system of which it is a part. It balances the external and internal demands and solves the conflicts that emerge because of the differences of these demands. S5 responds the signals that come from the System 1, 2, 3, and 4. Determining the operational tasks and the future plans of the organisation is under the responsibility of the S5 (Flood and Jackson, 1991).

2.4.2. Using the Model

The procedure of using the VSM can be divided into two steps. One is system identification and the other is system diagnosis (Flood and Jackson, 1991).

2.4.2.1. System Identification

System identification is the process of determining the purpose of the system and the systems relevant to that purpose. As the model is used in complex-unitary systems, it is vital to determine the purpose of the system to be performed. After having determined the purpose, the relevant system is identified and this is the "recursion level 1" and called as "system in focus". Since it is the S1 which produces the purpose of the "system in focus", S1 parts of the "system in focus" are revealed. This is the "recursion level 2". Lastly, the wider systems and the environment of the "system in focus" are identified. This is the "recursion level 0" (Flood and Jackson, 1991; Jackson, 1991).

2.4.2.2. System Diagnosis

System diagnosis is the process of questioning the actual organisation from the perspective of the cybernetics principles that should be obeyed (Flood and Jackson, 1991). All five functions of the system in focus should be studied in the light of philosophy of VSM.

In diagnosing S1 of system in focus the operations, the localised management, and the environment of each unit must be identified. The limitations imposed from the higher level management on units and the performance indicators are determined. The existence of accountability of foe each part S1 is questioned. Lastly, S1 is modelled according to VSM diagram (Flood and Jackson, 1991).

Once S1 parts of the system in focus are described the coordination function is studied. Possible sources of conflicts among S1 elements and between their environments are uncovered and the parts of S2 that dampens the oscillation within the operational units are established (Flood and Jackson, 1991).

In order to create a controlling function in the organisation S3 of the system in focus is studied. The elements of the S3 are revealed. The questions of "how the authority is employed by S3?" and "how resource bargaining is performed by S3 are answered?" It is also important to determine who holds the responsibility for the performance of the operational units. What audit enquiries into parts of S1 are conducted by S3 must be questioned. The nature of the relationship between S3 and S1 is examined whether it is democratic or autocratic (Flood and Jackson, 1991).

After the functions related with "now and here" the intelligence function (System 4) of the system in focus related with "future and there" is diagnosed. To make the organisation adaptive to its environment the necessary activities that are performed by S4 are listed. S4 is made as a function enable to monitor the environment continuously and should be open to novelty. An operation room or management centre must be constituted by S4 in order to bring external and internal information and to provide an appropriate atmosphere to S5 for decision making. Lastly, it is questioned that if S4 has the ability to transmit urgent developments within the organisation to S5 or not (Flood and Jackson, 1991).

In studying the S5, the elements of the S5 is determined and the identity that S5 represents is questioned whether it is suitable for the system in focus or not. Concerning the effects on S4 and the effects on the relationship between S4 and S3 ethos created by S5 is understood. It is also important to emphasise the similarity or dissimilarity of the identity of S5 and of S1 (Jackson, 1991).

After modelling all five functions of the system in focus information channels and control loops of the system are created. Information systems are needed to reduce variety managers have to handle. They should convey only variances from planned objectives. Potential disasters occurring lower down must be transmitted to S5 through an algedonic signal promptly.

CHAPTER 3

THE DESCRIPTION OF ERK MARKETING Inc.

This chapter starts with a succinct analysis of the history of Eroglu Holding. Then, it portrays the structure of Eroglu Holding as well as features the role of Erk Marketing Inc. in the Group. Lastly, it provides a description of Erk Marketing Inc. in terms of its current structure and operations. The operations that are performed by Erk Marketing Inc. are explained and the departments of the company and their main responsibilities for performing organisational goals are described.

Erk Marketing (full name Erk Marketing and Clothing Industry and Trade Inc.) is a Turkish marketing company that operates under Eroglu Holding which has operations mainly in the textile industry. It is responsible for designing, planning production, distributing, and marketing of the products of Eroglu Holding's two powerful brands named "Colin's" and "Loft". Since Erk Marketing performs its operations under the roof of Eroglu Holding, it is most appropriate to introduce Eroglu Holding before to have a better understanding about Erk Marketing.

3.1. The Historical Background of Eroglu Holding

The enterprise that transformed later into Eroglu Holding was founded by Eroglu brothers under the leadership of Nurettin Eroglu with just 6 textile machines in 1983, in Istanbul. Later, Eroglu brothers established Eroglu Confection and began to produce coat and duffle coat in a 150 m^2-workshop

with 15 employees. In addition to coat and duffle coat production, the company started to produce shirts and jeans with its own brand "Kulis" in 1986. In the following year the firm moved to a larger workplace in Istanbul.

In 1991, the amount of daily production of the company was 1000-1500 units and after the construction of the factory with 10.000m^2 production area in Avcilar, the daily production increased to 10.000 units. At that time the company was restructured. The production departments of washing, buttonholing, ironing, and packaging were specialised on their own. The marketing, exporting, finance departments were redesigned. The name of the company Eroglu Confection was changed to Eroglu Clothing Industry and the brand name "Kulis" was converted to "Colin's Jeans".

Two years later with its new brand name Eroglu Clothing Industry started to export its products to many Eastern European countries, particularly to Russia. In 1995, Colin's Clothing Industry Inc. was established in order to organise marketing operations of the company. During this period the sales volume in Russia as well as in the Turkish Republics of central Asia increased and daily production reached to 18.000 units. As a result, a company that is responsible for Russia operations was established and the first store in Moscow was opened. In 1996, Eroglu Holding had 700 employees and the daily average production was 20.000 units. It had 5 stores (3 stores in Turkey and 2 stores in abroad) in total.

As a consequence of the rapid expansion of the company, the structure of the company was redesigned in 1997. In the same year "Loft"

was added to company's portfolio as a new brand and Erk Inc. was established for the Loft's marketing activities. Also through the establishment of the Ers Knitting Inc. the company entered to knitting sector. In the same year the Eroglus also established a construction company and entered to construction sector. In 1998, the second integrated facility that had 35.000m^2-production area in Esenyurt, a suburb of Istanbul metropolitan area, was completed. The number of stores in Turkey was increased to 7 and to 3 in abroad. In that year, Erma Inc. that was responsible for managing the stores' operations was established. One year later the company started to produce clothing for world famous brands like Calvin Klein, Next, Tommy Hilfiger, and GAP.

In 2003, a factory specialised in washing technologies started to its operations in Istanbul. It was the most developed sportswear production facility in the world. Besides, the company began to produce its products in Russia and opened new stores with strategic investments in that country. Furthermore, companies were established and retail businesses were initiated for its marketing activities in Europe and in the U.S.A. After having completed the restructuring process of the Group, as a new investment area Eroglu Group began to conduct projects in the construction sector. In 2006, the Group shifted its some clothing production operations to Egypt as contract manufacturing activities. By the year 2007, Eroglu Holding was producing 20.000.000 units sportswear with its own Colin's and Loft brands.

At home and in abroad it had totally 6.526 personnel ands 167 stores. Its products were being sold approximately in 3.000 retail points.

3.2. The Structure of Eroglu Holding and the Role of Erk Marketing Inc. in the Group

Eroglu Holding is a family owned company and its main operations are in the textile industry. The Group offers woven, knitted, and denim clothing to the market with Colin's and Loft brands. These products are produced and marketed by the Holding's subsidiary companies. These subsidiary companies and their chief characteristics are shown in Table 3.1.

EROGLU HOLDING Inc.	
Date of Foundation	: 2006
The Number of Employees	: 24
ERK MARKETING & CLOTHING INDUSTRY AND TRADE Inc.	
Date of Foundation	: 1995
The Number of Employees	: 950
Field of Activity	: Brand marketing
Brands	: Colin's, Loft
Number of Stores	: 70
Store Space	: 16.000 m^2
Company Head Office	: 10.000 m^2
EROGLU CLOTHING INDUSTRY AND TRADE Inc.	
- Eroglu Clothing Avcilar	
Date of Foundation	: 1992
The Number of Employees	: 317
Field of Activity	: Organisation, planning and marketing of the woven bottoms production
Production Area	: 35.000 m^2

- Eroglu Clothing Corlu	
Date of Foundation	: 2003
The Number of Employees	: 1. 729
Field of Activity	: Production of woven bottoms with advanced washing technologies
Production Capacity	: 5.500.000 units / year
Production Area	: 45.000 m^2
- Eroglu Clothing Aksaray	
Date of Foundation	: 2004
The Number of Employees	: 600
Field of Activity	: Production of woven bottoms
Production Capacity	: 2.500.000 units / year
Production Area	: 10.000 m^2
- Eroglu Clothing Egypt	
Date of Foundation	: 2006
The Number of Employees	: 1.00
Field of Activity	: Production of denim
Production Capacity	: 6.000.000 units / year
Production Area	: 35.000 m^2
ERS KNITTING TEXTILE INDUSTRY AND TRADE Inc.	
Date of Foundation	: 1997
The Number of Employees	: 265
Field of Activity	: Production of Knitted Tops and Bottoms
Production Capacity	: 6.000.000 units / year
Production Area	: 15.000 m^2
COLIN'S RUSSIA	
Date of Foundation	: 1995
The Number of Employees	: 950
Field of Activity	: Colin’s, Loft brand marketing, wholesale and retail

The Number of Stores	: 55
Franchising	:145
Store Space	: 14.000 m^2
Company Head Office	: 2.000 m^2
COLIN'S UKRAINE	
Date of Foundation	: 2000
The Number of Employees	: 550
Field of Activity	: Colin’s, Loft brand marketing, wholesale and retail
The Number of Stores	: 30
Franchising	: 61
Production Area	: 7.000 m^2
COLIN'S EUROPE	
- Colin's Slovakia	: 1995
- Colin's Czech Republic	: 1996
- Colin's Germany	: 2003
- Colin's U.S.A.	: 2003
- Colin's Switzerland	: 2005
- Colin's Austria	: 2005
- Colin's Holland	: 2005
- Colin's France	: 2005
The Number of Employees	: 90
Field of Activity	: Colin’s, Loft brand marketing, wholesale and retail
The Number of Stores	: 12
Store Space	: 3.000 m^2
Company Head Office	: 11.000 m^2
COLIN'S CHINA	
Date of Foundation	2005
The Number of Employees	: 22

Field of Activity	: Product development and sourcing for Colin's and Loft brands
EROGLU CONSTRUCTION AND REAL ESTATE DEVELOPMENT Inc.	
Date of Foundation	: 1997
The Number of Employees	: 20
Field of Activity	: Developing, marketing and implementing commercial construction projects.

Table 3.1. Eroglu Holding and Its Subsidiaries (http://www.eroglu.com/en/erogluholding.php?sayfaID=3)

The Holding itself serves as a centre that supports these subsidiary companies by the functions finance, human resources, information technologies, auditing, strategic planning and CRM. This central management also provides guidance to and information about the operations of all companies within the Group. Thus, the structure of the whole Group can be interpreted as close to a matrix structure (Figure 3.1.).

Eroglu Holding's has two brands –Colin's and Loft– have a profound impact on Group's whole operations. The core businesses related with these two brands are production and marketing of their seasonal collections. So the companies, which are responsible for the production (Eroglu Clothing Industry) and marketing (Erk Marketing Inc.) activities, perform vital operations for the whole Group and naturally have great importance. Erk Marketing is one of these two companies in which designing, production planning, logistics, and marketing activities of Colin's and Loft are performed.

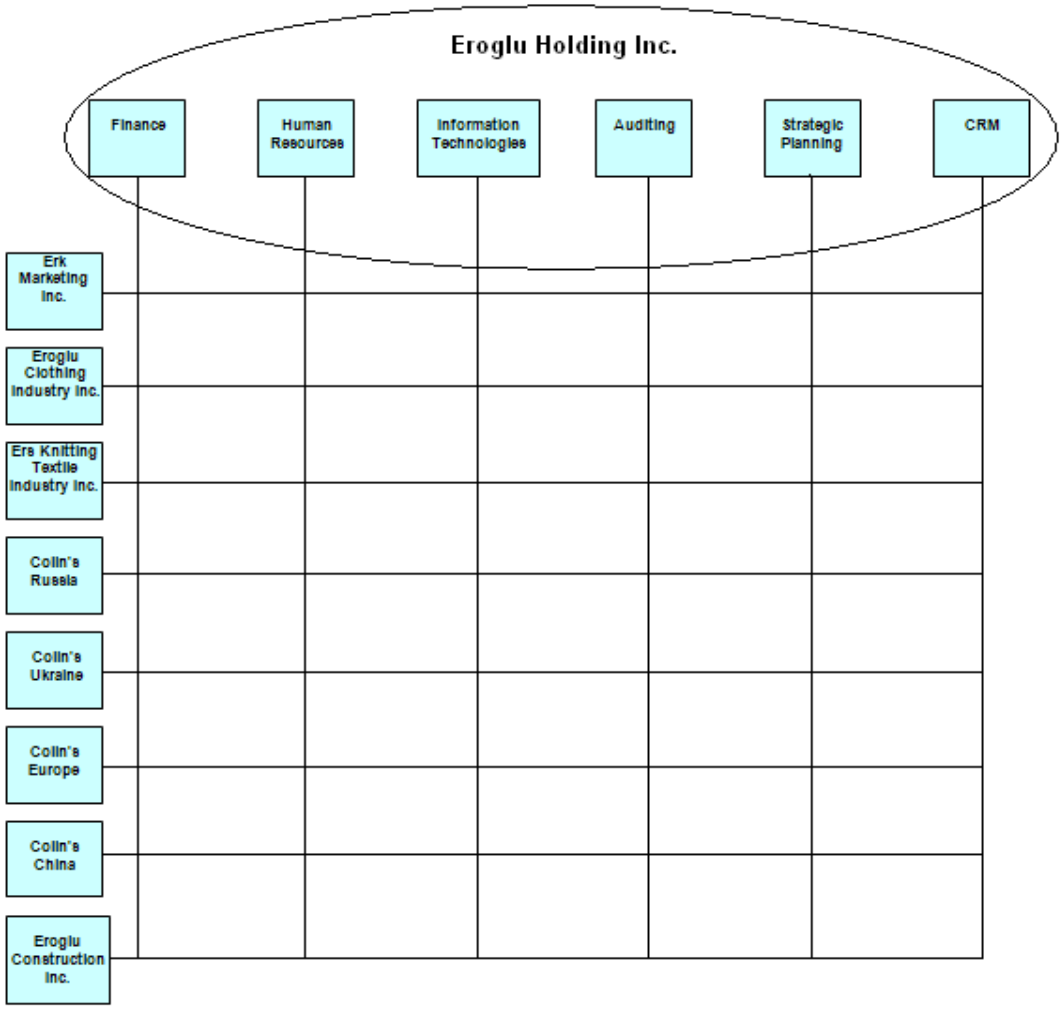

Figure 3.1. The Structure of Eroglu Holding

3.3. Erk Marketing Inc.

All operations ranging from designing products to marketing of Colin's and Loft are performed by Erk Marketing that keeps an eye open for its external environment. As the Board-Vice Chairman of the Group Sahin Eroglu has expressed, in Erk Marketing "Colin's and Loft brands are designed according to the latest trends. Designs are turned into models, orders are received, and production planning is undertaken accordingly, both in Turkey

and abroad. The goods are then forwarded to wholesale and retail points by Erk Marketing for the Colin's and Loft brands."

Erk Marketing is responsible for Colin's and Loft products as well as for the retailing stores. The Colin's is the first brand of the Group which is originated from the Group's old brand "Kulis". In 1992, the name "Kulis" was converted to "Colin's Jeans". It has now high reputation in Turkey and in foreign markets, especially in Eastern European countries and in the Middle East countries. The target of the brand is "young" and "mature young" consumers from 15-35 ages. The firm defines its own brand as follows;

"The philosophy of Colin's is to present jeans combining the youth, dynamism, comfort and freedom and whilst subliminally raising awareness of social consciousness. This philosophy is also included in manufacture of the products."

According to the firm itself the team behind the designing process of the Colin's is;

"...composed of young, dynamic and innovative members who believe in themselves, each other, the brand and the enterprise."

The other brand is Loft; the icon of dynamism and youth. It was joined to the Group in 1997. It is being marketed in Turkey, in the U.S.A. and in many European countries such as; Germany, Austria, Italy, Sweden, Switzerland, and Belgium.

The other core business which is under the responsibility of Erk Marketing is retailing. Eroglu Group started to retail business in 1988. Parallel to its growth, the Group's retailing operations also expanded. Currently, the Holding has 167 stores and it distributes Colin's and Loft products to 3.000

sales points in Turkey and abroad. All of these retailing activities including design of the stores and searching new selling locations are undertaken by Erk Marketing Inc.. Retailing business provides to the company closeness to its customers and gives the opportunity to perceive and appreciate the consumers' behaviour during the shopping.

It is obvious that Erk Marketing is at the centre of the whole Group's businesses and the company has a rightful importance within the Holding. The success of the Holding in Turkey and abroad is tied to its brands, so operations being performed by Erk Marketing is vital for the success of the whole Group.

3.3.1. The Current Structure and the Operations of Erk Marketing

Erk Marketing has a functional structure (Figure 3.2.). It is directly tied to the board chairman of the Holding; Nurettin Eroglu. The span of control of Mr. Eroglu consists of two Board members; Sahin Eroglu and Yavuz Eroglu. Sahin Eroglu is responsible for brand directory, supply chain directory, financial affairs management, and administrative affairs management of Erk Marketing; whereas Yavuz Eroglu is responsible for global sales and marketing directory, human resources, and information technologies of the company. This separation is made based on the Board member's specialisations.

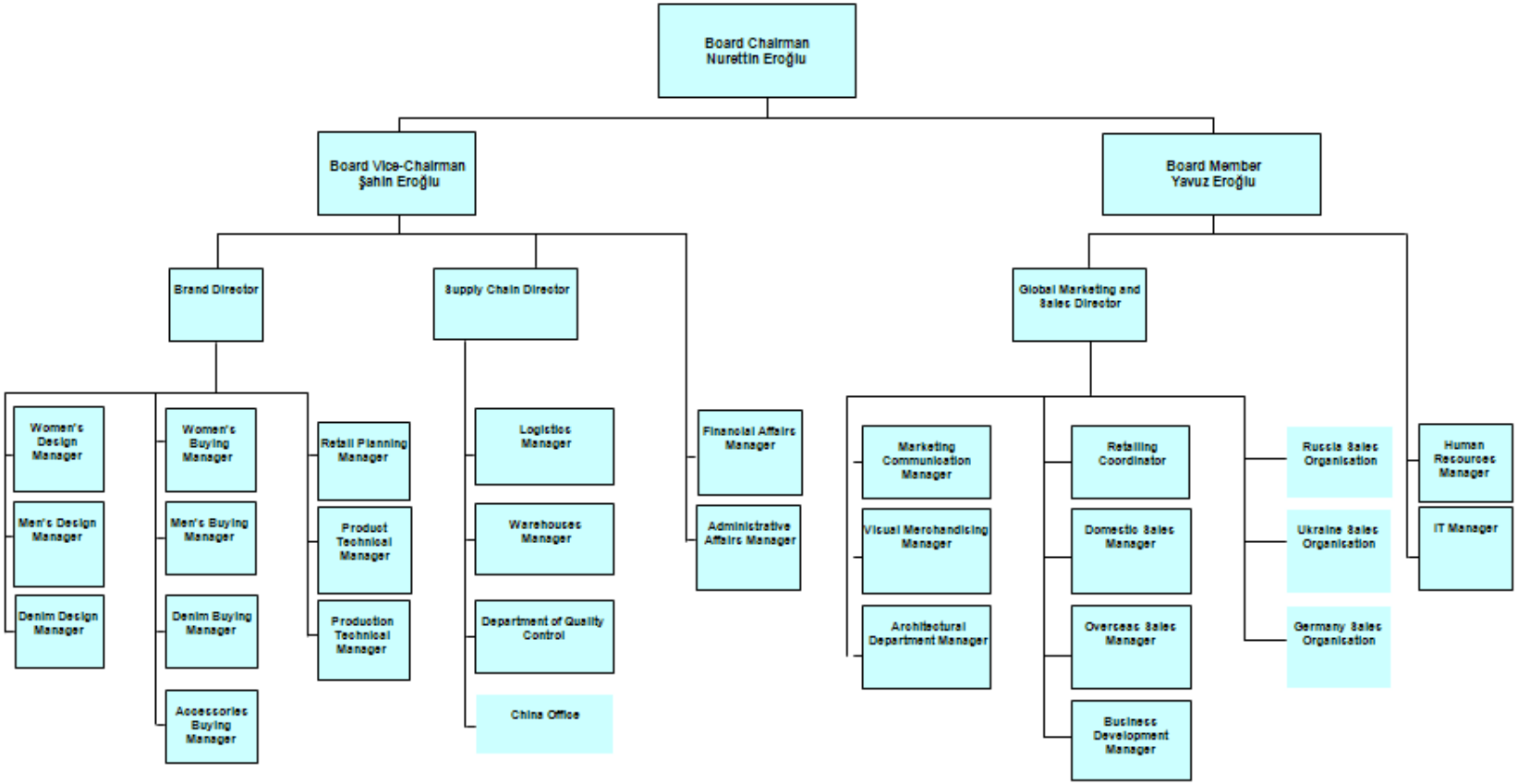

Figure 3.2. The Organisational Chart of Erk Marketing Inc.

The departments mentioned above are responsible for the activities of creating seasonal collections of Colin's and Loft and marketing of them to the customers. The main processes performed by the departments are in a reasonable sequence.

When there is an order, the operations performed by Erk Marketing in one season can be illustrated as in Figure 3.3.;

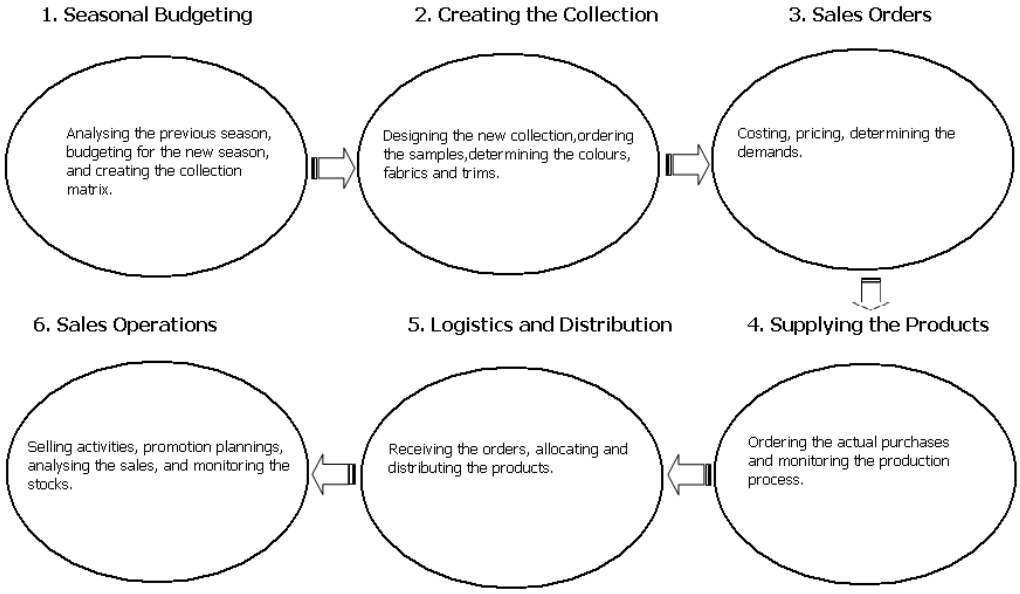

Figure 3.3. The Seasonal Work Flow in Erk Marketing

At the end of each season, each region/country management prepares a budget by considering closed/opened stores and refits/layouts. After being evaluated by the Global Sales and Marketing Department, this budget is sent to the main Board for approval. When the budget is confirmed, by means of historical sales, target prices, and mark downs, Retail Planning Department converted it to a buying budget. This buying budget is endorsed by the Brand Director. With the participation of designers, buyers, and retail

planners; a collection matrix for the new season which includes outline descriptions, costing prices, selling prices, suppliers, and quantities is created. This activity is continuously repeated until issuing purchase orders. It is also approved by the Brand Director.

The designers participate to international trade fairs, collect data about new trends, and determine the next season's trends. The designers working with the buyers and retail planners start to design the new collection. Fabrics, colours and trims are determined at this stage. This collection is subject to the approval of buying managers, retail planning manager, and Brand Director. Designers, buyers and retail planners have periodical meetings to ensure that the designing process is being followed and the decisions are approved by the Brand Director. The buying unit sends out the technical information to the suppliers about new designs to enable them to produce samples. Fabrics, colours, and trims are approved at the end of this process. If necessary, evaluations may be made.

Costs, prices, quantities, and suppliers are evaluated for final purchase orders. The collection is presented to the sellers in order to predict the demand.

When orders are received from all sellers, buying department makes agreement with suppliers. Certain purchase orders are issued by buying department. During production, the process is being monitored by buying managers in order not to lead to delays in critical paths.

After receiving the products quality control is made by the quality control department. Based on their capacities and sales potential the allocations of the products are made to the stores by the Logistic Manager.

Stores are also redesigned according to the new season's products. The sales, stock movements, and markdown plans are continuously monitored. The promotions and predefined sales activities are initiated by the Sales Managers.

CHAPTER 4

THE APPLICATION OF VIABLE SYSTEM DIAGNOSIS TO ERK MARKETING Inc.

In this chapter the application of Viable System Model (VSM) is realised. The rationale behind the use of viable system diagnosis is explained. In the system identification the purposes of Erk Marketing are identified and the recursion levels are portrayed. Then in the system diagnosis, Erk Marketing which is the system in focus of the application is redesigned according to VSM. All systems, 1 to 5, are defined and the diagnosed problems that damage the viability of the organisation are solved.

4.1. Why The Viable System Diagnosis?

The viable system diagnosis offers appropriate solutions for the problems that are in the complex-unitary problem-context (Flood and Jackson, 1991). The organisation—Erk Marketing Inc.—that is the system in focus of the application have operations in a highly dynamic textile industry in which the businesses are being performed seasonally. In a short period of time, the new collection for the new season must be created and without any delay the collection must be offered to the market by the company. The company also has many parts that have interactive relationships with each other and serve a common purpose determined by the family members of the organisation. The communication between these parts is crucial because of the nature of the business itself.

The viable system diagnosis can be used in two different ways. First, it can be used in developing new organisational systems according to cybernetic principles proposed in the model. Second, it can be used as a diagnostic tool in order to check an existing organisation's structure by comparing the model (Jackson, 1991). This application used the latter in which the structure of a company is analysed in terms of the cybernetic principles to ensure its viability and effectiveness.

4.2. System Identification: Identifying the Purposes and Defining the Levels of Recursion of Erk Marketing

Before applying the viable system model to Erk Marketing it is necessary to determine the recursion levels. In our triple recursion, Erk Marketing is the "system in focus" and "recursion level 1". The higher recursion level which is "recursion level 0" is Eroglu Holding. The recursion level 2 includes three operational elements of Erk Marketing which are brand directory, supply chain directory, and global marketing and sales directory (Figure 4.1.).

The recursion level 0 is Eroglu Holding itself. It has a central management and consists of eight subsidiary companies (see Table 3.1.). These companies are the System 1 parts of the recursion level 0. Each of these companies have specialised objectives. However, they have an agreed purpose which is the Holding's mission and it is defined as;

"To present our institution, with its international brands, to the highest level in the textile and construction sectors, by being effective in all phases

of the process from design to the finished product to the presentation for the satisfaction of the end user."

One of the System 1 parts of Eroglu Holding is Erk Marketing Inc. which is the recursion level 1 of this study. Its purpose is defined by the practitioner as;

"By being aware of our responsibility for our international brands' images, to create our products according to last trends, to supply them with high quality standards, to distribute them to the stores and sales points in worldwide, and to sell them to the end users with an unforgettable experience. These activities generate profit for the company."

In the following section Erk Marketing is redesigned according to VSM and Systems 1 to 5 are reorganised to ensure the company's viability.

4.3. System Diagnosis: Reorganisation of Erk Marketing Inc. According to Viable System Model

Erk Marketing is viable and shows a separate existence from the Holding. It is a profit centre and in order to perform its objectives, Erk Marketing has three operational units which are the divisions of brand directory, supply chain directory, and global marketing and sales directory. These three divisions exist in the current structure of the company and they should be redesigned as viable elements of Erk Marketing Inc..

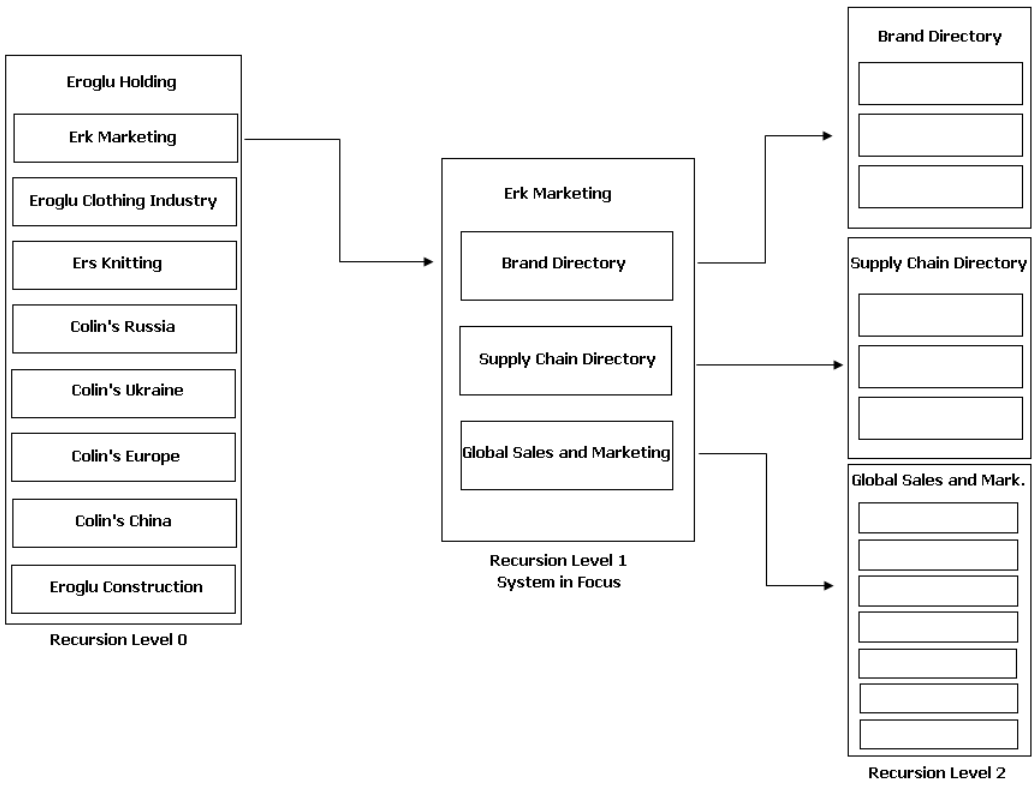

Figure 4.1. Recursion Levels of Erk Marketing

4.3.1. System 1

According to main operations performed by Erk Marketing, three operational elements are defined.

System 1a (S1a) is the "Brand Directory" and deals with the creation and supply of seasonal collections. Seasonal work flow is launched by the Brand Directory. Its operational element includes Design Unit, Buying Unit, and Production Planning Unit. The managers of these three operational units and the Brand Director make up the local management of S1a. During the design and buying processes, these managers need to work closely and to arrange meetings to ensure the design process is going on its way. The local environment of S1a is defined as international trade fairs, relevant textile

industry, competitors, suppliers of the products, and stores and sales points of the products from where it gets feedbacks about the customer preferences. S1a is connected to its higher management. It receives its financial and human resources from System 3. It is open to be controlled by System 3 and to be coordinated by System 2. S1a is subject to be audited by System 3*. The objectives of S1a are determined by System 5 and are converted to targets by System 3. S1a is autonomous on its operations. The local management provides the functions from System 3 to System 5 for S1a. It has its own policy making function and it is free to respond to its local environment to reduce environmental variety. Intelligence function within the local management of S1a is performed by Design Units and Buying Units. Both of these units are free to seek the local environment to determine the new trends and to find better suppliers. System 3 is performed by the managers of the operational units. However, there is no local System 2 designed to coordinate the activities of the operational units of S1a which is developed later.

System 1b (S1b) is the "Supply Chain Directory" and deals with logistics, distribution, and the quality control of the products produced by suppliers. Storage and distribution activities are made by the Supply Chain Directory. It has a local management which consists of Supply Chain Director, Logistics Manager, Stores Manager, and Quality Control Manager. Its local environment includes the suppliers, shipping companies, and stores in Turkey and abroad to where it allocates the products. Similar to S1a, S1b

is connected to its higher management with vertical axis. It receives its objectives from System 5 and controlled by System 3. It is open to be coordinated by System 2 and to be continuously audited by System 3*. It must be a viable system and autonomous. However, in some cases, because of lack of a System 2 in the whole system, the autonomy of S1b may be damaged by System 3 or even System 5. When some delays in receiving the products or some rapid changes in the demands of the stores arise, System 3 or System 5 can attempt to solve these problems. So the S1b must be coordinated by a coordination function to keep its autonomy. System 1b does not have an intelligence function within its local management. Thus, a new unit, as a line function, should be developed as a System 4 for the local management of the S1b. Its responsibilities should be to search for the environment as well as to determine the best shipping companies, and distribution channels for the S1b.

System 1c (S1c) is the "Global Marketing and Sales Directory". Under this directory marketing operations, retail businesses, the operations related with the design of the stores, and customer relations management are performed. It has a local management. The Global Marketing and Sales Director, Retailing Coordinator, Domestic and Overseas Sales Managers, Business Development Manager, Marketing Communication Manager, Visual Design Manager, and Architectural Department Manager make up the local management of S1c. The local environment of S1c includes the textile market in Turkey and in abroad where the company has operations. It is tied

to its higher management. Similar to other two operational elements, it gets its objectives from System 5. It is controlled by System 3. Through System 3*, S1c must closely be monitored and a System 2 function also must be designed to coordinate the activities of the S1c in terms of its relations with other operational units. The System 4 for the local management of the S1c is performed by Business Development Manager. This unit monitors the environment to find new locations for new stores and new sales points.

4.3.2. System 2

In diagnosing the System 2 (S2), a coordination function that maintains the harmony among the operational elements is needed. Erk Marketing does not possess such a coordinating function and this situation damages the viability of the whole organisation. In fact the oscillations and conflicts among the S1 parts of the Erk Marketing are being solved by System 3 and System 5. However, it damages the autonomy of S1 elements. So, a coordination function as a "corporate regulatory centre" for the whole organisation and its sub-coordination centres for each S1 elements must be developed.

The operations of the company are seasonal, follow an order, and highly dependent on each other. Thus, a problem within an operational unit generally causes a delay in the whole process. So, the existence of the S2 is crucial to establish the harmony among the S1 units. The main conflict resources for Erk Marketing's operational elements can be defined as follows;

1- The design of the new collection may not be developed by S1a by considering the feedbacks coming from S1c.

2- The design process of the new collection may not be finished by S1a at the right time so that S1b has sufficient time to receive and distribute the products.

3- The contracts being issued with suppliers may not be made by S1a by concerning delivery time so that S1b has sufficient time to distribute them.

4- The delays may occur in the distribution of the products by S1b to S1c.

5- As a result of changes in demands of sub-operational units of S1c, simultaneous demands for the limited products in the stores may arise.

S2 should be conscious about these possible conflict resources. Rules and prescriptions must be described and operational units must be informed about them.

Erk Marketing currently uses MS Axapta and ERP programmes to be able to monitor its work flow. Each part of S1 has free access to these programmes. They have the right to change the data about their own operations and to see the relevant data which they need in their operations. However, a higher management does not exist to monitor the S1's activities

from a broader perspective so that it can build up the harmony among them. To perform the coordination functions within the Erk Marketing, a new unit must be designed as S2 which includes staffs who are specialised in computer programmes and have right to access the all software programmes provided by IT Management. S2 must have close relations with S1s' local managements and System 3.

4.3.3. System 3

System 3 (S3) is the controlling function of the organisation. Erk Marketing has departments that are responsible for controlling the activities of the operational units and allocating resources to them. The Financial Affairs Manager, The Administrative Affairs Manager, The Human Resources Manager, and IT Manager with their span of control develop S3. The financial resources and human resources are allocated by S3 to the operational parts of the system. IT department provides and maintains the necessary software to the operational units and to the S2. The reports related with the performance of the S1's are prepared and checked by the Administrative Affairs Management. Moreover, S3 should be is designed to have three information channels. It receives goals from S5, interprets them for S1s' activities, and transmits them to down. It has also a channel for urgent information (algedonic signal) that must be transmitted quickly to higher management. This channel works well in Erk Marketing. However, S3 does not filter the information coming from lower levels. Based on its importance S3 must filter the information before sending it to S5. Since Erk

Marketing is a family enterprise, the family members are not disturbed by this intensive information flow. But in order to reduce the internal variety, according to VSM, S3 must send the information to S5 which has higher importance for the whole organisation. So, S3 must be redesigned and make conscious about this task at Erk Marketing.

S3 is able to closely monitor S1s' works through the auditing channel System 3* (S3*). In Erk Marketing, the urgent concerns related with the operations of the company are given by the Retail Planning Manager. The Retail Planning Manager takes part in the whole processes performed by the different units of S1. This close scrutiny of operations is a good way for realising S3*'s activities. Yet, the Retail Planning Manager has also some operational tasks. So, the job description of the Retail Planning Manager must be redesigned and the span of control of the Retail Planning Manager must be expanded to maintain the continuity in auditing of the S1. S1's operational units must be informed about the role of Retail Planning Manager so that they accept and understand the S3* authority on them.

The Operational Element	**Content of Budget**
Brand Directory (S1a)	Design costs, purchasing costs
Supply Chain Directory (S1b)	Transportation costs, quality control expenses, storage costs
Glob. Mark. And Sales Direc. (S1c)	Targeted prices, markdowns, promotion costs, advertising expenses, and expenditures for stores

Table 4.1. Budget Contents of Operational Units'

As financial resource bargaining with parts of S1, each S1 should prepare a budget for its seasonal operations. These budgets must include

different data depending on each S1 special operations (Table 4.1.). All of these budgets must be approved by related directories which consist of S3. Since S1s may need more financial resources than predicted, resource bargaining channel should be employed continuously. In terms of human resources and knowledge sharing, it is also important for S3 to provide S1s.

4.3.4. System 4

System 4 (S4) is the intelligence function and is responsible for getting information form the external environment of the company. It combines this external information with the internal information transmitted by S3. It is responsible for creating a "management centre" for the decision making process. Erk Marketing currently does not have a certain S4 function. The tasks related with the intelligence function are performed by different units that have different purposes in the company. On the one hand, the Board Members—also family members—analyse the environment and acquire external data for corporate planning. As it is mentioned before, the lack of S2 pulls the family members into the daily businesses and they get some internal information through this close scrutiny. Based on this limited information they make policies for the whole organisation. On the other hand, there are some units that monitor the organisation's external environment. The Designing Unit collects data from the market to create a new collection. The Business Development Unit which performs S1c's local intelligence function tries to find new markets for Erk Marketing and new locations for the retailing stores. Furthermore, The Marketing Communication

Unit has chance to be close to the customers and to understand their preferences and needs. This separation causes a lack of synergy in the intelligence unit. Thus, in order to perform S4 functions effectively, periodic meetings should be arranged. The participants of these meetings should comprise Eroglu Brothers and the managers of the Design Unit, Business Development Unit, and Marketing Communication Unit. The meetings will also provide a "management centre" where external and internal information are discussed.

4.3.5. System 5

In Erk Marketing, the Board Members perform the System 5 (S5) functions. Future plans and policies are determined by the Eroglu brothers – particularly Nurettin Eroglu. This brings about some advantages and drawbacks for Erk Marketing. Nurettin Eroglu is the Chairman of Eroglu Holding. He is also at the top of the Erk Marketing management. This two-roled position sometimes damages Erk Marketing's autonomy. Since Erk Marketing must exhibit a separate existence from its higher management, S5 functions must be re-established. The identity of Erk Marketing is almost the same with the Holding's. Furthermore, Mr. Eroglu has high experience in the textile industry and is highly interested in the business. His close interest into daily operations provides guidance to the lower level managers. He listens to all members of the organisation, appreciates their ideas, and respects their thoughts. Then, Mr. Eroglu makes the final decision. The balance between external and internal demands is harmonised by Mr. Eroglu.

S5 must prepare the organisation for the future. Mr. Eroglu and his brothers cannot perform all features of S5 as embedded in their personalities. So, strategic decisions should be made with the participation of S3 and S4 to enable them have a better understanding of organisational goals.

4.3.6. Summary

In this chapter, Erk Marketing is reorganised according to Viable System Model (Figure 4.2.). The three directories of the company are designed as three operational elements. The local managements of S1 parts are established and are given autonomy in their operations. Since there is a lack of coordination function, a new unit as S2 is developed with its sub-coordinating centres for each S1. S3 and S3* functions are redefined and units which are responsible for S3 and S3* functions are determined. S4 operations which are performed by different units in the company are unified and scheduled. Another diagnosed problem of the organisation is related with the policy-making. In order to keep family members as being highly interested in S5 functions, tasks related S5 function are reallocated to the organisation members.

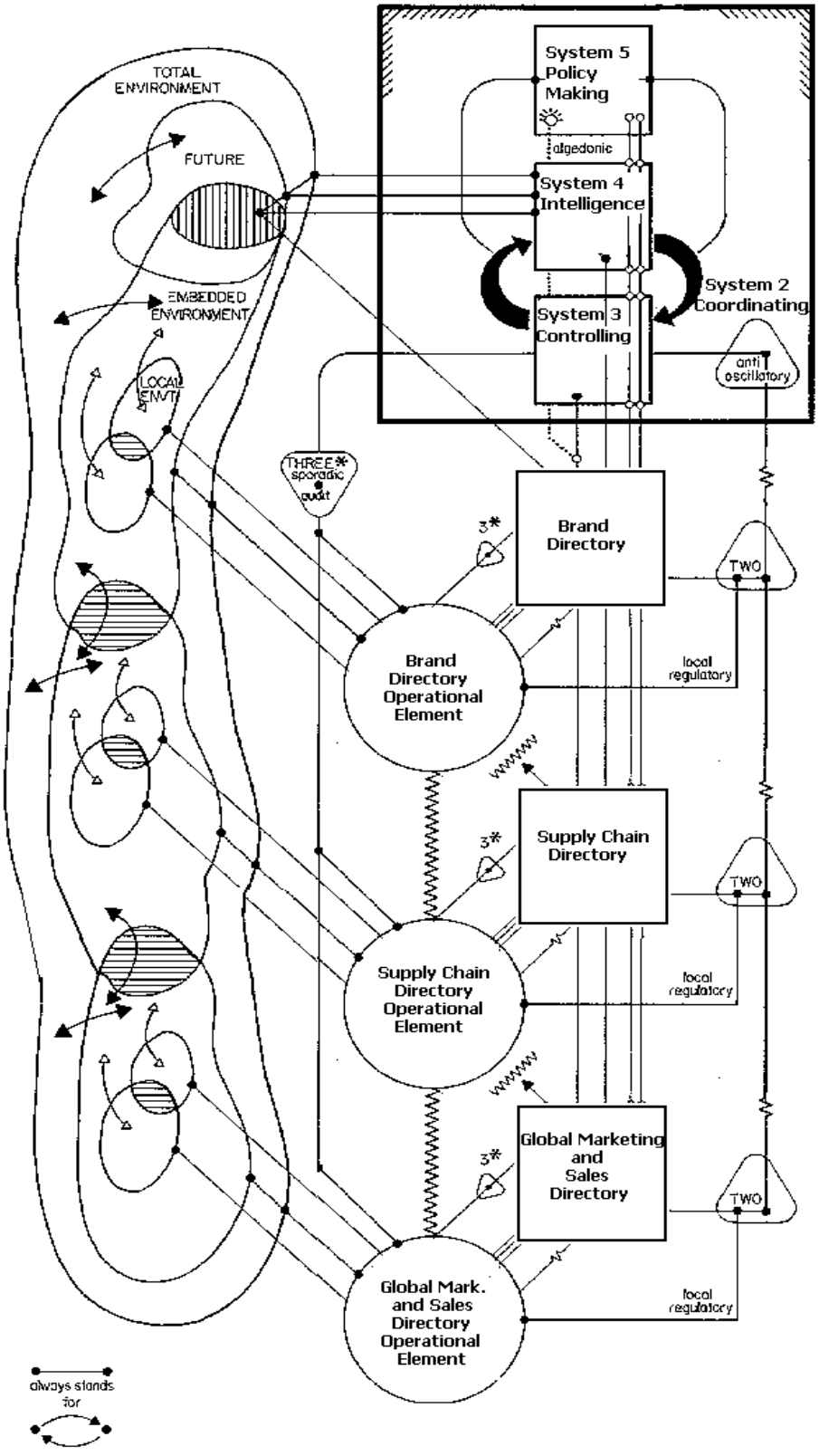

Figure 4.2. Erk Marketing Inc. According to VSM Diagram

CONCLUSION

In this thesis, we aimed to have a better understanding of systemic terms and a system model which proposes a creative way to the design of organisations. In Chapter 1, we briefly introduced systems thinking and its principles and demonstrated the relevant problem contexts where Viable System Diagnosis (VSD) is to be used. In Chapter 2, we focused on cybernetics and its practices in management field, and then introduced VSD and explained its philosophy before the application part of the study.

As application part of this thesis, VSD is applied to the Erk Marketing Inc.—a marketing company which has operations in textile industry. In Chapter 3, Eroglu Holding, of which Erk Marketing is a subsidiary company, is portrayed and Erk Marketing's current structure is introduced. Then, in the fourth Chapter, the company is reorganised according to VSM.

VSD is a valuable tool for managers to diagnose organisational problems and to ensure organisational viability. It suggests looking at organisations as wholes and it is useful for the problems that have complex-unitary contexts which can be solved by using systemic and cybernetic principles. It proposes a general model and can be applied to all types of organisations. Thus, VSD is a practical model for managers. However, during our application we have observed that most of the organisation members of Erk Marketing, including managers, are not familiar with systemic and cybernetic terms. So, it has been hard to explain the model and its

philosophy to the employees. Each organisation member must have an understanding about his/her role within the organisation. Sometimes, one person can have multiple roles related with different systems in the model. Then, it seems confusing for employees to comprehend their positions in the organisation. Yet, once the model and its functions are understood and accepted by the organisation members, VSD minimises the anarchy that is observed in the organisation.

Furthermore, VSD emphasised the autonomy that should be given to the operational units in their jobs. So that the organisation can reduce its internal variety, otherwise high level management must be involved in. In our application we focused on a company that is a part of a family-owned Holding. The Erk Marketing's top level management consisted of family members and had high willingness to get involved in the daily operations and to have a close look to the operational parts of the company. As a matter of fact, neither top level management nor first line managers, even operatives, is not disturbed by this situation. They believed that this closeness gives family members a chance to closely monitor their "own" businesses and creates an atmosphere for learning from the experiences of other family members. Nevertheless, as a rule, family-members who make up System 5 should focus on policy-making and not be engaged in the daily operations which are performed by the independent viable units. So, in some organisations the principles that the model suggested can be employed

hardly because of the rigid organisational culture. From a contrary perspective, this also shows the power of the model as a tool in transforming family enterprises to institutionalised companies.

The power of VSD comes from its applicability to all kinds of organisations. Its assumption is that, in order to survive, organisations have to perform five functions of viability. So, the model is mostly developed on this assumption and gives an all-embracing explanation about each system's tasks that must be appreciated. This statement makes the model powerful and applicable. A practitioner only has to observe the organisation and use the model to redesign it according to the predetermined and well-tested cybernetic principles. However, no initiative is given to the practitioner. The model should be considered as a whole and any attempt to add or remove (a) part(s) to or from the model may damage its reliability in ensuring the viability.

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