

APPLICATION OF SOFT SYSTEMS
METHODOLOGY TO
A PRIVATE HOSPITAL IN TURKEY

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Management

by

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To my grandma İlhan Kismet

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1. 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.

2. The program of advanced study of which this thesis is part has consisted of:

- i) Research Methods course during the undergraduate study
- ii) Examination of several thesis guides of particular universities both in Turkey and abroad as well as a professional book on this subject.

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July, 2009

ABSTRACT

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July 2009

APPLICATION OF SOFT SYSTEMS METHODOLOGY TO A PRIVATE HOSPITAL IN TURKEY

This thesis gives an account of the use of problem-solving approach called Soft Systems Methodology (SSM) developed by Peter Checkland. This methodology guides problem solvers/practitioners to deal with ill-defined problems that have social and behavioural aspects emphasising relationships. The thesis initially provides a succinct description of systems thought and a comprehensive theoretical analysis of SSM. Then, it designs a case that highlights the characteristics and the concerns of a private hospital in Turkey. Finally, it applies SSM to the surgical units of the private hospital in which vital problems are revealed and tackled, and the changes in the form of recommendations are made.

Key Words: Action research, creative problem solving, soft problems, soft systems methodology, systems thinking.

KISA ÖZET

Büşra Müceldili

Temmuz 2009

YUMUŞAK SİSTEMLER METODOLOJİSİNİN TÜRKİYE'DE

ÖZEL BİR HASTANEDE UYGULANMASI

Bu tez, Peter Checkland tarafından geliştirilen 'Yumuşak Sistemler Metodolojisini' ele almıştır. Bu metodoloji problem çözücülere, danışmanlara sosyal ve davranışsal durumlardan meydana gelen tanımlanamayan problemlerle ilgilenmek için kılavuzluk yapar. Bu tez ilk olarak system düşüncelerinin kısa bir özetini ve Yumuşak Sistemler Metodolojisi'nin teorik kısmını kapsamlı olarak ele almıştır. Daha sonra Türkiye'de özel bir hastane vak'a çalışması olarak düzenlenmiştir. Son olarak Yumuşak Sistemler Metodolojisi seçilen özel hastanenin cerrahi bölümlerine uygulanmış, önemli problemler tespit edilmiş ve değişiklikler tavsiye edilmiştir.

Anahtar Kelimeler

Yumuşak sistemler metodolojisi, Problem çözme teknikleri, Sistem düşünceleri, Tanımlanamayan problemler, Kültürel Analiz, Mantıksal Analiz

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LIST OF ABBREVIATIONS

CBRT	Central Bank of the Republic of Turkey
CM	Conceptual Model
IP	Interactive Planning
ISO	International Organization for Standardization
PHHIA	Private Hospitals and Health Institutions Association
RAND	Research and Development
RD	Root Definition
SAST	Strategic Assumption Surfacing and Testing
SSI	Social Security Institution
SE	Systems Engineering
SSM	Soft Systems Methodology

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INTRODUCTION

The similarity that globalisation brings along, the easy and accessible flow of information that internet provides, rapidly changing socio-economic problems, and changing concept of management make organisations more complicated. These complicated organisations encounter with various interdependent problems. To manage these organisations and to find solutions for their problems which are difficult to understand are getting harder day by day. The systematic procedures of methods and models of hard approaches that offered quick-fix solutions emphasising goal-seeking model of human behaviour are no longer adequate for these problems that convey social and behavioural components. Such 'messy' or interdependent problem can only be tackled by soft approaches as a creative problem solving methodology emphasising a model of human behaviour oriented to relationship, maintaining Vickers, appreciative system. One of these creative problem solving techniques is Soft Systems Methodology (SSM) developed by Peter Checkland. SSM is an organised way of tackling messy situations in the real world. The basic of SSM is based on systems thinking that is having a broad field of application, flexibility, definability and comprehensibility. SSM is a useful technique that can be used for all types and degrees of problems in both private and public organisations. In its methodology, it first determines the problematical situations to reveal the real world problems, then seeks for solutions to these problems through various world views (Weltanschauung),

and finally provides reasonable recommendations that are appropriate to each organisation's cultural values and norms.

The aim of this study is to reveal the problems of the surgical departments of a private hospital in Turkey and to seek for solutions to these problems through SSM developed by Peter Checkland.

Chapter one, called "What is Systems Thinking", handles the theoretical foundations of systems thinking, a general overview to system concept, and then the types of application of system thinking in organisations.

Chapter two, called "Soft Systems Methodology", deals with the evolution of Soft Systems Methodology (SSM), philosophy of SSM, methodology of SSM, methods used in SSM, and finally the distinction between Mode 1 and Mode 2 as variants of SSM that emerged as a result of learning gained from SSM's use in action research.

The evolution of Soft Systems Methodology consists of three stages of SSM; firstly, the birth of SSM, secondly the growth of SSM, and then the maturity of SSM. The philosophy of SSM includes the paradigms that SSM is based on. The methodology of SSM that has two models: the traditional seven stage model and the two-strand model. The traditional seven stage model is a learning cycle model that includes seven stages; stage one and two are called finding out stage that identify problematical situation. Stage three is called formulating root definitions that formulates problems by using CATWOE analysis, stage four is called building conceptual models that builds models from the root definitions, stage five is called comparing models and

reality, stage six is called defining changes, that have to be systematically desirable and culturally feasible, and stage seven is called taking action in order to improve the situation. This model is not preferred anymore; after using SSM Checkland found the seven stage model too limiting, and sought more flexible model and a new representation of the methodology two-strands model was developed and used. This model is based on relationships between "situational logic" and "situational culture". Cultural stream, on the one hand, consists of rich picture, analysis one, two and three. While Logical stream, on the other hand, includes, selecting relevant human activity system, defining purposeful activities (root definition) to be modelled, building purposeful activity models (conceptual model), and then compare with perceptions of the real world situation. Methods are the tools of the methodology that consists of rich pictures, root definitions, conceptual models, and comparisons. The distinction of Mode 1 and Mode 2 is still being worked on. Mode 1 interventions are methodology driven and prescribe certain activities that need to be carried out. Mode 2 interactions are situation driven and allow managers to make sense of what is going.

Chapter three called "The Description of The Private Hospital" , deals with the nature of the Turkish health service and the description of the private hospital. This chapter explains the historical foundation of the Turkish Health Service, structuring the health sector in Turkey, the overview of the Turkish private hospital sector, the types of private hospitals and the current status

of private hospital sector, and then examines the history and the chief characteristics of the hospital.

Chapter four, called "The Application of Soft Systems Methodology to the Surgical Department of the Hospital" uncovers and then deals with the problems in the hospital; Surgical Department by using SSM and recommend attitudinal, structural, and procedural changes to the hospital.

In the conclusion part, the thesis will be summarised in terms of empirical finding of our research.

PART 1: THEORITICAL DESCRIPTION

CHAPTER 1

WHAT IS SYSTEMS THINKING?

This chapter focuses firstly the theoretical foundations of systems thinking, a general overview to system concept and lastly the types of application of system thinking in organisations.

1.1. Theoretical Foundations of Systems Thinking

The era before systems thinking was embodied by the debates between Mechanists and Vitalists. According to Hans Driesch and other vitalists, the development of a whole organism from a single egg must mean that in each developing organism resides a mysterious spirit-like entelechy which somehow directs and controls the growth of the whole. On the other hand, the mechanists did not agree with vitalists. Hence, while vitalists preferred teleology, mechanists preferred teleonomy (Checkland, 76, 1981). Teleology is a philosophical discipline that all things emerge with the purposes of results. For example, teleology argues that a person has ears because he has the need of hearing. Teleonomy is a term which derives from teleology and it is the opposite of teleology. Teleonomy indicates an observer in terms of the ends served by them may describe developments. Vitalism was not used by professional scientists because it was untestable finding rather than a testable assumption. Because of these reasons, the area of usage of mechanist thinking expanded. Mechanist thinking was based on analysis,

reductionism, hierarchical relationships between ultimate elements and individual optimization of elements in search of some goals. But it was not very successful in the biological or social fields. The problem was that organisations could not perform well when their parts were individually optimized (Jackson and Flood, 1991). The problem can be answered by a new perspective: Systems thinking.

Systems thinking was appeared in the 1940s for explaining biological phenomena in connection with interdependence of the components of the mutual dependence of the elements of the whole. Systems thinking was noted in organic chemistry and biology (unrestricted science) firstly by biologist Ludwig von Bertalanffy. The second strand in systems thinking came from electrical communication and control engineering (Checkland, 1981).

Systems thinking is founded on two pairs of ideas: Emergence and hierarchy, communication and control.

Emergent properties can be defined as; a complex whole may have properties which show to the whole and are meaningless in terms of the parts which make up the whole (Checkland, 1990). For example, the tire of a car is an emergent property of the combined car. The tire is meaningless without the car. Emergent properties associated with a set of elements at one level in a hierarchy. The aim of the hierarchy theory is to provide both instruction of the form of hierarchies such as the formation of the levels, the separation of the levels and the links between the levels. The example from

biology makes emergent properties and hierarchy clearer. The biological hierarchy can be illustrated from atoms to molecules to cells to organs to organisms. At each layer emergent properties can be described.

The second pair of root ideas in systems thinking is communication and control. The hierarchically organised whole that has emergent properties can survive in a changing environment by having the process of communication and control. Bertalanffy drew attention to open systems and closed systems. According to Bertalanffy (1940), there could be commutation of materials, energy and information between an open system and its environment. However in closed systems unchanging elements locate in a state of balance. Open system's hierarchy has communication and control process for surviving.

Control mechanism has been studied in natural systems and in man-made systems. Man-made systems are known as cybernetics. Cybernetic comes from the Greek and means steersman. Plato used the word making an analogy between a helmsman steering a ship and a statesman steering the ship of state. According to Wiener (1948), cybernetics can be defined as 'the entire field of control and communication theory whether in the machine or in the animal'. Wiener studied the communication and control which composed the core ideas of systems thinking. He studied the feedback process. The process of feedback is namely the transmission of information about the actual performance of any machine to an earlier stage in order to

modify its operation (Checkland, 1981). The target of the modification is to reduce the differences between actual and desired performance.

There is a strong link between control and communication. Communication occurs at all control processes. At the control process, there is an information flow that may be automatic or manual in the form of instructions. In 1970s, many studies were done on the importance of communication of information for system behaviour. The studies were done on living systems. The researches involved the ability of receiving and transmitting information.

The emergence and hierarchy, communication and control create the metaphor of the whole which can be survived in a changing environment. Systems thinking is the mental use of that metaphor.

1.2. A General Overview to System Concept

The concept 'system' shows the idea of a set of components that are connected together and work together for the overall objective of the whole. Systems show the properties of the whole, they do not show the properties of its components. Water can be a simple example of a system: The taste of the water is different from hydrogen and oxygen which are the components of the water.

The conception of system involves the following terms: Element, relationship, boundary, input and output, environment and feedback. Attributes, transformation, purpose, open system, homeostasis, emergence,

communication, control, identity and hierarchy are the notions which describe the complete system idea (Jackson and Flood, 1991).

A system has elements and the relationships between elements. A system has inputs and outputs. In the system the action can be explained with transforming inputs into outputs. Inputs and outputs separate each other by boundary.

There is a boundary between system and its environment. If system has interaction with its environment, it is termed an open system. In an open systems environment can be changeable, but systems must protect its steady state, called homeostasis.

Figure 1.1. illustrated the conception of system.

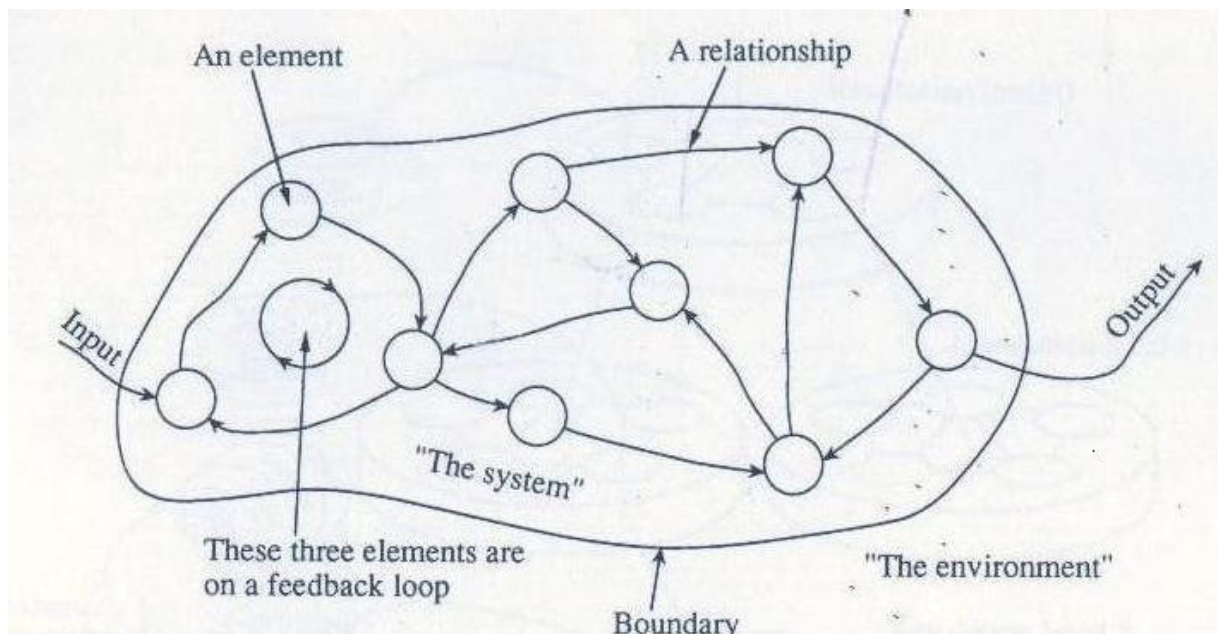


Figure 1.1. A General Conception of "System" (Jackson and Flood, 1991)

1.3. The Types of Application of Systems Thinking in Organisations

System thinking helps the problem solver and practitioner to solve organisational problems effectively. There are 3 ways of applying systems thinking; the first one is the developments shown in the Figure 1.2. The second one is metaphor analysis and the last one is paradigm analysis (Jackson, 2006).

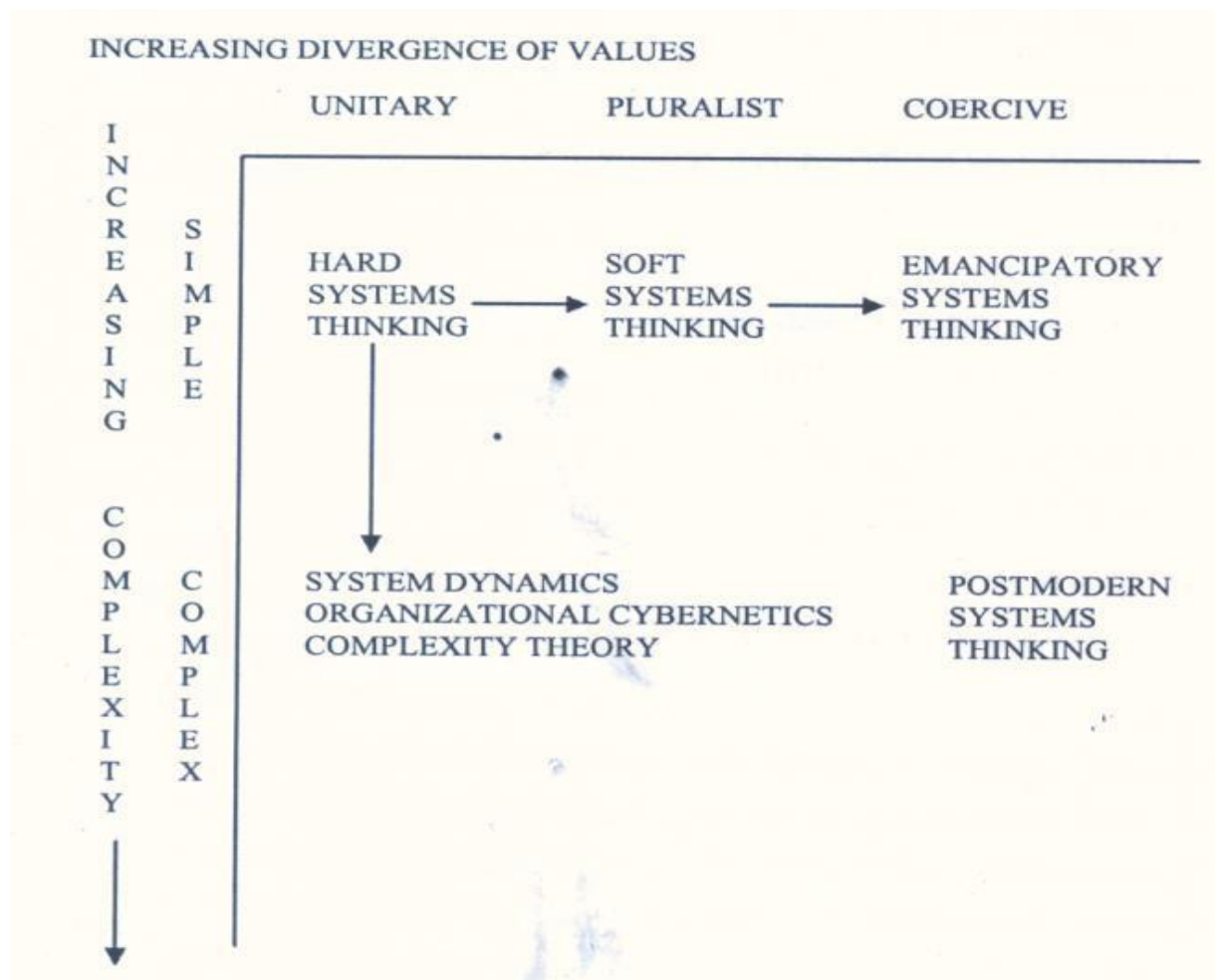


Figure 1.2. The Development of Applied Systems Thinking (Jackson, 2006)

Figure is composed of two dimensions. The vertical axis defines the nature of systems which have particular characteristics from simple to complex. Horizontal axis concerns with the problem situation, like unitary, pluralist and coercive.

Hard systems thinking such as operational research, systems analysis and systems engineering were begun to be used in the Second World War. According to Figure 1.2., they have unitary and simple assumptions about problem situations. When the problems are understood clearly and mathematically modelled these approaches are used. But since the world is changing and becoming more complex, the modern era problems can not be solved by these approaches and new systems developed. Moving along the horizontal axis, soft systems approaches can be seen which are based on simple and pluralist assumption. These approaches are, Ackoff's (1981) 'interactive planning', Churchman's (1968) 'social systems design', and Checkland's (1981) 'soft systems methodology'. Hard systems could only identify agreed-on-goals which can be used to provide an objective explanation of the system and its purpose. Hard systems could not answer the problems because of increasing diversity (or pluralism). Decision maker/practitioner needed different and conflicting world-views for problem solving instead of a sole solution. These approaches are subjective rather than objective while using methodological process. Shifting along the horizontal axis, emancipatory systems thinking takes place. It is used to intervene in problematical situations that are seen as 'coercive'. In this

situation, participants do not take part while deciding. Decisions are taken on the basis of the great power owned by some groups over other groups. Emancipatory systems approaches can be formulated by Ulrich's 'critical systems heuristics' and Beer's 'team synte-grity'. Ulrich's 'critical systems heuristics' gives permission to beneficiaries of particular system designs. Beer's 'team synte-grity' is formulated for explaining emancipatory systems thinking. This view relies on debating the issues all stakeholders openly and democratically (Jackson 2006).

In vertical axis, systems dynamics, organisational cybernetics and complexity theory can be seen in unitary-complex problem contents. This system's aim is to manage great complexity, change by getting 'behind' the numerous surface relationships influencing the system. They sought structures that manage the behaviour of the elements and fundamental to system behaviour. Systems dynamics was studied by Forrester and Senge. Systems dynamics seek the relationships between positive and negative feedback loops that can give rise to patterns of systems behaviour. Organisational cybernetics were studied by Beer and it is called cybernetic laws. Organisational cybernetic studies organisational design and the regulation and self-regulation of organisations from a systems theory perspective. In complexity theory that was studied by Stacey. There are strange attractors and variables that have to be adapted to ensure that an edge of a chaos state is achieved (Jackson, 2006).

Metaphor analysis has showed that different metaphors help to understand organisations. Metaphors are the skills of reading situations with various scenarios in mind and of forging actions that seem appropriate to the readings obtained (Morgan, 1997). Machines metaphor, flux and transformation metaphor, organism and brain metaphor, culture and political system metaphor, psychic prison metaphor, instruments of domination metaphor, carnival metaphor are used for applying systems thinking to organisations. The short description of the metaphors is shown in the following paragraph:

Machine metaphors' aim is to achieve predetermined goals by efficiency and effectiveness control and authority. Flux and transformation metaphor is used for solving the logics of change that influence the structure of organisation. Cultural metaphor focuses on norms, values and beliefs. Political metaphors focus on issues of interests, resolution of conflicts and the exercise of power. Physic prison metaphor focuses on conscious and unconscious process of the human psyche in the structure and functioning of organisations. Domination metaphor focuses on organisational hegemony which gives power to their employees. Carnival metaphor views emphasising freedom of organisations, from hierarchical rank, norms and prohibitions (Torlak, 2006). Metaphors closely linked to understanding of organisations:

'Machine' metaphor is appropriate for hard systems thinking.

'Flux and transformation' metaphor is appropriate for systems dynamics and complexity theory.

Organism and brain metaphors are used by organizational cybernetics.

Soft systems use 'culture' and 'political system' metaphors.

Emancipatory systems thinking uses 'psychic prison' and 'instruments of domination' metaphors

Postmodern approaches prefer 'carnival' metaphor (Jackson, 2006).

Systems thinkers have new paradigms with the developments in applied systems thinking. Hard systems thinking is functionalist/positivist; system dynamics, organizational cybernetics and complexity theory are functionalist/structuralist. Soft systems are interpretivist, emancipatory and postmodern, which are based on emancipatory and postmodern sociological paradigms respectively (Jackson, 2006).

In complex and developing organisations, practitioners need systems approaches that are based on holism for solving managerial problems. To provide solution, one or more approaches can be chosen and applied to organisations according to problems' properties.

CHAPTER 2

SOFT SYSTEMS METHODOLOGY

This chapter deals with the evolution of Soft Systems Methodology (SSM) that consists of three stages of SSM: (1) birth of SSM, (2) growth of SSM, and (3) maturity of SSM, philosophy of Soft Systems Methodology, and the methodology of Soft Systems Methodology that have two models: the traditional seven stage model and the two-strands model, and methods, finally the distinction between Mode 1 and Mode 2.

2.1. The Evolution of Soft Systems Methodology (SSM)

In the 1950s and 1960, there were major developments in social systems sciences which were launched by Churchman and Ackoff. While Churchman developed the methodological principles of Strategic Assumption Surfacing and Testing (SAST), Ackoff concentrated on developing Interactive Planning (IP). However though these studies were soft systems oriented, they were not completed. Soft systems emphasised identifying the correct problem at the initial stages of solving managerial problems (Reisman and Oral 2005).

In the 1970s a new perspective related to soft systems thinking started to appear and grew up in the 1980s by Peter Checkland. Checkland noticed inadequate terms of managerial practice; management science comprised only 'goal-seeking' paradigm which was studied by Herbert Simon. Then he started to investigate Vickers' studies about 'relationship maintaining' (Jackson 2006). Checkland and his colleagues at Lancaster University explored systems engineering methodology and applied it to the

messy or ill-structured management problems that have social and behavioural aspects emphasising relationships. These problems are not given or clearly defined thus can not be solved with 'quick-fix', but rather can be tackled with different problem solution techniques. "Real world managerial problems are multifaceted and can not be pressed into predefined form; they are characterised by the fact that their objectives are hard to define, the decision-making process is uncertain, and suitable measures of performance are at best qualitative" (Bergvall-Kareborn, 2002). While Checkland was studying modern management theories, he realised that Systems Analysis (SA) and Systems Engineering (SE) had been largely applied to soft problems. SE comprises the set of activities which together lead to the creation of a complex man-made entity and/or the procedures and information flows associated with its operation. SA, on the other hand, is the systematic appraisal of the costs and other implications of meeting a defined requirement in various ways (Checkland, 1981). They were not enough for managerial situations. These studies were rapidly found to be poverty-stricken when faced with the complexity of human situations. They were too thin, not rich enough to deal with fizzing social complexity. SE was redefined (enriched) in the light of and in direct response to real-life experiences by Lancaster group until a new methodology had developed. Then Jenkins (1969) founded the starting point for SSM in his work. The cause of the shift from systems engineering (SE) to soft systems methodology (SSM) was the

notion of worldview. Systems Engineering (SE) methodology is comprised of five stages:

- Define the problem
- Assemble the appropriate techniques
- Use techniques to derive possible solutions
- Select most cost/effective solution
- Implement the solution

SSM is used for soft problems and it includes seven stages

- Define the situation that is problematic
- Express the situation (rich picture)
- Select concepts that may be relevant
- Assemble concepts into an intellectual structure
- Use this structure to explore the situation
- Define changes to the situation
- Implement change process

As can be seen, SSM starts by defining a situation that is problematic; it is not only defining the problem. In SE, the problem only involves who defines it, but in SSM the number of people can have ideas about the situation. Figure 2.1 represents the shift SE from to SSM. After SSM framework had been established, developed, modified and used hundred new experiences a model formed these developmental experiences. The model called LUMAS model. The model illustrated in Figure 2.2.

LUMAS symbolizes Learning for a User by a Methodology-informed Approach to a Situation. It starts from the user (U) in the centre. He/she, perceiving a problem situation (S) and appreciating the methodology (M), tailors the latter to the former to produce the specific approach (A) to be used in this situation (S) (Checkland and Poulter, 2006). When developing the new methodology, Lancaster group had a principle that is a methodology

for using systems ideas to find a structure in solving real world problems of a soft or ill-structured kind. "SSM is a methodology, setting out principles for the use of methods, that enables intervention in ill-structured problem situations where relationship maintaining is at least as important as goal-seeking and answering questions about 'what' we should do as significant as determining 'how' to do it" (Jackson,2003).

According to Checkland (1984), SSM "is a cyclic learning system which uses models of human activity systems to explore with the actors in a real-world problem situation, their perceptions of that situation, and their readiness to decide upon purposeful action which accommodates different actors' perceptions, judgements and values" (Bergvall-Kareborn 2001).

To make clearer the definition, human activity systems (HAS) need to be known. A human activity system is a model of a notional system that includes the activities people need to receive so that it follows in a particular purpose. HAS is an important movement in the development of SSM, because physical systems, designed systems, even social systems did not systemically seek human activity, but HAS comprised all activities which are performed by human beings.

If a summary of SSM definition is made on the basis of the information given above:

"SSM is an action-oriented process of inquiry into problematical situations in the everyday world; users learn their way from finding out about the situation to defining/taking action to improve it. The learning emerges via an

organized process in which the real situation is explored, using as intellectual devices – which serve to provide structure to discussion- models of purposeful activity built to encapsulate pure, stated worldviews” (Checkland and Poulter, 2006, 22).

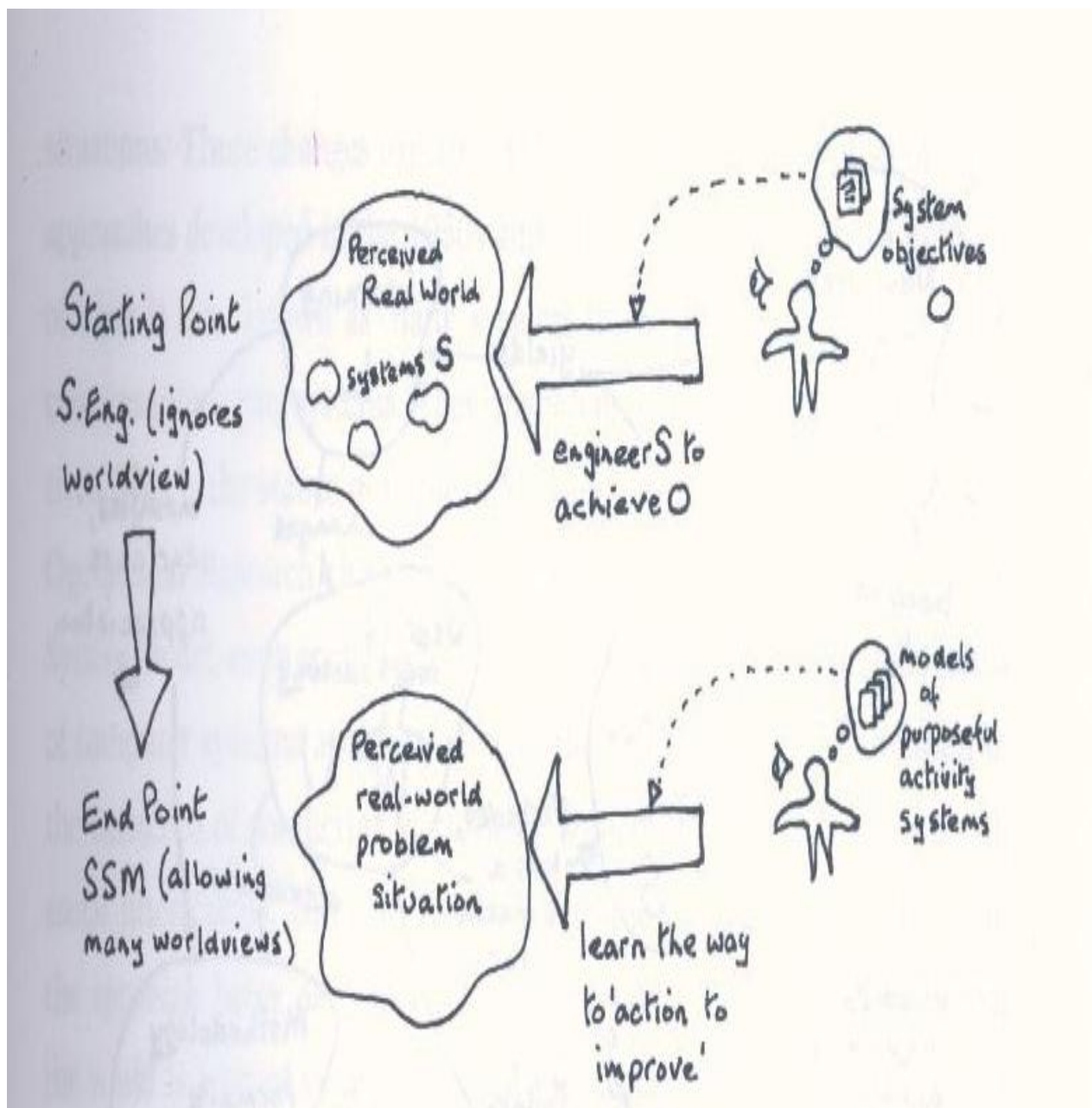


Figure 2.1. The Shift in Thinking Entailed in Developing SSM (Checkland and Poulter, 2006)

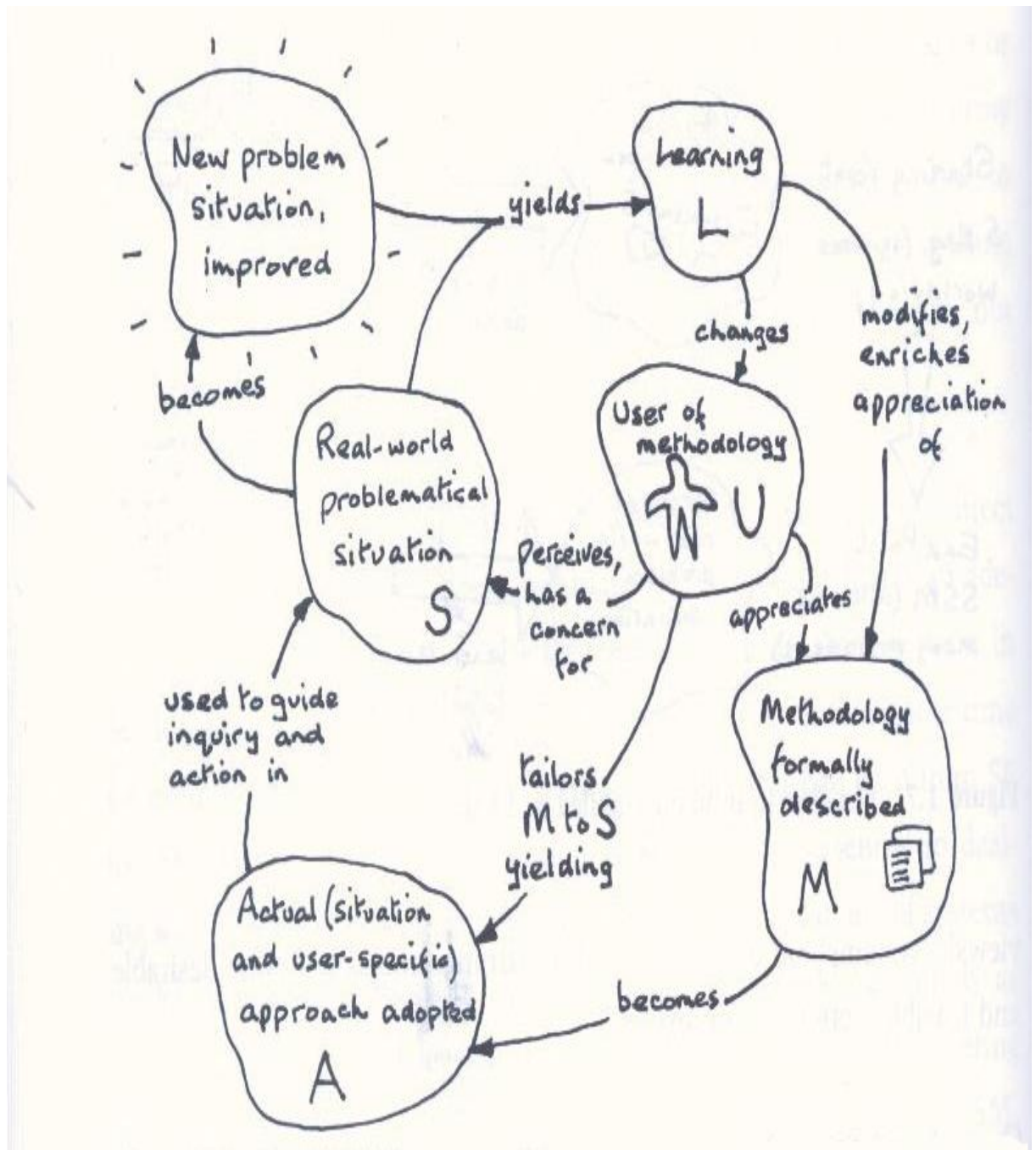


Figure 2.2. The LUMAS model- Learning for a User by a Methodologically Informed Approach to a Situation (Checkland and Poulter 2006)

2.2. The Historical Development of SSM

The development process of SSM is about 30 years and in this period the research has been reflected by four books and a hundred papers. By this ongoing research a classification can be constituted, which are divided into periods. In the first period between 1970 and 1980 the main techniques of SSM was developed and the formulation of SSM was made. In the second period between 1980 and 1990 the developed method was used in practice. The third period which starts at the end of second period up to the present included wider applications.

2.2.1. The Birth of SSM-The 1970s

Checkland discovered that there were difficulties about human organisations and the management science model to solve people-centred problems. "SSM started from the experienced inadequacy of the epistemology of systems engineering" (Checkland and Tsouvalis, 1996). The preliminary studies were in 1969, and the first paper called "Towards a systems-based methodology for real-world problem solving" was published in 1972 by Checkland. The paper emphasised the need of 'practical use in real-world problems,' as well as provided a general description of the methodology. It included the following stages:

- Problem Situation
- Analysis (of what exists at present in the problem situation)
- Definition of Relevant Systems
- Conceptualisation
- Comparison

- Definition
- Selection
- Design
- Implementation

Checkland illustrated a seven-stage model in 1975 (Figure 2.3). In the Figure there is a dividing line that separates the everyday real world problem situation from the consciously organised systems thinking about the real-world situation. The meaning of the dividing line is heuristic rather than theory-based (Checkland and Tsouvalis, 1996). The stages, including 1, 2, 5, 6 and 7 which are above the dividing line are real world activities, whereas stages including 3 and 4 which are systems thinking and are subject to the individual circumstances (Checkland and Tsouvalis, 1996). The process of model has seven stages, because the brain is capable of keeping seven numbers. Miller suggests that human brain may have a capacity which can cope with about this number of concepts simultaneously (Miller, 1968). For example, there are seven days of the week, seven notes on the musical scale, seven primary colours, etc. The SSM model includes egg shapes curved arrows and rectangular boxes. It is assumed that they can not be forgotten easily; because human mind can keep its shape and magical seven easily, so this makes the model very useful. In the next years at Lancaster the studies were about improving the effectiveness of the techniques within SSM and exploring the philosophy and its relations to other discourses. In these years, Checkland studied about the relationship between soft systems and classical reductionist science. The distinctive difference between the

natural science and real-world was that in natural science cases were appropriate for laboratory experiments; they were well-structured systems however in the real-world the organisational problems were unstructured and were inconvenient for well-designed laboratory experiments. The point that Checkland reached after all his studies was that all approaches of hard systems (systems engineering, systems analysis, and RAND approach) had one common viewpoint. These approaches' task was to find efficient or effective means of achieving an agreed and prespecified end, however in soft systems there was no such agreed and predefined objectives (Mingers, 2000). Checkland (1981) supported his view about this matter in a paper titled "Rethinking a Systems Approach."

2.2.2. SSM Growing Up-The 1980s

Although the first step was in 1970s, the model took shape in 1980s. The first book called Systems Thinking, Systems Practice (STSP) published in 1981. The book attempted to provide the first developed form of SSM as a seven-stage process of inquiry. The first and second stages determine the problem situation and get information about it and tell about its character. In the third stage, root definitions are formed and in the next stage these definitions are modelled. In the fifth stage, a comparison is made between the reality and the idealised models. In the sixth stage, the changes are sought for enhancing the situation. In this stage; 'desirable in principle' and 'feasible to implement' are two criteria of the changes. The last stage (stage seven) improves the problem situation and enables to the cycle to begin

again (Checkland, 1990). The important point to note is that, the model does not follow a consecutive way from the first stage to the final stage. For example, there can be a changing in a real-world at the last stage, and then the practitioner can turn back to the stage five again (Checkland, 1990).

In the book Checkland argued Systems Movement. In this regard, he made a clear distinction between social sciences and natural sciences. He pointed out that social science is relevant with real-world problems which can not be defined or restricted to a laboratory. These problems such as management problems are in social systems. He also explained systems thinking, system concept, and its types which are natural, designed physical, designed abstract and human activity systems. Human activity systems unlike other systems are distinctive natural and designed system. The cause of the difference is that the human actors are free in their attitudes and there is single human activity system, only a set of possible accounts all of which are valid according to particular world view—Weltanschauungen. Each root definition reflects a different way of conception problem situation (Checkland and Scholes 1990).

In describing Systems Practice (Action Research to Establish the Use of Systems Concepts in Problem Solving), Checkland discussed soft and hard systems thinking and compared each other. Checkland pointed out those differences like, "an urge to bring about improvement in a social system in which there is felt to be an ill-defined problem situation." Hard systems methodology starts with "an urge to solve a relatively well-defined problem

which the analyst may, to a large extent, take as given, once a client requiring help is identified” (Reisman and Oral, 2005). At this period Checkland (1980, 1983, 1985a, 1985b) published papers emphasising the familiar distinction between hard and soft systems. On management science and operational research (MS/OR) the effects of SSM was observed. The natural sciences were basic in which mathematical model building and data gathering were very important that were not related to the soft systems; but methods such as cognitive mapping (Eden, 1983) and strategic choice analysis (Friend and Jessop, 1977; Friend and Hickling 1987) were developed which had similar properties to SSM. These developments showed that in fact MS/OR and soft systems were complementary (Mingers, 2000).

The second book which was published at this period called *Systems: Concepts, Methodologies and Applications (SCMA)* (Wilson, 1984). The book stressed the functional logic of engineering; the human and social aspects were behind it. During this period, there were significant developments of SSM; such as 3E’s—effectiveness, efficacy, and efficiency (sometimes 5 monitoring and control); the development of Analysis 1 (the intervention), Analysis 2 (the social aspects), Analysis 3 (the political aspects) that constitute rich picture diagrams with using metaphor and pictures; rehashed *Weltanschauung* and holon. The conspicuous point was the transformation in the traditional seven-stage model. “The change was manifest in three ways: the abandonment of the seven-stage model as a description of SSM, the distinction between Mode 1 and Mode 2 use of SSM, and the development of

the "constitutive rules" for SSM (Mingers, 2000). Because of the inflexible seven-stage method, Checkland sought more flexible model. SSM was not only a logic-based stream but also a cultural and political stream. The two stream model was first clarified in 1987 at the Annual Meeting of the International Society for General Systems Research and was published in 1988. It is shown in Figure 2.4.

"SSM is a methodology that aims to bring about improvement in areas of social concern by activating in the people involved in the situation a learning cycle which is ideally never-ending. The learning takes place through the iterative process of using systems concepts to reflect upon and debate perceptions of the real-world, taking action in the real world, and again reflecting on the happenings using systems concepts. The reflection and debate is structured by a number of systemic models. These are conceived as holistic ideal types of certain aspects of the problem situation rather than as accounts of it. It is taken as given that no objective and complete account of a problem situation can be provided (Bulow, 1989). The distinction between Mode 1 and Mode 2 was the other development usage of SSM. At Mode 1 the traditional seven stages were used, the definition of the problem was simpler than Mode 2. A person who is in external organisation can define the problem at Mode 1, but at Mode 2 the problem was defined by someone who dominates at the situation and he/she uses his/her own concept. The last thing to point out is that the "constitutive rules". "The rules

consist of five propositions outlining the assumptions underlying SSM together with definitions of the main SSM concepts” (Mingers, 2000).

2.2.3. Maturity-SSM in the 1990s

First revolution of SSM evolution was systems thinking, systems practice; and the second one was soft systems methodology in action (SSMA). Although in STSP, SSM was a seven-stage model, in SSMA, SSM began to become more flexible; two streams model. The model had four activities (Checkland, 2000). These four activities are as follows:

- Finding out about a problem situation, including culturally/politically.
- Formulating some relevant purposeful activity models.
- Debating the situation, using the models, seeking from that debate both a) changes which would improve the situation and are regarded as both systemically desirable and culturally feasible b) the accommodations between conflicting interests which will enable action-to-improve to be taken.
- Taking action in the situation to bring about improvement.

Checkland and Scholes (1990) in *Soft Systems Methodology in Action* updated SSM. SSM's phase was tackled in three ways: the first one was, which was the most nominative and simplest form, the second one was in *Systems Thinking, Systems Practice*, and finally *Wilson's Systems: Concepts, Methodologies, and Applications*. Then, they showed applications in different areas; industry, the National Health Service and the Civil Service. And lastly

they expressed the changing viewpoints and the usage of SSM for the coming years. The book widened the discussion about the methodology (Checkland 2000). The noticeable studies included "real-world/systems thinking world" and the relationship between root definitions and conceptual models. And usage of SSM began to move around different geographical areas. Checkland (1990) eased the use of SSM in different areas. SSM could be used by two ways; by itself and combination with other approaches. Combining methods with SSM was an example of multimethodology (Mingers, 2000). SSM took major part at these combinations. Cognitive Mapping, Viable System Model (VSM), strategic choice, simulation, statistics, and Interactive Planning (IP) combined with SSM. Another book which was published in this period was Information, Systems and Information Systems (ISIS) (Checkland and Holwell, 1998). The main reason of writing this book was second industrial revolution. The first industrial revolution made available sources of power which brought about an industrial society; the second one based on information or knowledge. These revolutions got a new study area which was called Information Systems (IS) and Information Technology (IT). The book focused on complexity between IS and IT. "IS was related with the human act of creating meaning, and relates experiences based on a mature use of SSM to a fundamental conceptualisation of the field of IS/IT" (Checkland 2000). SSM had major role in information systems. "SSM would ensure a rich and user-centred focus, and IS methodology would

be used for the detailed systems design and implementation" (Mingers, 2000).

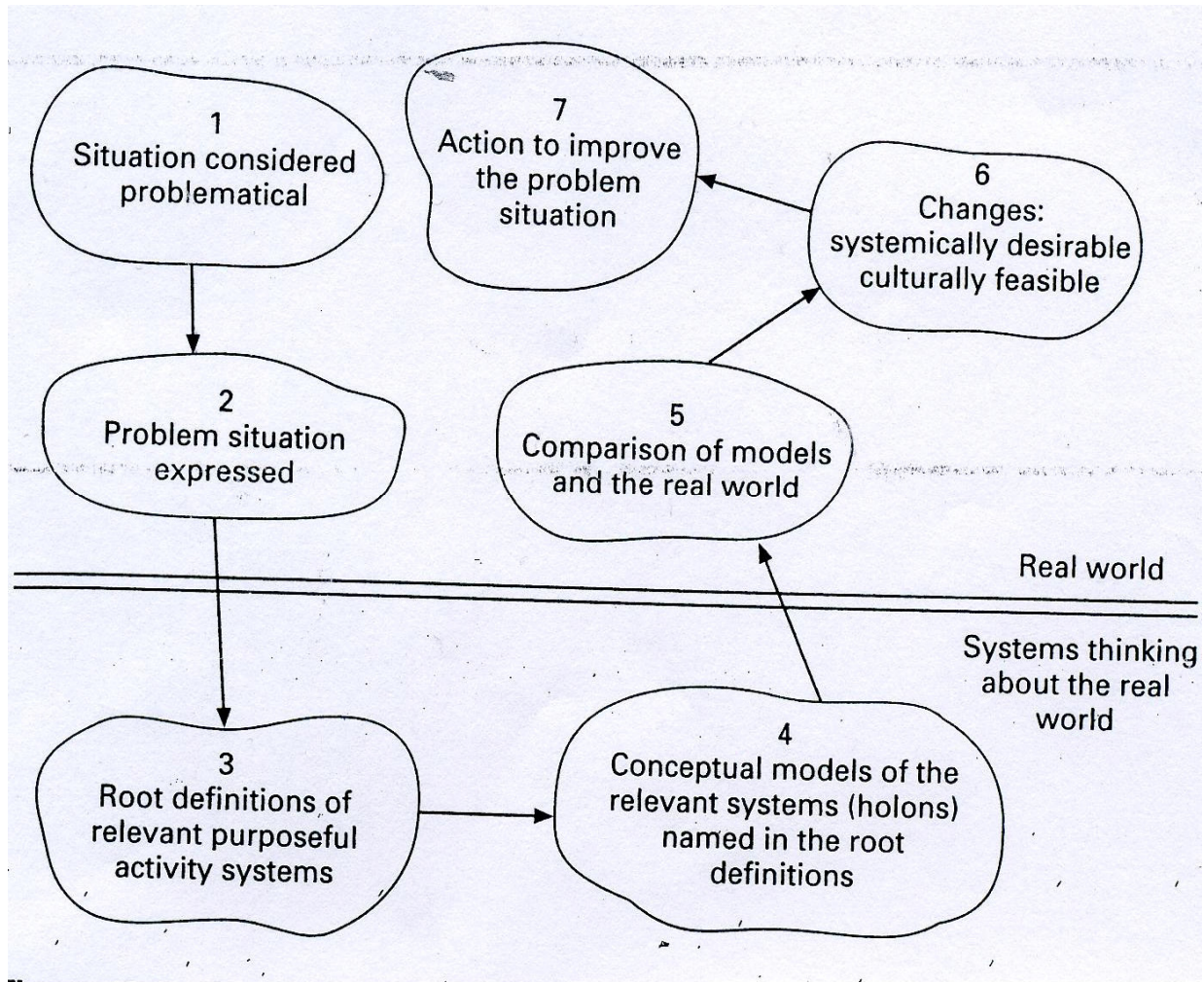


Figure 2.3. The Conventional Seven-Stage Model of SSM (Checkland,1990)

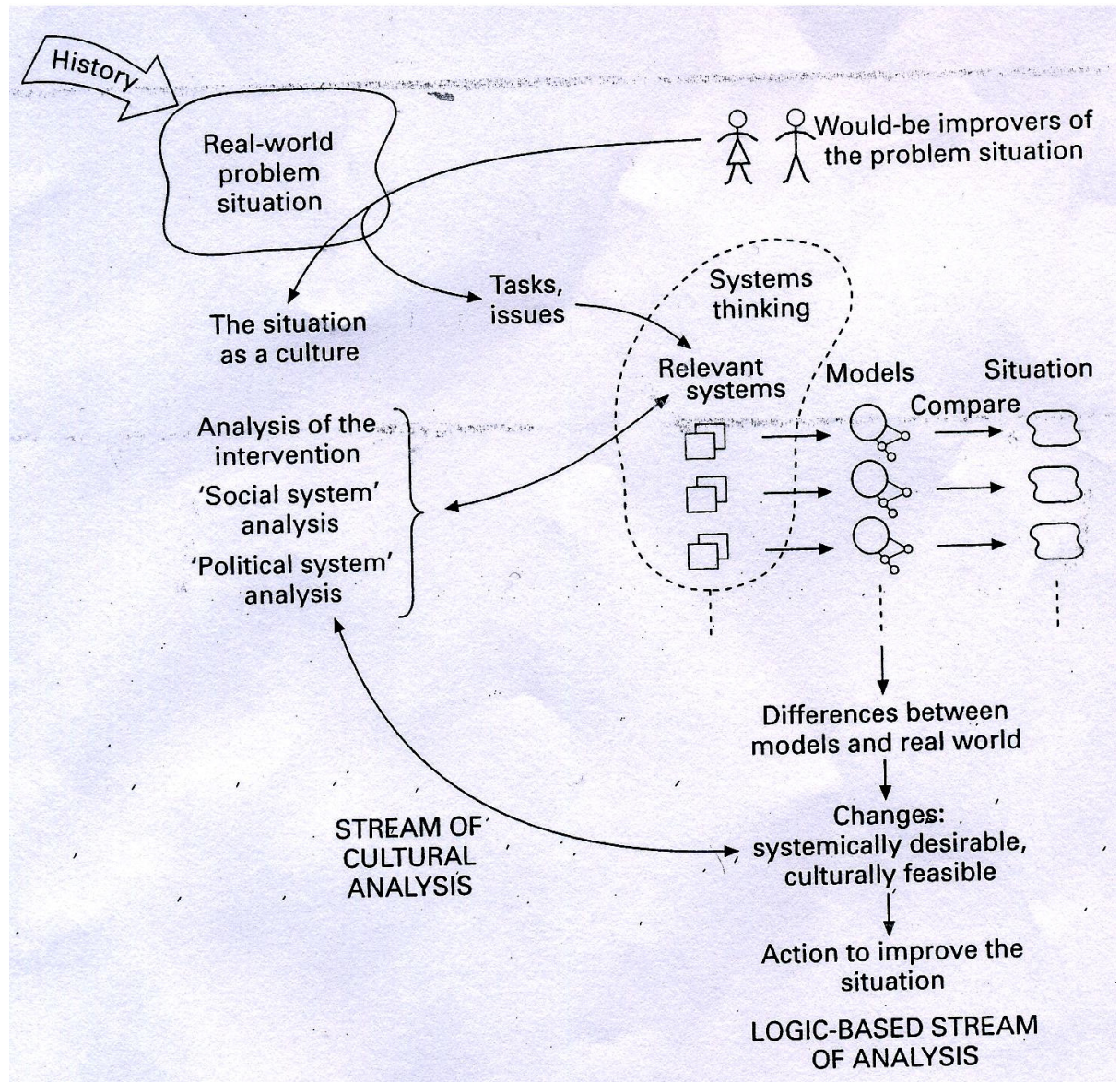


Figure 2.4. The process of SSM (Checkland 1990)

2.3. Philosophy of Soft Systems Methodology

There are two paradigms, hard and soft, based on constricting assumptions that lead to very difficult different methodological principles (Jackson, 2003). Soft Systems Methodology accepts a paradigm of learning

while Hard Systems support on a paradigm of optimization (Jackson 2006).

Figure 2.5. gives a visual indication of the hard and soft systems viewpoint.

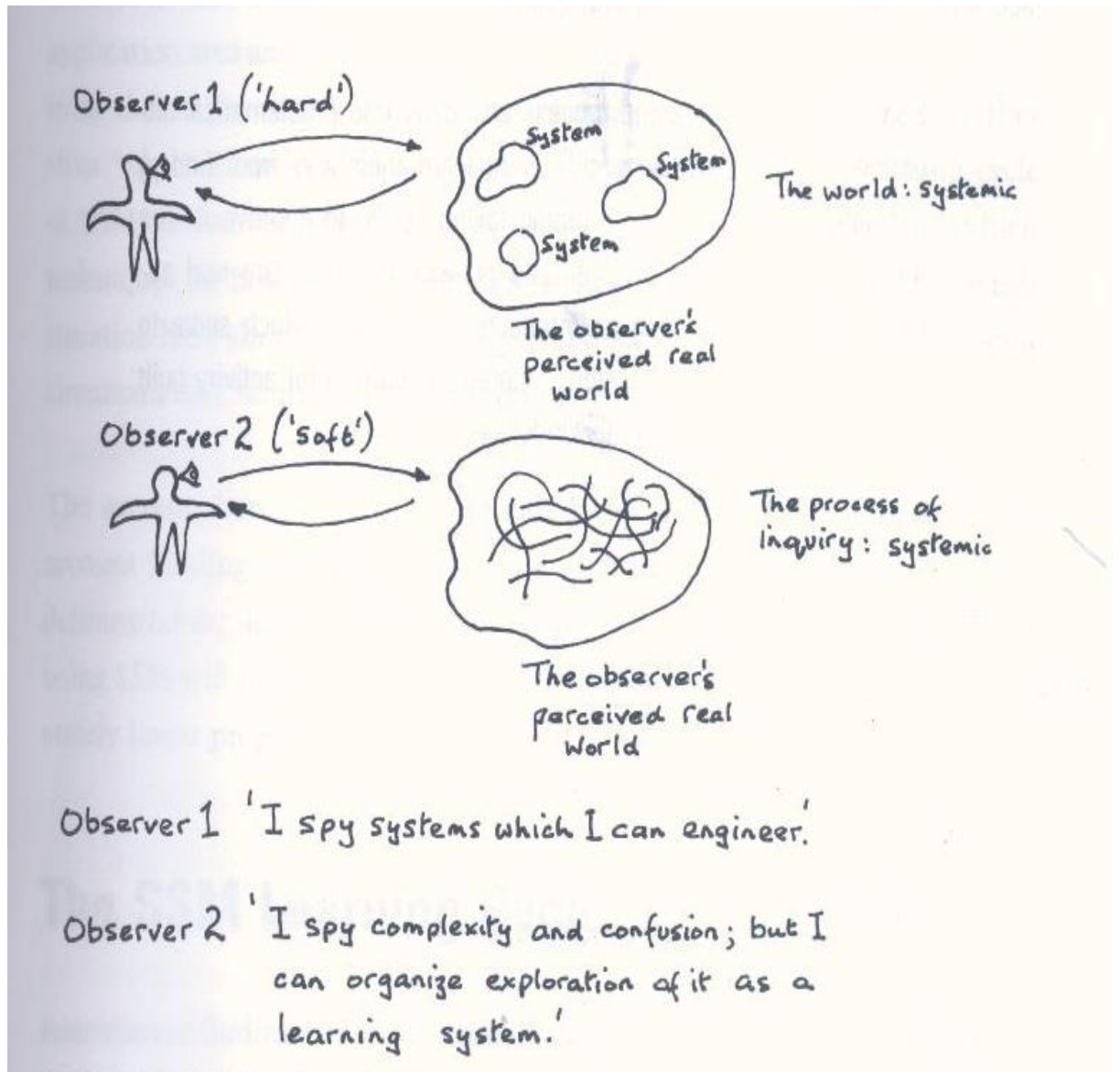


Figure 2.5 hard and soft systems stones (Checkland and Poulter 2006)

According to Checkland (1981), hard systems thinking is goal-directed, it is possible to define the desirable goal to be achieved. It is adequate to have clear objectives and use quantitative methods for solving problems. Hard

systems methodologies starts from an organisational definition of systems as a complex grouping of human beings and machines for which there is an overall objective (Checkland 1984). Optner (1975) summarised the problem solving methodology for business and industry with three steps:

1. Prescribe a system that functionally organises a general problem solving process.

2. Stipulate parameters that provide the format necessary for the solution of problems.

3. Describe system models and capabilities that provide the means for the iteration of alternative outputs in the problem solving process.

Hard systems are based on the natural scientific method. In natural science, the situation is clear; like if hand zinc and hydrochloric acid are reacted at room temperature, they produce hydrogen gas. That is to say, hard systems can be optimised by the following systemic procedures. There is an important point of hard systems that it is based on 'scientific knowledge.' Scientific knowledge is same everywhere in the world. However, in human situations, nobody is the same. In social systems the logic of the situation is not certainly important of what happens in organisations than is the history, culture and politics of the situation (Jackson 2006). Checkland (1990) identified this matter and SSM sought to work with the different perceptions of the situation. For improving the problem situation, different viewpoints are discussed, and feasible and desirable problem situation is accepted. Problems arise from the real world, Checkland summarised these

by sentence; SSM shifts "systemicity from the world to the process of enquiry into the world" (Jackson, 2003). According to Checkland (1985), SSM showed a model of human behaviour oriented to "relationship-maintaining" as like Vickers writings, however hard systems methodologies were shown by Herbert Simon's studies which were based on the goal-seeking model of human behaviour. Hard systems thinkers were concerned with "how", while soft systems thinkers were concerned with "what." In the former, goals were known and they attained goals with prediction and control, and with optimisation. In the latter they sought what can be done and on participation and learning (Jackson, 2003). Checkland (1993) argued hard systems are suitable for only small clear part of the situation. The practitioners, who use hard approaches, offer only one model of the whole system, an optimum organisational arrangement for an enterprise intended on goal seeking (Jackson, 2003). Goal-seeking is based on the functionalist paradigm. It pointed out that, the truth is discovered by scientific analysis. It emphasises "optimisation through efficient allocation and use of resources, effective achievement of goals, productivity, adaptation to the environment, and self-organisation" (Torlak, 2006). SSM is interpretive rather than functionalist. In SSM the observers' world-views are different from each other and they give different forms to the systems in their minds. SSM is supported by the interpretive sociology of Weber than the functionalism of Durkheim and of the phenomenology of Husserl and Schutz than of Comte (Jackson, 2003). Objectivism is accepted by functionalist systems, while subjectivity is

accepted by the interpretive paradigm. Durkheim (in Checkland, 1981) who pioneered of functionalism and added the word sociology to the literature recommended that the 'science of society' that should be the 'social facts.' Most organisation theorists tend to treat their subject of study as a hard, concrete and tangible empirical phenomenon which exists 'out there' in the 'real-world'. The interpretive sociologists are firmly opposed to such 'structural absolutism,' arguing that social science should be based upon fundamentally different assumptions about the ontological status of the social world" (Burrell and Morgan,1998). Weber (1904) originated the interpretive paradigm, which was complex and conceptually as rich as that of the functionalist paradigm. Interpretive paradigm with regard to the ontological status of the social world rejected the utility of constructing a social science which focuses upon the analysis of structures (Burrell and Morgan, 2001). SSM was closer to interpretive, because of the meaning at attribution by individuals and groups leads to their forming particular intentions and undertaking particular purposeful action (Checkland 1993). According to Checkland (1993), in the world events and ideas are changeable and managers must manage these changes. In SSM, different actors of the situation will evaluate and perceive changes, differently creating issues that the practitioner must manage. SSM offers to the practitioners' the systems ideas for solving problematic situations arising from the issues. The world outside seems highly interconnected forming wholes; the concept

system can help to cope with the intertwined reality is perceived (Cacers, Ulloa, 2007).

The last point in explaining the philosophy and theory underpinning SSM is the concept of 'organisation.' Organisation arises from discourse between two or more individuals, out of which may emerge, and criteria for evaluating success in relation to the pursuit of those purposes. This, in turn, may lead to the definition of organisational roles and the establishment of norms and values" (Jackson, 2003). "Organisations are more problematical; because their stakeholders have values and interests. These values and interests are not the usually same, they are different. Checkland and Holwell (1998) summarised it as the concept of organisation is to manage a changing set of relationships, rather than taking rational decisions to achieve goals" (Jackson, 2000). Therefore, managers need to manage relationships. SSM will help them to use best processes to reach best ends. They can learn and seek feasible and desirable conditions (Jackson 2000). Vickers' (1965, 1970) ideas about management is also similar that stresses to manage a richly explanation set of relationships. In addition, Vickers gave inspiration to Checkland through his "appreciative systems." Appreciative systems and soft systems methodology are systems which were developed in the 1960s and both of them were inquiring systems. Vickers did not accept goal-seeking model which was in anywhere, then he investigated the cybernetic model and he refused it again. Lastly, he returned to appreciative systems. Vickers (1974) summarised his history by three clauses:

- In describing human activity, institutional or personal, the goal-seeking paradigm is inadequate.
- The cybernetic paradigm is equally inadequate, because the helmsman has a single course given from outside the system, whilst the human regulator, personal or collective, controls a system which generates multiple and mutually inconsistent courses.
- From 1 and 2 flows a body of analysis which examines the 'course-generating' function, distinguishes between 'metabolic' and functional relations, the former being those which serve stability of the system, the latter being those which serve to bring the achievements of the system into line with its multiple and changing standards of success.

The structure of appreciative system is like 'two-stranded rope' which is shown in Figure 2.6. As can be seen at the Figure, wires are connected to each other. Appreciation is occasioned by human ability to select and to choose. Appreciation begins with reality, thinks about it, searches it, adds ideas, and leads actions that part of the events stream. An appreciative system is a process whose products-cultural manifestations condition the process itself, but the system is not operationally closed in a conventional sense. It is operationally closed via a structural component (the flux of events and ideas) that ensures that it does not, through its actions, reproduce exactly itself. Vickers' idea of appreciation in which, both

individually and in groups, the following will be done: selectively perceive world; make judgements about it, judgements of both fact (what is the case?) and value (is this good or bad, acceptable or unacceptable?); envisage acceptable forms of the many relationships to have be maintained over time; and act to balance those relationships in line with judgements. A summary can be made about major themes which were explained above (Checkland, 2000):

- A rich concept of day-to-day experienced life.
- A separation of judgments about what is the case, reality judgements, and judgements about what is humanly good or bad, value judgements.
- An insistence on relationship maintaining as a richer concept of human action than the popular but poverty-stricken notion of goal seeking.
- A concept of action judgements stemming from reality and value judgements.
- A notion that the cycle of judgements and actions is organized as a system.

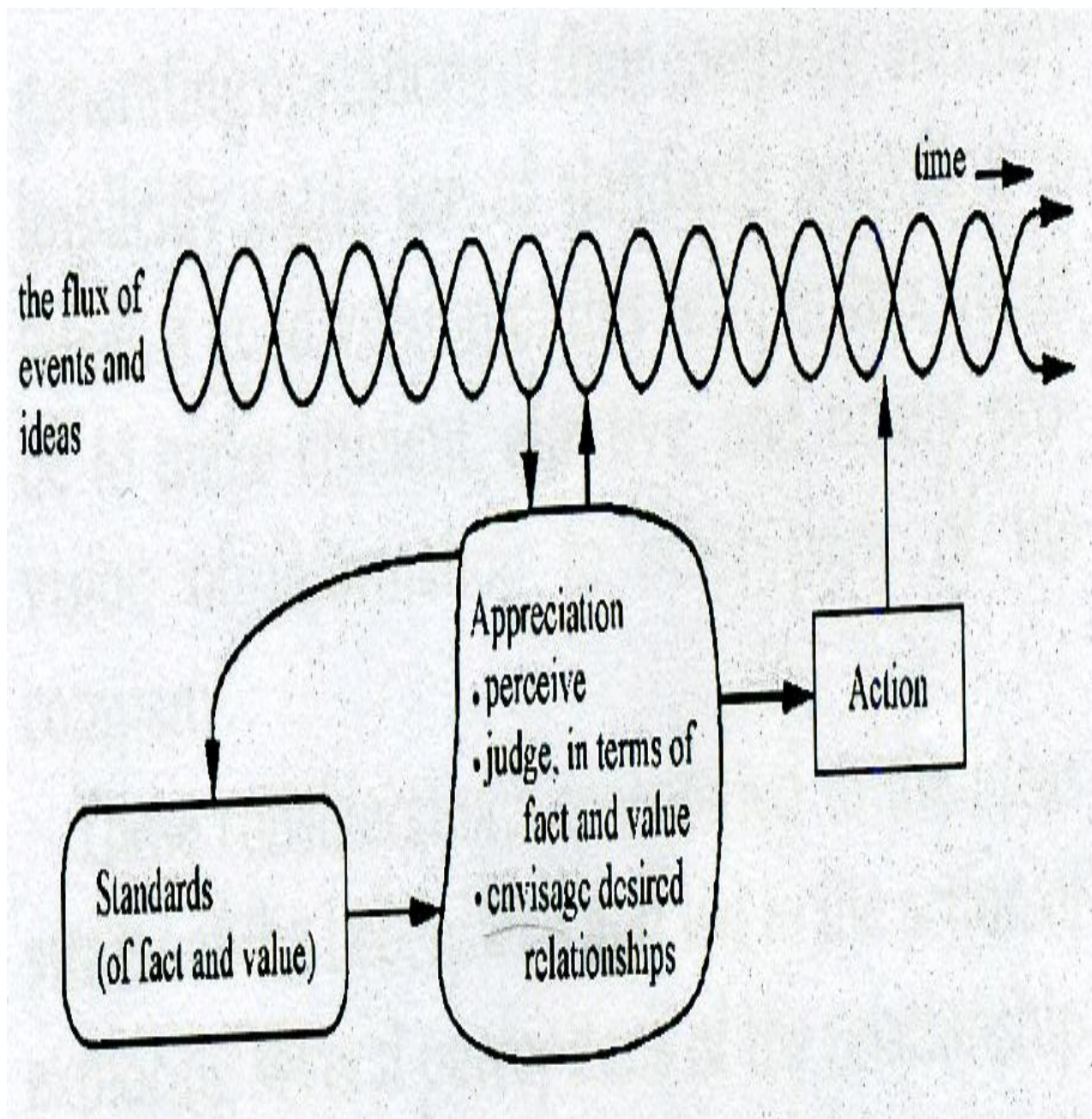


Figure 2.6. The structure of an appreciative system (Checkland, 2000)

Atkinson (1984) makes a comparison between Checkland's SSM and Vickers's theory of appreciative systems which can be characterised in a list as follows:

SSM

Problem situation, 'Concern'

- Rich picture building
- Problem theme development
- Root definitions
- Conceptual model building
- Comparison of the models with real world
- Debate over systemic desirability and cultural feasibility.
- Take action to improve the problem situation. This produces a new problem situation, the cycle begins again.

Appreciative systems

Worlds of events and ideas, 'Mismatch'

- Appreciation of situation via fact and value judgements.
- Instrumental judgements regarding strategies-source, appreciative world and schemata.
 - Reference back to appreciative world for executive decisions on action to change course in the milieu.
 - Take executive action to alter the course in the milieu to achieve stable relationships.
 - This in turn produces new change in the worlds of events and ideas which can be problematical.

Checkland (2000) showed that SSM's process was affected by Vickers' ideas but SSM was not emerged from operationalising appreciative systems. Checkland emphasised SSM was not a new version of functionalism, because functionalism is a social theory of hard systems approaches, but SSM was more subjectivist. Mingers (1980) compared Habermas's thought and soft systems methodology and stated three features:

- Both of them were interested in human action.
- Both concluded hard systems analysis, and can not manage complex problems in real world adequately.
- Both denied the inevitability of the divorce between rationality and values which characterised natural science.

2.4. The Methodology of Soft Systems Methodology (SSM)

In the past, the methodology was defined as 'the science of method,' but current dictionaries define it 'the science of method' and also 'a body of methods used in a particular activity' (Checkland, 2000). Methodology is usually confused by 'methods' and 'techniques'. However they are different. "Methodology is the study of methods; any methodology may contain methods and/or techniques" (Wilson, 2001). Methodology does not solve the problem while both of them reason if they are followed. "Methodology is a set of ongoing principles which can be adapted for use in a way which suits the specific nature of each situation in which it is used" (Checkland and Poulter, 2006). SSM provides a set of principles which can be both adopted and adepated for use in any real situation in which people are intent on taking action to improve it (Checkland and Poulter, 2006).

Checkland characterised SSM by many names; system of enquiry, enquiry in process, learning system, reflection in action, an organised version of doing purposeful thinking, and structured way of thinking (Rose,1997). SSM can be analysed under two titles; 'the traditional seven-stage model' and 'two-strand model.'

2.4.1. Seven-stage model

The traditional model represents seven stages of SSM, as discussed earlier which was shown in *Systems Thinking, Systems Practice*, in 1981. This style of SSM is the best known today, but Checkland does not use it anymore. The learning cycle of soft systems methodology can be seen in Figure 2.3. The stages of the cycle are as follows.

Stage 1 and 2: Finding Out:

In the first stage, a sense of unease felt by individuals leads to the identification of a problem situation that demands attention (Jackson, 2000). In the second stage, this problem situation is found out. In the 'finding out' there are some methods which is used by Checkland. They are observation, collecting secondary data and informal interviews (Jackson 2006). These are findings used for building up "rich picture" which is a cartoon-like shape (Figure 2.4). Human relations are generally complex and pictures are better than writings of multiple interacting relationships, they are helpful to see holistic thinking about the situation. A neutral rich picture shows about structure, process, and relationships. Pictures are also helpful to easily remember the situation and process can be kept on mind for a long time. There is no formal technique or classic form for drawing a rich picture. Rich pictures aid creativity, allowing the easy sharing of ideas between organisational actors, are able to show interrelationships better than linear propose, and act as an excellent memory aid (Jackson, 2003).

Stage 3: Formulating root definitions

This stage takes place below the line (Figure 2.3) in systems thinking. This stage involved "root definitions" which are prepared from relevant systems. CATWOE is formulated for it. CATWOE mnemonic includes the following components:

- **Customers:** the victims/beneficiaries of the purposeful activity. According to Basden and Harper (2006), customers are the person or persons whom the system is intended to serve. Thinking about C must not be too narrowly and too widely. If C is thought narrowly, indirect impacts can be determined and system can be failed. If C is thought widely, the analysis can lose focus become confused and inefficient.
- **Actors:** those who do the activities.
- **Transformation process:** the purposeful activity which transforms an input into an output (Input state-T-output state). According to Checkland, the error which can be confusing the input which gets transformed into the output with the resources needed to investigate the transformation process (Basden and Harper 2006). Transformation process is the core element of a root definition. There can be some unexpected difficulties. "The first one is not to confuse the entity to be transformed with the resources needed to bring about the transformation. The second one is not to use verbs as inputs and outputs instead of entities" (Checkland, Tsouvalis, 1997, p155).
- **Weltanschauung:** the view of the world that makes the definition meaningful. W is a perspective that gives T its meaning. W is absolutely necessary in the analysis, especially in order to build fresh insights (w1,w2,w3).
- **Owners:** who can stop the activity. If a way of understanding O was found that is oriented towards responsibility and authority rather than aspirations, and provides a sound means of differentiating clearly between the variety of manifestations of these that complex situations often exhibit (Basden and Harper 2006,659).
- **Environmental Constraints:** those constraints in its environment that this system takes as given. Both internal and external constraints are needed to be considered.

Figure 2.7. Shows the mnemonic CATWOE by visual way:

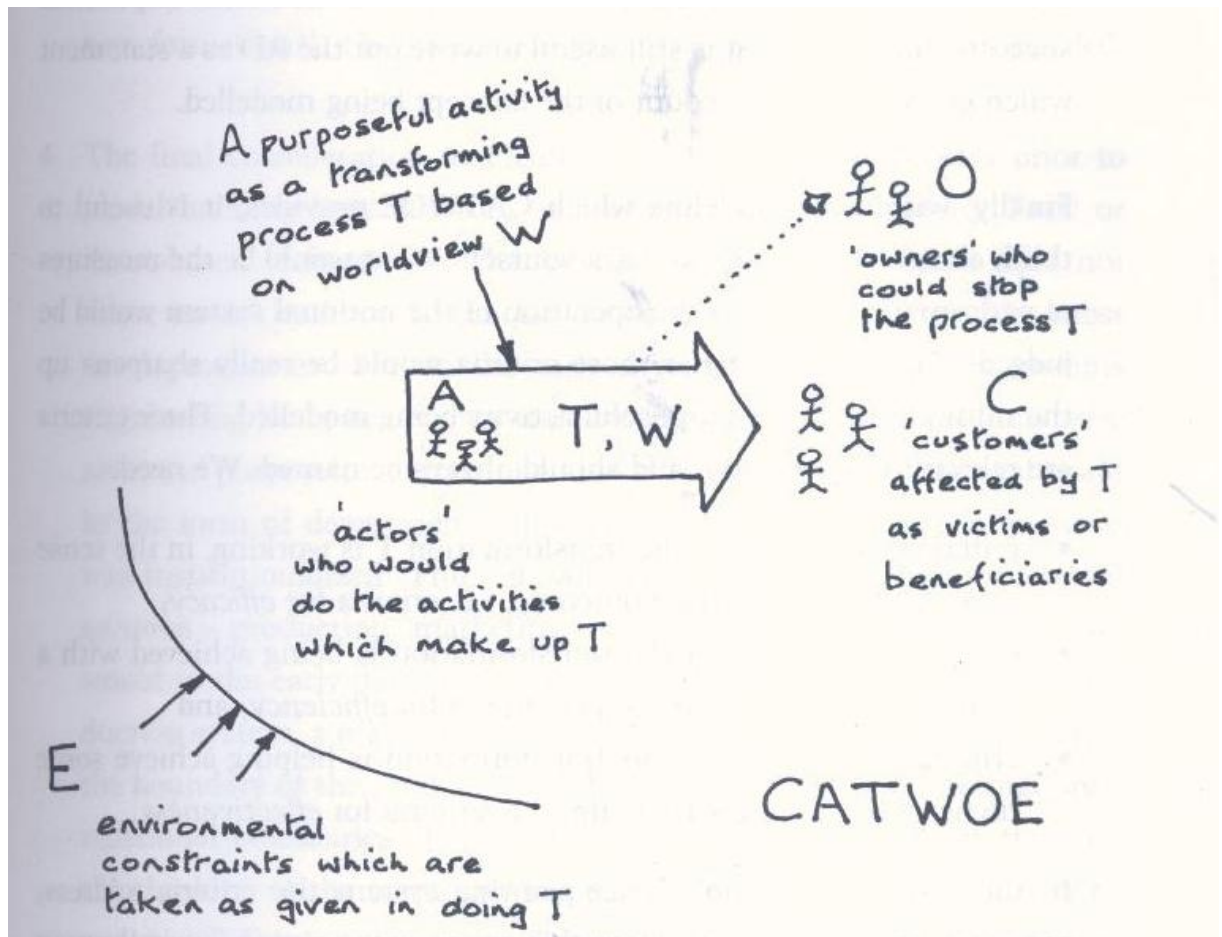


Figure 2.7 A Generic Model of Any Purposeful Activity Which Yields the Mnemonic CATWOE (Checkland and Poulter 2006)

While root definitions are composed for increasing the quality of CATWOE in SSM 'the PQR formula' can be applied to every RD ever written. 'The PQR formula': do P, by Q, in order to help achieve R. PQR answer the following questions:

- What to do?
- How to do?

- Why do it?

A root definition expresses the core purpose of purposeful activity system. The metaphor 'root' conveying that this is only one, core way of describing the system. The core purpose is always expressed as a transformation process in which some entity, the input, is changed, or transformed into some new form of that some entity, the output (Checkland and Poulter, 2006). A primary task root definition points out that the task is to be performed. Issue based definitions show; the detailed part of the problem situation. The distinction between issue-based and primary-task can be summarised as; an issue based system is one used to explore an issue such as a company role exploration system, a decision making system. Primary-task systems would be expected to map onto some organisation unit (Wilson 2001). It can be remembered as while issue-based systems have temporary relevance, primary task systems have permanent relevance (Wilson 2001). Different root definitions have different viewpoints of a problem situation. Checklands' prison example is a good statement for explaining it. Prison is a punishment system, is a rehabilitation system, is a system for taking revenge, is a system to protect society, and is a university of crime. All definitions are true; the significant point is the variety of viewpoints (Jackson 2000).

Wilson (2001) argued some rules that should be regarded in constructing root definitions (RD):

- Rule 1: A RD should be one sentence in which the major verb represents the transformation process.
- Rule 2: The mnemonic CATWOE is used as a test of the structure and words used in the RD.
- Rule 3: The element T and W must be identifiable in every RD.
- Rule 4: Words and/or phrases may be included within a RD to qualify other words and/or phrases to add richness or specificity to a RD without them being represented as CATWOE elements.

An example of an RD and a CATWOE analysis are presented as below:

RD: A professionally manned system in a manufacturing company which in the light of market forecasts and raw material availability makes detailed production plans for a defined period.

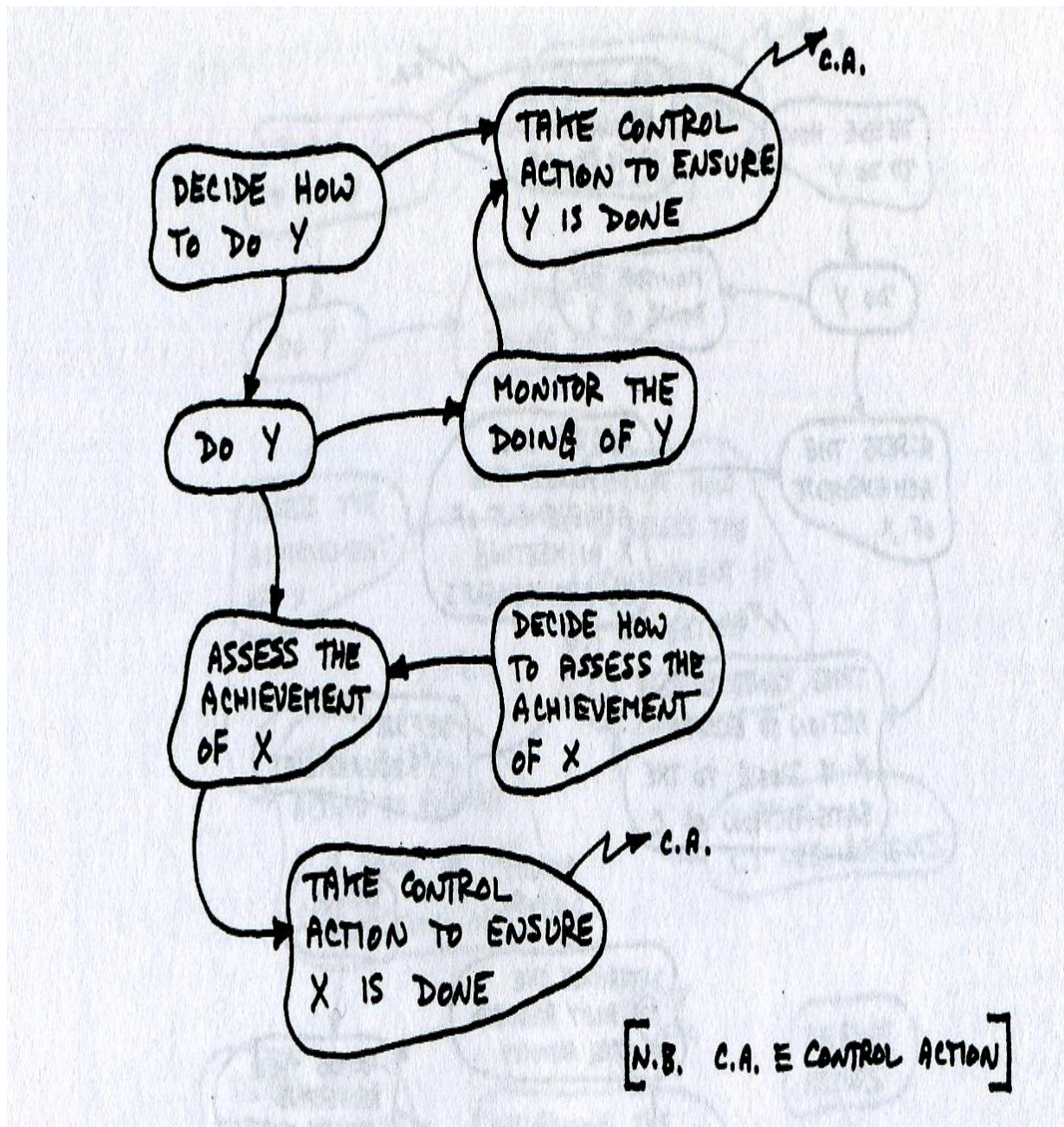
CATWOE analysis will be as follows:

- C: people in the production function
- A: Professional planners
- T: need for production-need met information- plan
- W: rational planning of production is desirable and is a possibility; there is the degree of stability needed to make rational planning feasible
- O: the company
- E: staff and line roles: information availability

Stage 4: Building Conceptual Models

Root definitions which are prepared in Stage 3; is used for building up conceptual models in Stage 4. A conceptual model has to show to accomplish the task named in the root definitions. It has seven verbs at the beginning, but if it is needed, a new root definition can be developed, and the numbers can be enriched at the long term. The conceptual model represents minimum activities that are necessary to achieve purpose placed in the root definitions (Jackson 2000). It is important say that the conceptual models are drawn from root definitions and they are complementary; the root definition

expresses what the system is, the conceptual model expresses what the system does (Jackson, 2000). Figure 2.8 shows an example of a conceptual model (CM) (Wilson, 2001).



T-to do x

W-doing Y will lead to the achievement of x

Figure 2.8. Conceptual Model Building (Wilson, 2001)

Stage 5: Comparing Models and Reality

This stage has a part in above the line (Figure 2.3). It compares the reality and the idealised models. Checkland (2000) recommended four different ways while doing the comparison. The first one is; the number of models can be taken and the main differences between models and current perceptions are searched. The second one is; a list of differences is prepared for each conceptual model, and noted with questions for which answers are sought in the situation itself. The third one is; scenario writing in the future the reaction of the systems for the conceptual model. The last one is; the matching. The part of reality and the model can be matched and differences between two are discussed (Jackson, 2003). The aim is to provide possible changes with the problem situation.

Stage 6: Defining Changes

In this stage, the changes are sought by two ways, desirability and feasibility. While desirability is obtained from the logic-based stream of enquiry, feasibility is obtained from cultural enquiry. Changes should carry both of them; they are defined as 'systemically desirable' and 'culturally feasible.' Changes exist of the arguments by comparing the models with real situations they are not mandatory, they are desirable. Changes will take place in a human culture, and will modify that culture. Changes will be carried out when they are suitable with that culture and within its worldview (Checkland, 1990). So changes accommodate desirable on the systems models and may be feasible in term of the history of the situation (Jackson,

2000). These changes can be classified as attitudinal, structural and procedural.

Stage 7: Taking Action

“When accommodations or changes that are both desirable and feasible are found, Stage 7 helps with action to implement the agreed changes” (Jackson, 2000). According to Checkland and Tsouvalis (1996), a chess player and a SSM’s user follow same way, because the chess player tries a number of different possible moves, thinking on the pattern on the board and relating it to previous experience. According to Checkland (1990), in social systems problem solving is a never-ending process of learning, attitudes, and perceptions of participants are all the time tested and changed, and they begin to think about new conceptions of desirability and feasibility (Jackson, 2000).

2.4.2. Two-strands model

After experiences of using SSM, seven-stage model is founded very limiting, and then Checkland developed a new representation of methodology which is more flexible. This model was “two strands model” which was based on relationships between “situational logic” and “situational culture” (Figure 2.4). This model first appeared in Checkland and Scholes (1990) “Soft Systems Methodology in Action.” In the logic based thinking, the relevant human activity systems are chosen, defining purposeful activities to be modelled (RD), building purposeful activity models (CM), and comparing models with the perceived existing problem situation in the rich

picture and making systemically desirable and culturally feasible changes. The success of logical analysis can be tasted by 3Es—efficacy, efficiency, and effectiveness. Efficacy dimension checks whether the means chosen actually works in producing the output. Efficiency then considers whether the transformation is being carried out with a minimum use of resources. Finally, in effectiveness a transformation which works and uses minimum resources might still be regarded as unsuccessful if it were not achieving the longer term aim (Checkland, 1990). In particular circumstances other criteria might also apply elegance (is this a beautiful transformation) or ethically (is this a morally correct transformation).

Cultural analysis includes three types of investigation (Analysis 1, Analysis 2 and Analysis 3) and rich picture building. Analysis 1 considers the intervention itself and the roles of clients, problem solvers, and problem owners.

- The client is the person who causes the systems study to take place.
- The problem-solver is the person who wishes to do something about the problem situation.
- The problem-owners are stakeholders with an interest in the problem situation.

Analysis 1 is a role analysis in SSM and is very productive. Figure 2.9. gives a visual indication of SSM's Analysis One.

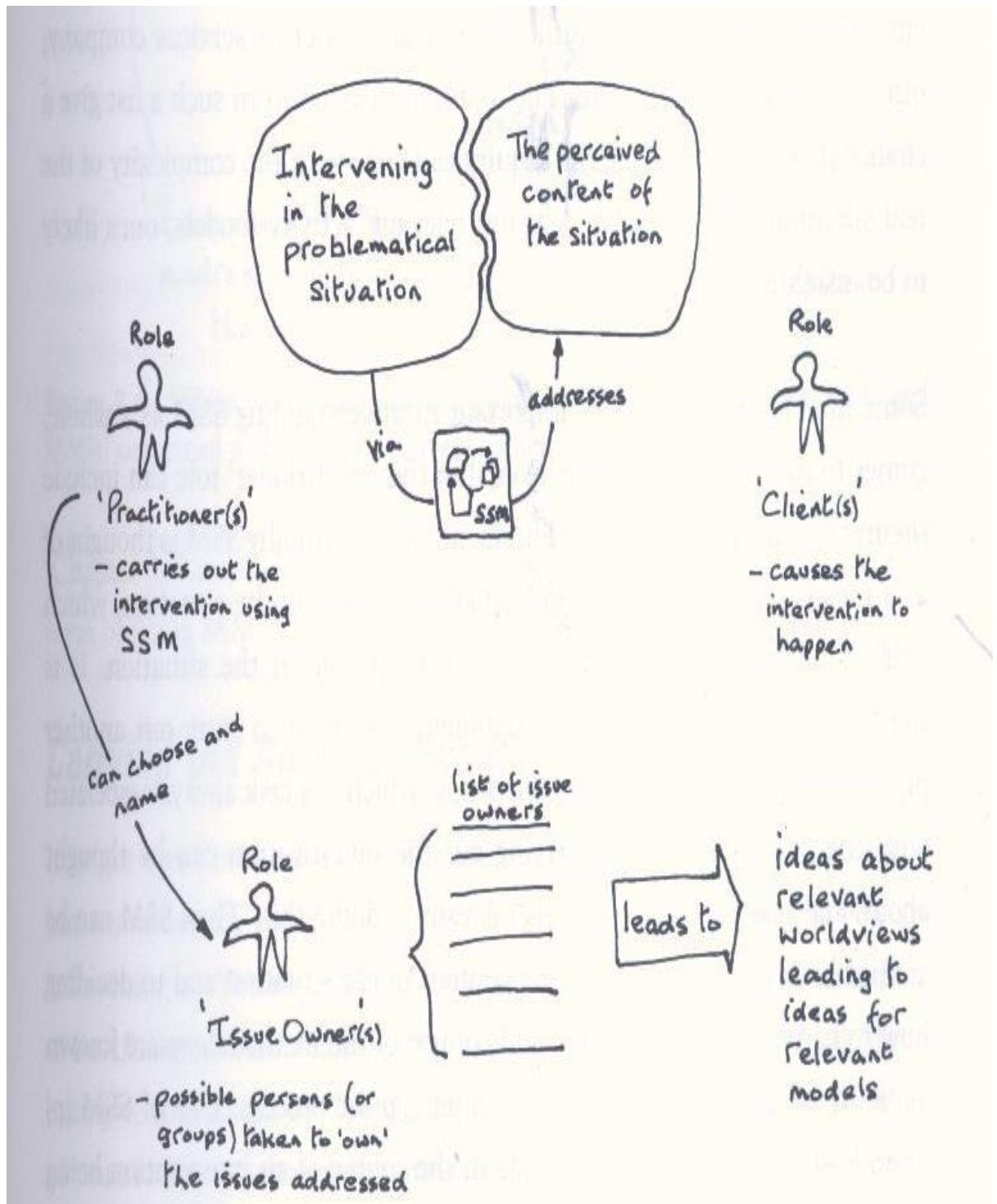


Figure 2.9. SSM Analysis One (Checkland and Poulter)

Analysis 2 takes a cultural view of the social system, looking at social roles, norms of behaviour and what values are used in judging role performance.

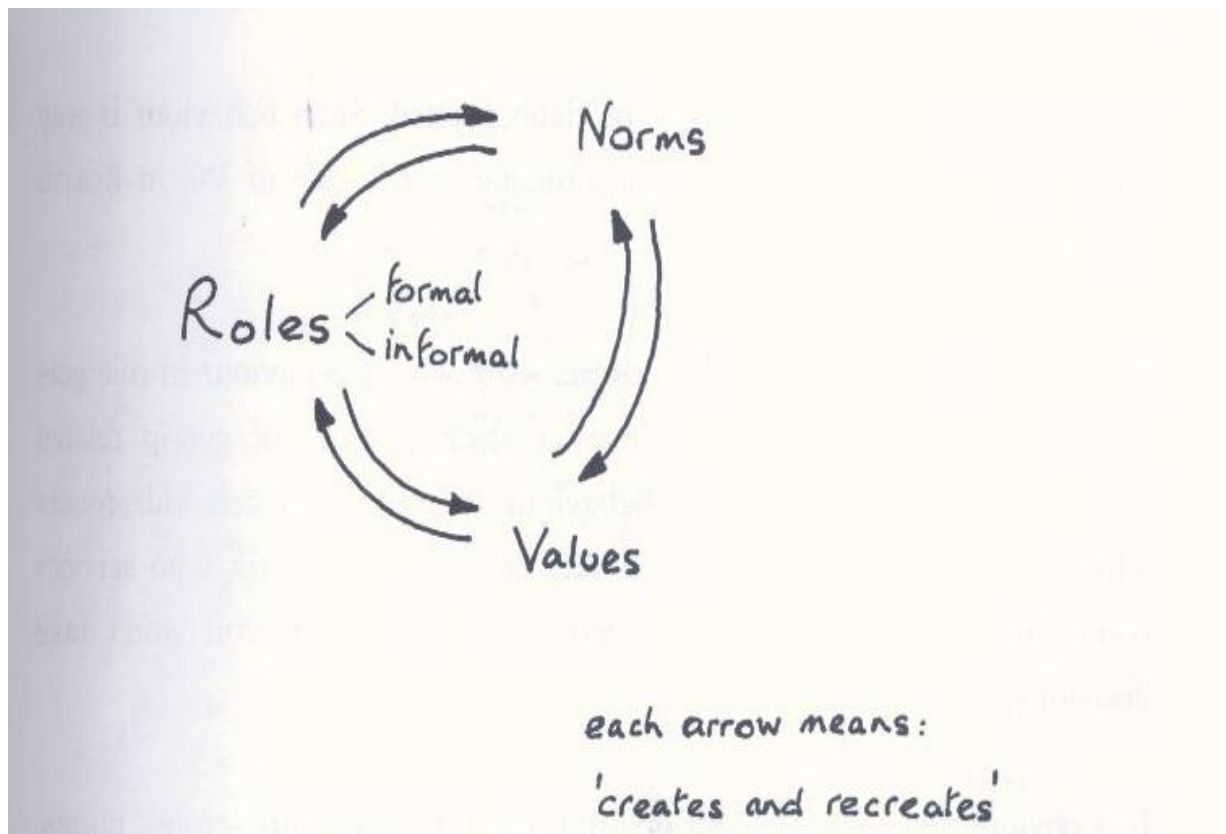


Figure 2.10. SSM's Model for Getting a Sense of the Social texture of a human situation (Checkland and Poulter 2006)

- Roles are social positions which mark differences between members of a group or organisation. They may be formally recognised as a chief executive, department heads. Informal roles also may be developed in any culture.
 - Norms are the expected behaviours associated with, and helping to define, a role.
 - Values are the standards –the criteria- by which performance in a role judged. These are beliefs about what is humanly good or bad performance by role holders.

Roles, norms, and values interact with each other, and can be changed very often.

The model of linked roles, norms and values is used in SSM by this way; the practitioner think about the roles, norms, and values which are taken from interacting with the situation -talking to people informally, sitting a meeting, having a coffee in the cafe- characterize it. Record the finding in the 'Analysis Two'. Figure 2.11. represents it by a visual way.

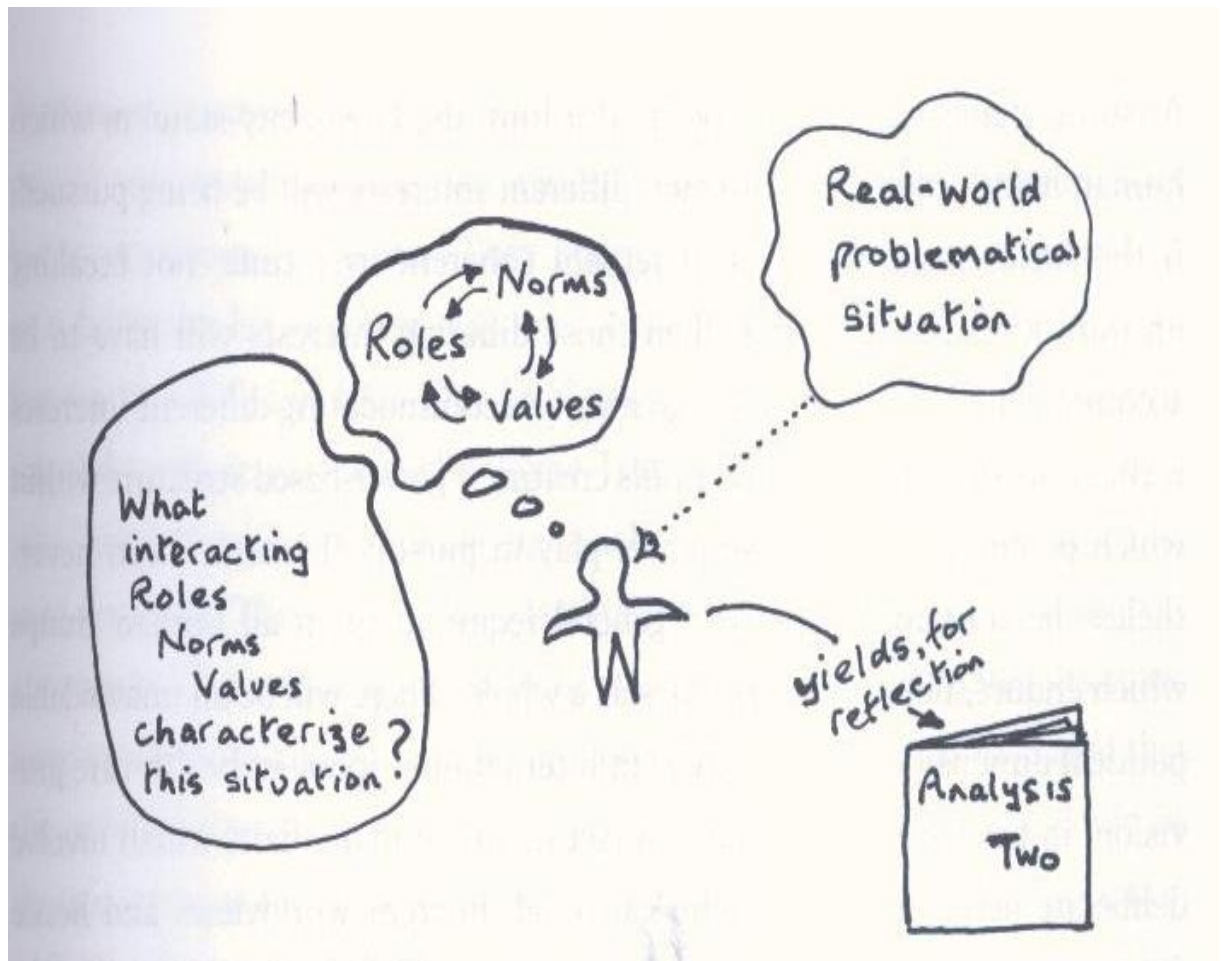


Figure 2.11. SSM's Analysis Two (Checkland and Poulter 2006)

Analysis Three examines "the politics of the problem situation and how power is obtained and used" (Jackson, 2000). In Analysis Three, political analysis is made by asking how power is expressed in the situation studied (Checkland, 1990). The metaphor of a 'commodity' represents power. The commodities which indicate power in human groups are many and various. There is a link here to Analysis Two, since occupying a particular role embodies power (Checkland and Poulter, 2006). Figure 2.13. summarised Analysis Three.

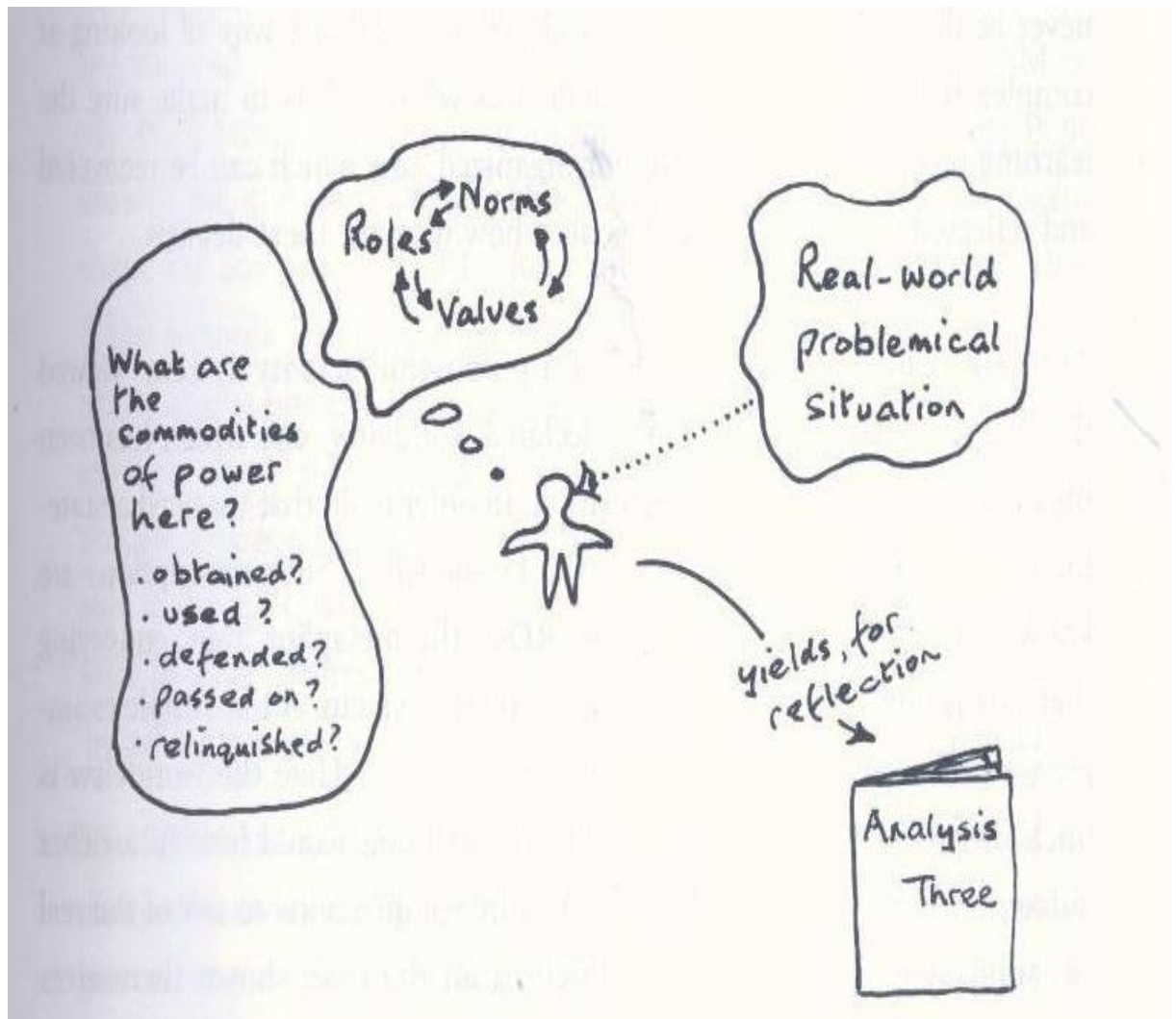


Figure 2.12. Analysis Three (Checkland and Poulter)

2.5. Methods

Rich pictures, root definitions, conceptual models and comparison are the tools. Rich pictures takes place in cultural stream of analysis, root definitions and conceptual models take place in logic-based stream and comparison provides link them.

“Rich pictures are actual drawings that allow the various features of a problem situation to be set down pictorially for all to see” (Jackson, 2000). There is not a technique or form for drawing pictures, and skills are not

important or necessary. They can be hand drawn cartoon-like or rather formal rich picture drawn on a computer screen. Rich pictures can support creativity, show the relations in a problem situation rather than linear prose. Root definition is expanded from relevant system that offers insight into the problem situation. A conceptual model is built up from the root definition. It is produced by thinking through and writing down the minimum activities that seem necessary to accomplish the transformation in the way defined in the root definition.

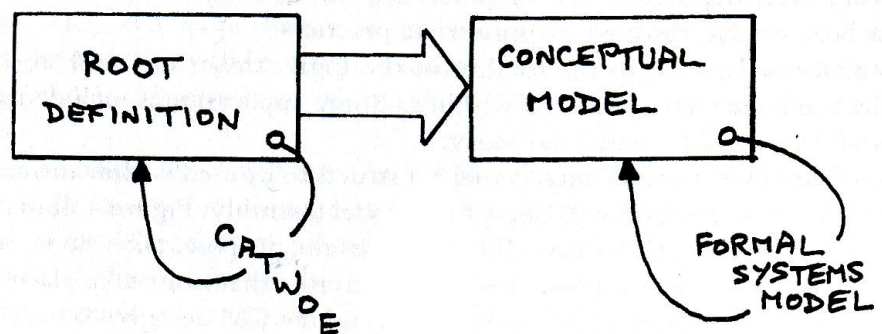


Figure 2.13. The logic based process (Wilson, 2000)

The purpose of the conceptual model (CM) is notionally to accomplish what has been defined in the root definition (Checkland and Tsouvalis, 1997). A comparison is made between conceptual models and the situation that is shown in rich pictures. It accomplished by four ways (Checkland, 1981):

- Informal discussion of the main differences between the models of what might be and what seems to be the case now.
- A more formal questioning of the main differences, which involves filling out a matrix that asks for each activity such questions as: does it exist or not in the real situation? How is it done? How is it judged? And any other comments?
- Scenario writing based on notionally operating the human activity system, in the mind or on paper, to see how it is expected to behave into the future; this might be compared with how an actual system appeared to work in the past in similar circumstances.
- Modelling the real world using the same structure employed in the conceptual model highlights any significant differences that might provoke discussion (Jackson, 2000).

2.6. Recent Developments of SSM

The distinction between Mode 1 and Mode 2 is still being worked on. Mode 1 can be defined as the methodology was introduced as an externally orientated methodology. In Mode 2, the methodology is taken from the everyday flux of events and ideas; and Mode 2 helps managers use SSM easily and productively in their daily working lives. Checkland's aim is not to put SSM only in a new model; rather he wants to enlarge its possible uses. Mode 1 interventions are methodology driven and prescribe certain activities that need to be carried out. Mode 2 interactions are situation driven and allow managers to make sense of what is going on

(Jackson, 2000).

The distinction between Mode 1 and Mode 2 can be summarised as:

Mode1

- Methodology driven
- Intervention
- Sometimes sequential
- SSM is an external recipe

Mode 2

- Situation driven
- Interaction
- Always iterative
- SSM is an internalized model

The current model of SSM can be seen in Figure 2.16. As can be seen from the Figure, SSM is a learning process that includes four primary activities (Checkland and Winter, 2006):

- Find out about the problem situation, it can be named as analysis one. Four ways can be used to find when seeking human situations of concern: rich picture, analysis two (investigates the social characteristics of the situation), analysis three (investigates the characteristic of power in the situation), and analysis one (intervention)
 - Build relevant models of purposeful activity.
 - Use the models to question the real world in order to define purposeful action which is both desirable and feasible.
 - Action to improve.

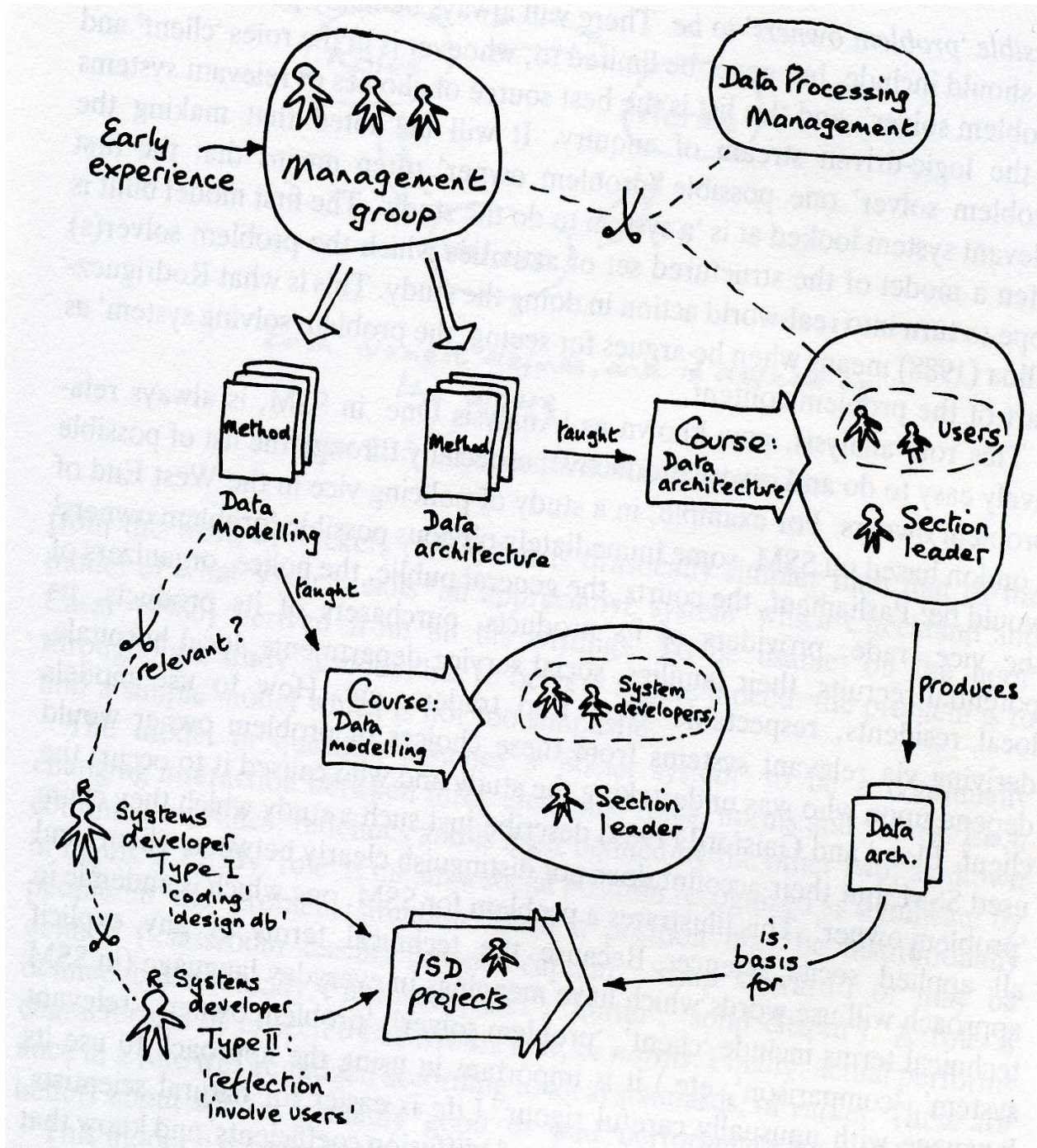


Figure 2.14. A Rich Picture (Checkland, 1990)

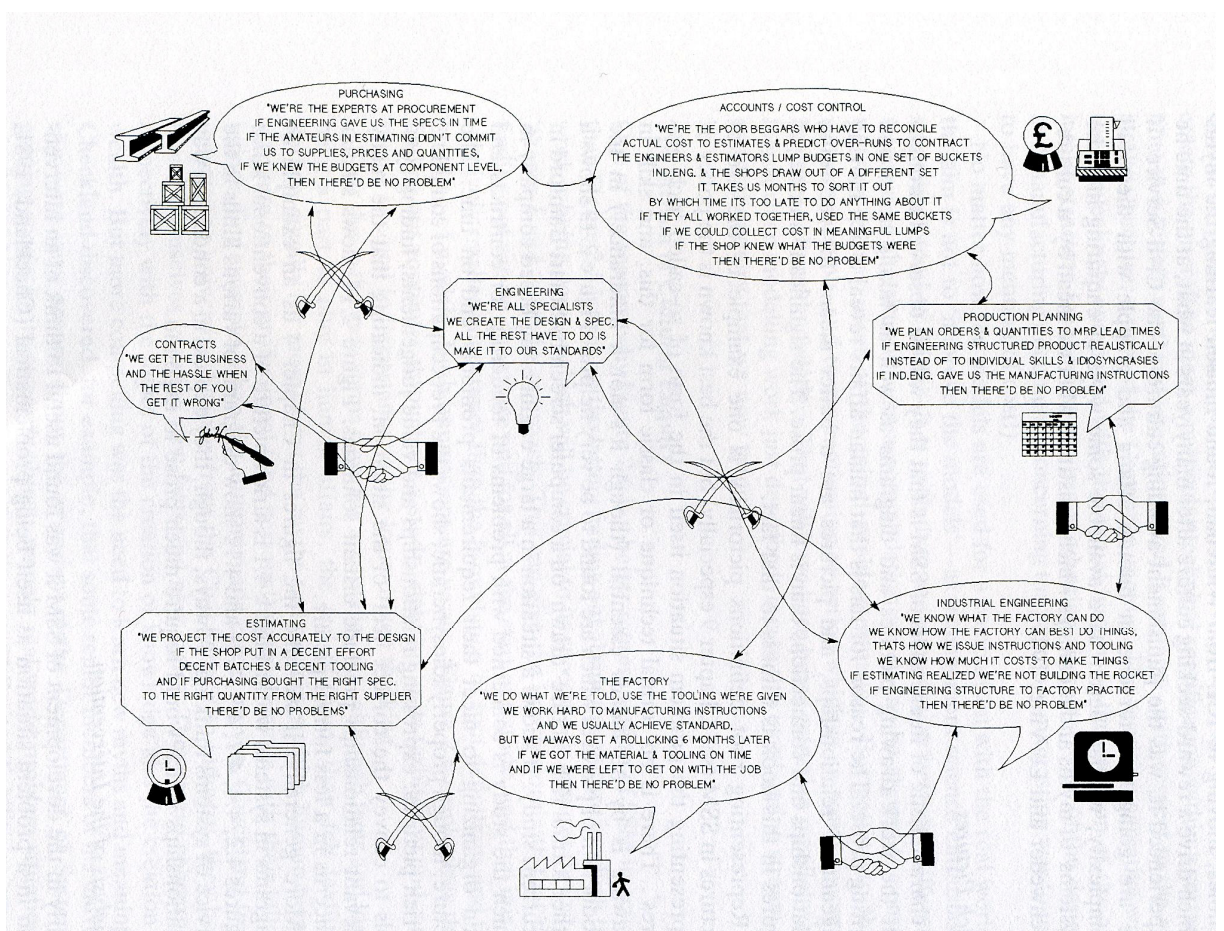


Figure 2.15 A Rich Picture (Checkland, 1990)

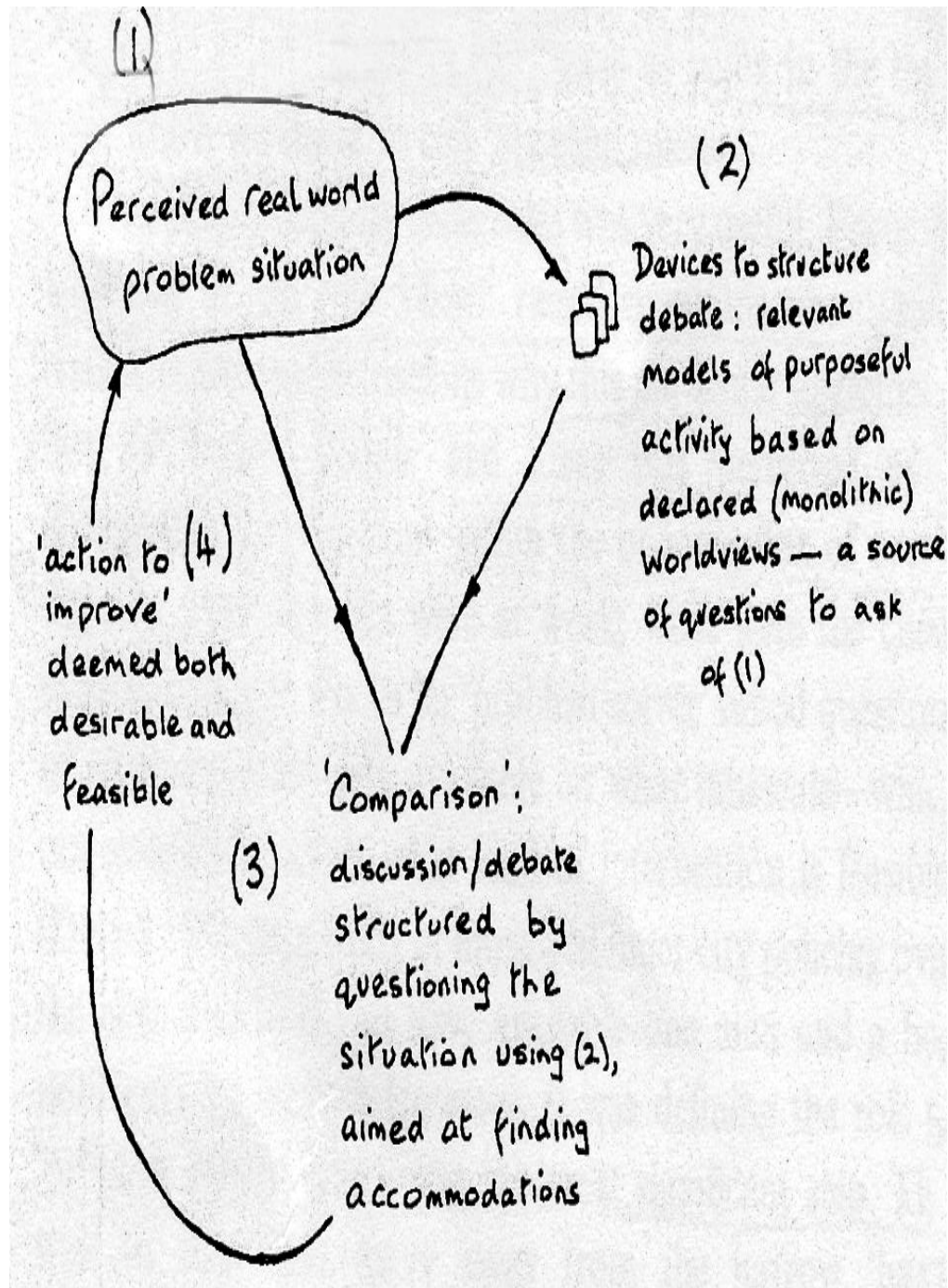


Figure 2.16. A Sense-Making Model for SSM (Checkland and Winter, 2006)

PART 2: PRACTICE

CHAPTER 3

THE DESCRIPTION OF THE PRIVATE HOSPITAL

This chapter deals with the nature of the Turkish health service and the description of the private hospital.

3.1. The Nature of the Turkish Health Service

This section examines the historical foundation of the Turkish Health Service, structuring the health sector in Turkey, the overview of the Turkish private hospital sector, the types of private hospitals and the current status of private hospital sector.

3.1.1. The Historical Foundation of the Turkish Health Service

The Health Service began to become a governmental concern state with the Turkish Grand National Assembly. On 3rd May in 1920, the health services were carried out through a special Ministry called "Sıhhiye ve Muavenatı İctimaiye Vekaleti" by law. However the health service literature officially started to proceed and was worth of with Refik Saydam. This period generated the basics of today's health services in Turkish. In this era other establishments of health services comprised health headships in the cities and bed treatment services that were carried out by government branches such as local governments and special provincial administration. The Health Ministry opened 'Numune Hospitals' as being an example for special provincial administration in big cities like Istanbul, Ankara, Diyarbakır, Erzurum and Sivas. Between 1928 and 1936, three laws were enacted by the

government concerning health services in Turkey. They were, 'Tababet ve Şuabat Sanatlarının Tarzı İcrasına Dair Kanun', 'Umumi Hıfzıssıhha Kanunu', 'Sağlık ve Sosyal Yardım Bakanlığı Teşkilatı ve Memurin Kanunu'. The most important of them was health constitution law called "Umumi Hıfzıssıhha Kanunu". During Refik Saydam's time, all of health staff's placement and promotion were controlled by the Health Minister.

In 1950 a new era began with the Democratic Party. In 1954 all of public hospitals were under the supervision and control of Health Ministry apart from Social Security Institutions, National Defence Ministry and University Hospitals. In this era, the government followed successful policy about the health issue. Spreading the hospitals in the big cities and to the whole country was aimed and in order to do those hospitals were opened in cities and towns. In addition, the existing hospitals were renovated. One of the important outcomes of the government efforts for was incentives for private institutions.

On 5th January in 1961 the law about socialization of health services enacted and "Socialisation Period" began. According to 1961 Constitutional Charter, the health services were accepted as governmental responsibility and in order to span the socialization of the health services to the whole country, new village clinics were opened. The aim of the number 224 law (Socialisation Law) was that to unify all of the health services. However, the objective could not successfully be reached because of the government's policies.

From 1970s up to now new period has begun; it can be called "Active Privatisation Period." In this period, the health services era not a duty for the government. There have been several policies applied for last 20 years. Objectives are starting to apply the family medicine, achieving autonomy and then privatizing of the public hospitals and starting to apply the general health insurance. With the number 25665 law the pilot application of family medicine has ensured. In 2006, according to the number 5502 law (Social Security Institutions Law), Social Security Institution, Social Security Organization for Artisans and the Self-Employed and Retirement Fund became under the supervision and control of the Health Ministry and the number of public health services greatly decreased.

3.1.2. Structuring The Health Sector in Turkey

The health sector is a very complex domain in Turkey. The Health service is provided by public, semi public and private institutions. The public institutions are the Health Ministry, the National Defence Ministry, the Social Security Institution, the Faculty of Medicine, the Ministry of Education, the Mail-Telephone-Telegraph, the State Railways and Civil Government and Public Economic Institutions. But in 2003, Social Security Institutions' hospitals were attached to the Health Ministry. This development increased the poverty of Health Ministry. According to laws, the Health Ministry is responsible for community's health and the authorization power is in the hands of the Health Ministry. The private hospitals were founded by minorities, religious groups, trusts and profit oriented institutions.

3.1.3. An Overview To The Turkish Private Hospital Sector

The private health sector existed in Turkey before the advent of the Turkish Republic with Yedikule Surp Pirgiç Armenian Hospital that operated as a private health establishment. With the establishment of the Turkish Republic, the private hospital sector gained a momentum and set up a broad framework. In 1933 the "Private Hospitals Act" enacted. During this period the private health sector was composed of examination doctors, laboratories, and hospitals which were established by foreigners and minorities.

Between 1960 and 1970 the private health sector was shaped by minor organisations that supported the public hospitals, the social insurance institution and the medicine schools' hospitals. The private health sector was supported by laboratories and X-ray units.

In 1980's, polyclinics and dispensaries began to appear in cities. Dispensaries are institutions which serves outpatient treatment. They can provide service to all of the outpatients or to only people who have special illness such as tuberculosis and trachoma. Except for tuberculosis dispensaries, none of them has bed capacity because of being outpatient institutions. Patients can take services such as X-ray and laboratory research. Polyclinics are the health services which provide outpatient treatment and simple operations. Between 1985 and 1990 the number of private hospitals began to increase.

When it comes to the 2000s' besides big private hospitals there were specialist hospitals such as eye hospitals, microsurgery hospitals, rehabilitation services...etc

3.1.4. The Types of Private Hospitals

Private Hospitals can be categorised into two groups according to their scope, service unit, bed capacity, technological facility, and qualification and number of specialties. First group is called general hospitals and the second is private branch hospitals. General Hospitals are the private hospitals which give health services to patients in bed and outpatients permanently and systematically. They have to meet the following five conditions:

1. They have to have the building and service and staff norms which are shown in private hospitals legislation.
2. They have to have at least six clinical doctors and three of them have to be specialist in surgery unit.
3. They have to have at least twenty five beds except intensive care and observation beds.
4. They have to have intensive care unit, radiology unit, biochemistry and microbiology laboratories.
5. They have to have emergency unit.

The Branch Hospitals are private hospitals which serve to the specific age/gender or for the specific illness or organ. They have to give services permanently and systematically and to meet the following four conditions:

1. They have to have at least four special doctors in specific area

2. They have to have at least one doctor for other specialties which is needed by one specific specialty.

3. They have to have at least twenty five beds except intensive care and observation beds.

4. They have to have emergency units.

3.1.5. The Current Status of Private Hospital Sector

The increase which started in the 1990s' continued in the 2000s'. The number of private hospitals in Turkey was 133 in 1994, 232 in 1999, 240 in 2003, and 375 in 2008. Forty percent of hospitals are located in Istanbul. 134 hospitals in 2003 became 156 in 2008 in Istanbul. Table 3.1 illustrated the comparison of public and private hospitals.

In Turkey, the health services were controlled by the health ministry, the social security institution, the medicine school hospitals, the Ministry of National Defence and private hospitals. After 2002 social security institution's hospitals and public hospitals were united and given under the control of the Health Ministry. Services started to be given by the Health Ministry, medicine school hospitals and private hospitals. The policy of government regarding the health service in Turkey changed in 2005 and people who had health insurance began to benefit from private hospitals. Therefore, private hospitals' clients have significantly increased. Table 3.1 shows the private hospitals' patients situation. In 2003 5.033.572 patients preferred to get health service from private hospitals but this figure reached to 38.382.644 in 2008 in the whole Turkey. Figure 3.1. and Figure 3.2. show the patients'

varying choice after private hospitals make agreement with Social Security Institution.

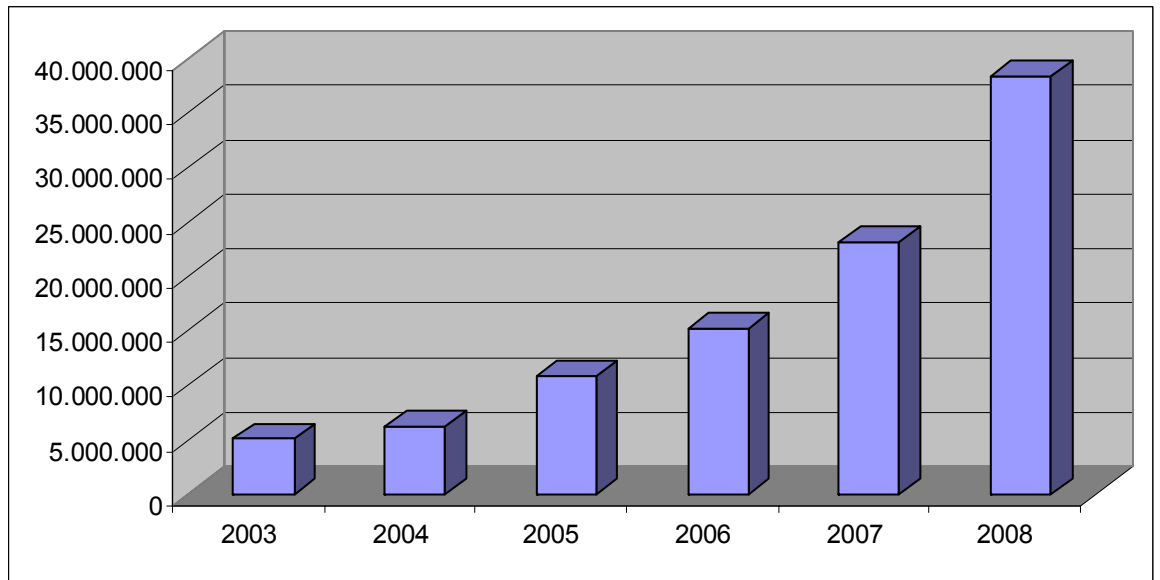


Table 3.1. the number of patients who come-prefer private hospital between 2003-2008

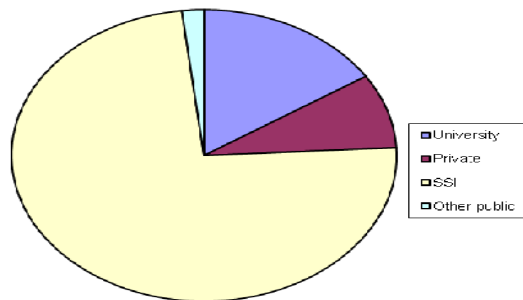


Figure 3.1. The Patients choice in 2003

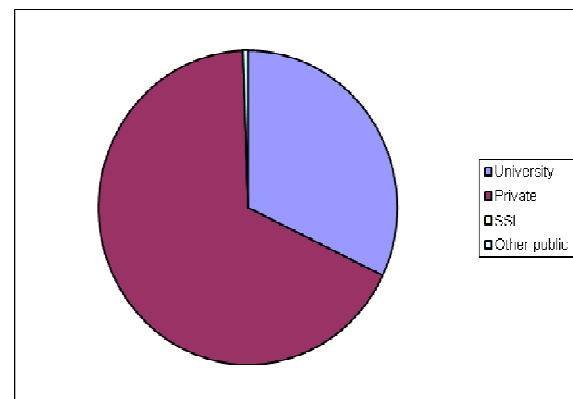


Figure 3.2. the patients choice 2008

3.2. The Private Hospital In Turkey

This section initially examines the history and then the chief characteristic of the hospital.

3.2.1. The History of the Hospital

Mevlana Health Service was founded by six doctors in 1995. This health establishment opened the private hospital in 1997; the hospital was the second health organisation which was established by Mevlana Health Service. At the beginning, the hospital started to provide services in three thousand and fifty hundred metres areas, and the hospital to only with its main branch. Over the years, the hospital continued to serve to the health sector through expanding its capacity and staff with the aid of technological opportunities. In 2004, the counsellor services engaged to the bed capacity reached to forty four, and new branches began to serve. They were adult and new born intensive care unit, cardiology laboratory and video endoscopy unit. In 2005, the government began to receive service from private sector. By the agreement that was made with the government, the hospital has become a hospital which is preferred by most of the public, not any more the hospital which a specific segment chooses to go to. Also in the same area the number of the private hospitals has increased and like the hospital all these private hospitals made agreements with the government. To make the number of patients increase and to predominate the rivals, the administrative board believed that providing high quality service was the only way. It was decided to take ISO 9001 certificate which is an international quality

standard. To perform this, relevant actions and necessary conditions were fulfilled. The following requirements are necessary for private hospitals to take ISO 9001:

- Private hospitals license
- Does it have radiology labs and laboratory assistant
- Performance coherence documents of the staff
- Private records of the policlinics
- Having an administrative manager
- Having an ambulance

The hospital took the ISO 2009 certificate on February 2009 and consequently, the hospital needed to enlarge its capacity and staff. The hospital served to public in six thousand metres area and had forty specialist physicians, and two hundred and forty four staff.

3.2.2. The Chief Characteristics of the Hospital

This section describes the hospital's policy, mission statement, organisational structure, medical units, clinical staff, service centre, e-services and financial state in 2007-2008.

3.2.2.1. The Policy

The policy is determined by the top management every year. It is explaining strategies and the ways which are followed by the top management. The policy of the hospital is characterised by quality management, patent management, patient relationship management, market management, profit management and management system. The quality

management provides the application of quality management system in the institution and makes the quality management permanent in its culture. The patient relationship management meets the patients' needs by managing the corporate sources effectively and efficiently. As a consequence, the institution will be preferred by the public continuously. The market management follows the relations between patients and their health institutions (public or private) on a regular basis, promotes mutual agreement, and maintains the relations with these institutions. The profit management manages the financial sources effectively and efficiently, distinguishes resources, makes profitable and rational investments. The management system provides successful results in targeted institutional indicators with systematic applications which rely on preventive fundamental approach to meet the needs of the stakeholders economically and completely.

3.2.2.2. The Mission Statement

As the entire physician and all of the health services, the mission of the hospital is to serve human beings and human health within the context of the following objectives:

- To take advantage of the opportunities offered by modern medicine
- To avoid economic concerns
- To beware of mechanisms for patients to be installed
- To remove information and skills permanently
- To provide high quality health service to all patients as human beings.

3.2.2.3. The Organisational Structure

The hospital is organised by as shown in Figure 3.3. The hospital is managed by management board. Management board, committees and medical directorship are connected to management. Management board is composed of accounting, medical accounting, administrative jobs, polyclinic services, technical services and purchasing departments. Committees are interested in patients' rights, quality, blood products and medical ethics. Medical directorship is formed by three units; head nurse, diagnosis unit and treatment unit.

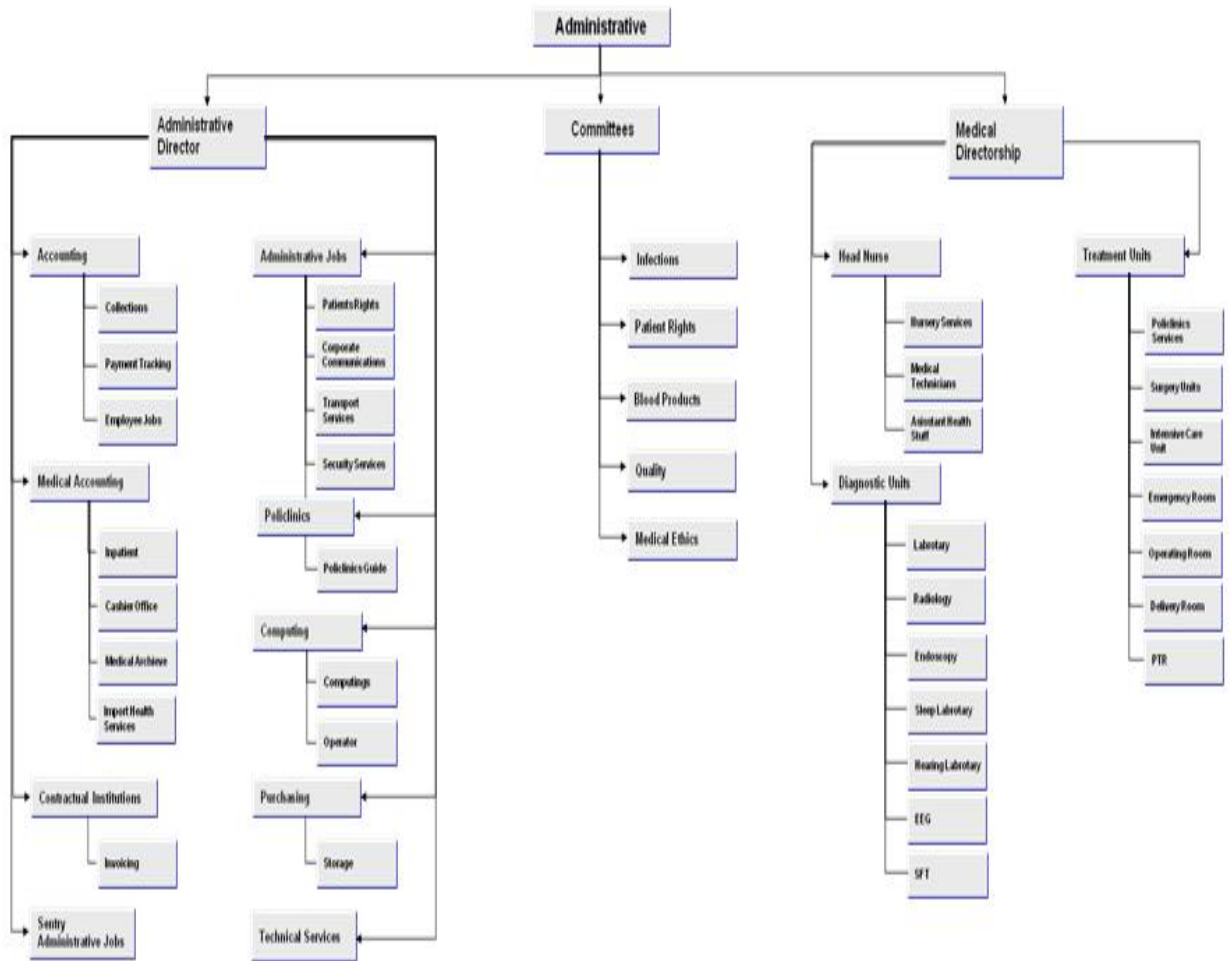


Figure 3.3. The Hospital Organisation Chart

3.2.2.4. Medical Units of the Hospital

The Hospital serves the following units in the hospital building.

- Dermatology
- Child surgery
- Child health and disease
- Endoscopic surgery
- Infection disease
- Aesthetic plastic surgery
- Physiotherapy and rehabilitation
- Gastroenterology
- General surgery
- Eye clinic
- Internal diseases
- Gynaecology
- Cardiology
- Ear, nose and throat clinic
- Micro surgery
- Neurology
- Neurosurgery
- Orthopedy and traumatology
- Psychiatry
- Urology
- Nutrition and diet
- Biochemistry
- Teeth clinic
- EEG
- EKG
- Adult intensive care unit
- Bone densitometer
- Mammography
- Microbiology
- Audiometer
- Colour Doppler
- X-ray
- Spiral tomography
- Ultrasonography
- Sleep laboratory
- Endoscopy unit
- Newborn intensive care unit

3.2.2.5 Clinical Staff

There are 32 regular doctors and 65 nurses in the hospital. The number of the doctors is different at every policlinic.

Table 3.2. shows the names and provinces of the doctors.

Dr.Name	Provinces
Dr.Gülseren Polat Dr.Feride Mimaroğlu Dr.Derya Öztürk Mete Dr.Nihan Tosun	Gynecology
Dr.Rıdvan Baloğlu	ortohepedics
Dr. Mirhan Tosun Dr. Ali Nogay	General Surgeon
Dr. Özgür Okumuş Dr.Gonca Vardar Dr.Meliha Aksoy Dr.Pınar Doğantan	Pediatrics
Dr. Ercan Özden Dr.Ayşe Gözkaman Dr.Kübra Avcul Dr.Recep Caniş	Internal diseases
Dr. Mehmet ince	gastroenterology
Dr. Cengiz Çelikyurt Dr.Levent Sağıt Dr.Mustafa Bilazer	Ear-nose-throat
Dr.Nurten Polat	Norology
Dr.Sezai Yıldız	Cardiology
Dr.Hasan Murat Önal	Pediatrics' Surgeon
Dr.Nurten Polat	Norology
Dr.Mehmet Akif seylan Dr.Birol Uzun Dr.Kutsal Topçu	Eye
Dr.Özgür Şenol	Brain Surgeon
Dr.İsmail Bayram	Plastic Surgeon
Dr.Firdevs Arıkan	PTR
Dr.Mehmet Erbay	Dermatology
Dr. Sami Yakut	Radiology
Dr.İnci Yılmaz	Biochemistry
Dr.Şeyma Tuna	Dietician
Dr. Cabbar Sarı	Urology

Table 3.2. Doctors' name and provinces

3.2.2.6. Service Center

The private hospitals group has four different hospitals in different geographical region in Turkey. They are in Bağcılar, in Yenibosna and two policlinics; in Güngören and in Fatih.

3.2.2.7. E-Services

The hospitals Web site is updated continuously. E-baby, e-brief report, e-brochure are the available online services. On the Web site, there is an information corner which is relevant to the health concerns of patients such as the health of the thyroid gland, diabetes, pituitary gland in the body of the task...etc.

3.2.2.8. The Financial State

Hospital gains income from patients who are treated and get clinical service from policlinics. Table 3.3. , 3.4. , 3.5. , 3.6., give the balance sheet and income statement of the hospital between 2007 and 2008.

Competition in the health sector is generally formed according to the geographical location. Since there is lack of data, the financial condition of Hospital could not be compared to its competitors. There are 9 private hospitals in Bagcilar but none of theirs financial data were obtained. Data were obtained from Istanbul Stock Exchange and Central Bank of the Republic of Turkey to get sector average. Data from CBRT contained health and social service information while ISE provided only financial tables of Acibadem Health Group. However, the comparison with Acibadem Health Group and the hospital is not be a true comparison, Acibadem Health Group

has not a deal with SSI and Acibadem Health Group is serviced both health sector and insurance sector. Acibadem Health Group has 9 hospitals.

According to CBRT, while the average current ratio of health and social sector was 1.25, the average current ratio of Acibadem health group was 0.53 in 2007. The average current ratio of The Hospital was 2.16. in 2007.

According to SSI; if institutions' current ratio is over 2.00, the institutions can be accepted successful.

	Audited 31 december 2007	Audited 31 december 2008
Current Assets		
A-Liquid Assets	315.023,26	746.362,88
1-Cash	69.128,97	530.716,60
2-Banks	94.834,91	205.180,82
3.Cheques and payment Orders(-)		
4.Other liquid assets	151.059,38	10.465,46
B-Marketable Securities		
C-Trade Receivables	2.471.270,32	3.220.532,92
1-Customers	2.625.382,17	3.200.255,92
2-Notes	115.888,15	20.277,00
3-Doubtful Trade Receivables	13.163,00	13.163,00
4-Provision for Doubtful Trade Receivables(-)	-13.163,00	-13.163,00
D-Other Receivables		636.347,56
1-Receiveable From Shareholders		636.347,56
E-Inventories	117.884,10	128.286,50
1-Raw Material and Supplies	114.251,34	127.019,93
2-Trade goods	3.632,76	1.266,57
F-Other Current Assets	86.291,36	
1-other KDV		
2-prepaid taxes and funds	86.291,36	
Total Current Assets	3.260.469,04	4.731.529,86

Table 3.3. The Hospital Balance Sheets as at 31 December 2007 and 2008

Fixed Assets		
A-Trade Receivables	606,30	1.879,93
1-Deposits and Gurantees Given	606,30	1.879,93
D-Financial Fixed Assets	1.395.000,00	1.395.000,00
1-Participation	1.395.000,00	1.395.000,00
G-Tangible Assets	1.326.042,57	1.770.368,18
1-Buildings	178.375,00	330.625,00
2-Motor Vehicles	209.133,86	282.489,79
3-Machinery and Aquipments	3.277.099,20	4.151.654,99
4-Accumulated Depreciation(-)	-2.338.565,49	-2.994.401,60
I-Intangible Fixed Assets	530.173,98	200.178,06
1-Rights	387.952,11	37.990,51
2-Goodwill	437.977,88	444.344,84
3- Other Intangible Fixed Assets		
4-Accumulated Depreciation(-)	-295.756,01	-282.157,29
J-Prepaid Expenses and Accured Income	51.145,88	4.528,15
1-Prepaid expenses for future periods	51.145,88	4.528,15
Total Fixed assets	3.302.968,73	3.371.954,32
Total Assets	6.563.437,77	8.103.484,18

Table 3.4. The Hospital Balance Sheets as at 31 December 2007 and 2008

Current Liabilities	31.12.2007	31.12.2008
A-Financial Liabilities	12.005,04	
1-Bank Loans	11.979,56	
2-Financial Rents	25,48	
B-Trade Liabilities	1.057.205,02	1.224.324,18
1-Suppliers	686.362,64	863.457,96
2-Notes Payables	370.842,38	360.866,22
C-Other Liabilities		256.479,58
1-Due to Shareholders		
2-Due To Personel		247.196,18
3-Other Liabilities		9.283,40
F-Taxes Payable	349.825,39	375.996,66
1-taxes payables	259.020,94	246.011,74
2-social security duties payable	90.804,45	129.984,92
G-Provisions For Due and Expense	86.291,36	0,00
1-Provisions for Taxation Income And Related	121.709,35	197.055,89
2-Prepaid Income Taxes and Related Duties (-)	-35.417,99	-197.055,89
Total Short Term Liabilities	1.505.326,81	1.856.800,42
Long term Liabilities		
A-Financial Liabilities	162.335,82	0,00
1-Financial Rent	196.673,11	
2-Value Difference of Securities Issued	-34.337,29	
Total long term liabilities	162.335,82	0,00
Shareholders equity		
A-Paid in Capital	4.396.491,69	5.000.000,00
1-capital	5.000.000,00	
2-unpaid capital	-603.508,31	5.000.000,00
C-Profit reserves	60.566,77	499.283,45
1-legal reserves	60.566,77	82.502,60
2-extraordinary reserves		416.780,85
D-Retained Earnings		
F-Net Profit	438.716,68	747.400,31
Total shareholders equity	4.895.775,14	6.246.683,76
Liabilities	6.563.437,77	8.103.484,18

Table 3.5. The Hospital Balance Sheets as at 31 December 2007 and 2008

	31.12.2007	31.12.2008
A-GROSS SALES	9.865.912,18	16.467.848,70
1-Domestic Sales	9.860.818,36	16.467.370,54
2-Other Sales	5.093,82	478,16
B-SALES DEDUCTIONS(-)	142.785,87	129.833,54
1-Sales Returns(-)	142.785,87	129.833,54
C-NET SALES	9.723.126,31	16.338.015,16
D-COST OF SALES	7.258.467,30	13.576.674,98
1-Cost of Goods Sold(-)	5.990,01	18.867,78
2-Cost Of Services Rendered(-)	7.252.477,29	13.557.807,20
GROSS PROFIT OR LOSS	2.464.659,01	2.761.340,18
E-OPERATING EXPENSES(-)	1.765.702,90	1.851.624,99
1-Marketing,Selling And Distribution Expenses(-)	157.626,92	136.954,03
2-General Administration Expenses (-)	1.608.075,98	1.714.670,96
OPERATING PROFIT OR LOSS	698.956,11	909.715,19
F-INCOME AND PROFIT FROM OTHER OPERATIONS	36.616,05	94.050,22
1-Provisions no Longer Required	2.500,00	
2-Commission Income	3.821,55	815,09
3-Exchange Gains	16.834,50	
4-Other Income and Profit	13.460,00	79.886,00
5-Interest Income		13.349,13
G-EXPENSES AND LOSES FROM OTHER OPERATIONS(-)	85.127,98	3.757,18
1-Provision Expenses	15.763,00	
2-Loses Sale of Marketable S	1.380,00	
3-Commission Expenses	66.567,48	3.757,18

4-Other Income and Profit	1.417,50	
H-Financial Expenses	64.963,06	18.535,44
1-Financial Expenses(S.T)	64.963,06	18.535,44
OPERATING PROFIT OR LOSS	585.481,12	981.472,79
I-EXTRA ORDINARY REVENUES AND PROFIT	23.065,64	3.806,66
1-Other Extraordinary Revenues and Profits	23.065,64	3.806,66
J-EXTRA ORDINARY EXPENSES AND LOSES	48.120,73	40.823,25
PROFIT OR LOSS PERIOD	560.426,03	944.456,20
K-PROVISIONS FOR TAXES PAYABLE AND OTHER STATUTORY OBLIGATIONS	121.709,35	197.055,089
NET PROFIT OR LOSS FOR THE PERIOD	438.716,68	747.400,31

Table 3.6. The Hospitals Statements of Income for the Years Ended 31 December 2007 and 2008

CHAPTER 4

THE APPLICATION OF SOFT SYSTEMS METHODOLOGY TO THE SURGICAL DEPARTMENT OF THE HOSPITAL

This chapter aims to apply soft systems methodology to the Hospital on Surgical Department of the hospital for solving problems. This framework has one stage: (1) the process of SSM. The process of SSM consists of stream of cultural analysis and logic-based stream analysis. Stream of cultural analysis include rich picture, carrying out analysis one (the intervention), carrying out analysis two (social analysis) and carrying out analysis 3 (political Analysis). Logic-based stream of analysis include selecting relevant systems, naming relevant systems, modeling relevant systems, comparing models with perceived reality.

4.1. The Process of SSM

When started to SSM based study, as a first step an interview was made with the doctors, nurses, head physician, administrative manager, accountants and patients. It was made an interview with approximately 13 specialist doctors (gynecologist, ear nose and throat, eye, children surgeon, general surgeon, orthopedic surgeon, brain surgeon, urologist). The total number of the interviews came about 30. The studies which began on February, ended on June.

In the preliminary meetings, SSM was introduced to the head physician and the administrative manager who were chosen as problem solvers. Then, interviews were made with the doctors about the problems of the hospital

and the health sector. The finding out stage that was the first phase of SSM started by the interviews, observations, discussions and informal interviews made with the patients.

4.1.1. The Stream of Cultural Analysis of the Hospital

In the finding out stage the cultural analysis of the hospital was made through two steps: drawing rich picture and carrying out three kinds of inquiry known as (analyses one, two, and three).

4.1.1.1. Rich Picture of the Hospital

The rich picture that is informally drawn provides us to view the hospital as a whole. It is created and then revisited in order to be updated and developed. By the help of the rich picture, the details that can be overlooked in writing are taken into consideration by the problem-solver. Any person who looks at this rich picture can have some knowledge about the hospital. Figure 4.1. illustrates the rich picture of the hospital. In the rich picture the structure of the hospital, the workflow in the hospital, doctor-patient relations, and some problems that are based on our observations are highlighted. In the picture, the process is seen as between the period that the patient goes in the hospital and the patient goes out cured. In a day approximately 750 people benefit from polyclinic services and 20 people benefit from surgical services. The surgical operations do not involve major operations such as open heart surgery and brain surgery. While the doctors examine the patients, they have to conform to the rules which are imposed by the Ministry of Health. The Hospital has a payment system which is akin

to that of a public hospital, rather than a private hospital. The patient first has to go cash desk and pay 10 TL fees that is determined by the government. This payment is taken by the government and is transferred to the Social Security Institution (SSI), not to the hospital's account. Afterwards, SSI pays the hospital according to patient's treatment programmes. However, SSI does not have a regular payment period; hospital can take the money from SSI between 60-110 day after the medical treatment or operation. The person who pays the payment goes directly to the related doctor's office. Since there is no reservation system in the hospital, the exterior of the doctors' consulting rooms are often crowded. This problem damages the image of the private hospital. There are three types of medical treatments for the patients. In the outpatient treatment type, which is used when the sickness is not serious, the doctor examines the patient and advises the appropriate medication. In the inpatient treatment type, which is used when the sickness is serious, the patient is treated in the hospital under the supervision of the doctor. The other treatment method is the surgical treatment that is applied in emergency cases and normal cases. After the surgical treatment is performed the patient is hospitalised. The patient who is hospitalised and the patient who is going to undergo an operation are supposed to complete their financial affairs with the medical accounting department. There are some medical treatment packages to which the doctors are required to apply in the treatment or in the surgical operation. These packages are ordered by the government. The

government also obliges the doctors to enlist patients' check ins and check outs. This brings about the documentation responsibility for the doctors. They also record patient's anamnesis in order to examine patients properly. However, high number of patients and low education level make the documentation and communication process between the patients and doctors difficult. Because of this communication problem, patients can not express themselves correctly or they can not fulfill the treatment that doctors give them. As a consequence, the medical treatment process gets longer.

Due to the contract between the hospital and SSI, there is bilateral relationship between them. On the one hand, SSI is a client of the private hospital. On the other hand, the relationship between the Ministry of Health and the hospital is a unilateral. The hospital has to adhere strictly to the rules determined by the Ministry of Health.

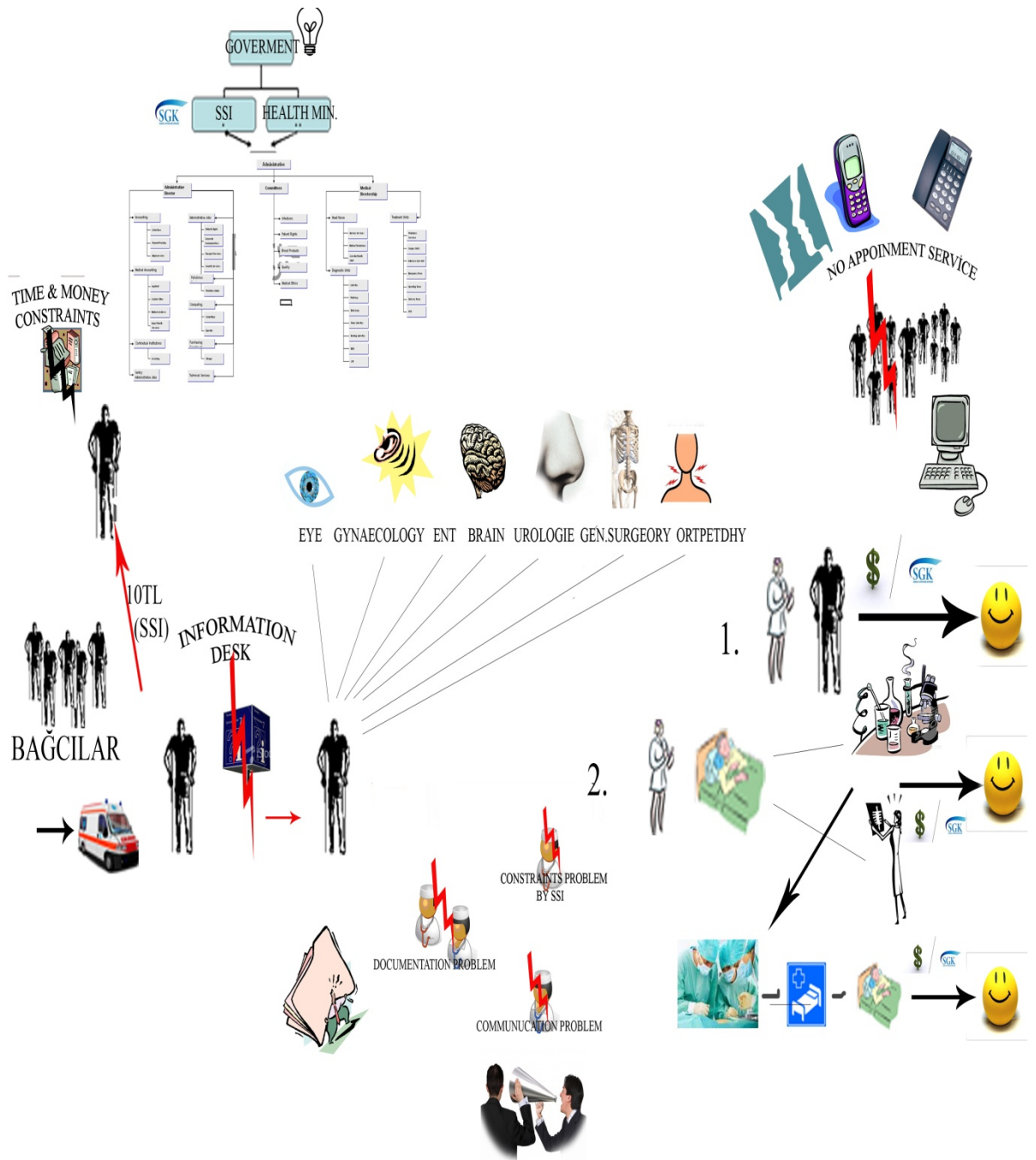


Figure 4.1. Rich picture of the Private Hospital

4.1.1.2. Analysis One (the intervention)

Analysis one can be known as role analysis. Three key roles were always used;

1. The client
2. The problem solver(s) (practitioners)
3. The problem owner

In the private hospital the analysis one is as follows:

1. The client(s): Dr. Uğur Baran- Head Physician

Ahmet Kuyumcu- Executive Manager

The client's aspirations: Making a system analysis to solve the concern of the hospital

2. The problem solver(s): Büşra Müceldili, Gökhan Torlak, Ahmet Kuyumcu, the hospital staff and Private Hospitals and Health Institutions Association's (PHHIA) members.

Resources available: SSM, the hospital staff, 4.5 months project time, SSI and Private Hospitals and Health Institutions Association's (PHHIA) web sites and members.

Constraints: time, governmental restrictions, busy doctors and failure to get support.

3. Problem owners: The Hospital's doctors and all private hospitals who deal with SSI.

4.1.1.3. Analysis Two (Social Analysis)

In this analysis role, norms and values are analysed.

Role: positions in the hospital

Norm: expected behaviours

Value: what constitutes good or bad behaviour in roles

1. Roles

Nurses

Doctors

Patients

Member of SSI

Officers in the accounting department

Head Physician

Member of administrative board

Hospital shareholder

Support Personnel

Staff

2. Norms

These norms are the ones which are accepted by the Ministry of Health and schools of medicine. The Ministry of Health clearly specifies the expectation from the doctors who are in charge of these duties in its web site. But since Turkey is a country which is developing in the health sector, the health policies are changing rapidly. So, the comments of the head physicians are very important. According to Dr. Baran, the behaviours

expected from the doctors are to raise the health quality of the area where the hospital serves and to give the best service to the patients through sticking to requirements of medical ethics.

3. Values

The hospital possesses the following values:

- Responsibility for the development of standards of community health.
- Patience of doctors.
- Efficient use of medical resources but meeting the patients' concern.
- Autonomy of doctors and their ability to make right decisions which do not harm the hospital, its shareholders, and the patients.

4.1.1.4. Analysis Three (Political Analysis)

Analysis three asks; how is power obtained and used in this case?

How the power is obtained

How it is used

How it is defended

To whom it can be passed on

How to relinquish and sign off

In The Hospital, the power is used by the head physician. The reason for his having this power is related to the fact that he is the shareholder and a member of the administrative board, not being the head physician only.

Dr. Uğur is one of the doctors who founded this hospital and since then, he has been the head physician. The performance of the doctors is discussed in the board meetings which are held quarterly. The performances are

usually assessed by considering the patient satisfaction. If a doctor's performance is not adequate, his employment is terminated. This decision is taken by the administrative board which is chaired by Dr. Uğur. In the evolution of the performances of doctors in board meetings, the patient satisfaction as well as the number of cases the doctor failed in the medical treatment is initially considered. Furthermore, the number of patients that the doctors treat and the individual contribution of doctors to the profitability of the hospital are taken into account.

4.1.2. The Stream of Logic-based Enquiry

After highlighting the cultural aspect of the hospital through interviews the relevant systems are listed, chosen, defined, modeled and compared with real situation of the hospital.

4.1.2.1. Listing and Selecting Relevant Systems

The relevant systems are identified by subjective choice. The practitioner (who applies SSM) does not see this as a problem, because there is not a unique truth in the private hospital.

Since the health sector is a very complex, the problems of the doctors with whom interviews were made were excessive. As a result of the interviews, 12 relevant systems were obtained. In applying soft systems ideas to the hospital a number of potentially relevant systems are listed by the problem-owners and the problem solvers in the following way:

1. A system to maintain rules and regulations of medical treatment enacted by the Ministry of Health.

2. A system to improve the government's policy on medical treatment.
3. A system to minimise the delay time of sending the medical treatment fees from Social Security Institution (SSI) to the private hospital.
4. A system to provide and improve communication between doctors and patients.
5. A system to design appointment services.
6. A system to improve the documentation system that keeps patients' medical treatment records and SSI data.
7. A system to sustain and maintain essential physical conditions in the hospital.
8. A system to adopt ready changes in order to compete with other private hospitals in Bagcilar area.
9. A system to improve nursing skills.
10. A system to improve doctors' personal rights.
11. A system to improve patients' satisfaction.
12. A system to improve patients' healthcare needs.

4.1.2.2. Naming and Modelling Relevant Systems

All of the 12 ideas were considered as 'relevant' but there was no wish to define 12 Root Definitions and build 12 models. There were 6 relevant systems chosen out of 12 which were seen as the most necessary ones for the hospital. This selection was made by the head physician and the executive manager. It was assumed that the chosen relevant systems may lead to more appropriate work environment for the doctors and this helps

increase the quality of medical treatment processes. Some of these problems such as keeping patients' medical treatment records and communication between doctors and patients have already been realised by the hospital administration but they remained as unsolvable issues. That is why, these problems are given priority. Some of these problems such as appointment services and patients' health care have been realised by the doctors who gave priority to them in interviews. Then, the root definitions of selected relevant systems and conceptual models were built. The chosen relevant systems are 2, 3, 4, 5, 6 and 12.

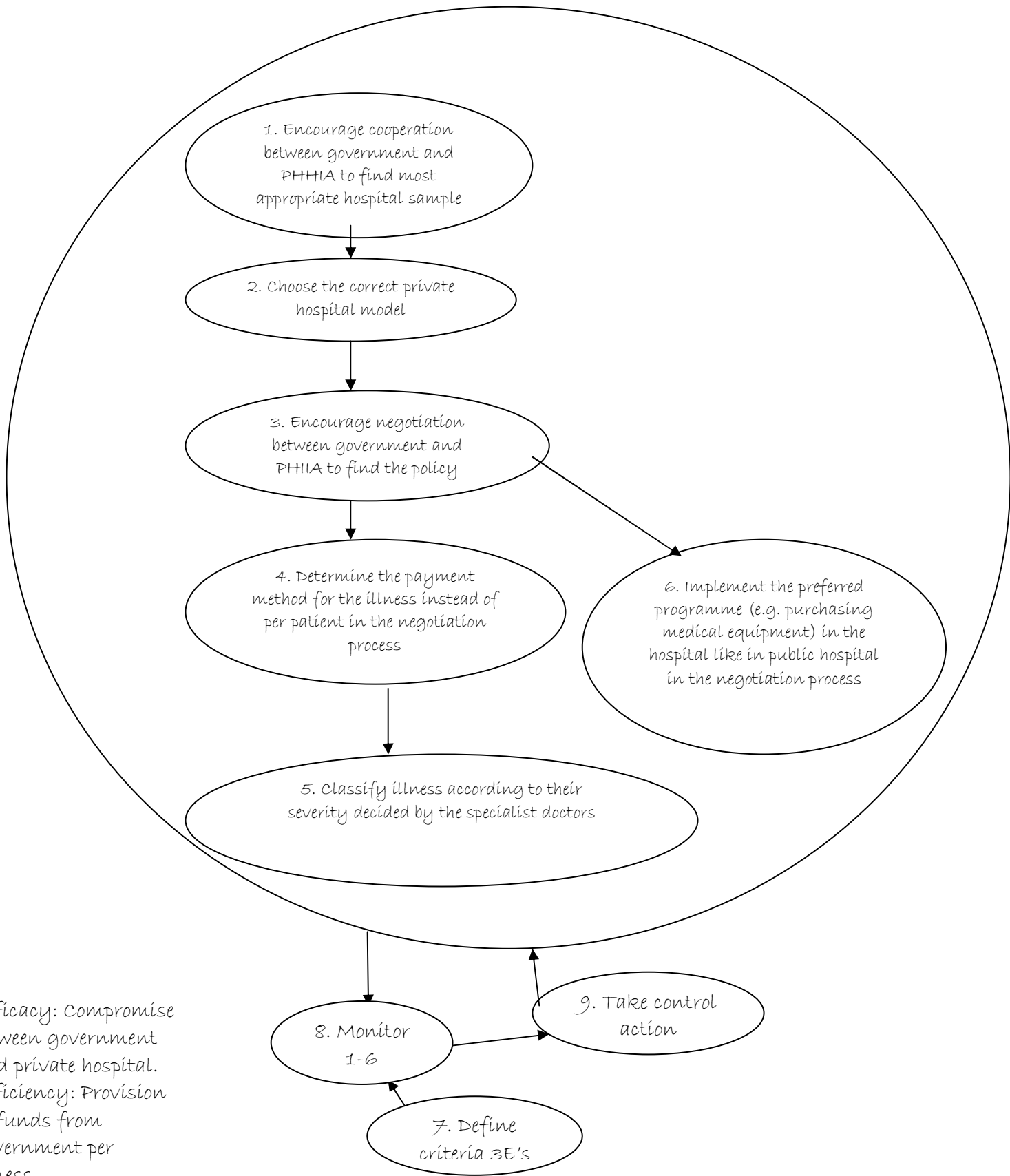
Root definition and the conceptual model (Figure 4.2.) which were developed for the relevant system number 2 are below:

(2) A system to improve the government's policy on medical treatment.

Root Definition

A system owned by SSI which seeks to ensure that doctors use personal treatment methods in the medical treatment process through a system launched by SSI that enables doctors to make their own decisions freely rather than using package medical treatment programmes which are imposed by SSI.

- C: doctors
- A: SSI
- T: package medical treatment services—personal medical treatment services
- W: A change in SSI's policy that leads to the freedom of choice of medical treatment for the doctors can increase the quality of health services.
- O: SSI
- E: government policy, money.



Efficacy: Compromise between government and private hospital.
 Efficiency: Provision of funds from government per illness.
 Effectiveness: Giving freedom to doctors to use their personal medical treatment methods

Figure 4.2. The Conceptual Model from the Root Definition (1)

Root definition and the conceptual model (Figure 4.3.) which were developed for the relevant system number 3 are below:

(3) A system to minimise the delay time of sending the medical treatment fees from Social Security Institution (SSI) to the private hospital.

Root Definition

A SSI-head owned the system operated within the hospital and staffed by SSI's personnel, which recognises the perceived need of the medical treatment fees flowing slowly from SSI to the hospital due to the government policy, speeds up the flow of money related to the medical treatments from SSI to the hospital.

C: the hospital administrative board

A: SSI

T: slow flow of medical treatment fees—fast flow of medical treatment fees

W: SSI can speed up the money flow from SSI to the hospital.

O: SSI

E: government policies

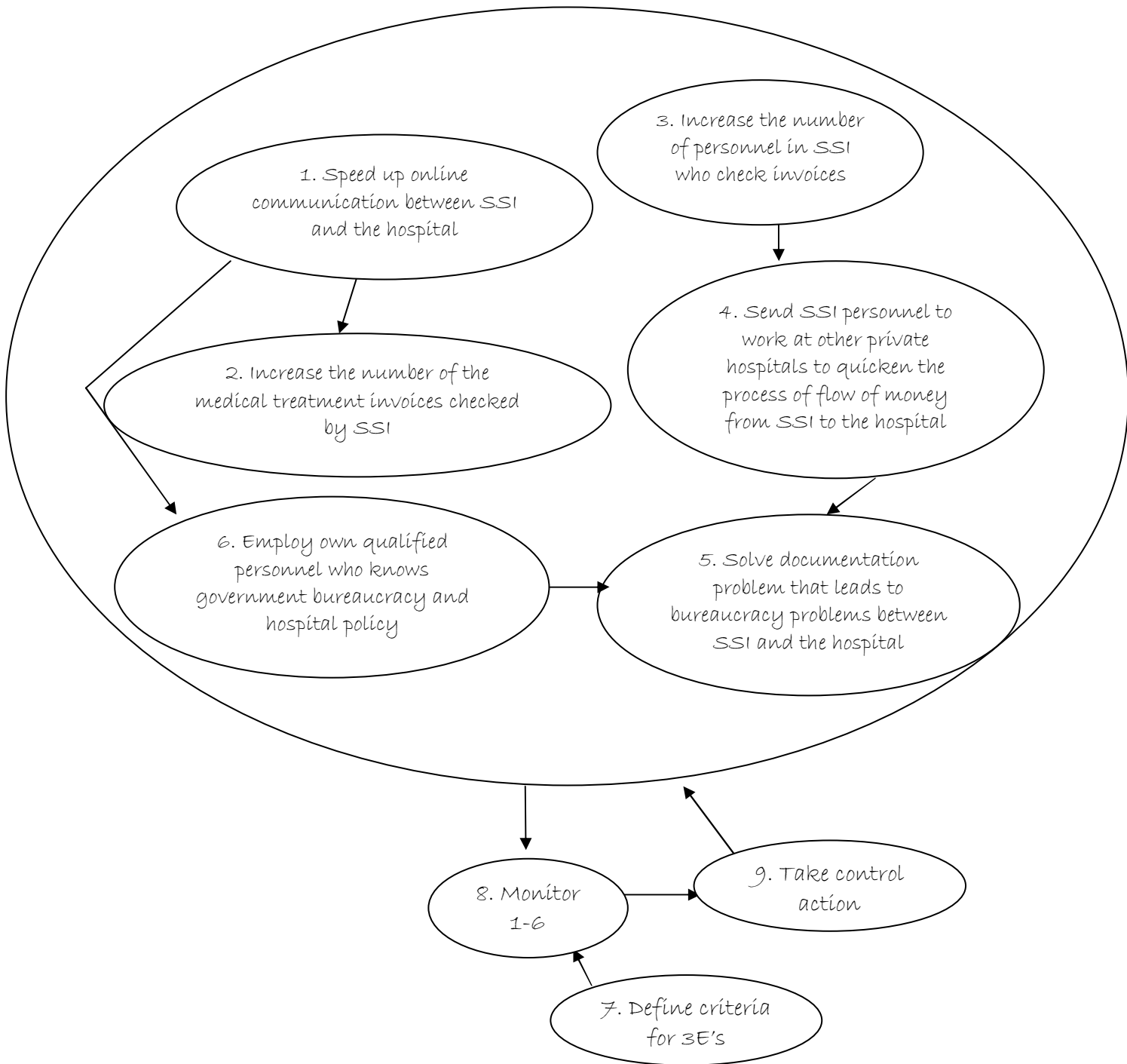


Figure 4.3. The Conceptual Model from the Root Definition (2)

Efficacy: A change in policy of SSI in sending medical treatment fees to the hospital

Efficiency: Creating funds for the private hospitals to quicken the flow of money

Effectiveness:

Contribution to long-term viability of the hospital

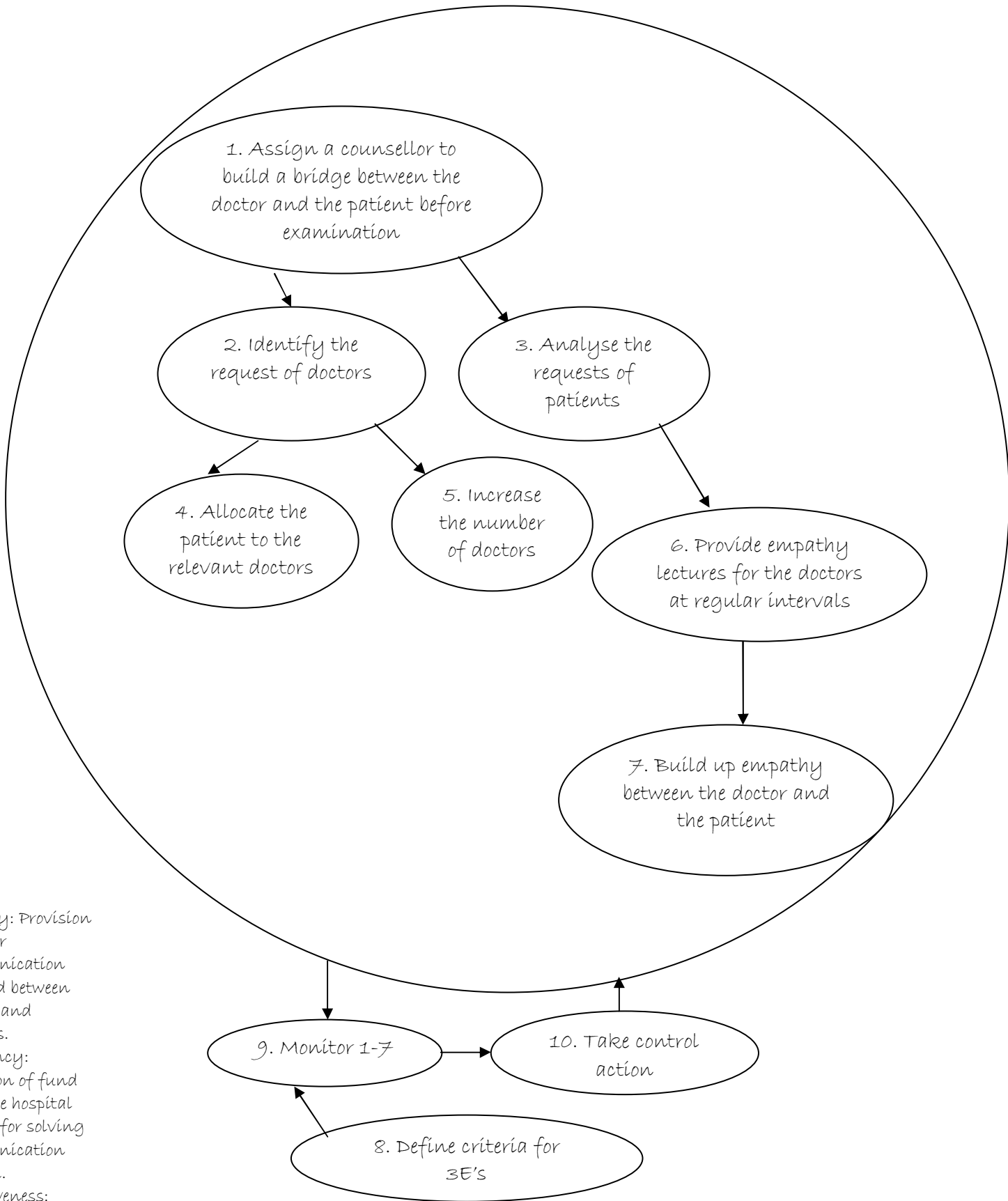
Root definition and the conceptual model (Figure 4.4.) which were developed for the relevant system number 4 are below:

(4) A system to provide and improve communication between doctors and patients.

Root Definition

A system owned by the hospital's administrative Board which seeks to minimise the communication problems between doctors and patients that arise due to lack of education of some patients and the high number of patients who live in Bağcılar area that may lead to misdiagnosis and wrong medical treatment by setting up and improving proper and adequate communication system.

- C: doctors, patients
- A: the hospital administrative board
- T: inadequate communication system—adequate communication system
- W: proper communication system can increase the quality of medical treatment.
- O: the hospital administrative board
- E: the number of patients, time, misdiagnosis, wrong medical treatment



Efficacy: Provision of proper communication provided between doctors and patients.

Efficiency: Provision of fund from the hospital budget for solving communication problem.

Effectiveness: Contribution to quality of medical treatment in the long term.

Figure 4.4. The Conceptual Model from the Root Definition (3)

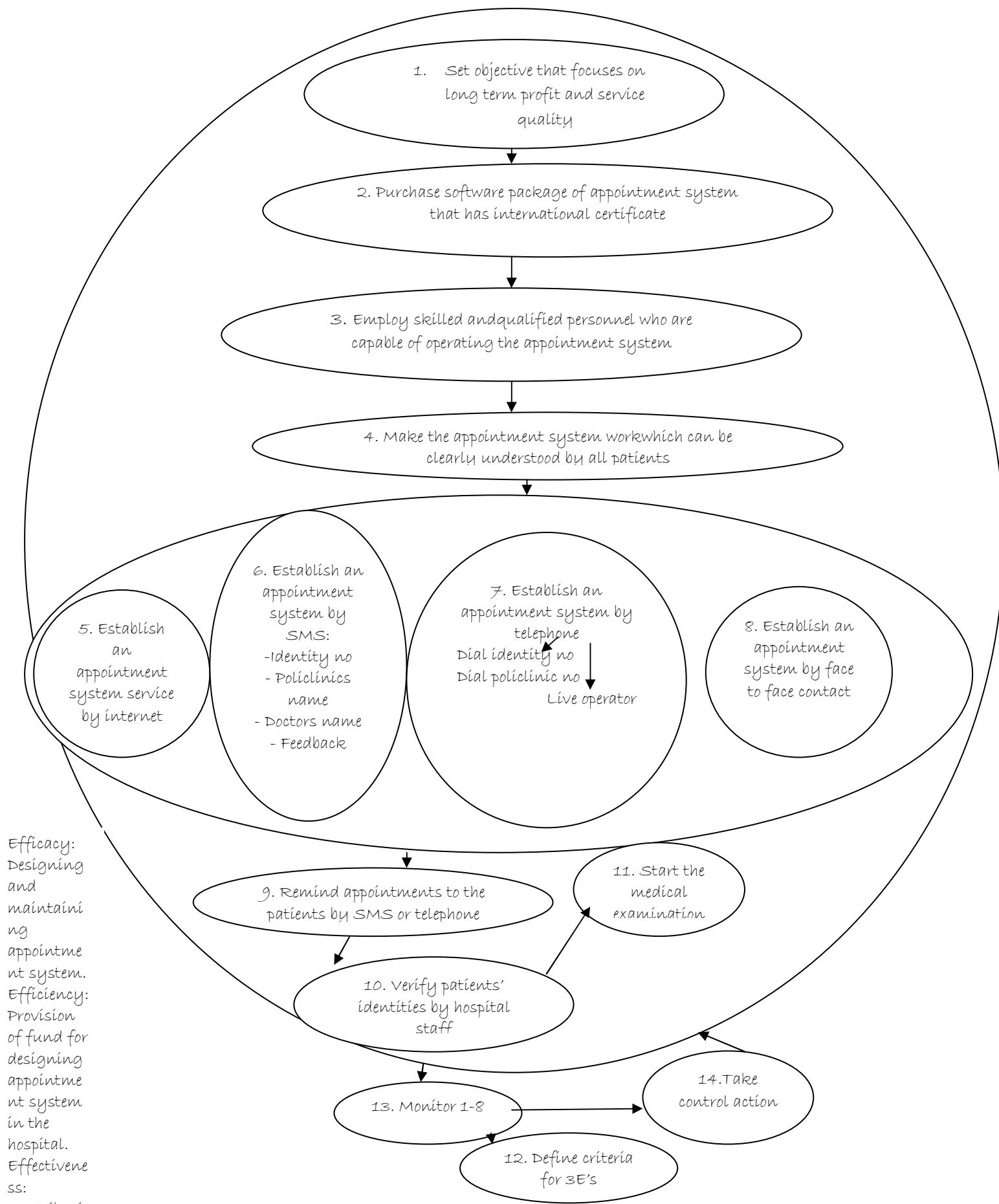
Root definition and the conceptual model (Figure 4.5.) which were developed for the relevant system number 5 are below:

(5) A system to design appointment services.

Root Definition

A system owned by the hospital that minimises the patient crowd and the people mass in front of the polyclinics due to lack of education of patients and the hospital norms that lead to unavailability of an appointment system by changing the behaviour of hospital through designing an appointment system that offers more comfortable and timely medical treatment for the patients.

- C: patients, doctors
- A: the hospital administrative board
- T: unavailable appointment system — available appointment system
- W: a radical change in the values and norms of the hospital about the appointment system
- O: the hospital administrative board
- E: low education of patients, values of hospital



Efficacy: Designing and maintaining appointment system.
 Efficiency: Provision of fund for designing appointment system in the hospital.
 Effectiveness: Contribution to the qualitative and timely medical treatment in the hospital.

Figure 4.5. The Conceptual Model from the Root Definition (4)

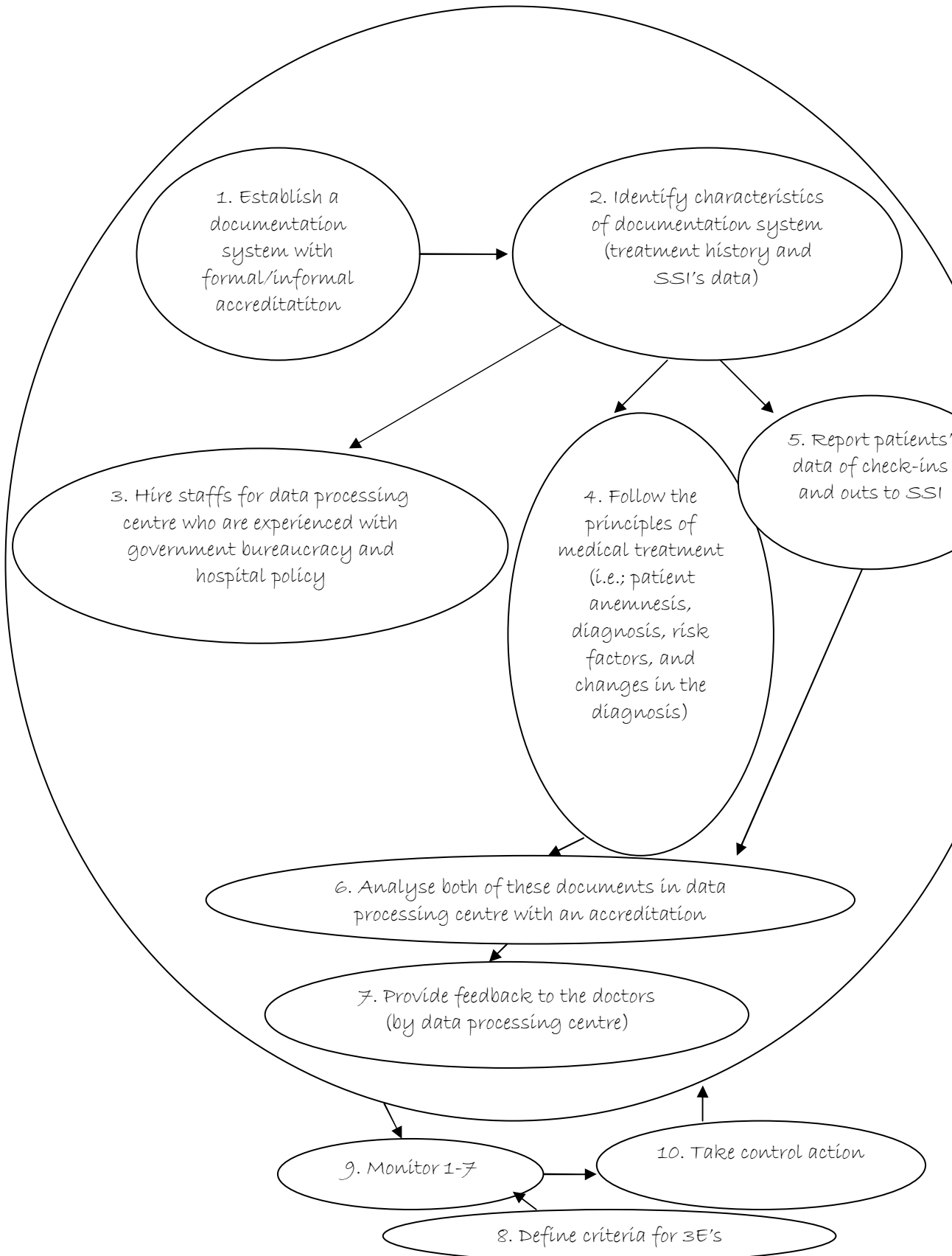
Root definition and the conceptual model (Figure 4.6.) which were developed for the relevant system number 6 are below:

(6) A system to improve the documentation system that keeps patients' medical treatment records and SSI data.

Root Definition

The hospital's administrative Board owned the system, staffed by professional officers who improve the documentation system that lacks data about patients' medical treatment history together with SSI's information needs.

- C: doctors, patients
- A: the hospital administrative board
- T: lacking information about patient— full information about patients
- W: improvement of documentation system that helps doctors about patients' medical treatment history and SSI's data.
- O: the hospital administrative board
- E: money



Efficacy:
Redesigning the documentation system.

Efficiency: Provision of funds for documentation that keeps medical treatment records and SSI data of patients.

Effectiveness: Provision of full and accurate information about patients to contribute to the hospital service quality.

Figure 4.6. The Conceptual Model from the Root Definition (5)

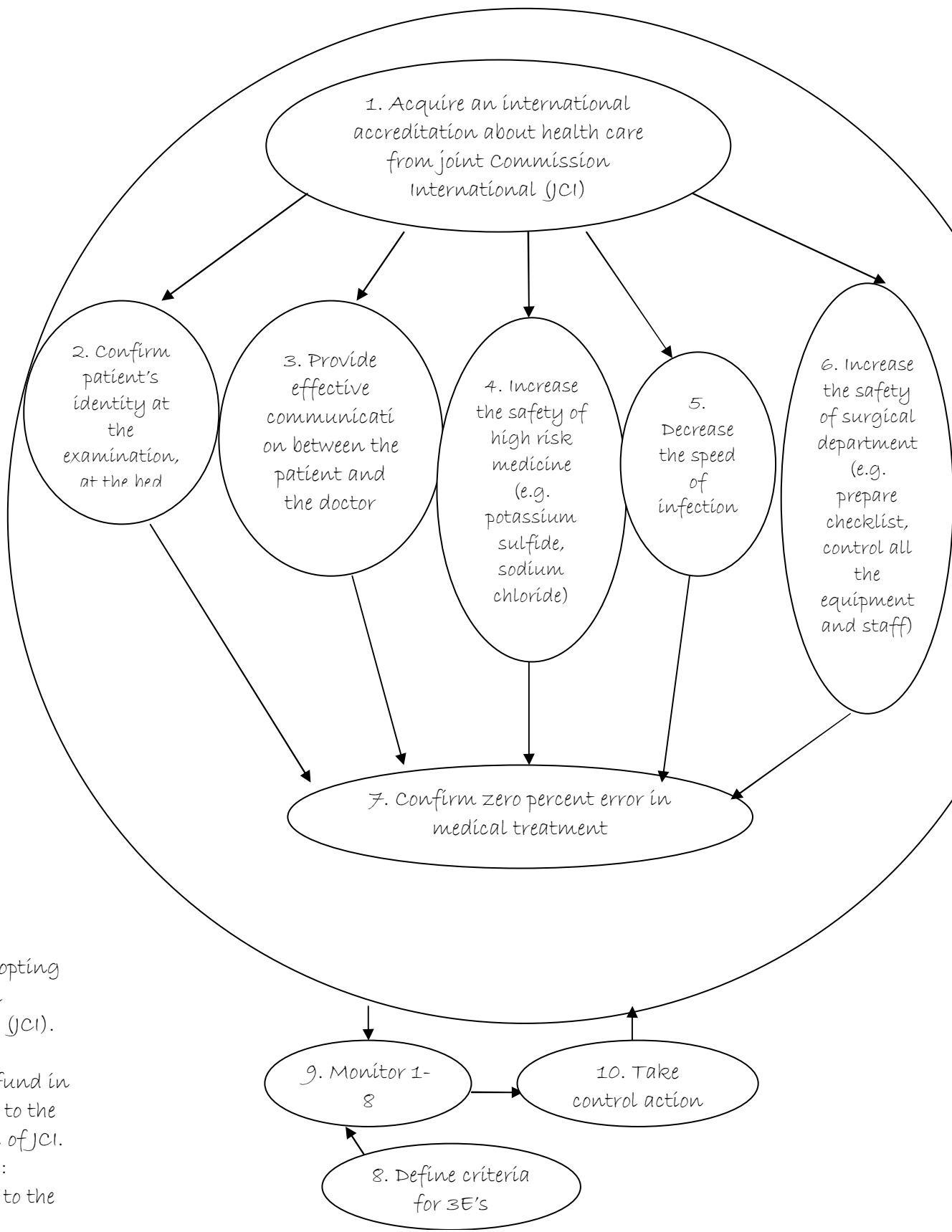
Root definition and the conceptual model (Figure 4.7.) which were developed for the relevant system number 12 are below:

12) A system to improve patients' healthcare needs.

Root Definition

A system owned by the hospital that fully meets the patients' healthcare needs by minimising the medical errors made in the patients' medical treatment processes that leads to an increase in the quality of medical treatments in Bagcilar area.

- C: public in Bagcilar area
- A: the hospital administrative board
- T: patients with unmet healthcare needs—patients with fully met healthcare needs
- W: minimising medical errors that leads to an increase in the quality of medical treatment processes.
- O: the hospital administrative board
- E: time, money



Efficacy: Adopting international accreditation (JCI).
 Efficiency: Provision of fund in order to stick to the requirements of JCI.
 Effectiveness: Contribution to the public health.

Figure 4.7. The Conceptual Model from the Root Definition (6)

4.1.2.3. Comparing Models with Perceived Reality

While comparing models with perceived reality the matrix approach is used. In the matrix in the left-hand column the activities in each model and the links taking place, are listed then each activity exists or not in real situation, how is it done, is it culturally feasible and is it systematically desirable are questioned. Finally in the comments part ideas about changes are summarised.

Comparing the real-world situation with the improvement of government's policy on medical treatment model:

Activity	Exist or not in real situation?	How is it done	Desirable	Feasible	Comments
1. Encourage cooperation between government and PHIIA to find most appropriate private hospital sample.	Exist	1. There are few meetings. 2. PHIIA, the Ministry of Health and the Ministry of Finance attended these meetings.	Yes	Yes	The number of meetings can be increased between government and PHIIA to find most appropriate private hospital sample.
2. Choose the correct private hospital model.	Not		Yes	1.No 2. No. PHIIA supports this activity but government's support is vague, because the fund is not sufficient	1. The model can be taken from the other private hospitals instead of public hospitals. 2. The model should take example of hospitals that have international accreditation.

3. Encourage negotiation between government and PHIIA to find the policy.	Not		Yes	Yes	The information about the functioning of other private hospitals can be obtained.
4. Determine the payment method for the illnesses instead of per patient in the negotiation process.	Not		Yes	1. Yes 2. Yes. Opinions of all doctors in the hospital and PHIIA members.	1. The rate of refund for the medical treatment fees from SSI to the hospital should be increased from 30 percent to 70 percent. 2. The medical treatment refunds can be determined according to doctors' union instead of Health Official Notice.
5. Classify illnesses according to their severity decided by the specialist doctors.	Not		Yes	Yes	Health Application Notification can be revised by the specialist doctors.
6. Implement the preferred programmes (e.g. purchasing medical equipment) in private hospitals like in public hospitals in the negotiation	Not		Yes	1.No The budget of The Ministry of Finance is not sufficient 2.Yes 3.Yes	1. The Ministry of Finance can support the Ministry of Health in terms of needs of private hospitals. 2. The number of private hospitals should not be increased. 3. The Ministry of Health can limit the number of private hospitals.

process.				4.No The Ministry of Health prefers to supply the needs of public hospitals 5.Yes	4. A special fund can be formed concerning the needs of private hospitals. 5. The Reception cost that is the fee taken by the government as 3 TL in public and 10 TL in private hospitals can be equalised between the private and the public hospital.
Links					
1-2					
2-3					
3-4-6					
4-5					

Table 4.1. The Matrix for Comparing the First Conceptual Model with a Real-World Situation

Comparing the real-world situation with the minimisation of delay time of sending the medical treatment fees from SSI to the hospital:

Activity	Exist or not in real situation?	How is it done	Desirable	Feasible	Comments
1. Speed up online communication between SSI and the hospital.	Not		Yes	Yes	The Ministry of Health can outsource online services regarding the communication between SSI and the hospital.
2. Increase the number of medical treatment invoices checked by SSI.	Not		Yes	1.Yes 2.Yes	1. The evaluation rate of current medical treatments' invoices by SSI can be increased from 10 percent to 30 percent. 2. The medical treatment fees' refunds can be

					made immediately after the treatment.
3. Increase the number of personnel in SSI who check invoices.	Not		Yes	Yes	New qualified personnel from SSI who check invoices can be hired.
4. Send SSI personnel to work at private hospitals to quicken the process of flow of money from SSI to the hospital.	Not		Yes	Yes	SSI can direct its own personnel to the hospital in order to speed up the medical treatment fees' refunds to the hospital.
5. Solve documentation problem that leads to bureaucracy problems between SSI and the hospital.	Not		Yes	1.Yes 2.Yes	1. Bureaucracy at the hospital can be reduced. 2. Doctors can take initiative to carefully analyse the patients' medical treatment records.
6. Employ own qualified personnel who know government bureaucracy and hospital policy.	Not		Yes	1.Yes 2.Yes	1. The hospital can train its own personnel by internship. 2. The hospital can hire the personnel from the health vocational high school.
Links					
1-2-6					
3-4					
4-5					
6-5					

Table 4.2. The Matrix for Comparing the Second Conceptual Model with a Real-World Situation

Comparing the real-world situation with the provision and improvement of
between doctors and patients model:

Activity	Exist or not in real situation?	How is it done	Desirable	Feasible	Comments
1. Assign a counsellor to build a bridge between the doctor and the patient before examination.	Not		Yes	Yes	The issue of the need for the counsellor who is responsible for building a bridge between the doctor and the patient can be discussed in the administrative Board meetings.
2. Identify the requests of doctors.	Not		Yes	No. Doctors are too busy, they do not have time	The counsellor can interview with the doctors periodically and the requests of doctors should be discussed in the administrative Board meetings.
3. Analyse the requests of patients.	Not		Yes	Yes	Patients' satisfaction tests should be applied to the patients after being medically treated as well as during the medical treatment period.

4. Allocate the patient to the relevant doctors.	Not		Yes	Yes	Trainees from the Health Vocational High School should be worked in the hospital. They can guide the patients.
5. Increase the number of doctors.	Not		Yes	1.No 2.No 3.No The administrative does not favour of increasing the number of doctors.	1. The administrative Board can hire new doctors. 2. The doctors can work part-time. 3. The general practitioner can be hired.
6. Provide empathy lectures for the doctors at regular intervals.	Not		Yes	1.No Doctors are too busy with patients 2.Yes	1. The lectures dealing with empathy should be given by a specialist psychologist. 2. The counsellor should prepare lecture notes concerning empathy and allocate them to the doctors.
7. Build up empathy between the doctor and the patient.	Not		Yes	No The Executive Manager does not appreciate the necessity of communication between the doctor and the patient	Generate an awareness of cooperation between doctor and patient in order to constitute empathy.

Links					
1-2-3					
2-4-5					
3-6					
6-7					

Table 4.3. The Matrix for Comparing the Third Conceptual Model with a Real-World Situation

Comparing the real-world situation with the design and improvement of appointment services model:

Activity	Exist or not in real situation?	How is it done	Desirable	Feasible	Comments
1.Set objective that focuses on long term profit and service quality.	Not		Yes	No. The administrative board does not want to use the appointment system	The administrative Board manager should stress the necessity of appointment service in meetings.
2. Purchase software package of appointment system that has international certificate.	Not		Yes	1.Yes 2.Yes	1. The administrative Board and the software firm can collaborate. 2. A software engineer can be hired to install the software and control it.
3. Employ skilled and qualified personnel who are capable of operating the appointment system.	Not		Yes	Yes	The hospital can cooperate with the software firm, the health vocational high school, and the medicine school in order to hire skilled and qualified personnel who are capable of operating the appointment system.

4. Make the appointment system work which can be clearly understood by all patients.	Not		Yes	No	The administrative Board and the software firm can collaborate in order to provide information to patients concerning the functioning of the appointment system.
5. Establish an appointment system service by internet.	Not		Yes	No, patients' education level	Patients can have an appointment by internet at home or by using internet cafés near the hospital.
				No, patients' education level	Patients should be informed through brochures or leaflets about the availability of the Internet appointment system at the hospital.
6. Establish an appointment system by SMS: -Identity no -Policlinics name -Doctors name -Feedback	Not		Yes	No, patients' education level	Patients should be informed through brochures or leaflets about the availability of SMS appointment system at the hospital.
7. Establish an appointment system by telephone: -Dial identity no -Dial policlinic no -Live operator	Not		Yes	Yes	Patients should be informing through brochures and leaflets about the availability of telephone appointment system at the hospital.
8. Establish an appointment system by	Not		Yes	Yes	Patients should be informed about the availability of the

face to face contact.					face to face appointment system at the hospital.
9. Remind appointments to the patients by SMS or telephone.	Not		Yes	Yes	Patients can be reminded through their cellular phones or fixed telephony of their appointments before 6 hours.
10. Verify patients' identities by hospital staff.	Not		Yes	Yes	The staff can verify patients' identities by checking their certificate of birth and the social security number.
11. Start the medical examination.	Yes	Patients are invited to the doctors' consulting room.	Yes	Yes	The patients should be aware of their appointments' time, come to the hospital in time, make their identities confirmed, and go to the doctors' consulting room.
Links					
1-2					
2-3					
3-4					
4-5-6-7-8					
4-5-6-7-8-9					
9-10					
10-11					

Table 4.4. The Matrix for Comparing the Fourth Conceptual Model with a Real-World Situation

Comparing the real-world situation with the improvement of documentation system that keeps patients' medical treatment records and SSI data model:

Activity	Exist or not in real situation?	How is it done	Desirable	Feasible	Comments
1. Establish a documentation system with formal/informal accreditation.	Yes, but inadequate	It is done by doctors in the hospital.	Yes	Yes	The most appropriate accreditation that is concerned with keeping patients' medical treatment records and SSI data properly for the hospital can be investigated.
2. Identify characteristics of documentation system (patients' treatment history and SSI's data).	Yes, but inadequate	There is not a formal classification	Yes	Yes	An online system can be purchased and patients' medical treatment records and SSI data can be classified with a zero percent error.
3. Hire staffs for data processing centre who are experienced with the government bureaucracy and hospital policy.	Not		Yes	Yes	The administrative Board can require specifications of the job that is related to the patients' data processing through Internet, newspaper or medical publication.
4. Follow the principles of medical treatment (i.e.; patient anamnesis, diagnosis, risk factors, changes in the diagnosis).	Yes	Doctors cannot fully follow the principles of medical treatment because of the high number of patients.	Yes	No, the administrative Board does not want to increase the number of doctors.	The number of patients can be decreased per doctor.

5. Report patients' data of check-ins and outs.	Yes	The hospital reports data of check-ins and outs however the rate of making errors is high.	Yes	No	The appointment system can reduce the rate of the errors in terms of patients' data of check-ins and check-outs.
6. Analyse these documentations in data processing centre with an accreditation.	Not		Yes	Yes	Make records regarding patients' medical treatment and SSI data analysed by a professional (outsourcing).
7. Provide feedback to the doctors.	Not		Yes	Yes	Data processing centre and the head physician can cooperate in order to provide feedback to doctors.
Links					
1-2 2-3-4-5 4-5-6 6-7					

Table 4.5. The Matrix for Comparing the Fifth Conceptual Model with a Real-world Situation

Comparing the real-world situation with the improvement of patients'

healthcare needs model:

Activity	Exist or not in real situation?	How is it done	Desirable	Feasible	Comments
1. Acquire an international accreditation about health care from joint commission international (JCI).	Yes, inadequate	The hospital has ISO standards however ISO cannot answer the patients' health care sufficiently.	Yes	No The hospital has ISO standards this is why it does not have a plan for getting a new accreditation	The administrative Board can adopt Joint Commission International (JCI) accreditation about health care.
2. Confirm patients' identities during medical examination and at bed.	Not		Yes	1.Yes 2.Yes	1. Two identity cards can be requested from the patients. 2. The identity card should have a photo of patient on it.
3. Provide effective communication between the patient and the doctor.	Not		Yes	No	A system can be established for providing effective communication between the patient and the doctor.
4. Increase the safety of high risk medicine (e.g. potassium sulfide, sodium chloride).	Yes (inadequate)	High risk medication is not protected as required.	Yes	Yes	High risk medication should not be used out of the permitted area in the hospital.
5. Decrease the speed of infection.	Not		Yes	No	Rules regarding hand hygiene should be increased and monitored frequently.

6. Increase the safety of surgical department (e.g. prepare checklist, control all the equipment and staff, etc).	Not		Yes	1.Yes 2.Yes	1. The checklist of process of medical operation should be read loudly before starting the operation. 2. The effectiveness and hygiene of equipment should be monitored in the medical operation room.
7. Provide zero percent error in medical treatment.	Not		Yes	No	All individuals in the hospital should follow the rules cautiously.
Links					
1-2 2-3-4-5-6-7 3-4-5-6-7-8					

Table 4.6. The Matrix for Comparing the Sixth Conceptual Model with a Real-World Situation

After the comparison stage the recommendations made to the hospital and some recommendations are organised below under the categories of attitudinal changes (changes in people’s perception of the situation), structural changes (changes in task and role responsibilities), and procedural changes (changes in process and work activities) (Checkland, 1981).

1. Attitudinal changes in the private hospital:

- The Ministry of Finance can support the Ministry of Health in terms of needs of private hospitals. (Desirable/Infeasible)
- The number of private hospitals should not be increased. (Desirable/Feasible)
- The Ministry of Health can limit the number of private hospitals. (Desirable/Feasible)

- Doctors can take initiative to carefully analyse the patients' medical treatment records (Desirable/Feasible).
- Generate an awareness of cooperation between doctor and patient in order to constitute empathy (Desirable/Infeasible).
- The administrative Board manager should stress the necessity of appointment service in meetings (Desirable/Infeasible).
- The administrative Board can adopt Joint Commission International (JCI) accreditation about health care (Desirable/Infeasible).
- High risk medication cannot be used out of the permitted area in the hospital (Desirable/Feasible).
- Rules regarding hand hygiene should be increased and monitored frequently (Desirable/Infeasible).
- The checklist of process of medical operation should be read loudly before starting the operation (Desirable/Feasible).
- The effectiveness and hygiene of equipment should be monitored in the medical operation room (Desirable/Feasible).
- All individuals in the hospital should follow the rules cautiously (Desirable/Feasible).

2. Structural changes in the private hospital:

- New qualified personnel from SSI who check invoices can be hired (Desirable/Feasible).
- SSI can direct its own personnel to the hospital in order to speed up the medical treatment fees' refunds to the hospital (Desirable/Feasible).
- The hospital can train its own personnel through internship (Desirable/Feasible).
- The hospital can hire the personnel from the health vocational high school (Desirable/Feasible).
- The issue of the need for the counsellor who is responsible for building a bridge between the doctor and the patient can be discussed in the administrative Board meetings (Desirable/Feasible).
- The counsellor can interview with the doctors periodically and the requests of doctors should be discussed in the administrative Board (Desirable/Feasible).
- Trainees from Health Vocational High School should be worked in the hospital. They can guide the patients (Desirable/Feasible).
- The doctors can work part-time (Desirable/Infeasible).
- The general practitioner can be hired (Desirable/Infeasible).

- The administrative Board can hire new doctors (Desirable/Infeasible).
- A software engineer can be hired to install the software and control it (Desirable/Feasible).
- The hospital can cooperate with the software firm, the health vocational high school, and the medicine school in order to hire skilled and qualified personnel who are capable of operating the appointment system (Desirable/Feasible).
- The number of patients can be decreased per doctor (Desirable/Infeasible).
- The appointment system can reduce the rate of the errors in terms of patients' data of check-ins and check-outs (Desirable/Infeasible).
- Make records regarding patients' medical treatment and SSI data analysed by a professional (outsourcing) (Desirable/Feasible).
- Data processing centre and the head physician can cooperate in order to provide feedback to doctors (Desirable/Feasible).

3. Procedural changes in the private hospital:

- The number of meetings can be increased between government and PHIIA to find most appropriate private hospital sample (Desirable/Feasible).
- The model can be taken from other private hospitals instead of public hospitals (Desirable/Infeasible).
- The model should take example of hospitals that have international accreditation (Desirable/Infeasible).
- The information about the functioning of other private hospitals can be obtained (Desirable/Feasible).
- The rate of refund for the medical treatment fees from SSI to the hospital should be increased from 30 percent to 70 percent (Desirable/Feasible).
- The medical treatment refunds can be determined according to doctors' union instead of Health Official Notice (Desirable/Feasible).
- Health Application Notification can be revised by the specialist doctors (Desirable/Feasible).
- A special fund can be formed concerning the needs of private hospitals (Desirable/Infeasible).
- The reception cost that is the fee given by government as 3 TL in public and 10 TL in private hospitals can be equalised between the private and the public hospital (Desirable/Feasible).

- The Ministry of Health can outsource online services regarding the communication between SSI and the hospital (Desirable/Feasible).
- The evaluation rate of current medical treatments' invoices by SSI can be increased from 10 percent to 30 percent (Desirable/Feasible).
- The medical treatment fees' refunds can be made immediately after the treatment by SSI to the hospital (Desirable/Feasible).
- Bureaucracy at the hospital can be reduced (Desirable/Feasible).
- Patients' satisfaction tests should be applied to the patients after being medically treated as well as during the medical treatment period (Desirable/Feasible).
- The lectures dealing with empathy should be given by a specialist psychologist to doctors (Desirable/Infeasible).
- The counsellor should prepare lecture notes concerning empathy and allocate them to the doctors (Desirable/Feasible).
- The administrative Board and the software firm can collaborate in order to provide information to patients concerning the functioning of the appointment system (Desirable/Feasible).
- Patients should be informed through brochures or leaflets about the availability of the Internet appointment system at the hospital (Desirable/Infeasible).
- Patients can have an appointment by internet at home or by using internet cafés near the hospital (Desirable/Feasible).
- Patients should be informed through brochures or leaflets about the availability of SMS appointment system at the hospital (Desirable/Infeasible).
- Patients should be informed about the availability of the face to face appointment system at the hospital (Desirable/Feasible).
- Patients can be reminded through their cellular phones or fixed telephony of their appointments before 6 hours (Desirable/Feasible).
- The staff can verify patients' identities by checking their certificate of birth and the social security number (Desirable/Feasible).
- The patients should be aware of their appointments' time, come to the hospital in time, make their identities confirmed, and go to the doctors' consulting room (Desirable/Feasible).
- The most appropriate accreditation that is concerned with keeping patients' medical treatment records and SSI data properly for the hospital can be investigated (Desirable/Feasible)

- An online system can be purchased and patients' medical treatment records and SSI data can be classified with a zero percent error (Desirable/Feasible).
- The administrative Board can require specifications of the job that is related to the patients' data processing through Internet, newspaper or medical publication (Desirable/Feasible).
- Two identity cards can be requested from the patient (Desirable/Feasible).
- Identity card should have a photo of patient on it (Desirable/Feasible).
- A system can be established for providing effective communication between the patient and the doctor (Desirable/Infeasible).

CONCLUSION

This thesis has examined and employed one of the creative problem solving methodologies called Checkland's Soft Systems Methodology to deal with problems of a private hospital in Turkey.

The thesis is divided into two parts. The first part, called the theoretical description, consists of two chapters. In the first chapter, the theoretical foundations of systems thinking, a general overview to system concept and the types of application of system thinking in organisations have been analysed. In the second chapter, the evolution of Soft Systems Methodology (SSM), philosophy of SSM, methodology of SSM, methods, finally the distinction between Mode 1 and Mode 2 version of SSM have been examined. The birth, growth and maturity stages of SSM have been highlighted in its evolution. Philosophy of SSM included the interpretivist paradigm and made a distinction between hard and soft systems. The methodology of SSM evaluated the seven stage model and the two strands model of SSM. The methods used in the process of SSM included -rich pictures, root definitions, conceptual models and comparison- have been explained.

The second part, called practice, includes two chapters. In the first chapter, the case study of a private hospital has been designed. The case study comprises the historical foundation of the Turkish Health Service, structuring of health sector in Turkey, the overview of the Turkish private

hospital sector, the types of private hospitals, the current status of private hospital sector, and the description of the hospital where the intervention of SSM took place.

In the second chapter, the application part of the thesis has been made. Firstly, the cultural and logical analyses of a private hospital have been prepared in order to find out the problem situation. Then, the root definitions have been made and the conceptual models have been built. Finally, the comparison stage has been realised by comparing the problem situation of a private hospital with the conceptual models. In the application of SSM to the Surgical Department of a private hospital, we have recommended some changes to the administrative Board of the hospital.

In the application of SSM to the private hospital, we have noticed the value of SSM both as an academician and a practitioner. One of the major values of SSM is that it encourages creativity in a problem situation. SSM is an advanced way for managers/practitioners to provide creative solutions to the problem situations. Methods such as rich pictures, root definitions and conceptual models used in the process of SSM enabled the manager/practitioner to generate a comprehensive appreciation of problem situation and to discover alternative courses of actions to handle them. For example, rich picture building in the informal interviews with the administrative board members ensured a clear understanding of the problem and revelation of inexpressible ideas. Another major value of SSM is that the practitioner can highlight the cultural and political facets of the problem

situation by using analyses one, two and three. The important point of SSM for the practitioner/academicians/managers is that SSM can become more valuable methodology with its attractive constituent parts such as rich picture, CATWOE analysis and model building in the use of multi methodological approaches that encourages practitioner to combine best parts of different approaches. However, the success of application is greatly dependent upon the knowledge and the experience of the practitioner in methods, tools and techniques.

In this study, we have come across some difficulties in terms of using SSM and observing the health sector in Turkey. The implementation of SSM took such a long time to introduce the methodology to the executive manager and the head physician in the private hospital. At the beginning, they could not figure out the model. Therefore, we needed to study the model. Then, we began to interview doctors, nurses, and staffs. This was a demanding task. We also needed the opinions of PHHIA members, thus we interviewed them. Some of the doctors did not want to share some information with us. This issue particularly in the model building became very hard task for us because we did not have much knowledge/experience and were not familiar with the health sector. The conceptual model building needed different and expert-driven perspectives of problem owners. This process took very long time to complete. The doctors were also too busy with high number of patients and they did not have time. So the duration of interviews with them became too short. We had to have many interviews. This really drove doctors insane. We

assumed that if practitioner worked in the sector for some time or only used the methodology in the sector they have experience, the problems could be tackled rapidly and the solutions could be more effective. Another difficulty we met in the use of SSM was that most institutions in Turkey had reluctance to use scientific methods that have long processes to solve organisational problems. They prefer using quick-fix solutions to the expert opinions of professionals. We observed that the use of SSM was too lengthy.

The other difficulty resulted from the complexity of health sector in Turkey. The health sector's applications change very fast and doctors have difficulties following the rules in Turkey. Some of the health sector's problems, the doctors believe, are unsolvable and thus, they do not want to think about their solutions. For example, increasing the number of doctors and enhancing the quality of medical treatment are unsolvable issues, because the budget of the Ministry of Health for such concerns is limited. Furthermore, there is a constant conflict between patients, doctors and the executive manager who have incompatible goals and interests. Patients aim to get low priced but standard medical treatment from hospitals. Doctors aim to give high quality medical treatment to their patients and to choose the method of medical treatment freely. The executive managers of hospitals aim to maximise the revenue of the hospital. The point is that the problem owners in the health sector in Turkey believe that their ends are more critical than others.

BIBLIOGRAPHY

Basden, A., Wood-Harper, A.T., (2006), "A Philosophical Discussion of the Root Definition in Soft Systems Thinking: An Enrichment of CATWOE", *Systems Research and Behavioural Science*, 23:61-87.

Bergvall-Kareborn, Birgitta (2002), "Enriching the Model-Building Phase of Soft Systems Methodology", *Systems Research and Behavioural Science*, 19:27-48.

Bulow, I. Von , (1989), "The Bounding of a Problem Situation and Concept of a System's Boundary in Soft Systems Methodology", *Journal of Applied Systems Analysis*, 35-41

Burrell, Gibson and Morgan, Gareth (1998), *Sociological Paradigm and Organisational Analysis*, London, England: Ashgate

Caceres, A,Ulloa Rodriguez (2007), 'An Application of Soft Systems Dynamics Methodology (SSDM)' *Journal of Operational Research Society*, 701-713

Checkland, Peter, (1993), *Systems Thinking, Systems Practice*, West Sussex, England: John Wiley & Sons, Limited.

Checkland, Peter (2000), "Soft Systems Methodology: A Thirty Year Retrospective", *Systems Research and Behavioural Science*, 17:11-58.

Checkland, Peter and Poulter, John (2006), *Learning for Action: A Short Definitive Account of Soft Systems Methodology and its use for Practitioners, Teachers and Students*, West Sussex, England: John Wiley & Sons, Limited.

Checkland, Peter and Scholes, Jim (1990), *Soft Systems Methodology in Action*, West Sussex, England: John Wiley & Sons, Limited.

Checkland, P., Winter, M., (2006), "Process and Content: Two Ways of Using SSM", *Journal of the Operational Research Society*, 57:1435-1441.

Gold, Jeff (2001), "Storying Systems: Managing Everyday Flux Using Mode 2 Soft Systems Methodology", *Systemic Practice and Action Research*, 14(5).

Holwell, Sue (2000), "Soft Systems Methodology: Other Voices", *Systemic Practice and Action Research*, 13(6).

Jackson, Michael (2006), "Creative Holism: A Critical Systems Approach to Complex Problem Situations", *Systems Research and Behavioural Science*, 23:647-657.

Jackson, Michael, Flood Robert L. (1991), *Creative Problem Solving*, England: John Wiley&Sons, Limited.

Ledington, J., Ledington, P.W.J., (1999), "The Problem of Comparison in Soft Systems Methodology", *Systems Research and Behavioural Science*, 16:329-339.

Mathiassen, L., Nielsen, P.A., (2000), "Interaction and Transformation in SSM", *Systems Research and Behavioural Science*, 17:243-253.

Miller, G.A. (1968), *The Psychology of Communication*, London: Allen Lane; Penguin Press.

Mingers, John (2000), "An Idea Ahead of Its Time: The History and Development of Soft Systems Methodology", *Systemic Practice and Action Research*, 13(6).

Morgan, Gareth (2006), *Images of Organization* Thousand Oaks,CA: Sage Publications

Moynihan, E.P., Taylor, M.J., Wood-Harper, A.T. (1998), "Soft Systems Methodology and Systems Maintenance", *Systemic Practice and Action Research*, 11(4).

Optner, S. L, (1975), *Systems Analysis for Business Management*, Englewood Cliffs: Prentice-Hall

Reisman, A., Oral, M., (2005), "Soft Systems Methodology: A Context Within a 50-Year Retrospective of OR/MS", *Interfaces*, 35(2): 164-178.

Rose, Jeremy (1997), "Soft Systems Methodology as a Social Science Research Tool", *Systems Research and Behavioural Science*, 14(4): 249-258.

Tsouvalis, Costas (1996), "Reflecting on SSM: The Dividing Line Between 'Real World' and 'Systems Thinking World'", *Systems Research*, 13(1): 35-45.

Torlak Gökhan (2006) "Holism in Managerial Decisions", *Öneri*

Williams, Mark Campell (1999), "Rich Pictures on the Path Towards Systemic Being", *Systems Research and Behavioural Science*, 16:369-373.

Wilson, Brian, (2001), *Soft Systems Methodology: Conceptual Model Building and its Contributions*, West Sussex, England: John Wiley & Sons, Limited.

<http://www.ohsad.org>

(14 April 2009)

<http://www.saglik.gov.tr>

(23 March 2009)

<http://www.tcmb.gov.tr>

(10 June 2009)

<http://www.imkb.gov.tr>

(10 June 2009)

