

CHAPTER 3. RESEARCH METHODOLOGY

3.1 The Research Objective

The object of the study is a leading private healthcare facility located in the Klang Valley. The main method of assessment and data collection is via participant observation, supported by key in-depth interviews with selected persons of the management team. The main thrust of the project was to assess the viability of the organisation using the model of viable systems proposed by Maurice Yolles in his work on *Management Systems* (1999)³⁰.

The assessment was done with the aid of the diagnostic framework proposed by Cummings, as well as, the adapted soft systems methodology techniques developed by Mohd. Yusof Omar. The measurement tools used were the Likert scale systems developed by Mohd. Yusof Omar for the measurement of self actuation system diagnostics, actor systems and dissipative structures diagnostics¹⁹, and the six-level organisational diagnostics²⁰.

In the study an adapted form of soft system methodology was used. The modifications made, and their reference sources are shown in the following table:

Exhibit 6: Soft System Methodology – an adapted approach

NO.	CHECKLANDS SSM APPROACH	RESEARCH MODIFICATION	REFERENCE
PHASE 1	STAGE 1: FINDING OUT THE SITUATION	DIAGNOSTIC PHASE	
1	Forming Root Definitions and Rich Pictures	Use of the Rich Picture	Checkland
2	Building a concept model	Use of Diagnostic Measures developed by Dr M. Yusof Omar: Actor System Diagnostics Self Actuating System Diagnostics Dissipative Structures Diagnostics	Yusof Omar
		Cummings 6-level organisational diagnostics	Cummings & Worley
		Measurement Scale	Yusof Omar
3	Identify Gaps	Identify Gaps	ISO 2000 Quality System
4	Define changes	Analysis of Findings	Researcher
5	Taking Action		
PHASE 2	COMPARING AGAINST THE REALWORLD	INTERVENTION PHASE	
6	Compare the model against reality	Specify possible interventions to meet gaps requirements.	Cummings & Worley
			Researcher
7	Draw up an intervention plan that can be implemented		Researcher

3.2 Sample Size

As the research focused solely on the interactions of the management team, the sample size was maintained at 15 individuals who comprised the senior management team of the medical centre. In the interests of providing some degree of confidentiality as to their individual identity, during the course of the project, an identity code (ID Code) is used instead of their personal names.

The group comprises the following individuals.

Exhibit 7: The Sample Group

NO.	IDENTITY CODE	DESIGNATION
1	D-ED	Executive Director
2	C-FS	Director of Finance
3	T-NS	Director of Nursing & Support Services
4	A-OM	Administrator, Outreach Management
5	C-QA	Quality Administrator
6	L-MD	Administrator, Medical Staff Services
7	M-SS	Administrator, Support Services
8	Q-NA	Administrator, Nursing Services
9	T-CA	Administrator, Clinical Ancillary Services
10	B-DA	Administrator, Diagnostic Ancillary Services
11	R-TE	Administrator, Training & Education Services
12	A-HR	Administrator, Human Resources
13	S-FS	Administrator, Financial Services
14	N-CS	Assistant Administrator, Customer Support Services
15	G-PA	Assistant Administrator, Patient Administration Services

3.3 Use of Mean as a Measurement Instrument

Due to the relatively small size of the group, the research will be approached from a qualitative stance, and as such, will employ the use of Mean as a measurement instrument.

Being aware of the shortcomings of using a small sample size and the mean measure, the researcher notes that conclusions drawn from the mean scores may not be validly applied to a larger sample. However, as the intent of the research is to focus on the particular group identified, there is reason to accept that such a method would capture the world-view and individual paradigms of the group.

3.4 Frequency and Its Implications

Frequency tables are used to display the collective perspective for the group under study. The implications to be drawn from such tables are the degree of similarity and positioning of the individuals on the various elements being assessed. This would then assist the researcher in drawing conclusions about group behaviours and the impact of individual's actions on the group and its internal working relationships.

3.5 Observation Period

Although the researcher worked closely with this team in a management capacity for more than 8 years, the scope of this study covers only the activities during the period Jan – August 2001. Within the 8 years, the organisation saw 3 major changes in leadership which had then culminated in the organisational structure that existed at the beginning of January 2001. This paper covers the developments within the management team since that time and their impact on the organisation.

However, the familiarity and knowledge of the researcher with the issues involved, provides a certain depth of analysis to the paper. It is noted however, that the researcher is profoundly aware of the possibility of researcher bias due to an identification with selected individuals and issues. To counteract this, the researcher has made attempts to verify certain views and perspectives with key individuals, who have chosen to remain anonymous due to reasons of confidentiality.

3.6 The Diagnostic Measures

The diagnostic measurements are based on a 5-point Likert scale with the following descriptions:

Exhibit 8: The Measurement Scale

SCALE	1	2	3	4	5
SELF ACTUATION SYSTEM DIAGNOSTICS	Low Manifestation ←				High Manifestation →
ACTOR SYSTEM DIAGNOSTICS	Low Manifestation ←				High Manifestation →
DISSIPATIVE STRUCTURE DIAGNOSTICS	Conservative ←				Dissipative →
CUMMINGS 6-LEVEL DIAGNOSTICS	Poor ←	Fair	Satisfactory	Good	Excellent →

This simple scale is used throughout the 4 measurement tools to ensure comparability and ease of interpretation. Consistency is also maintained as the rating is done throughout using the same unit of measure. It is proposed that ratings of 4 and above indicate good standing whilst ratings below 4 were indicative of critical areas to be addressed in the intervention stage.

The propositions made in this paper relate to the viability scores of the organisation on the diagnostic measurements that are being used. A mean score of 4 and above, (≥ 4) on a 5-point scale would indicate a healthy, viable state whilst scores less than 4 (< 4), would indicate critical areas that need to be viewed for intervention.

3.6.1 The Self Actuation System Diagnostics

In this measurement scale, the dimensions measured are based on the ability of the system to self-regulate, self generate and self-actuate. The elements as identified by Yolles (1999)³⁰, are as follows:

Exhibit 9: Self Actuation System Diagnostics

CHARACTERISTICS OF SELF ACTUATION	EXPLANATION	RATING LOW MANIFESTATION -1 TO HIGH MANIFESTATION - 5
SELF-INFLUENCING	Circular causality and causal loops, circular patterns of causation	
SELF-REGULATING	Maintenance of a particular variable to keep essential variables within limits, via negative feedback and specified limits.	
SELF-ORGANISING	Self amplification of fluctuations generated in the system as a consequence of perturbations from the environment	
SELF-SUSTAINING	Operations that are organisationally closed, when all possible states of activity generate or lead to activity within itself. Once an organisationally closed process is started, it is self-sustaining.	
SELF-PRODUCING	Autopoietic systems that self produce both their components and their boundary	
SELF-REFERENTIAL	Symbolic reference to self. These systems refer to themselves in terms of themselves, or their components, through image, expressed symbolically.	
SELF-CONSCIOUS	Able to interact with descriptions of self.	

The dimensions of self actuation are used to assess the organisation and ascertain if it is indeed self actuating and to what extent it exhibits and practices these characteristics of self actuation.

The proposition for Self Actuation System Diagnostics for SJMC would be that SJMC would have a mean score of 4 and above on the Self Actuation System Diagnostics.

Prop #1 SJMC will score 4 and above in the Self Actuation Dimensions demonstrating the capacity to be a viable, self regulating system.

A score of less than 4 in these dimensions would indicate critical areas targeted for intervention.

3.6.2 The Actor System Diagnostics

Actor systems are measured on the elements as listed in the following table. The organisation is rated on its status in each of the dimensions listed using a 1-5 Likert scale with 5 being the highest desired score and 1 the lowest.

This diagnostic measures both the individual and the organisational system against dimensions relating to the way they interact with the meta-system both individually and as an organisation.

Using the Likert measurement, the organisation would have to score 4 and above to exhibit a healthy actor system.

The diagnostic addresses the questions:

- What are the gaps that exist in the individual Actor system identity?
- How closed and boundary forming is the system?

The proposition for actor system identity diagnostics, individual and group, is that SJMC would score 4 and above on the Actor System Diagnostics. A mean score of less than 4 for this measurement would indicate gaps in the actor system identity, and weaknesses in its closure and boundary.

For the individual actor identity measures, the dimensions studied are self-referencing, egocentrism and self-reflectiveness. The group identity measures the capacity of the group members to act as a group actor system by identifying more with the generic identity than the individual identity. The propositions are:

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|---------|---|
| Prop #2 | SJMC will score 4 and above in the Actor System Diagnostics at the individual level demonstrating minimal gaps between the individual and generic identity of the actors. |
| Prop #3 | SJMC will score 4 and above in the Actor System Diagnostics at the group level demonstrating the capacity to form boundaries and have closure as a viable system. |

The table below presents the dimensions that are used in the diagnostic.

Exhibit 10: Actor System Dimensions

DIMENSIONS TO BE ASSESSED FOR ACTOR SYSTEMS (REF.YOLLES, P

*What needs to be done to change the Actor system identity - indiv
How enclosed is a system (boundary forming)?*

INDIVIDUAL	RATING SCALE (1-5)
SELF REFERENCING CLOSURE Attempt to interact with others as a reflection of themselves	
ALTRUISM VS EGOCENTRISM Maintain own identity against world	
SELF REFLECTIVE EVOLUTION Sees organisational change as an evolution of the identity in relation to the wider world.	
GENERIC	
WHOLENESS works as whole in connection with cognitive purpose from the metasystem	
PROPOSITIONAL The characteristics of the profile are determined by the metasystemic propositions.	
NORMATIVE The set of characteristics are normatively agreed to define distinct classes of behaviour	
EXTENSION There is a commensurability between the systems within the metasystem, and a generic identity.	
QUALITIES There are pattern distinctions in qualities of the systems which are fixed and variable.	
GENERIC IDENTITY Strong sense of identity that indicates no loss of normative coherence.	

How the system acts will eventually impact on its boundaries and the way it actuates and re-generates. An actor system is part of a holarchy of systems and to be viable systems, they must have some degree of closure.

3.6.3 Dissipative Structure Diagnostics

The dissipative structure diagnostics evaluates the system on a continuum ranging from conservative system to dissipative systems. The premise is that increased dissipative characteristics result in the system finding a new and higher equilibrium, i.e., a growth of the system. Building on the work of Prigogine and Stengers, Yolles defines dissipative systems as those that

- Have dissipative structures
- Are globally far from equilibrium
- Are inherently dynamically unstable
- Use energy to maintain order through negentropy beyond any thresholds of instability

Whilst both conservative and dissipative systems have definable form and state of behaviour, with dissipative systems, the energy changes are large. Dissipative systems are continuously in fluctuation, from one state to another, with new forms occurring when the system fluctuates beyond the levels of stability. The system then enters negentropy and creates a state of order. In this sense the dissipative system is seen as an evolutionary system which is adaptable and changes its form.

The cycle of change in a dissipative system is shown in Exhibit 11 below:

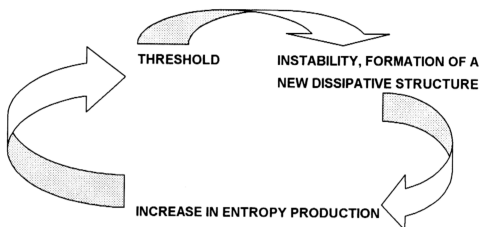


Exhibit 11: The Evolutionary Cycle Of Dissipative Structures.

The measurement scale evaluates the relevant dimensions as listed:

Exhibit 12: Dissipative Structures Diagnostics

DISSIPATIVE STRUCTURES & THEIR SYSTEMS

ELEMENTS	CONSERVATIVE	RATING SCALE 1-5	DISSIPATIVE
STRUCTURAL ORIENTATION	Structure preserving		Structure Changing
ACTION TOWARDS DEVIATION	Counteracting		Amplification
DYNAMIC	Near zero energy/steady state in time		Far from zero, change with change in time
TENDENCY OF FORM	Morphostasis		Morphogenesis
INTERNAL CONDITION	Near to steady		Far from steady
REFERENT	Ref. to steady state		Self reference
LOGICAL ORGANISATION	Irreversible to steady		Cyclical irreversible
SYSTEM TYPE	open with poss growth		open, continuous, balanced energy exchanged

The proposition for Dissipative Structures Diagnostics would be that SJMC would score 4 and above on the Dissipative Diagnostics.

Prop #4 SJMC will score 4 and above in the Dissipative Structure Dimensions demonstrating the capacity to be a viable, complex, adaptive dissipative system that will advance from the far-from equilibrium state to a new state.

3.6.4 Cummings Six- Level Diagnostics

The six-level diagnostic goes beyond the system behaviours and looks internally into the individual, group and the organisation culture and its relationship structures both internally and externally.

The model on which this diagnostic is based is developed by Cummings & Worley in their approach to Organisational Development & Change⁷. The framework of this approach is based on the understanding of the organisation, group and individual levels in the dynamics and strategic orientation of the organisation. The outline is presented in the following discussion.

3.6.4.1 The Organisational Level

At the organisational level, the key task is to understand the different elements that make up the culture and strategy of the organisation, how they compare against each other, and whether these support the alignment of inputs and desired outputs for the organisation. The levels are presented as in Exhibit 2.

3.6.4.1.1 General Environment

Inputs at organisational level are characterised by the general environment and the industry structure. The general environment represents the external forces that act on the organisation, and can be described as the level of uncertainty present in the social, technological, economic, ecological and political forces. These forces act on and impact the strategic orientation of the company and support the development of the company culture, leading to organisational effectiveness.

3.6.4.1.2 Industry Structure

The next level of the organisational diagnostic focuses on the organisation's industry structure or task environment consisting of the five forces

as described by Micheal Porter, i.e., supplier power, buyer power, threats of substitutes, threats of entry, and rivalry amongst competitors.

These forces act on the design components at organisational level resulting in a cultural perspective and resultant productivity and performance outcomes.

The effects of these forces on the design components are assessed on the Likert scale to determine how far they are aligned to each other.

3.6.4.1.3 Strategic Orientation

The strategic intent of the organisation is determined by its mission, goals and objectives, and how it designs and implements its policies.

The strategic orientation of the organisation is assessed by evaluating the strategy, core activity systems, human resource systems, structural systems, measurement systems and the organisational culture.

The proposition here is that SJMC would score 4 and above on the Organisational Level Diagnostics. Scores of less than 4 would indicate critical areas for intervention.

Prop #5 SJMC will score 4 and above in the organisational level diagnostics of the Cummings model, demonstrating the capacity to maintain performance and productivity and hence, its position and viability as an organisation in the face of competition.

3.6.4.2. The Group Level

At the group level, the major input is the organisation design. The main elements within the group that need to be assessed are presented in Exhibit 2. As is seen, the elements of organisation design become the inputs to the Group whilst the Group outputs are team effectiveness, good decisions and team cohesiveness. Elements within the Group are:

- Goal Clarity,
- Performance Norms,
- Task Structure,
- Group Composition and
- Team Functioning.

These elements are rated on the 5-point Likert scale to determine how the organisation rates, and if its outputs are aligned to its inputs.

The proposition is that SJMC would score 4 and above on the Group Level Diagnostics.

Prop #6 SJMC will score 4 and above in the group level diagnostics of the Cummings model, demonstrating the capacity to maintain its group team effectiveness, cohesiveness, strength and performance in the face of competition and organisational growth.

3.6.4.3. The Individual Level

Three major inputs affect job design at the individual level. These are organisation design, group design and the personal characteristics of the job holders.

(i) At the individual level:

- Skill Variety refers to the range of skills that are required to do the job
- Task identity is the degree to which the job allows for a completion of a whole identifiable piece of work.
- Task significance is the degree to which the job has significant impact on other people's lives.
- Autonomy is the degree to which the job provides the worker freedom and discretion in scheduling their work.
- Feedback about results refers to the degree in which the job provides employees with direct and clear information on task performance.

These elements are measured for the targeted senior management team to assess the individual levels of fit between the job design and group and organisational design, and the job fit against the personal characteristics.

The proposition is that SJMC would score 4 and above on the Individual Level Diagnostics.

Prop #7	SJMC will score 4 and above in the individual level diagnostics of the Cummings model, demonstrating the capacity to maintain its individuals' position and commitment to the job functions within the organisation.
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