



CHAPTER VI

DISCUSSION

1. SWOT ANALYSIS OF THE OPPORTUNITIES OF HIS IN THE CENTRAL HOSPITALS

The SWOT analysis of the system opportunities is a very important information to set up the for strategic formulation. According to Samuel C.C. (1990), 4 elements that must be taken into account in this analysis are Strengths, Weaknesses, Opportunities, Threats. In the central hospitals, we found out that :

1.1 Strengths :

- The managers of hospital have some experiences with information technology. Six of eight hospital are using computer technology in different levels.

- MIS has a good image as being a strong tool for management.

1.2 Weaknesses :

- The hospital managers are lack of managerial knowledge, especially strategic management and hospital management.

- There is no clear strategic direction about MIS, although in several hospitals, computers are purchased.

- There is no code system available at the moment.
- There is limited budget for MIS.
- There is a lack of MIS expert, exclusively HIS expert.

1.3 Opportunities

- There is a high attention of MIS from leaders of hospitals as well as from the ministry. One MIS project is set up at the MOH to study the MIS feasibility. Nevertheless, none of the project ad-hoc members is MIS expert.

- There is also attention from international donors. Some organizations, such as WHO, Health Consortium Ltd. (HCL) from UK, World Bank, etc. are very interested in this area. They are coordinating with MOH to set up proposals for MIS in hospitals as well as the health information system.

2.4 Threats

- The heavily subsidized and bureaucratic management is a restraint to MIS as well as the automation.

- While the budget and supply for hospitals is limited, the facilities and equipment are seriously deteriorating. The managers must use this restrict budget to maintain the operation of their hospital. It means that MIS has to compete with other needs.

2. TECHNICAL CONSIDERATIONS

A HIS design should satisfy the following objectives:

- . **Functionality** - a full range of features and functions within each application to assist the processing of information and support decision making in operational, management, and strategic echelons.
- . **Responsiveness** - quick and accurate response to transactions critical to a hospital's functioning.
- . **Reliability** - maintaining and providing accurate and updated data to support patient care.
- . **Availability** - supporting administrative functions, facilities management, and delivery of patient care when users need it.
- . **Flexibility** - ability to deal with various information needs and adapt to changes in information requirements.
- . **Deployability** - ability to modify the configuration of a system to handle a different or expanded set of problems.

. **Modularity** - ability to develop and implement a system designed so that applications can, to some degree, operate independently where the order of development and implementation is dictated mainly by the logical interrelationship of the applications.

. **Efficiency** - improving the use of hospital facilities and resources.

. **Securities** - limiting access of sensitive and confidential data to only authorized personnel.

. **Ease to use** - producing output that can be trusted and easy to learn and operate.

. **Evolutionary growth** - the ability to grow from an existing state to a desired state.

. **Cost control** - handling pressure to cut costs as key to the evaluation of design alternatives (M. Zrivan, 1990).

In plotting the course for an HIS design, we can focus only on the general considerations for a system's organization and technical capabilities rather than on any detailed design specifications for a particular HIS. It is clearly impossible to prescribe detailed specifications

that will fit an individual hospital since such specification depend on the particular characteristics of each institution and should be determined by that institution.

The first stage in a system development lifecycle is the definition phase, during which functional requirements and constraints are defined to reflect the specific information needs of an organization.

Two sections of data that are significant in both terms of need and volume are determined by the study as drug data and medical record. If we can computerize the two above sections, we will have chance to successfully develop the computer technology in the whole hospital.

Although the information on patients' record is not ranked as the most needed, it does not mean that this information is not important. Some authors such as Pierskalla, W. et al. (1988) and Moshe Zviran (1990) pointed out that this is the core of a HIS. Whilst answering the question of "*needed information*", the hospital managers's perception can causes some biases, which deviate the feeling need from the real one. Anyhow, the weights the greatest proportion of the quantity of information (34%) from our study proves patient's medical

record is really important information. All other managerial works must base on this data.

To computerize the activities in these two sections, it requires a high capacity storage device approximately up to 700 megabytes. And for all tasks in the three divisions, it roughly reaches to 1 gigabytes. This quantity of VDS is similar to that of an average hospital in Thailand (Datamat, 1993). It means a rather high cost for HIS.

In reality when a code system for disease (eg. ICD system), drug list, material etc. is utilized and when a MIS is taking in action, data in the whole hospital will be integrated, the VDS will reduce dramatically. One critical element is the storage year of data that influences definitely VDS. How long is the time to keep a type of information is suitable ? The answer will definitely effect the VDS, too. Some system designers often forget the accumulate data (VDS) when they set up a new HIS. Later on the hospital users meet with a pitfall that there is no space in their computer system to input new data after some years of use.

A HIS can be a decentralized computing (i.e. a system consisting of stand-alone processors and databases in various sites with no communications links among

autonomous computing units) or a centralized computing. To compromise between the need of computerization and the limit of technology and financial resource, the better solution is a distributed computing system that is the middle between a decentralized and centralized system with many advantages (Cash, J.I., 1988).

In Central Hospitals in Hanoi, a suitable HIS design in the first step could be a distributed computing system that is better customized, lower cost and easier to develop to a full HIS. This distributed computing system can start from the Medical Record division or from the Pharmacy Division.

To make this step successful, besides of computer technology, one other very critical element is hospital managers. Those persons who almost are doctor and only familiar with planned subsidiary management. Health economy, epidemiology, biostatistics is still foreign to them. It is urgent to providing them with knowledge of modern hospital management before computer technology.