

Digital Management of Hospitals Facts & Fantasies

Dr. Fahd Mohammad Alonazy
Assistant Professor
Dept. of Health Administration
College of Public Health and Health Informatics, Al-Bukayriyah
Qassim University, Kingdom of Saudi Arabia

Abstract

21st century witnessed an enormous and mushroom growth and application of technology including use of ICTs in the management of the organizations that has revolutionized and transformed the organization into more dynamic, smart and efficient going concerns. The use of technology reduced the cost, increased the performance as well as service delivery. The advent of new technology changed the mode of conventional business into online mode of governance in the hospitals too. This review article aimed to examine the critical role of technology in transforming the traditional working of the hospitals into digital hospitals and its impact in the overall performance and delivery of healthcare service. The study used hermeneutics, discourse and heuristic in analyzing the qualitative data inter alia a computer software Atlas.ti was used for qualitative data analysis. It has been concluded that government policies, top management support, organizational and managerial must be streamlined, physical and legal infrastructure be put in place, and technology must be given human face to successfully transform the conventional governance of hospitals into digitally managed hospitals.

Keywords: Digital Management, Government Policies, Organizational and Managerial Issues, Physical and Legal Infrastructure and Humanization of Technology.

INTRODUCTION

Hospital is a place where sick, ill and injured get treatment to get well, therefore, patient is considered to be the king simply that all efforts should be made and all resources should be directed to the satisfaction of the patient (Qureshi, Kundi, Qureshi & Akhtar, 2014). This demands dynamic, efficient and smart management of the healthcare facilities, and there comes ICTs to rescues the management and administration from the worries through more efficient, transparent and patient focused managerial practices by processing and supplying relevant, accurate, reliable and timely information for making quick decisions (Kundi & Nawaz, 2012).

Literature is replete with discussions over the controversies like, whether management is a science or an art? And whether research in management is scientific or otherwise, and so on. Answer to these ambiguities seems in exploring the systematic nature of management which makes the filed either science or art or a mix of the two.

Taking the problem in this manner, this research is an effort to reach some conclusions about these two points of uncertainty. As the topic indicates, data sources of this research come primarily from the past records as well as current sources and practices of management in the hospitals.

REVIEW OF LITERATURE

To understand the issue under study, available secondary data sources were exhausted in order to develop logical model of the study and find the fact.

Scientific Nature of Management

Management is a subject of study, which is practiced in every organization including healthcare organizations like hospitals does not matter primary, secondary or tertiary, general or specialized. A manager deals with both technical and human aspects and resources of the hospitals. Though the technical matters are more exact however, the psychological, social, cultural and value-related tasks, that are taken care of at differing degrees of exactness and inexactness are complex and tricky. So what is management? Science or Art? Well know researcher in management Weihrich (1999:12) states that managing as a practice is an art, whereas, the organized knowledge underlying the practice may be referred to as a science. This implies that both art and science are not mutually exclusive rather complementary.

Since, science is an organized knowledge. The essential feature of any science is the application of the scientific methods to the development of knowledge. Thus a science comprises clear concepts, theories and other accumulated knowledge developed from hypotheses (assumptions that something is true), experimentation and analysis (Weihrich, 1999:12).

It is believed that science is made of two building blocks: a body of systematic knowledge and a scientific method of inquiry to acquire this knowledge (Loomba, 1978:32). Let's check-out how these definitions stand the test of being usable in the area of management.

Systematic Knowledge

The essential feature of science is that knowledge has been systematized through the application of scientific methods. In the words of Koontz and O'Donnell (1972:8) science is systematized in the sense that relationships between variables and limits have been ascertained and underlying principles discovered.

Scientific Method

The modern approach to organizational behavior depends upon a rigorous research methodology (Luthans, 1995:11), and the scientific method involves determination of facts through observation of events or things and verifying the accuracy of these facts through continued observations (Koontz and O'Donnell, 1972:9). The scientific method consists of observing, measuring, recording, and refining data; building a model that describes, explains, and predicts the behavior of the system under study; and testing and improving the model with ultimate purpose of increasing managerial efficiency and effectiveness (Loomba, 1978:32).

Systematic knowledge is accumulated through inductive and deductive research by applying scientific method (Loomba, 1978:32). Research refers to formalized procedures using scientific method, especially statistical techniques, to gather and evaluate information (Wright et al., 1971:558).

Inductive Approach and Deductive Approach

Inductive research is based on empirical data. Collection of hard data in specific situations and then making general statement covering all similar situations. So the direction of inference is from specific to general (Loomba, 1978:33). Inductive research process involves to observe and define problem, formulate a hypothesis, test the hypothesis, analysis results of test, accept or reject hypothesis, if accepted, implement and control, and if rejected, formulate an alternative hypothesis (Loomba, 1978:34). Whereas, the deductive research depends on mathematical techniques rather than empirical data (Loomba, 1978:34).

Evolution of Management Thought

Several classifications have been described in the literature explaining 'how management philosophy has gradually evolved from simple tools and techniques into very sophisticated, computer-based management style' (see for example, Koontz and O'Donnell, 1972; Loomba, 1978; Haiman et al., 1985; Griffin, 1990; Weihrich and Koontz, 1999). An analysis of all these researchers ends-up into an understanding that evolution consists of the major developmental stages i.e. scientific management by FW Taylor, behavioral approach by Elton Mayo and his associates, and systems, which appeared in 1960, which try to unify the prior schools of thought commonly known as systems approach. The early contributors of system approach include the Ludwig Von Bertalanffy, Lawrence J. Henderson, W.G. Scott, Daniel Katz, Robert L. Kahn, W. Buckley and J.D. Thompson. (Smriti Chand, 2017); and the contingency approach, that is based on the theory that management effectiveness is contingent, and it depends upon the interplay between the application of management behaviors and specific situations. This is that change the way to manage depending on the changing circumstances as one way does not fit all (Shawn Grimsley, 2017).

Current Perspectives: Management Science

Management science is actually a come-back of scientific management. Management scientists picked the core ideas from scientific management and applied them to the modern management problems. And they are doing this successfully because the advocates of scientific management (more than half a century ago) could not use these techniques effectively but computers have changed the whole scenario. Humans are boundedly rational which means that human brain can not process huge amounts of data at a time, while computers have no limit to the size of their databases and processing structures. That's why the tools and techniques of old scientific management are proving more effective today than they did at the time of their origin.

Modern technologies are bringing more and more exactness in the management thought and practice thereby making it more science than it used to. Application of mathematical models for conceptualizing management problems is the quantification of management concerns which can then conveniently be processed through modern sophisticated machines. In the areas - human behavior, quantitative methods, and communications - modern managers are relying more and more on science (Haiman et al., 1985:42).

Systematic is Scientific

According to Robbins (1998:11) the systematic study is a process of looking of relationships, attempting to attribute causes and effects, and drawing conclusions based on scientific evidence. The above discussion about science and scientific method reveals that the functions of management the POSDCORB by Gullick and Urwich (1937) and 10 managerial roles by Mintzberg, Henry Prof (1973) are all based on the logic and science of systemization. Robbins (1998:10) asserts that a systematic approach to the study of organizational behavior and management of organizations can improve the explanatory and predictive abilities of management.

On other hand, the technological change has had the greatest impact on the nature of management today.

New applications of science have forced managers to adapt and remain dynamic (Haiman et al., 1985:37). They further advocate that a better informed workforce and large, more complex organizations have forced them to rethink the ways they did their jobs. Therefore, the management must be concerned with technology and technological innovations to keep pace in line with their competitors. There is an evidence that failure to support research and development adequately is often cited as a cause of declines in the growth rate and productivity (Griffin, 1990:83). Likewise, the traditional decision making is now being replaced by a systematic research and analysis preceding every decision Wehrich and Koontz (1999:199) concludes. With this argument, thus a systematic approach to the study of organizational behavior can improve the explanatory and predictive abilities of managers (Robbins, 1998:10).

Digital Management of Hospitals

Digital management refers to the application and use of computer based information systems in managing the human and material resources while dispensing the functions of management i.e. POSDCORB (Kundi, Shah, & Nawaz, 2008).

Computers now form the kernel of management as field of study as well as a professional area of work and practice. The organizations, like hospital have no other option left but to use these handy gadgets in their organizational structures for fine-tune management practices and health service delivery. Throughout the world, modern organization especially health related organization due to rapid technological change are switching to the digital modes of governance instead of relying on the conventional modern of operations. The health informatics systems have revolutionized the concept of patient care and service delivery in the hospitals.

It is expected in coming 10 years, the digital management will change the future of healthcare and hospitals. As the cost of care is continuously growing upward, several hospitals are now looking for the long-term solutions in order to minimize the inpatient services. And they are eager to learn that how the technology and health care delivery will merge to change the future design and lay-out of the hospital and that of the patient experience throughout the world.

E-health is no longer novel to the psyche as in the information driven economies and societies, it becomes the reality and now it is the driving force behind management of hospital for efficient and cost effective delivery of services by the healthcare institutions. HMIS, Electronic Health Records and Telemedicine etc. are the few terms that speaks about the use of computer and telecommunication in the field of healthcare (Qureshi, Shah, Khan, Kundi, & Nawaz, 2013).

The future of health care delivery may look quite different than the hospital of today. The rapidly changing face of technologies, inter alia the changes in the demographic and economic patterns, are likely to change the nature, shape and mode of working of the hospitals around the globe for example, a number of in-patient health care services have been already pushed to home and out-patient ambulatory facilities (Kundi, Nawaz & Akhtar, 2014), yet, still numerous intricate and very ill patients will continue to exist and provide critical inpatient services.

Similarly, with the emergence of the new technology, the existing infrastructure in few countries has become obsolete, is replaced the new and improved ones, therefore, the management of the hospitals is rethinking how to elevate inpatient and outpatient services and to integrate the digital technologies into conventional modes of hospital services to truly create a virtual health system (without structure and walls).

A well-known American research group, the Deloitte Center for Health Solutions in their study with 33 experts from different background and countries were tasked to design digital hospitals globally in 10 years. This crowdsourcing simulation study have suggested five categories including the:

First, redefined care delivery (this features the centralized digital centers for decision making, continuous clinical monitoring and the targeted treatments using the 3D printing for surgeries) along with the use of smaller, portable devices that could assist to characterize the acute-care hospitals.

The second recommendation was to establish the digital patient experience through the digital and artificial intelligence (AI) technologies which could be helpful in enabling the interaction virtually on the demand to improve the patient experience.

The third suggestion was enhancement of the talent development through the application of robotic process automation (RPA) and AI that can allow care providers to invest more of their time on providing the care as compared to documentation.

Furthermore, this study also points that the operational efficiencies through technology, digital supply chains, automation and use of robotics could be further enhanced, likewise, the study expects that the next-generation interoperability can best drive the management efficiencies too.

Last but not the least was that of healing and well-being designs that must emphasize and focus on the significance of ecology and experience in healing was also considered critical for the future design of the hospital.

With this context, the ICTs/ digital machines are likely to modernize most aspects of the healthcare in the

future hospitals (Kundi, Bartoli, & Bail, 2012), however like benefits, every technology also result into a list complaints, therefore, healthcare delivery particularly in chronic patients and procedures will still need the hands-on human knowledge and skills (Qureshi, Shah, Khan, Kundi, & Nawaz, 2013).

METHODOLOGY

The study is qualitative and based on the review of the existing research, therefore, the possibly available literature was reviewed, concepts and variables were extracted, coding and recoding was done through Atlas.ti in a computer based software used for qualitative data analysis. The study used content, discourse and hermeneutics for data analysis as recommended by researchers like hermeneutics (James, 1992), discourse (Max, 1990) and heuristic (Moustakas, 1990).

DISCUSSION: Building the foundation for Digital Hospital

Designing, developing and building the future digital hospital may need change in the mind set as well as a handsome investments in people, technology, processes, physical and legal infrastructure besides the flexible, dynamic and learning environment of the hospitals in terms of structure and operations to put in place the new technology without or minimum resistance on part of the people i.e. generalist, professionals and patients (end-users).

The leadership of the hospitals should not expect immediate return on the investment rather it will be long term, as digital technologies will enhance the care delivery (Qureshi, Qureshi, Chishti, Kundi, Akhtar, Khan, & Khan, 2014), furthermore, it will create operational efficiencies and likely to improve the patient and staff experience. Resultantly, the return on investment will appear in the form of higher quality care, improved managerial and operational efficiencies, and greater patient satisfaction.

Like a strategy could be devised to reap the benefits of the new technology in care, and the essential components of the digital strategy of the hospital could assist the management to start and push the hospital into the future (Qureshi, Shah, Khan, Kundi, & Nawaz, 2013). Qureshi, Shah, Khan, Kundi, & Nawaz (2013) while analyzing the issues of use of technology in health management recommended to considered below guidelines while designing, developing and building the digital hospital:

1. Create a digital culture for digital change; it is imperative especially for the top management in order to realize the significance of the digital future and initiatives that support the implementation at all the levels of the organization.
2. Consider the technology that communicates well because digital implementation is complex and tricky because linking the uneven applications, and technologies that are extremely interdependent and facilitates the inter talk with each other might be critical for successful digital initiatives and their adequate implementation.
3. Similarly, since digital gadgets particularly the computer and telecommunication based systems are constantly changing, therefore IS researchers like (Kundi et al. 2012, 2010, and 2009) argues that during execution of the new technology in hospitals, the critical factors that could be focused is that of the flexibility and scalability.
4. The planning, developing and implementation teams ought to ensure the scope and cost of the project at minimum including the cost of addition, modification, or replacement of the machines, tools and equipment.
5. Notably, in addition to above, during the assessment of the requirements, need for the data interoperability, scalability, productivity, and flexibility must be based upon a stable footing to capture, store, secure, and analyze the facts and figures.
6. One more vital factor that could makes or breaks the digital management of hospital is the preparation for talent 2.0, since the hospital make investment in the exponential technologies, so, the management must provide ample opportunities to their manpower for the development of the corresponding digital schemes and strategies.

CONCLUSIONS

In the words of Drucker (1074:402), for a human being working means developing and the modern technology (IT) has greatly expanded our capacity to communicate, and thus to manage more effectively, efficiently and economically (Kundi & Nawaz, 2010). The more we integrate that technology into the overall organizational design, the more efficiently it works (Haiman, 1985:44-45). Therefore, management must be concerned with technology and technological innovations to keep pace with its competitors. Failure to support research and development on the infusion of technology in the organizational structures adequately is cited by Griffin (1990: 83) as a cause of declines in the growth rate of productivity.

The managers of the hospitals must have the mental ability to analyze and diagnose complex situations (Qureshi, Kundi, Qureshi, Akhtar, & Hussain, 2015). These tasks require conceptual skills and design skills.

Decision making, for example, requires managers to spot problems, identify alternatives that can correct them, evaluate those alternatives, and select the best one. Thus, the managers of today's digital hospitals can be hybrid i.e. they must be technically and interpersonally competent yet still fall because of an inability to rationally process and interpret information (Robbins, 1998:6) is the major cause of failure to deliver quality health care services that could ruin the image of management of the hospital and resultantly shake the trust and confidence of the patient on the management, mostly considered as the cause of dissatisfaction of the patients.

Furthermore, since new technology is complicated, switching to digital management demands education as well as participation of the managerial groups to have close liaison with the developers and professionals to communicate their needs and demands to be accommodated in the new systems (Qureshi, Qureshi, Chishti, Kundi, Akhtar, Khan, & Khan, 2014). Whereas, when designing the future Digital management of the hospitals, the technology should be humanized to reap the benefits and prevent the failure (Kundi, Nawaz, & Shah, 2007).

Therefore, based on the critical examination of the existing research, this study concludes that government policies, top management support, organizational and managerial must be streamlined, physical and legal infrastructure be put in place, and technology must be given human face to successfully transform the conventional governance of hospitals into digitally managed hospitals.

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