The Effect of Information Technology on the Quality of Working Life: A Case Study of SAIPA Company

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Abstract

IT is one of the most important contemporary technical innovations which has influenced the development of staff. Meanwhile, one of the latest indicators used to measure staff development is the quality of working life. This technology is attracted the attention of many companies; however, Costs resulting from operation of this invention cannot be justified. The present study attempts to examine the impact of IT on the lives of employees In order to explain staff development according to changes in the quality of their working lives, compared to the costs resulting from its application. Because of originality of the context and the necessity to adopt a qualitative exploratory approach, this study was conducted using the ground theory based on narrative-biographical interviews as well as document review, observation and library studies. Given the extensive application of IT in Saipa Company and future plans for developing IT, thus, employees were selected as experimental cases. The results showed that effect of IT was not limited to personal life of employees; but it influenced their working life.

Keywords: information technology, quality of work life, action-oriented information, personnel skill, organizational behavior

1. Introduction

Changes in working environments resulting from new technologies influence the cultural, social, economic environment and psychological attitudes, decisions and behavioural patterns. These effects cause changes in the style and quality of work life. On the other hand, the kind of works, jobs and skills have changed and widespread application of technology in organizations has created a context of changes in the work environment. In this way, the growing wave of using information technology (IT) has been emerged in Iran during recent years. Many organizations tend to take advantage and use technology. Considering this, the fastest and most fundamental changes have been made in the quality of working life. More importantly, this is used with eyes wide-open and bright horizon along with other issues to obtain the expected results and use technology effectively. This not only helps the organization to take advantage of financial, technological and human resources, but its results can improve standards of the quality of working life in the workplace (Azar & Ahmadi, 2010).

Given the considerable effect of IT on human life, particularly in workplace, this study attempts to evaluate the effect of IT on quality of working life in workplace by a managerial approach in order to determine dimensions of its effectiveness on life and work experiences of employees. To measure welfare and quality of life, previous studies used quantitative measures such as earning per capital; these evaluations provide an incomplete perception of quality of life (Shamszade & Shirazinejad, 2009). Thus, it is necessary to evaluate the effect of IT establishment on quality of working life in Saipa Company while introducing the concept of IT and quality of life. Accordingly, the main research question is how IT influences the quality of working life? How can IT exert its effects? How employees adapt themselves to new conditions resulting from entry and spread of technology.

2. Literature

Quality of work life involves any activity at every level of the organization aimed at increasing the effectiveness of staff by their growth. It is a process whereby beneficiaries in an organization, including managers and...
employees, learn work together better. They learn what activities, changes and improvements are useful and practical. According to Baldwin (1994), the term quality of life is somehow ambiguous. In one hand, quality of personal life is considered as a perception of how the person lives. In a broader sense, quality of life opportunities involves a factor: opportunities such as the environment or culture in a given society.

Liu (1976) discussed three approaches to evaluate the quality of life: 1) clear definitions of the constituents of quality of life such as happiness, satisfaction, wealth, lifestyle 2) a definition by certain types of objective and subjective indicators such as GDP, health, welfare index, education index 3) a direct definition based on variables or factors influencing the quality of life according to the context and circumstances in which quality of life is determined.

Hence, quality of work life can be categorized in both objective (real world; such as suitable employment, income, housing, education (access to opportunities and develop capacities), wellness, health, and quality of living environment) and subjective (perceived world; Composition and diversity of needs, individual perceptions of reality and a sense of security and comfort, enjoyment of what is important to the individual, a sense of development, life perspective, limitation illness, the future problem, sustainability) dimensions (Shamszade & Shirazinejad, 2009).

In addition, the relationship between the quality of working life and technology have for long been a subject of discussion since Industrial revolution. In the present era, speaking of the quality of working life is not possible without technology. More importantly, thinking about technology alone is not correct, because People quickly adapt to the technology of available information. Thus, these instruments cause less excitement in humans. The main reason is to use technology as an integral part of the digital era in improving the quality of people's working lives (Khorshid, 2007).

Many IT professionals believe that some technologies remain useless due to the lack of professionals. Hence, any technology which enables organizations to prevent wasting valuable resources, while shifting from the traditional functionalism to process orientation, Can improve methods and increase efficiency of resources. Information technology can be defined in terms of the adoption and application. Previous research suggests that IT involves three major sources including electronic data interchange, computer assisted design and manufacturing, and enterprise resource planning (Rahman Seresht & Kazemi, 2011). There are various technologies among which electronic data interchange is the most important. Electronic data interchange is a common technology used for data stream management between customers and suppliers. Electronic data interchange is frequently used by partners (Savvas, 2004). By increasing efficiency and automating business processes between supply chain partners, Electronic data interchange results in lower costs (Von, 2004).

3. IT and Automotive Companies

Enterprise resource planning system enables instantaneous tracking of products, materials and components qualitatively and quantitatively, and integrated planning, logistics, production, quality, financial processes in value chain of SAIPA and Iran Khodro Industrial Groups. Iran Khodro Industrial Group currently uses this system in financial departments and Tondar 90. Reduced finished price of products and increased customer satisfaction are the main benefits of this system in Iran Khodro. Three material, financial and information streams are the main arteries of Iran Khodro Industrial Group. Enterprise resource planning system make the above streams serve co-operatively the production and after sales services. Enterprise resource planning system began to implement in SAIPA about five years ago and could draw some conclusions. This process was implemented by Rayan Saipa Co. focusing on IT activities in Saipa Group. The results from implementing the system in Iran Khodro and Saipa can be qualitative and quantitative tracking of products, materials and components instantaneously, planning for production of pre-assembled lines from ordering to delivering the final product and the integrity of financial and logistical parts.

Computer-aided design and manufacturing systems have been widely used in automotive industry. Introducing software applications such as Katia allows simultaneous use of these systems for manufacturing companies as a robust software for design, engineering (analysis) and computer-assisted production applied for aerospace, marine, construction, automotive, structural design, industrial, furniture industries, etc. The results of this software can be used to reduce design time, reduce errors in design, optimize the design, reduce production time, and increase product quality and increase profitability (Haji-Hoseyni, 2012).

Iran Khodro and Saipa were the first Iranian car companies attempting to buy the software for use in their manufacturing processes. Using the software Katia in Iran Khodro and Saipa has led to an integration of human resources, tools and methods and resources of design, engineering and construction in production processes.
Electronic data interchange, which is the standard computer-by-computer Business correspondence has been founded by the American National Standards Institute ANSI and International Standard Institute. Two leading companies in automotive industry, Iran Khodro and Saipa, have purchased and used this system to automate administrative transactions such as sending and receiving orders, invoices, shipping papers and order postponement. Using this system was followed by results including reduced or eliminated whip effect, shared demand data between members of supply chain at the time the demand was made, more accurate forecasts of demand and reduced ambiguity of the upstream rings in supply chain. on the other hand, the influence of IT on job scope and quality of working life cannot be ignored (Haji-Hoseyeni, 2012).

4. Methodology

This study aimed to explore and theorise the effect of IT on the quality of working life in Saipa. This study used Grand Theory version Strauss and Corbin which emphasizes to uncover the processes behind corporate transactions by systematic analysis (Corbin, 1387). Participants included a group of Saipa staff to management levels whose work was related to information technology. Employees were different in terms of availability, skills, etc.; therefore, people whose job was not directly related to IT such as service and green space staff were excluded. In addition, senior managers (including president and wise president) were ignored because of different user types.

In this study, 30 samples were selected from different categories of IT staff including 5 operators, 3 workmen, 4 technicians, 5 specialist assistants, 6 specialists, 4 authorized specialists and 2 supervisors; the samples included 23% women and 77% men. Among the samples, 11 were under 35 and 19 were over 35 years of old. Education of Employees also varied from diploma to MA (3 diplomas, 12 associates, 9 bachelors, and 6 MA). Based on The aforementioned strategy, interviews were conducted by both informants and users. Some employees of IT departments (Budget and Planning), human resources and quality assurance were interviewed as administrative and semi-administrative forces. Samples were determined based on the theoretical background and structure of the samples. Samples were also selected providing that they were IT users.

The main method for data collection was individual in-depth semi-structured interview. Due to environmental factors, patience, information and willingness of participants, all interviews were conducted in one session except for only two cases which were conducted in two sessions. To complete data and examine different aspects of studied phenomenon in natural settings observation was also used besides interview. Using the technique of constant comparison between data, assumptions extracted from reminders and field notes directed the researcher to continue the theoretical sampling process until data saturation in each class. Method of analysis in this study was a three-step open, axial and selective coding approach of Strauss and Corbin as the basic approach as a practical framework to direct the analysis. In this study, however, some parts such as causal and intervening conditions were stylized and modified.

To ensure the reliability and validity of the study, Rigor verification or data strengthening was used in which focus on writing several reminders, theoretical sampling, accuracy in coding and classification were emphasized. In addition, comparisons between and among data were emphasized to improve the accuracy and diversity.

To ensure transferability and fitness or generalizability of the results to other groups and similar environments, the results were provided for a number of Saipa employees and relevant consultants not participating in the study to investigate their transferability and fitness. The result of this process, besides confirming the findings, was a series of complementary experiments and viewpoints which were used in the data analysis process. Reviewing Supervisors involved using supplemental peer opinions, reviewing manuscripts by participants, teachers and coworkers familiar with qualitative research.

Based on derived conceptual Codes, categories of research were formed. These categories (Figure 1) such as "Establishment of Information Technology" represent the most abstract level of classification and analysis of the data collected in this study. Considering the relationship between research categories, they were presented in the form of a paradigmatic model as shown in figure 1.
5. Results:

The findings from the research included descriptive findings from context of the studied sample, such as representation of the samples, and analytical findings including the results of encoding in-depth interviews. Based on which, concepts and integration, connection, dimensions and paradigmatic models extracted for explaining the mechanism of IT effectiveness on the lives and experiences of employees were discussed. Based on the analysis conducted in the open and axial coding categories of IT establishment, action-oriented information, communication (the nature and type of connection, connection speed), hierarchy, data quality (precision, accuracy, skill, observation) were considered for the review. According to four main paradigmatic models, the major category, namely action-oriented information and its constructive dimensions, described different areas of IT effectiveness. These four overall models connect concepts and categories of coded interviews, and explain their relationships with each other:

- First model: information technology is removal of action and trust and the risk resulting from it.
- Second model: hierarchy belongs to monitoring and symbolic violence.
- Third model: discussions related to competition and skills belong to the workplace.
- Fourth model: embracing new technologies by the staff is described.

6. Action-oriented Information

Most important influence of IT is represented in changing contexts and action-oriented information. Action-oriented information is defined as an action to exchange information. In other words, the basis of this conceptualization and designation is a typification of actions based on their purpose. Important role of information flow in organizations and workplaces as well as the close relationship of IT and information flow make the action-oriented information as the most important category related to IT. Action-oriented information is the most abstract category extracted from encoded data of this study (Bourdieu, 1381).
The action-oriented information focuses here on four main dimensions including communication, information quality, hierarchy and skill. These four major categories actually imply two aspects of the action. Communication and hierarchy are related to the action context which is a context in which action takes place and implies material or structural facilities of the action. Information Quality and skills imply action content which indicates individual presence in the action. In other words, action content is based on individual and interpersonal facilities of action.

7. Communication

The most important context of action-oriented information is communication and its special features. Here, communication is characterized by two major features. The first feature is the type of communication. Based on personal relationships (direct) and technology, type of communication indicates the used instruments to provide a context of action-oriented information. The second feature is speed which varies from low to high. Type → based on personal relationships (direct) / technology (system)

Mr. S., 41 years old with eight years of experience and the head of the department of production line says: Vehicle tracking, tracing the quality, the location of the vehicle in the system, is done by IT. Suppose a given car with a certain number; when its pocket PC is turned on, it shows solved and unsolved drawbacks of the car. Once the technician repairs the unsolved drawbacks, the car is systematically closed.

The second dimension is speed. IT facilitates communication between individuals who are different in terms of time and place. Although to facilitate telecommunications is an obvious inherent task of information technologies, time and place of our actions are very important and influential. Therefore, speed referring to dimension or a trait of action-oriented information is related to two important concepts, namely time and place, and type of communication is understood on the spatial and temporal trajectories. In other words, fast action-oriented information is either influenced by temporal connection and establishment of action-oriented information in the course of two different times or spatial connection of action-oriented information.

Mr. C, a 34-year old specialist in charge of a quality control unit with 10 years of experience says:

I have almost no knowledge if I do not have automation. now I am working with two kinds of automation, one administrative and an email (systemic) ... calendar of meetings and daily sessions should be checked; usually, sessions are held twice a day (direct). In addition, we daily visit the line (direct). I am working with computer automation; I check the incoming or outgoing letters (systemic). In addition, I and the relevant specialists check reports which need to send at the same day (direct). If a meeting was required by the president or the wise president asks for a meeting, we will attend (direct).

8. Information Quality

Information quality implies Two important characteristics of information. The first is the level of data integrity meaning free from error and the accuracy of information meaning consistent with reality not fake. In fact, the first implies a reduction in errors, and the second implies the impossibility of providing fake information. Concept of Quality is characterized by precision and accuracy. Here, precision refers to the quality of the information. Information quality implies error-free information ranging from low to high. Accuracy refers to the degree of compliance with the fact ranging from low to high.

Mr. A., a 35-year old specialist in a quality control unit with 12 years of experience says: [Previously] there was often problems, for example suppose a hand-written check sheet with a suspicious number in it (accuracy).

9. Hierarchy

The third dimension of action-oriented information indicating the material context of action is hierarchy. Hierarchy of Action-oriented information is characterized by two concepts, level of access to facilities and monitoring based on a hierarchical position in the organization. The former implies available sources related to information technology. The resources, ranging from hardware, manifested in devices and components, to software, reflected in programs and levels of access to information are hierarchically distributed in the
organization based on individual and positional advantages (including organizational position). Monitoring refers to power resources as well as supervision in the formal and informal structures of the organization, which represents hierarchy in the action-oriented information.

Mr. Sh., a 30-year old specialist assistant with 2 years of experience says:
I don’t have access to mes; I mostly use my boss’s password.

10. Skill

The fourth dimension of action-oriented information is skill. Skill refers to competencies and abilities employed in the actions. In other words, skill implies context and individual capabilities of action. Skill needed in the action-oriented information is characterized by types and diversity. In terms of Type, skill varies from traditional skills to knowledge-based skills. Traditional skills are based experience, intuition and personal relationships rather than knowledge and specialized systems. Knowledge-based skill is derived from regularly systematic Acquisition of knowledge and its application in practice. Diversity implies multiplicity and complexity. Diversity ranges from simple to diverse, one-dimensional skills to multidisciplinary skills.

Mr. Z., a 31-year old specialist with 7 years of experience says:
Familiarity with Computers and Internet has become much more in this section. Information is limited there; one acquires a range of information and whole works were based on that information. Entire work becomes routine, but not here. Here, there is always a new drawback, a new item. Obviously, here is different (diversity).

11. Discussion

by an action-based system and technology, as well as increasing the speed of action by elimination of temporal and spatial distances between actors, adding to the quality of information and increasing the accuracy and precision of information, IT causes action removal. Action removal means an action separates from the local contexts and mediatory specialized systems substitute personal relationships in action, which has two important consequences. On one hand, impersonal action is trustful and provides security in most cases. This type of action based on the information constantly causes concern about information security. On the other hand, daily working actions will rely on its devices. This reliance is followed by risk of shutdown if any disorder happens in their mechanism.

Hierarchy as the other dimension of action-oriented information represents access to material and technological facilities and monitoring over the Subordinates. In the hierarchical structure where the action flows, people appear in a spectrum based on the amount of technological facilities and monitoring. In this structure, one end of the spectrum is those with the greatest facilities (top of the hierarchy) and the other end is those with the least resources.

In organizational level, an important consequence of IT is monitoring. Expanding the monitoring capabilities of the organization has caused people see themselves exposed permanently and make sure their mistakes will be exposed to observers.

IT leads to changes in the competitiveness. By changing skills needed for action-oriented information, from simplified and traditional skills to complex multiple knowledge-based skills, IT shifts training from traditional forms to knowledge-based forms. However, it should be noted that information technologies collectively increase job skills, but this occurs only in cases where user is specialist.

Acceptance of new technologies depends on both awareness of the future and previous experiences. Information about performance of new systems as well as to ensure that new systems are deployed to serve and solve the problems will make the user accept information technology. The important factor is the previous experience in this case. The effectiveness of previous technologies and participation in establishment of them will be result in acceptance or unacceptance.

IT as a technology has several consequences. Some of these consequences have not been necessarily considered by creators and performers. Second, its effectiveness is relatively complicated, combining changes in material structures and transforming relationships, hierarchy, subjective meanings among actors.

Action-oriented information as the core category in this study refers to an act whose purpose is to exchange information. This action is characterized by four main characteristics including communications, information quality, hierarchy and skill. IT changes working life of people by changing the context of action-oriented information.
Existing system from distribution of individuals in the hierarchical spectrum of action to monitoring is recognized and accepted by the people. As a result, people are not as resistant subjects against the system but acting efficiently as a part of this system.

The effect of information technology is not only limited to workplace and working life of people. IT influences personal life of people in two ways. On the one hand, adopting a strategy of “acceptance and internalization of” order, law, and the feeling of being under a permanent supervision become a lasting permanent feeling which deeply influences his personality, reflecting in his behavior and performance in non-working and personal life. On the other hand, knowledge-based learning strategies adds skills to a person which influences lifestyle and relationships.

Due to the flexible nature of qualitative research, however, the findings are not limited to the mentioned results. In some cases, some other areas of IT effectiveness were also identified.

12. Guidelines

IT has different effects on different sectors and structures of the organization. In SAIPA, different production lines provided various fields of IT application for employees. IT reduces social occupational relations by it impersonal environments. Filling this gap in SAIPA needs to develop informal groups alongside the formal structure.

Forming specialist systems in organizational structures, IT provides alternative ways to reduce security risks. In SAIPA, Adherence to international standards and indicators of the parent company can compensate the risk. IT improves quality. Monitoring Different sectors and working groups helps the output of efficient force. IT as a competitive advantage necessitates training programs needed for staff. Assessment of educational topics to improve quality influences working life of staff in SAIPA.

IT can affect the workplace and personal life. Technological training outside the workplace will increase efficiency and productivity.

Involvement of IT users in different parts of a system is effective in improving the performance and creating an active role to improve sales and after-sales services of SAIPA.

On conclusion, it can be concluded that:

Information Technology changes the corporate restructure. It can compensate a lack of formal relations through forming informal groups. To reduce security risks, it offers specialized alternative structures. On the other hand, technology helps effectiveness of the organization by establishment of control system. Technological development necessitates technological training systems required for staff. In addition, technologies not only influence the workplace but also personal lives of the staff. The quality system of the company is effective on macro- and micro-strategic goals using various levels of management.

Suggestions:
Because of exploratory approach of this study, conceptual context of IT effects was considered in general. Future studies can focus on each finding for a more accurate analysis. On important finding of this study was the effect of IT on personal life. This study was related to working life of personnel; therefore, the future works can examine this to reveal its dimensions and mechanisms.

References


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