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TECHNOLOGY IN ORGANIZATIONS

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ABSTRACT

Technological advances bring huge opportunities as well as challenges for managers from all professional fields. Most organizations do not attach high or optimal priority to sophisticated technology that slows down an organization's growth. In present competitive global economic scenario, organizations who fail to advance technologically are at potential risk of lagging behind competitively as well as in terms of productivity. Change is natural and the term "Change or perish" coined by Abrahamson, (2000) has become a new corporate mantra making rounds in every business circle. The present study examines the introduction of technologies and their influence on organizations due to their extensive use. The article sheds light on implications of technology, reasons for introducing technology and impact of technology on organizations. It also particularly addresses various issues that create barriers to technological changes within organizations.

KEYWORDS: Technological Innovations, Humanitarian Aspect, Industrial Engineer, Personnel, Anthropologists

INTRODUCTION

The word technology has been derived from Greek words "techne" meaning art or skill and "logia". In context of day to day practice "technology" is a distinct word referring to the use and knowledge of humanity's tools and techniques. Technology is one of the central and most significant elements related to effective operations management in an organization. It can be defined as a body of knowledge used to create tools, develop skills, and extract or collect materials. It is also the application of science (the combination of the scientific method and material) to meet an objective or solve a problem (Molinero, 2012). Technology increases the prospect for conducting business in more efficient and competitive ways that are methodically different from the past.

Every organization uses different form of technology for their business which has a basic and critical effect on the nature, design, structure and work of an organization. In an organization departments and division are developed around the equipments used whether it is for production, communication, information or control. The scope of technology that an organization can adopt or employ is vast, ranging from something seeming simple, such as buying a personal computer with a word processor, to investing in the latest state-of-the-art computer-aided manufacturing machinery (art on impact of technology).

Along with the complexity of this technology increasing at a fast pace, the rate of change is also galloping fast. Development of modern computer systems is the most complex human activity so far under taken by organizations. Its application is also highly complex and beneficial for firms of all kinds. Though fast changes are taking place due to technology, still technologies are significant contributor to the unstable and competitive market. The disparity amongst the organization is observed due to competencies in different technologies (Dasgupta, Gupta & Sahay, 2011). The current dynamic environment demands all organizations to change— both radically and incrementally. Technological development

cannot happen without innovation. It is very essential for an organization to change the way it operates and also change the products and services it provides. Growth through innovations might not necessarily take place through breakthrough innovations. The advancement due to innovations not certainly can occur with the result of highly modern inventions. However, to get better results it includes further new method of assimilating, existing, or advancing technologies. These new methods need integration across internal and external business fields and extend over the value chain (Wahlen, 2007).

The origin of new organization with new machineries at the place of work has created golden opportunities of employment for the people. There is complete change in the organizational structure and workforce and huge increment in the productivity and output due to impact of technology on organizations. Another change with the introduction of new technology was that it focused on the labor in mills, factories and mines which awakened the interests of employees by the formation of trade unions. During 1813-1913 there was a major increase in worker's wages which was considered to be next organizational impact (Dawsen, 2007. p7). Because the extent to which collective and individual productivity in organizations seems to depend on the effective and appropriate use of technology by members, the impacts of new technology on people in organizations have held long and abiding interest for researchers (Stam & Stanton, 2010, p.24).

The main aim of this study is to examine some of the key literature regarding implications of technology, reasons for introducing new technology. These literature hints at the importance of various organizational factors which are responsible to promote innovations within the organizations. A brief introduction on the implications of technology, reasons for introducing new technology is provided to make the reader acquainted with the knowledge base within the area and broaden the scope of further research on the topic. Next we focus upon various technological barriers to technology changes. Further we highlight impact of technology on organizations. Finally, we summarize and discuss the issues arising from our study and, provide some general conclusions on the state of the field which is followed by indicating some gaps for potential future study at the end. For this purpose secondary source of information was gathered from the vast expanse of literature related to the topic present and the internet sites as EBSCO, WILEY, EMERALD, SAGE and others.

Technology and Organization

This study does not focus back to the industrial revolution, still it ensures that the development of technology has influenced the organization. Instead 'new technology' 'usually refers to a particular set of changes that have occurred from the 1970's onwards… brought on by the development of microchips.' (Arnold, Robertson & Cooper, 1995). The relationship between manpower levels and technology is less obvious in non-manufacturing industries, where the output is less substantial (Dawson, 2007. p29).

The link between technology and organization was first illustrated by Joan Woodward in mid 1960s. On the basis of a research which focused on production technology she was the first to view the organizational structure from a technological point of view. During 1950s, Woodward putting in mind the technical complexity of the manufacturing process built up a measurement scale on which firms were distinguished. With the result that high technical complexity implied that most of the work was performed by machines, whereas low technical complexity specified that workers participate almost all in the course of action.

Due to increase in technological complexity Woodward realized that the number of management levels and manager to personnel level increased. Woodward (1965) classified organization technology into three categories- unit or

small batch technology- which means a technology where units are custom made and work is non routine; large batch or mass production technology- where technology produce on large or mass basis; continuous process technology- highly controlled, standardized and continuous processing technology.

The relationship between people and technology has been established and recognized long ago and the effect of technology on organizational behavior has become increasingly apparent. No organization can afford to ignore the fast developing changes in almost all the fields of management and have strong impact on institutional working, progress, productivity and profiteering. An organizational unit be it large or small, produce modestly or in a big way, irrespective of the size it has to be aware of the constant up-gradation of its production tools, methods and working, as these activities are as essential as any other component attached to high priority so far in the concern organization. Each technology is associated with a particular organization structure and has to be nurtured, nourished, and improved as a continuous process. Moreover, technology also influences the needs of the organizations, customers as customers are the one who purchase the organizations output in the form of goods or services. Customer is the main protagonist who has complete authority and choice whether or not to accept the organizations goods or services.

Implications of Technology

Organizations today are prolifically integrating new technologies to gain an edge over others in terms of productivity and services. With the help of technology there are remarkable changes in the processes like marketing, production, human development. Technology is useful in accurate decision making, time and money saving etc. and the same is based these days on scientific basis and analysis. Moreover, it has played a major role in conducting financial analysis and control.

Although, there are several implications of technology, two implications have the most influence in organizations today. First one is the automation or new technology and the other one is information technology. New technology' or automation are not unanimous words rather they cover a wide range of tools, components and systems (Sheridan, 2002). Automation, information technology or combination of both of these together is termed as high technology. Advances in communications technology enables organizations to benefit from the technical skills of employees around the globe. Modern production systems use computer based technology for integrating various aspects of manufacturing process in a better and improvised manner and also allow quick and cost efficient modifications of any product. Technology can be liberating in enabling people to work at times and in places of their own choosing. Technology also has enormous potential to transcend, geographical, cultural and temporal boundaries and so increase collaborations amongst organizations and their members (Cartwright, 2003, p.121). The knowledge may be shared and distributed with this turbulent technological change. The electronic media is responsible to reduce the social aspects of communication between the individuals working together. As the electronics has been invasive, useful and established therefore the earlier relationship between technology and employment may be transformed. It is expected in future to have new establishment of organizational behavior, a new feature of work, new model of production of goods and services and a new style of employment. (Rahmati, et. al. 2012). Also it more depends upon the distant leadership.

There are a few authors who take technology as an absolutely moveable force inheriting constant inborn characteristics which technologists assumed as internalist view of technology (Nye, 2006), similarly Orlikowski (2007) describes technology as a techno-centric perspective. Most analysts of technology conceive of technology as being strongly

influenced by its use in a social setting and the day-to-day interaction between users and technology (Ulla, 2009, p.1146). This view of technology is denoted by, social construction of technology (SCOT) viewpoint highlighting the social system and the social consequences of technology and is considered as externalist view of technology (Bijker, 1995; Law, 2002; Mackenzie, 2005). Regarding the practical use of technology within organizations it has been observed that technology is neither entirely flexible nor fully separated from any social system. Contrary to this the social and technological systems adjust and adapt with each other to attain a stage of semi-stable equilibrium (Boland et al., 2007; Spicer, 2005; Zammuto et al., 2007).

New employees to the workforce are expecting collaborative technology as a basis for internal communications. The three technologies worth adopting are: Desktop video chat, Video conferencing, Online visual collaboration tools that will boost the Companies service in future (Chuckk, 2011). Certainly, technology has its identity among the key elements which influence an organization. In fact technology is responsible to shape the lines between home and work. In the opinion of executives organizations are using technologies to boost their dexterity and to supervise complexity of the organizations.

Reasons for Introducing New Technology

Many positive and useful changes have taken place these days in the workplace in terms of competency and effectiveness with the invention of new technologies. In spite of that the introduction of new technology creates many challenges to organizations. One of them is to achieve user acceptance and approval of new technology and at the same time retaining an acceptable level of productivity and performance. There are a number of factors that that have an effect on an individual's attitude toward new technology such as age, gender, and peers' attitudes and perceptions. Time and again, short-term economic benefits are achieved with the help of designed technologies and there is insufficiency willingly available technical skills that may be applied to meet the criterion of union aspirations in a more reliable and dependable way.

According to Dawson, these are some of the reasons why organizations decide to introduce new technology: To reduce costs; to increase productivity; to increase quality; to reduce dependence on skilled labor; because it always seems a good idea to be up to date; because competitor organizations are also introducing new technology; because new technology is interesting; in order to change the relations between various groups in the organization (Dawson, 2007, p.8).

The new technology however has always faced various challenges that have dampened its effectiveness. All suggestions are linked with some pressure groups and without any job security the people cannot be helpful for giving suggestions for improvement. Moreover the power of the trade unions varies and depends on a number of factors. There may be the interests of the employees related with the introduction of the advanced level technology and so on.

Organizational Barriers to Technology Changes

The modern managers have the responsibility to introduce and integrate new techniques and skills to handle them to their employees in order to gain high proficiency in the new working styles. They must be supported in bringing change in their career and work-style and be readily accepted in the new system with self esteem. The change must be made simple and easy and proclaim a new time for the success of everyone including management so that the concentration may be possible for inclusion to the highest level.

Technology research suggests that there are organizational and technological factors that limit the adoption and use of technologies. Indeed there is evidence that numerous aspects, such as organizational size, resources, management support, and innovation history influence the extent of technology adoption (Dawson, 2007, p.20).

The change due to a new technology in an organization faces not only financial barriers but also many political and cultural barriers. Due to insufficient finance or incompetent employees an organization may suppress in the process of innovation. While an organization with good resources of money, time and technical expertise can gain competitive edge over its rivals. Moreover lack of competitiveness among organizations also poses a threat to adoption of new technology. Regarding the political barriers to technology, I agree with Acemoglu & Robinson(2000) that the introduction of new technology, and economic change more generally, may simultaneously affect the distribution of political power. In particular sectors the regulatory barriers to entry also play a significant task in deciding the authority of organizations (Chataway, Tait & Wield, 2007).

The organizations must welcome technologies enthusiastically to survive in today's turbulent business scenario. There are many organizations which are anxious of change the reason may be unavoidable circumstances. Before, the society finds appropriate solution to the social issues the accompanying changes expose these issues at risks with greater speed. The concerned authorities have to be vigilant and employ reforms in their way of working as such problems impede the growth of the organization. Hence, it demands a style of management, reward system and entirely a new way of thinking among employee's relationship and organizational matters. The bureaucracy must be removed as they create hindrance in the process of change. Old styles and techniques must be updated to achieve better prosperity and productivity.

This problem may be resolved by conducting periodic meeting and inter departmental consultations. Employees being misfit with new technology feels insecurity with their employment. The management should take care of their future prospect and provide them best facilities like training program, refresher courses related to their job at some intervals. Industrial engineers and personnel officers may be given training to handle psychological problems. Thus, a healthy team spirit and cordial working environment may be preserved which is quite essential for the development of an organization and conducive to new innovations and research. Technology has made working more simplified but it should not entail that employees' involvement is not needed. Because, it has made them feel even redundant or significant sometimes. There is need on the part of management to concentrate at this feeling of isolation and work on a new environment wherein employees may feel themselves more relevant and useful.

In present business scenario it is difficult for the organizations to work in alienation and be resistant to changes. Globally, Scientific and technological innovations have proclaimed that the fittest will carry on and those who cannot adjust to changes will be terminated. Technologies are continuously changing and are a critical contributor to the turbulent markets. Firms differ because they develop competencies in different technologies (Dasgupta et. al, 2011, p.258). The organizations must change their systems and working timely at the same time modern business cannot overlook the humanitarian aspect of the situation or avoid its employees who are the central main player of any organization.

Impact of Technology on Organizational Operations

In their life span organizations experiences change at least once. With the result everything involving organization is influenced such as: tough competition and prospect of management and other components upgraded technologies,

coming up opportunities etc. The reason is either some significant thing concerned to organization has occurred or under the impact of change. Some vital areas of change have been discussed.

Every organization has a goal and the organization structure is among the forces that work towards achievement of that goal. The structure is helpful to achieve efficiency and provides guidance to all the members. The organization structure is one of the forces that exerts for the achievement of the organizations goal. The structure of the organization is simple originally but it gets complicated when the technology develops. An organized and planned structure come to light at this juncture that is supported by technical experts and social specialists. Without structure a business cannot grow and survive as it facilitates management to implement rules and regulations. The behavior of technical experts is unique whereas the working style of social specialists and anthropologists is found to be very sophisticated. Technology simultaneously improves quality and service, overall efficiency and reduces costs at every level of the conversion process. It occurs at every stage from input to conversion to output (Jake09, 2011). At every level the organization structure is influenced by technology. Technological skills, systems and procedures handle environmental factors effectively at the input stage (Jones, 2010). Technology affects decision making, middle managers, information processing and communication etc coordination apart from complexity and formalization. The performance relationship is maintained at different institutional positions and activities based on organizational hierarchy. Also, technology influences design of the organization such as techno-structural activities concerned with design of the organization, and the inter-relationships of design and technology with people on job. To confirm the effect of internet in organizations design there are many examples available. Further, e-businesses focus on design as they adapt to the dynamic internet environment. Besides characteristics of the innovation or the new technology itself, other factors have been proposed, namely, organizational and environmental attributes such as the size of the organization, its willingness to absorb risks, the degree of competition in the industry, the activeness of change agencies, type and extent of authoritative intervention, etc. (Rahmati, et al., 2012, p.133).

There are organizations that have formed teams like quality circles, self-managed work teams, task forces to boost organizational effectiveness along with new technology. The new technology helps to reduce costs, improve quality and productivity, and encourage the use of innovative and creative methods for solving problems. But, it was also observed that many team members resisted technological changes and adoption of new practices. This attitude of the workers was apparent because all team members did not have the skills, ability or knowledge necessary to use the new technology which may help the teams to perform effectively. Recruitment of personnel is one of the most vital elements. Recruitment process has taken a new turn in this era of information technology. With the advent of Resumix6 system from Hotjobs.com Ltd., automation has replaced the entire process of recruitment. This system has also cut the cost per hire by more than 50 percent.

Today, technology has indented wage payment system of organization also. Offices are now sending employees' salary cheques, directly to banks thus eliminating a lot of accounts work and long queues of employees waiting to receive their wages every month. Thus, new technologies are a form of communication that has made the scope for betterment. Also it is a more efficient way for transacting business because it greatly improves work flow, and a new set of organizational behavior. The personnel profession develops on the basis of a set of system and procedures. These bring consistency, order and conformity to an organization.

CONCLUSIONS

It is also in the interest of an organization to keep and follow an open communication policy about the forthcoming technological changes in the system. All likely to be affected or otherwise concerned must be kept informed and should be kept in picture right from the initial stage. Employees should have access to all information about the changes an organization intends to bring and the skills that will be required for that. This will forewarn the workers and they will know where they are likely to stand in the new set up. This though delicate, will give them ample time and opportunity to plan their future and how they should change themselves in order to remain relevant to the organization. Those who can get themselves updated with the addition of some more skills should be encouraged to do so. Since it is a humanitarian aspect, people have a right to know in what manner they are likely to be affected and how they have to meet the new challenges. Management approach has to be to absorb the surpluses as far as possible by absorbing the skilled, natural wastage or voluntary redundancies.

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