

New Perspective of Telecommunication: A Conceptualized Framework for Teleworking

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Abstract: Teleworking is a method for achieving job duties that help the employees to perform the whole or part of their jobs away from the traditional workplaces. It puts into consideration some goals such as increasing productivity, retaining highly qualified staff, reducing turnover and office spaces, achieving flexibility, high requirement of investment in ICTs, improving the image of the organizations, creating job opportunities for disabled persons and women who take care of their children. According to the literature, the researchers do not agree with one definition to teleworking, however, the definition applied to teleworking can be viewed from several dimensions such as distance and technology, timing and space. Thus, the current research aims at developing a new perspective on teleworking in order to provide a clear definition of teleworking by using the system approach. This definition is the contribution of the current study because the author tries to bridge this gap in the literature of teleworking. The current study, also, aims at summarizing the typology of teleworking and illustrating how and why teleworking was matured.

Key words: Telecommuting, information technology, distance work, system approach, remote working, virtual organizations

INTRODUCTION

The concept of telework (in the form of telecommuting) was introduced in the 1970's as a way to substitute telecommunication technology for the commute to work (Nills, 1998). With the rise of the information age which is the most important phenomena of the third millennium, the information and communication technology rapidly takes over the world and it changes most of the dimensions of human life such as methods of performing tasks. The upgrade of information technology contributes to do some work outside the traditional workplace regardless of the geographical boundaries (telework). According to this method by the use of network and telecommunication, people can use the computer for performing their jobs at any place away from the central office and electronically transfer their outputs. Telework lets individuals use the Internet to achieve their tasks instead of going to the employer's office. Working at home is chosen by employers who allow the employees to do the whole or a part of their jobs away from his workplace. This means that using information technology and telecommunication to do job duties leads to reduce the importance of the geographical location of the workplace and changes the method of performing tasks.

Teleworking or distance work seeks for several goals in three aspects: the employer, the employee and the society. It is for the advantage of employers because it contributes to increasing productivity, reducing absenteeism and turnover and retaining skilled employees. It is beneficial to employees because it helps achieve balance in his life between his family and his work. Moreover, it gives the employee a good opportunity to stay at home spending a joyful time with his family, reduce work stress. The employee enjoys flexibility in working time and a decrease in costs. For example, he does not pay for transportation. Furthermore, it is for the benefit of society because it declines overcrowding, air pollution resulted from car exhaust, consumption of infrastructure owing to decreasing daily commuting to workplace and declining unemployment rate, since, telework provides new jobs for citizens, particularly women and disabled people and developing rural areas.

In 1990's, several countries apply increasingly telework aiming at achieving a specific goal. For instance, the USA uses telework in order to keep its environment clean. Also, Japan applies remote work because it does not restrict the place and time of work. Therefore, telework would lead to making a balance between work and social life. Women can take care of their children and do

their work simultaneously. On the other hand, Japan faces a lot of dangers like earthquakes. Consequently, the government regards distance work as a good way to protect their citizens. Moreover, aiming at achieving sustainable development, some developing countries such as Mexico, Senegal, Bangladesh, Egypt and the United Arab Emirates use telework to create new job opportunities for unemployed people.

Frequently, the literature review presents the term "Telework" in different ways because researchers see teleworking in several aspects: distance, technology and timing. Firstly, distance means to work in another remote location, e.g. at home. It focuses on the idea of performing all or part of job in a local base (e.g., home, train, club, telecenter). In other words, the employee is physically separate from the locations of the employer. Secondly, technology refers to the role of information technology and communication that connect the employee to the central office such as email, web conference, voice email, speed of network, telephone. It emphasizes on the tools of telecommunication that help people achieve their job duties regardless of geographical boundaries and electronically transfer their outputs. Thirdly, telework timing can be defined as accomplishing the whole or part of tasks away from the traditional workplace. Full-time telework lets employees to work 4-5 days per week from another location such as marketers, IT specialists and distance learning. Part-time telework allows individuals to work one to two days per week and to avoid daily commutes to and from workplace, e.g., freelance, editors and designers. In spite of the fact that there are a lot of aspects to define and describe telework, its meaning is still vague. Therefore, researchers are not in agreement about the exact meaning. In other words, misunderstanding and confusion seem to stem from the fact that telework in most cases means different things for different people. Thus, this study is for the purpose of developing a new perspective on defining telework by the use of the system approach (Mele *et al.*, 2010). So, we view telework as a system having four components: inputs, activities, outputs and feedback. Thus, the contribution of this study is filling a gap in the literature by providing a clear definition to telework. Therefore, the main question of this study is as follows: Based on the system approach what then do we mean by telework.

MATERIALS AND METHODS

The methodology of the current research is a descriptive approach to provide a conceptual framework that contains the components (inputs, outputs, activities and feedback) of teleworking in order to describe and

understand the phenomenon of working at home (telework). It aims at eliminating confusion and misunderstanding that seem to stem from the fact that telework often means different things to different people.

Teleworking and system approach: According to the system approach, telework system can be defined as an assemblage of objects united by some form of regular interaction or interdependence. In regard to its elements, the 3-dimensioned telework system can be detailed in terms of its components people, processes and products which are characterized by input, process and output. They are related due to the interaction between components and characteristics. Thus, the Fig. 1 represents telework system.

Figure 1 shows telework as a system which consists of three elements: inputs, activities and outputs. As for input, it includes a variety of tasks/jobs which can be performed remotely such as sales, maintenance and information technology. However, the success of teleworking basically depends on personnel who have to have some characteristic features. They have to be able to work without direct supervision, solve problems and take decisions. Also, telework needs highly skilled workers in the field of communication. Organizations are responsible for creating an appropriate environment to apply telework. Therefore, companies build the infrastructure necessary for connecting with people in remote areas, free movement of data, information, products, evidence and defining rules telework, e.g., full-time and part-time work. The employer has to develop an organizational culture that helps modify attitudes of workers toward distance work. Activities refers to the requirements of applying telework including legitimate requirements, e.g., working laws. ICTs requirements reflect the tools of communication such as email, IP telephone, voice mail and video conference. Practices of human resource management such as select people for teleworking, job description, performance appraisal and training. Output includes the benefits of teleworking for employees such as job autonomy, reducing traveling costs and increasing productivity. For the organization, it has many benefits reducing turnover and absenteeism, keeping skilled employees and improving productivity. Moreover, it is for the benefit of society in many aspects: reducing congestion and air pollution resulted from cars exhaust because of commuting to and from the workplace.

Types of teleworking: Teleworking has some features. Each one needs some prerequisites for applying. It has advantages and disadvantages. The types of telework are as follows:

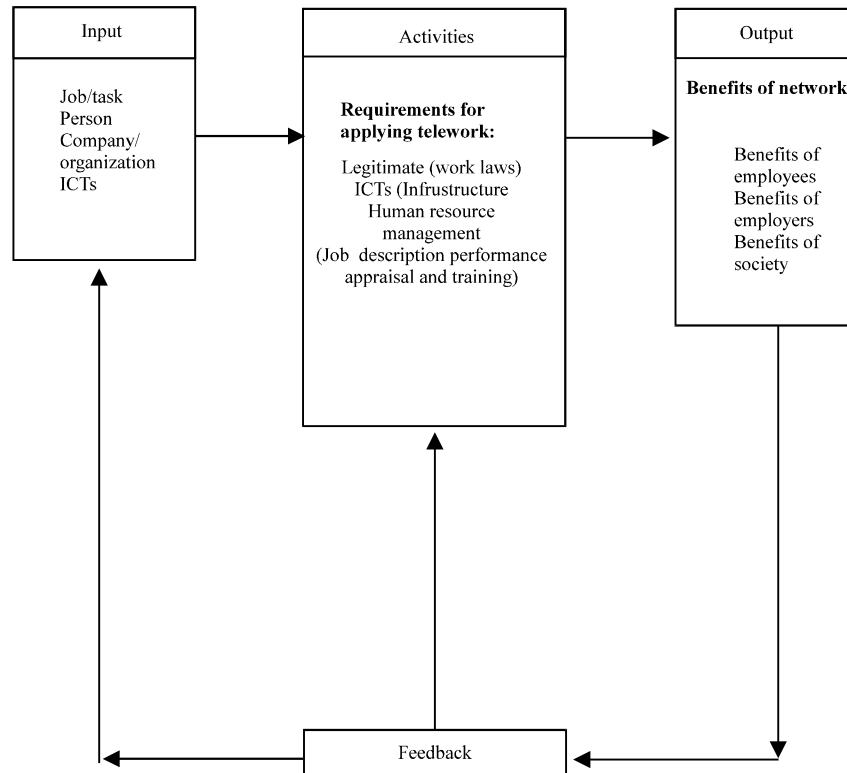


Fig. 1: Telework system

Staff at home: According to this type, work at home saves the time and cost of travelling. Therefore, teleworkers work more than their peers at workplace. Consequently, it leads to an increase in the productivity. The person transforms one room at home into office that is equipped by convenient technological tools which admit him to communicate with co-workers at the traditional work. Also, staffs at home need higher concentration. Therefore, they need to separate their family life from their work life. Moreover, work at home helps teleworkers to take care of their children, elder and sick people.

On the other hand, teleworkers suffer from working in isolation for a long time and from some diseases e.g., weak eyesight. People who fall under this type are professionals, e.g., programmers and civil servants particularly employees who exercise office, e.g., data process (Crandall and Gao, 2005; Tregaskis, 2000).

Mobile telework: This mode depends on mobiles or laptops to contact customers and set up web sit to offer goods and services. Moreover, the employees connect the network continuously so as to receive the client's demands. It is cheap because teleworkers pay for mobiles or laptops and the subscription of networks (Aboelamged and Shawky, 2012).

In my opinion, the second type could also be called e-Market or virtual market which attracts housewives who try to increase their income. So, they offer and sell the cooked food on e-Market. This idea is for the good of women who work for a long time and do not have enough time for house chores. Therefore, the idea is highly approved. Similarly, e-Market may involve many offers such as healthy food and dietary food.

We notice that mobile telework has some drawbacks such as cheating and dishonesty. It is because the specifications of goods do not match those on the website and customers cannot examine them before purchasing. Researcher think that this issue is resulted from the fact that there is no law that organizes the e-Market. Therefore, we need to enact a law to regulate telework and keep the rights of consumers.

Telework at multinational company: People here work from the offices of parent company. This pattern goes beyond (breaks) the geographical, time, place barriers. Also, the multinational company depends on the channels of communication for example e-Mail, voice mail, video conference, etc., to contact with branches around the world. In addition to the individuals receive training for

Table 1: Types of telework

Types/Requirements	Advantages	Disadvantages	Scope of application
Work at home			
Transforming one room at home into office	Raising productivity Saving travelling cost	Working for a long time Isolation	Public sector, e.g., clerical work, data process
Information and Communication Technology (ICTs)	Balance between work life and family life Reducing operation cost	Physical problems	Private sector, e.g., programmers, technology consultancies
Mobile telework			
ICTs	Low cost	Cheating and dishonesty	Private sector, e.g., communication, severs sector
Telework at multinational companies			
ICTs	Saving time	Technical problem during communication	Public sector, e.g., the Egyptian e-Learning, the Northern Catholic University Foundation
Training to use ICTs	Low cost		Private sector, e.g., Uber company
Call centers			
ICTs	Provide data and information for customers at appropriate time	Customer holds for a long time	Public sector and private sector, e.g., banks

using the devices of communication. Certainly, the third type saves time and helps to exchange free data, information (Bosch *et al.*, 2010).

There are several examples for multinational company as Uber company. It is an American worldwide online transportation network whose company headquarters is in San Francisco California. It was founded in 2009. It develops markets and operates the Uber mobile “app” which allows clients with Smart phones to submit a trip request which the software program then automatically sends to the Uber’s nearest driver to the customer, altering the driver to the location of the customer. Uber’s drivers use their own personal cars. As of August 2016, the service was available in over 66 countries and 507 cities worldwide. The Uber app automatically calculates the fare and transfers the payment to the driver. The legality of Uber has been challenged by governments and taxi companies, who allege that its use of drivers who are not licensed to drive taxicabs is unsafe and illegal, some taxi driver unions have called Uber’s driver “Private Taxis”(www.uber.com).

Since, Uber’s launched several other companies have replicated its business model, e.g., Careem company in the United Arab Emirates. Also, Austa is the Egyptian company. At the same time some companies offer to rent personal cars and the driver’s company drive these cars. A trend is referred to as “Uberification”.

The second example is Oriflamme company, that it is a Swedish Company which was founded in 1967. It is a beauty international company. The company sells direct in more than 60 countries worldwide with their wide portfolio of Swedish, natural, innovative beauty products which are marketed through a sales force of approximately 3.6 million independent consultants who together create annual sales exceeding some €1.5 billion. The brand was created as a reference to Oriflamme, a royal banner of Medieval France (www.oriflamme.com).

The last example, the Northern Catholic University Foundation is a Colombian Superior Educational Institution and the first university for distance learning in Colombia. The all teachers and staff of administration are teleworkers. Also, it employs more than 257 persons between teaching and administrative staff (Builes, 2011).

Telework from call centers: Call centers are places where a telephonist answers telephone calls from other organizations and customers to do business and uses information and communication technology. This sort has some disadvantages. For instance, the telephonist receives many calls at the same time. Therefore, he cannot answer quickly and the customer holds on the line for a long time (Taskin and Bridoux, 2010).

In my point of view, although, the literature sees that the call centers are a form of telework but the researcher does not agree with that because the call center workers go to their traditional workplace daily. This means the individuals do not choose the time and place of work according to the specifications of telework system. Finally, Table 1 summarizes the above mentioned types.

Table 1 illustrates the types of telework, the advantages and disadvantages, the requirements for applying each type and the scope of application.

RESULTS AND DISCUSSION

The evolution of teleworking: In this study, we will present the evolution of telework which involved four periods of time. These stages are as follows:

In 1970’s: Telework emerged in 1960’s but it developed in the United States of America particularly in California in 1970’s. The phenomenon was named “Telecommuting”. The main reason for growing telecommuting was oil shock

of 1973 because of the war between Egypt and Israel. Arab countries agreed to prevent the oil from Europe. Thus, the oil prices were higher and the supply was lower (Spinks, 2011).

Simultaneously, the world started to upgrade information and communication technology. Therefore, employees tried to depend on telecommunication technology to do their work at home instead of transporting with vehicles to and from the office (Standen, 2000).

In the late 1970's, the workforce changed because women moved to the workplace. So, they played an essential role in filling job vacancies. Women start to take over positions of responsibility in the business world. Also, many women choose either career or family (Sandgren, 2013). This point is another reason for developing telework where the companies shift to telework in order to recruit and retain skilled workers. Also, they provide flexible work for women, so that, they can help them to take care of their families.

In 1980's: In this decade, the issue of air quality started to emerge and the governmental institutions tried to find an instrument for reducing air pollution. So, they consider that telework is an effective tool to protect the environment because work at home or anywhere reduces the times of moving to office by vehicles. Consequently, it can reduce carbon emission which pollutes the air (Van Lier *et al.*, 2014).

Also, in 1980s, there was a problem of huge migration of peasants into villages searching for better job opportunities. Therefore, the governmental bodies developed the rural community by providing it good jobs opportunities to improve their economic situation where they saw at telework as a way to develop the countryside. Therefore, the government carried out some actions for instance, promoting the benefits of telework, installing telecommunication infrastructure, training employees to use information and communication technologies, so that, people can work at home in theruralareas (Rico, 2011).

In the same period of time, the economic recession hit the business world thus the concept of downsizing grew up in many workplaces. So, the organizations followed the cost-cutting strategy. Also, downsizing is translated into more work with less staff. It meant raising productivity. Thus, some institutions depend on laying off as a step to downsizing. On the other hand, others shifted to telework, so that, they can retain skilled workers (Raiborn and Butler, 2009).

In 1990's: To confront the natural and/or man-made disasters, societies throughout the world put telework into their agenda. In 1993, the World Trade Center

was bombed in New York. This motivated the institutions to adopt telework in order to protect their workers from terrorist attacks. Also, the employees themselves wanted to work close to their families (Mearian, 2002).

During 1990's, the Internet began to be widespread as a result of IT revolution and the emergence of global economy which allowed more people to work at home or at other places. It led to the emergence of a new industry called the information and service industry that replaced manufacturing. As a result of working in the new field of information dependent on remote communication, organizations began to employ remote workers. For corporate business, human resources are a key factor to achieve competitive advantage, so, they recruit worldwide skilled and experienced people. In addition, the physical location of work became less important because of using telecommunication for performing job duties (Cascio, 1998; Malone and Laubacher, 1998).

In 2000's: The beginning of the 21st century, infectious diseases, e.g., avian flu and swine flu spread in several countries in 2009. The governments encouraged companies to apply telework, so that, distance work can lead to fewer infections (Spinks, 2011; Gibson *et al.*, 2002).

In 2008, the global financial crisis hit the global economy. This variable was a reason for stimulating the institutions to adopt telework (Dyczkowski, 2012). Finally, this period saw enormous changes in communication tools which people use to contact each other. The phone is not only a means to contact but also for transforming voice recorder, camera, address book, business diary. In addition, some e-Words have been developed, e.g., e-Work, e-Business, e-Commerce, e-Mail, e-Government, e-Learning, etc. These words help use large-scale telework (Spinks, 2011; Malone *et al.*, 1998).

Based on the previous discussion, researcher think that telework has emerged to achieve specific goals. At the beginning, the USA aimed at reducing fuel consumption to confront the 1973 oil crisis. Moreover, the advent of ICTs played an important role in transforming to work at home and using telecommunication to contact peers in office. Thus, work at home replaced transporting/commuting by vehicles to work at office. The second aim is keeping air quality. The societies promoted adopting telework and explained the benefits of work at home in order to decrease carbon emission to reduce air pollution.

The third aim is overcoming the natural and/or man-made disasters particularly the terrorism spread worldwide. Employers resort to remote work because they had a strong motive to protect their workers from terrorist attacks. The IT revolution created the global economy, so

Table 2: The revolution of teleworking

Period	The main properties	The goals of application	Examples
1970's	Oil shock of 1973 Woman at work ICTs	Reducing in fuel consumption	US
1980's	Air quality Economic recession Downsizing Developing rural areas The advent network	Protecting environment Providing better opportunities for inhabitants of rural	US, Japan, Finland, Mexico
1990's	The natural disasters and terrorism The global economy ICTs	Overcoming natural and/or manmade disasters	US, UK, Holland, Denmark
2000's	Global financial crisis Contagious diseases ICTs	Facing the financial crisis Averting large-scale contagion. ICTs	US, Sweden, Belgium, Czech Republic

management faced heavy competition. Also, information and service industries started to thrive and replace manufacturing. The new industry is based on information work. So, people increasingly used telecommunication that led to the rise of work based on information technology. Therefore, the physical locations of work became less important and the institutions recruited people around the world.

Finally, the last aim was facing contagious diseases especially avian flu and swine flu in 2009. In 2008, to deal with financial crisis, many institutions applied telework as an alternative method of layoff strategy in order to retain skilled workers and reduce the cost. Finally, the 21st century produced new words, e.g., e-Work, e-Government, e-Learning, etc. These words depend on Information and Communication Technologies (ICTs). So, the individuals increasingly use telecommunication. It means that many corporate business use telework on a large-scale. Table 2 summarizes these stages.

Table 2 shows the stages of telework revolution. It illustrates the main properties of each stage and the aim of applying them. Finally, it mentions some countries as examples for each stage.

CONCLUSION

This study provided a useful overview to telework in order to describe the phenomenon of teleworking. Thus, the main issues tackled by this article are the definition of teleworking in the light of the system approach, modes of teleworking and the evolution of distance work. Teleworking as a system includes inputs, activities, outputs and feedback. The aim of the interaction between these components is to achieve several benefits for employers, employees and society. This study handled the main kinds of remote working because most researchers claimed that teleworking is working at home. Precisely, it means working at different places such as home, train, club, etc. Therefore, researcher tried to

provide a wide perspective to telework. Finally, it illustrated that distance work was developed through different stages for different reasons.

RECOMMENDATIONS

Teleworking system has many advantages on both macro and micro levels. Therefore, it is an effective way to achieve sustainable development. The following recommendations are provided in order to support the implementation of teleworking system in the future.

Organizational recommendations are wide: there is a need to build a set of better practice on the operational level of telework that includes policies aiming to ensure work conditions such as working hours, payment issues like wages, evaluation mechanism, monitoring, control, feedback, career development, social security, sickness issues, health and safety: Teleworking requires organizational change and communication. Basically covers:

- Materials and work equipment
- Manual (handbook) of procedures
- Technology platforms (ICTs) particularly the main tools for communication
- Code of ethics and conduct

Governmental actor's recommendations are: to work to disseminate information about the nature and advantages of teleworking, explain the benefits for employers and for employees. It needs to be discussed through conferences, meetings and seminars in order to ensure dissemination and understanding of this new kind of work.

A need to pass a law as a legitimate framework for organizing the practice of telework emphasizing particularly on the rights of teleworkers in order to ensure a fair standards act.

ACKNOWLEDGEMENTS

Researcher wish to thank everyone who directly and indirectly contributed in completely this research. Great appreciation also goes to Mr. Hany Michael who is an instructor at American Cultural Center, Alexandria, Egypt.

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