VIRTUAL WORKPLACES AND QUALITY OF WORK

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ABSTRACT

With advancement of information and communication technologies (ICT), the way of doing job is going through radical change. Today, many employees have virtual workplaces so they can work virtually from home and the other location remote from their organizations. In developed countries, the number of virtual workplaces is increased considerably in recent years, because of many benefits. Potential main benefit for individuals is obtaining of job and setting appropriate balance between private and professional life while for organizations the greatest benefit would be the increase of productivity with lower costs. Finally, many developing countries could lessen the level of unemployment that is quickly increased in this time of economic crisis. Main objective of the research is to analyze effects of virtual workplaces implementation with specific focus to employees' work quality. Also, the research explains the basic categories and forms of virtual workplaces and key advantages and disadvantages of this alternative work arrangement.

Key words: Virtual workplaces, telecommuting, information and communication technologies, quality of work

1. INTRODUCTION

In today knowledge economy based on intensive use of ICT, there are many opportunities for improving quality of work such as creating flexible workplace, organizing work on new way, generating new working methods and transformation of existing jobs. A significant method to use these opportunities is implementation of virtual workplaces and telework arrangements.

In developed countries, the number of virtual workplaces is increased considerably in recent years. CBI/Pertemps in USA has announced data [8] that 46% of all employers in 2008. had opportunity for virtual employment, in comparison to 14% in 2006. Also, in Western Europe similar trend exists since the 1990s. Population employed on virtual workplaces has been increasing, but situation is different from country to country. The highest percent of employees who are teleworkers is in Finland, Sweden and Netherlands, but the United Kingdom and Germany have the highest populations of teleworkers. [20]

There is not data on virtual workplaces in Republic of Serbia, but our country as well as organizations should follow the global trend of virtual workplaces opening because of many benefits. As we mentioned earlier, potential main benefit for individuals is opportunity for obtaining of job and setting appropriate balance between private and professional life while for organizations the greatest benefit would be the increase of productivity with lower costs. Finally, our country could lessen the level of unemployment that is quickly increased in this time of economic crisis.

There are many researches in developed countries treating issues in virtual workplaces domain. The researches study many aspects of this theme, such as organizational [23] [25], economic [2] [13], managerial [7] [11] and technological [4] [16] [24] aspect. Some of these researches present conceptual framework [5] for investigation this interesting topic, analyze issues and pitfalls [17] related to virtual workplaces and research benefits [14] [15] [19] which various stakeholders could realize from these alternative work arrangements. Some authors [3] [6] [22] have given reviews of empirical and theoretical researches which can help in better understanding the research areas and gaps between theory and practice.

Researches of this area of electronic business and information systems are very rare in our country. The one of main contributions of this paper is to fill this uncovered research area and create common ground for future researches. The paper summarized key results from the researches regarding implementation effects of virtual work arrangements, advantages and disadvantages of the

arrangements. Special attention of this research is directed on impact of virtual workplaces on quality of work. We took into consideration some dimensions of work quality and examined impact of virtual workplaces on the dimensions. Theoretical approach is used for analyzing effects of implementation of the work arrangements on these dimensions. Since there are many various classifications of dimensions for measurement of work quality, we took one classification [10] by which work quality has six dimensions: job security, pay and fringe benefits, intrinsic job rewards, skill, work intensity and autonomy and control.

As we previously mentioned, the focus of research is on the basic categories and forms of virtual workplaces which are presented in next section, advantages and disadvantages of this organizational solution presented in third section and dimensions of work quality and impact of virtual workplaces on the dimensions explained in fourth section. The final section of paper is dedicated to conclusions on relation between work quality and virtual workplaces.

2. DEFINITION AND FORMS OF VIRTUAL WORKPLACES

Virtual workplaces represent such organizational solution where some or all employees work outside of classical office by use of technologies such as: computers, fax machines, mobile phones, smart phones, conference calls, internet, etc. This technologies serve them to be in touch and to achieve their work tasks. The organizational solution is becoming more popular and it is defined by various terms, such as telecommuting, teleworking and web commuting. Telecommuting is term that is perhaps in oftenest use. Alverson [1] defines telecommuter as „a person working from home or in remote office outside enterprise headquarter at least once a week".

Telecommuting supports fulfillment of needs for workforce and increases moral and satisfaction of employees. There are less and less families having traditional structure where mother stays at home with children. Telecommuting satisfies needs of parents who must take care of children or old members of their families. [12] The other benefits of telecommuting for employees are: health improvement, increase of employees satisfaction and life quality, flexibility in job achievement regarding place and time, reduction of stress, job stability and reduction of expenses for gasoline, apparel and food. In general, telecommuting supports employees to find appropriate balance between family and professional life. Benefits for employer are: low costs of office space and equipment, increase of productivity because of reduction of time for socialization, work by schedule of employees, less number of lost days due to illness and unpredictable events, such as lateness because of bad conditions on trip to workplace. Firms can innovate and change their business model with low infrastructure costs and with ability to employ the greatest talents, no matter where they are. In addition, telecommuting contributes to environment protection by reduction of gas emitting and gasoline spending. Some firms, such as Ford Motor Company and Delta Air actively encourage remote work and give employees personal computers for home use. Besides remote work from home, telecommuting can have the other forms, such as: hoteling, hot desking and telework centers. [9]

Hoteling means that remote workers use workstations and meeting rooms in near hotels. Hotelbased workers have regular office, but they are not always physically present and they are not given a fixed office space. They can reserve a "hotel room" where they make telephone calls and link their laptop computers to the network. The hotel space may be a suburban location specifically selected for mobile work. Hoteling is popular in professional services firms because personnel frequently work at client sites. For example, when Ernst&Young have implemented hoteling, its workers were less focused on office and more on clients. [11]

Hot desking means sharing remote offices between many people. Number of USA firms in IT sector use this form of virtual workplaces. For example, around 20000 employees of IBM corporation (most of them work in sale and service) share offices with average of four people who are from the other firms. Also, Cisco Systems, IT firm from USA, has several thousands people sharing office space all around world. [9]

Telework centers are miniature business office environments offering more technologies than employees have at their homes. These centers could be located in neighborhood where employee lives. Small groups of employees living in neighborhood work in the centers, instead of travel to work. For example, Ontario Telebusiness Work Center near Los Angeles offers electronically equipped rooms to

companies needing them. These locations positioned in suburbs minimize time of travel to work, while productive time is maximized.

Another categorization [11] of virtual workplaces shows alternative work arrangements in continuum. According the categorization, there are following forms of virtual workplaces: occasional telecommuting, hoteling, „tethered" in office, home-based workplace with some mobility and fully mobile workplace.

Telecommuting usually refers to situations in which employee with fixed offices occasionally work at home, while „tethered" in office refers to employee who has some mobility but is expected to report to an office on a regular basis. "Home" workers have no classical office, but have computing equipment and internet connection in their homes and fully mobile workers do not even have home offices. Fully mobile workers are expected to be on the road or at customer sites at all times during the workday.

Most prevalent industries for virtual work are: information technology, consumer products and professional services. On the other hand, most popular business functions for virtual work are: field sales and service; technical support staff functions (information systems, human resources, procurement, legal); product development, engineering, and research; general management.

According to Luyt [21] telecommuters are mainly men (65% men, 35% women) in age of around 40 and mainly have high education (around 80%). They have following professions: technicians/professionals, sellers, clerks/administrative workers, and managers. On one side, there are high educated, experienced, full job professionals working their job from home during regular working hours. On the other side, there are part-time workers with long range experience who achieve administrative and professional jobs from home, outside of regular working hours.

Besides, telecommuters can be divided in several categories: mobile workers who mainly work outside traditional offices, workers who work outside of regular working hours, campus workers who main part of working time spend on fixed office location, workers who spend main part of time in home offices or in the other remote fixed locations.

3. ADVANTAGES AND DISADVANTAGES OF VIRTUAL WORKPLACES

Many researches [2] [7] [13] [14] [19] investigate which benefits could be obtained from virtual work arrangements. From the researches we can derive essential advantages of virtual workplaces and reasons for implementing the work arrangements. Therefore, main reasons for opening of virtual workplaces which firms usually consider are: cost reduction, increase of commitment and productivity, attraction and retainment of valued talents, stimulation of creativity and innovativeness and building of organization that better reacts to changes.

Cost reduction. Firms enabling employees to work virtually reduce need for procurement of additional equipment and office space. When period of rent expire and equipment is fully amortized, firms have opportunity to reduce administrative costs by virtual workplaces implementation. As more employees work outside main office, savings for firm are greater.

Increase of commitment and productivity. Cost reduction is not most important reason for virtual workplaces implementation. Virtual work means that employee works on different manner that requires unique set of skills and competences. Work outside classical office offers to an employee greater freedom, but also greater responsibility. The employee has to be capable to self-organize and to manage his activities himself. Telecommuter must develop self-confidence for overcoming of obstacles and solving of problems; certainty; self-discipline in order to achieve work in time; commitment in order to business performance would be on high level. When employee is empowered, encouraged to take ownership for his/her job and has authority to realize some goal, then he/she is more committed. Therefore, virtual work is significant contributor to increase of employee's productivity and commitment.

Attraction and retainment of value talents. Employees continually require more flexibility considering working conditions. Firms offering virtual work will attract and retain high talented people who particularly value that flexibility. These talented employees have a greater opportunity to control their time and to balance their work commitment with private life. They also have not geographical limitation because they can work wherever they want and live where is most convenient to them. Firms also can engage valued talents regardless of where they are.

Stimulation of creativity and innovativeness. In environment of virtual workplaces there are not geographical limitations and thus there are not restrictions who will be member of team or which tasks will be assigned to every member of team. Creativity and innovativeness are better developed when team is built taking into account talents on global basis. Also, talents are better developed when individuals are faced with global range of challenges and opportunities.

Building of organization that better reacts to changes. In virtual environment job is not limited on traditional working hours. Employees whom flexibility of virtual workplace is important are readier to work over regular working hours. On the other hand, firms are capable to respond to changing business conditions and can coordinate work between many business units in different time zones.

Against these advantages, there are serious shortcomings of virtual workplaces. The shortcomings can make many problems in implementation of virtual work arrangements and cause negative business and organizational effects. Shortcomings that a manager should consider carefully before establishment of virtual workplaces are: high cost of establishment and maintenance of virtual workplaces, loss of efficiency, issues of organizational culture, sense of isolation, lack of trust, lack of focus and organizational changes. [9]

Cost of establishment and maintenance of virtual workplaces. For every employee who telecommute, there are costs for procurement of equipment and software for mobile or home office and additional costs for every next year for software upgrade and miscellaneous supplies. Besides in order to a virtual office be accessible there are following requirements: on-line materials which can be downloaded through network and printed; databases on products and customers accessible from remote locations; centralized, indexed and automatized files accessible from remote locations and method of tracking location of mobile workers. ICT is most important element of virtual workplaces. When there is lack of administrative and technical support for home office, ICT equipment could be out of function. Technical support should exist 24 hours a day, seven days a week or help desk should work from 8h to midnight. Also, managers have to consider incremental costs related to establishment and maintenance of virtual workplaces.

Loss of efficiency. When expensive equipment or services are concentrated in one location, many users can access it and efficiency is higher than in situation when the equipment or services are distributed on many locations. For example, in insurance industry some sources of real-time information are necessary. Many stock quotas are available on internet with 15 minutes delay that is suitable to requirements of many people. However, for brokers and traders who quote prices for their clients, quotas must be exact in a second. Therefore, many firms, such as Bloomberg and Thomson Reuters, provide the services in real-time manner. These firms are willing to install the system on location which a client chooses. Taking into account costs of first installation and monthly costs for installation every additional system on same location, it is much cheaper and efficient to have all employees on one location instead on many different locations.

Issues of organizational culture. Virtual organization operating on global scene have to transfer their business politics and culture to distributed business teams. The teams are often distributed on many geographical locations belonging to different cultures. This could bring to eventual conflicts between business and national cultures, which could destabilize an organization. If members of virtual organization or team have not more authority for decision making, technology enabling their collaboration will be useless and competitive advantage related to fast response to market demands will be lost.

Sense of isolation. The greatest challenge in establishment of virtual workplaces is sense of isolation. Whereas virtual work can be solitary, will creativity and productivity be lower? How to provide that virtual worker be in contact to co-workers and managers? How to make opportunities for informal exchange of information and contacts which often lead to productive ideas? Some level of social interaction with co-workers and managers is important in almost every job. Without the interaction, employees sense isolation out of communication flows and without significant contacts to managers who have positive or negative impact on their careers. Isolation problem is solved by monthly newsletters on news in organization which employees receive through internet. That reinforces sense of social relationship. Managers can implement training on rules existing in their organizations. Also, annual and biannual conferences are organized where all workers are gathered because of training, exchange of information, but more due to social interaction between them.

Lack of trust. Main element of success in organizing virtual workplaces is trust that coworkers will fulfill their duties and behave predictable. Lack of trust can undo positive effects of every other action in organizing virtual workplaces, such as careful selection of employees for work in virtual environment, training of managers and employees and management of business performances.

Lack of focus. In order to be successful, virtual team and its members have to be focused to work tasks. How to keep focus of team when members of team never see each other? How to lead projects by plan, when people are often burdened by other more urgent duties? In order to avoid sluggishness in work, virtual team must operate inside frameworks which are more structured than in case of traditional team. Aims, deadlines and responsibilities have to be more clearly defined than in case of classical workplaces.

Organizational changes. Virtual job requires organizational changes considering new methods of work. For beginning, firms and their employees have to make transition to methods of work which are more directed to results and which are dependent of new procedures and ICT. Every firm must evaluate its ability to manage these changes.

4 DIMENSIONS OF WORK QUALITY AND VIRTUAL WORKPLACES

Measurement of work quality is complex task and its study can be not only from economic perspective but from sociological and psychological perspective. Due to the complexity, multi-dimensional approach to measurement of work quality is recommended. Measures or indicators of work quality can be financial and non-financial as well. If we want to determine financial measures, we take into account objective data collected from administrative sources in an organization. On the other side, if we want to understand non-financial aspects of work quality, subjective data should be collected from employees by survey. Therefore, according to multi-dimensional approach, proper measurement of work quality is based on both financial and non-financial measures or objective and subjective data.

In this research we accept approach [10] that suggests six dimensions of quality of work: job security, pay and fringe benefits, intrinsic job rewards, work intensity, skills, and autonomy and control. Jobs are made up of many components and that multidimensional approach reflects job quality on the best way. Thus, objective measures of work quality are: pay and fringe benefits, autonomy and control, advancement opportunities and job security. Also the measures of job quality can be divided to economic and non-economic category. Following measures belong to economic category: satisfaction with earnings and fringe benefits (health insurance and pensions). Non-economic measures are: the degree of autonomy and control of employee and intrinsic rewards from the job. Finally, third category of job quality measures contains: perceived job security and the extent to which the employee is satisfied with the opportunities for advancement.

According to Kalleberg and Vaisey [18], there are two approaches to measurement of overall quality of work. The first approach suggests evaluation of the quality of work along a specific dimensions of work such as earnings, intrinsic rewards, promotion opportunities and security and then combines them into an overall measure of job quality. The second approach is based on interviewing employees where they answer on questions referring to general assessment of their jobs. Often employees answer to questions about degree of job satisfaction. This approach does not obtain all relevant job characteristics and does not measure all significant dimensions of work quality. Main assumption for the measurement is that employees are able to summarize all relevant dimensions and characteristics of work and to get an overall evaluation of job quality. However that assumption about employees abilities to evaluation of job quality is not always true. Usually employees is not able to evaluate the relative importance of different job characteristics in determining the quality of work.

As we mentioned previously, we try to explain impact and possible effects of virtual work implementation on various dimensions of work quality. First dimension is related to labor market and determines level of job security (having a job or not). At the next level, there are dimensions of job rewards such as pay and fringe benefits and intrinsic job rewards. The third level regarding job itself contains following dimensions: skill, work intensity and autonomy and control. Below we will discuss these dimensions in more detail. Also impact of virtual workplaces on the dimensions will be explained.

Job security. Job security, along with wages are essential dimensions of quality of work. As the overall work quality, job security is also multidimensional. Objective dimensions of job insecurity include: the rates at which employees leave jobs, time spent in one job and duration of unemployment. Subjective dimensions of job insecurity include: fear of involuntary job loss and access to training and promotion opportunities. In general view, virtual jobs could be insecure in nature. Virtual workplaces can be viewed by some managers as unstable and temporal work arrangements. These managers have negative attitude toward virtual workplaces, because they have not abilities to monitor and evaluate contribution and performance of employees on virtual workplaces. The managers could think of these workplaces as useless. In these situation, employees perceive fear of involuntary job loss that is one of the most important dimension of job insecurity.

Pay and fringe benefits. Pay or wage is the core economic and objective dimension which is commonly used for measurement of work quality. Wage should reflect contribution of employee to performance of the organization. Increasing wage is considered as a sign of improving job quality and a declining as sigh of the quite opposite. The fairness of the wage is significant aspect of work quality, but measurement of the fairness is not easy task. Main responsibility of managers in determination level of wages is to evaluate contribution of employees to performance of the organization. This evaluation could be problematic, because employees on virtual workplaces is not under direct control by managers. Managers who does not have appropriate skills for performance assessment of virtual workers could determine unfair wages. In this situation, virtual workplaces have negative impact on the dimension of work quality.

Intrinsic job rewards. Except extrinsic job rewards such as pay and promotion, there are intrinsic job rewards based on the job experience or the pleasure experienced on workplace. Virtual work has many characteristics of intrinsic rewarding job because it is interesting, challenging and meaningful, made of variety of tasks and it gives opportunity for use of initiatives, skills and abilities of employees, enables employees to work independently and to learn new things. All these intrinsic job characteristics of virtual workplaces is related to higher level of job satisfaction and quality of work.

Work intensity. This dimension of work quality is composed of many elements, such as time pressure, work overload, tight deadlines, harder work, and long and unsocial hours. Except subjective measures based on psychological perception of employees (for example, employee experience of changes in work effort), this dimension of work quality has objective measures such as hours worked, overtime, etc. In flexible work arrangements such as virtual workplaces, the objective measures is not appropriate for measurement of work intensity. However, although employees on virtual workplaces has not regular working hours and overtime, they can experience increase in work effort caused by time pressure, work overload, tight deadlines etc. In situation when an employee has classical workplace, increase in work effort and intensity has very negative implications for the family-work balance or balance between professional and family life. On the other side, virtual workplaces make possibility for professional and family life to be in balance. Teleworkers, eventually organized in virtual teams have greater autonomy over work tasks and this is good for that workers, since they can develop, share and apply their knowledge more fully than on traditional workplaces. However, there is possibility for quite opposite effects of virtual workplaces primarily through an intensification of work processes and increasing stress. Some studies argue that such alternative work arrangements have negative impact on employees, For instance, employees that are organized in teams experienced greater stress. Also, technological and organizational changes related to virtual workplaces may cause greater work intensity demanding higher effort from employees.

Skills. Skills refer to the competences to perform specific tasks and the characteristics of persons that can be acquired and that enables them to perform specific working activities. Measurement of this dimension of work quality can be achieved by following means: qualifications, length of education, results from various tests, self assessment and job requirements. Technological requirements and organizational changes related to virtual workplaces increased the demand for skilled labor. The level of job skills and job requirements has been rising in alternative working arrangements like virtual workplaces. Technological competences and skills are particularly essential in achievement of specific tasks on virtual workplaces. In fact, these competences are viewed as necessity for appropriate performance of virtual jobs. Generally speaking, virtual workplaces have positive impact on skills as one of dimensions of work quality.

Autonomy and control. Autonomy of employee is often viewed as fundamental dimension of job satisfaction and job quality. Autonomy refers to the degree of discretion that employees can use in doing their jobs. The degree of autonomy depends on the extent of standardization of work processes and whether the achievement of working activities is controlled by rules and procedures or by surveillance systems. On virtual workplaces, degree of employees autonomy is high and control of working activities is made by rules and procedures which should produce appropriate and expected performances and outcomes. Surveillance systems are rarely used in control of working activities. In order to make autonomous decisions on virtual workplaces, employees should be able to solve problems, make judgments, and take responsibilities. For all these things, knowledge and ability are required so autonomy as a dimension of work quality is highly correlated with skills which are previously explained. However, there is risk of too much discretion and autonomy that could lead to inefficiency and underemployment of employees on virtual workplaces. On the other hand, low level of autonomy and high work demands usually cause highest level of stress. Loss of discretion and autonomy of employees is main factor that influences on declining of job satisfaction. Therefore autonomy has positive effect on job quality of teleworkers on virtual workplaces.

5. CONCLUSIONS AND IMPLICATIONS OF THE RESEARCH

This research gives theoretical contribution to study virtual workplaces and quality of work and their interdependence and interaction. Many authors are studied these two fields in separation but there are not many researches that treat their interdependence. After explanation of forms, advantages and disadvantages of virtual workplaces, the research analyses impact of virtual workplaces on job quality. Since job quality has many different characteristics, multidimensional approach is adopted in measurement of job quality. According the approach, six dimensions of work quality are explained in context of virtual workplaces. Impact of virtual workplaces on job security, pay and fringe benefits, intrinsic job rewards, work intensity, skills, and autonomy and control is analyzed. Impact of virtual workplaces on job security and pay and fringe benefits could be negative if managers have not abilities to monitor and evaluate contribution and performance of employees on virtual workplaces. In this situation, employees perceive fear of involuntary job loss and perceive that receive unfair wages. Characteristics of intrinsic rewarding jobs such as variety of work tasks, opportunity for use of initiatives, skills and abilities of employees, independent work of employees are immanent to virtual workplaces so this telework arrangements has positive impact on the dimension of job quality. Considering work intensity, virtual workplaces could increase this indicator of job quality. Technological and organizational changes related to virtual workplaces may cause greater work intensity demanding higher effort from employees. Finally it is obvious that virtual workplaces have positive impact on skills and autonomy of employees doing virtual job.

Implications of the research refer to presented conceptual framework for further investigation of influence of virtual workplaces on work quality. Therefore future empirical researches would measure job quality along with explained dimensions in context of virtual workplaces. These researches based on empirical and real data would give deeper and detailed explanations of arguments exposed in this paper. Since these arguments are based on theoretical observation of author of the paper, there is possibility that some arguments would be rejected. Also this research, although theoretical, has implications on practice of organizations. It gives insight in virtual workplaces forms and benefits and implications of virtual workplaces on job quality. With this insight, managers could better understand implementation effects of virtual workplaces on various dimensions of job quality.

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