The Common Challenges to the Successful Implementation of SmartWork Program

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Abstract

SmartWork as a new job organization paradigm for companies and employees has greatly increased in both popularity and use in recent years. SmartWork is a new way of working and living way that is not fixed in terms of time or location. It involves working from home or nearly anywhere, enabled by an increased reliance upon mobile based telecommunication technologies to conduct work activities. Despite the increased use of SmartWork in some organizations and the continued efforts by government, the reality is that barriers to the implementation of SmartWork have remained relatively consistent over time. Based on a literature review of research in SmartWork, this paper identifies these potential challenges faced by companies to developing and implementing a successful SmartWork program.

Keywords: smartwork, telework, challenges

1. SmartWork: Definition and Overview

The term "SmartWork" is used more often to refer to employees who work away from the company's offices in any capacity and includes not only individuals who work from their own home both those who may work at other remote locations such as internet cafes, hotel rooms, client offices, and even on trains and in automobiles. SmartWork technically refers to work performed with the use of a smart technology work devices to the workplace (*e.g.*, mobile devices, tablet PC, laptop, *etc.*), but the term is also used more generally to describe any type of work done from remote location. However, SmartWork doesn't necessarily mean that employees work at home or in remote places. Many employers now offer satellite, shared SmartWork center located in or near suburban residential areas. Such working site are becoming increasingly popular, and are well equipped with a variety of advanced ICT equipment and services as well as work station, desks, tea time spaces that are shared by employees of single employer or multiple employers. Employer can take advantage of SmartWork center to provide workers with flexible and scalable workspace option close to their residences, resulting in reduced transportation demands, while overcoming some of the problems associated with working at home, such as distractions and safety. Workers who work in the centers can easily interact and collaborate with their peers work group using fast internet access, video communication technologies and advance collaboration tools. Such new ways to work and collaborate has helped to erode some of the resistance that many employers have traditionally displayed toward home-based working and other types of flexible working system. As such, SmartWork is an

umbrella term for a wide range of alternative office arrangements with variable working time and places of work. Table 1 specifies different forms of SmartWork.

Table 1. SmartWork Scenarios

Scenario Type	Description
Home Working	Working from home during normal business hours
Mobile Working	Employees equipped with the communication tools and technology needed to perform job duties from wherever they need to be
Desk Sharing	Shared office space in a company location designed for use as a drop-in basis for employees who are in the office only a few days a week
Satellite Office	A fully equipped office location established by the company, usually in suburban locations
Smart Work Center	Similar to a satellite office, however, used by employees representing numerous public and private employers, located closer to employee's home

The increase in the popularity of SmartWork has paralleled profound trends of urbanization, climate change, and innovation at the beginning of the 21st century, with increasing demands by knowledge workers for work flexibility and better work and life balance. A better work-life balance can make room for creativity, thus enhancing work concentration and accomplishments by using time and space effectively and earning private time for their family and self-development [1]. This increase in popularity is reflected in the "SmartWork Revitalization Plan" which released by the President's council on Information Strategy in Korea. The plan aims to boost the portion of "SmartWorkers" to 30 percent of the employed population by 2015. In the recognition of various benefit obtained from SmartWork, the Korean government has employed a range of public policy approaches to increase access to SmartWork, including legislation, appropriations and guidance from the Ministry of Science, ICT and Future Planning (MSIP), and Ministry of Security and public administration (MSPA). The following Table2 summarize benefits can be expected from SmartWork.

Table 2. SmartWork Benefits

Employer	Employee	Society
● Helps with recruiting and retaining the best possible workforce ● Ensures Continuity of Operation during emergency events ● Reductions in employee turnover and absenteeism, real estate cost, transit costs, and environmental impact.	● Greater flexibility ● Reduce stress by decreasing commuting time ● Free from office distraction ● Greater commitment to their organization ● Work family balance	● Increased accommodations for disabilities ● Alleviation of significant traffic challenges ● Reduced carbon emissions

2. The Common Challenges to the Successful Implementation of SmartWork

2.1. Information Technology - Equipment

Information technology challenges are a concern to many employers. Determining what equipment to purchase, and who will bear the cost of the equipment, affects the

success of a SmartWork program. Thus, SmartWork arrangements run the spectrum from fully ad-hoc to full-functioned corporate office. At the bottom end, employees who work at home use their own telephone line, PC and Internet connection. At the top end, employers set employees up at home or SmartWork center with a laptop, broadband connection, telephone, dedicated voice line, printer/fax/scanner, firewall, router and appropriate furniture and lightening. In case of mobile smart worker, they need to be equipped with high speed network based mobile devices such as mobile phone or tablet PC.

However, equipping SmartWorkers is much broader topic than physical equipment. Computer applications and databases must be accessible from the web through intranets and communication tools must be available to replace face-to-face discussion. The software needed for SmartWork depends on the content of work and is typically the same as used in the office. For communication and information exchange, internet browsers and Email are being used. Additional tools software such as conference calling, web meeting collaboration software, instant messaging applications, and electronic fax, supporting collaborative work like CSCW, video conferencing and electronic meeting systems may complete the SmartWorking environment. Additionally, employer needs to ensure that the organization's technology and servers have adequate capacity to support the SmartWork program. Remote access to networks and data is also critical to ensuring and maintaining productivity and SmartWork employees cannot have technical specialists "trouble shoot" problems as readily when they are at home or working remotely than when they are physically on-site. The costs of ensuring that SmartWork employees has appropriate hardware, software, and telecommunications modes to be as productive off-site as at the office can be very significant expense and employer has to consider how much of the costs are to be budgeted and subsidized.

2.2. Security

SmartWork technologies often need additional protection because their nature generally places them at higher exposure to external threats than technologies only accessed from inside the organization. Therefore, employer should develop a detailed recommendation on securing technology infrastructures used by SmartWorkers. For example, The US National Institute for Standards and Technology (NIST) recommends the following five basic security principles for all telework platforms: First, all home networks connected to the Internet via a broadband connection should have some firewall device installed. Second, web browsers should be configured to limit vulnerability to intrusion. Third, Operating system configuration options should be selected to increase security. Fourth, selection of wireless and other home networking technologies should be in accordance with security goals. Last, employer should provide teleworking users with guidance on selecting appropriate technologies, software, and tools consistent with the company network and with company security policies.

SmartWork solutions need to support several security objectives; 1) Confidentiality – ensure that remote access communications and stored user data cannot be read by unauthorized parties, 2) Integrity – detect any intentional or unintentional changes to remote access communications that occur in transit, and 3) Availability – ensure that users can access resources through remote access whenever needed. To achieve these objectives, all of the components of SmartWork solutions, including client devices,

remote access servers, and internal servers accessed through remote access, should be secured against a variety of threats.

A critical issue that needs to be addressed in any SmartWork program is access to information, particularly information contained on computers that will be taken from the offices that will be accessed from home and how security of that information can be maintained [2]. If employees work with company data from computer at off-site, security can be maintained through a Virtual Private Network (VPN) line along with multiple firewalls and complicated log-in procedures [3]. In addition, employees' company laptop should be dedicated to work use only to ensure security [4].

NIST bulletin on Telework security focuses on recommendations for securing communications [5];

- Plan telework security policies and controls based on the assumption that external environments contain hostile threats

- Develop a telework security policy that defines telework and remote access requirements

- Ensure that remote access servers are secured effectively and are configured to enforce telework security policies

- Secure telework client devices against common threats and maintain their security regularly.

In response to security concern for home based working, the U.S General Services Administration (GSA) commissioned study named; Analysis of Home Based Telework Technology Barriers [6]. This study examined potential SmartWork technology barriers, and proposed solutions for effective and secure home-based work environment. It took the following approaches:

- Assessing technologies available to support home-based telework (assessment factors included performance, functionality, user-interface and cost)

- Gathering insights from information technology organizations, telework program coordinators and telework managers regarding potential barriers to home-based work

- Interviewing teleworkers and telework managers on the influence of technology barriers on overall technology effectiveness

- Reviewing lessons learned on IT challenges and solutions by consulting telework implementation case studies.

Among the various issue, the most main security problem are related to faculty IT policies, compliance and implementation. For example, one organization was incapable of protecting sensitive data because its policies and procedures do not adequately protect personal or proprietary data. Another organization – where an employee took home sensitive information that was stolen – did not have adequate policies to keep personal data from leaving the building, and its senior staff and officials took wrong actions.

2.3. Training

Employer who engage in SmartWork must see and believe in the benefits provided by SmartWork. The most common reason for failure of SmartWork program is managerial resistance due to the perception that employees need to be directly

supervised to ensure that they remain busy. Manager who engage in SmartWork tend to spend an inordinate amount of time checking on what employees are actually doing at off-site. Therefore, it is important that any employee who wishes to SmartWork must first successfully compete an interactive SmartWork training program provided by employer or consulting firm and must enter into a written agreement with their supervisor.

2.4. Management Practices

The common barrier to the implementation of SmartWork is challenge in maintaining an effective organizational culture, and dealing with management resistance. It should not be surprising that employers who utilize SmartWork work mode for employees also utilize different management practices from those employers who do not utilize SmartWork. According to Mello [7], SmartWork employers have a higher investment in R&D, greater percentages of knowledge workers and sale people, more employee training and more employee participation in job design and work planning.

Employers that have adopted SmartWork program also face the challenge of accurately tracking which employees are eligible for such program and which employees are actually working remotely. Moreover, the infrequency of SmartWork also presents a challenge that may impact whether employer will gain the full benefits of the SmartWork option. A successful program requires regular and frequent SmartWork in order to consolidate office space and reduce costs.

In addition, SmartWork employers implement more flexible HR systems, variable compensation, and performance based evaluation system [8]. Managers should avoid distributing work based on "availability" as measured by physical presence, and avoid the pitfall of assuming someone who is present and looks busy is actually accomplishing more work than someone who is off-site. Good management practices are essential for SmartWork to be effective and equitable.

2.5. Safety and Liability

Employer need to concern employee safety and any resultant liability for injury that may occur at the employee's home, working center or any off-site work location. A suitable workspace would be one that is ergonomically designed to prevent any kind of repetitive motion and ocular injuries. Employer should review a safety checklist with SmartWorkers to ensure compliance and should immediately investigate any reports of accidents or injuries on the job.

3. Conclusion

SmartWork is seen as a popular option that provides myriad benefits to both employees and employers as well as the larger society. However, SmartWork is not a guaranteed solution to all of issues that it can potentially address. SmartWork programs that are not planned, designed and implemented with a full understanding of some of the potential issues and limitations that surround its use can result in more cost than benefit to employers. Those implemented from a more strategic perspective that are designed and developed with an understanding of common challenges from SmartWork cannot only provide employers with a competitive advantage in attracting employees, but also allow the employers to increase their productivity, and display its social responsibility.

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