

# Information Technology Services Industry and Job Design

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**Abstract.** Service businesses produce over 70 percent of the gross domestic product in developed nations and there has been an increasing dependency on information technology to deliver services. Over the last few decades, many large companies that provide IT-based products have transformed their businesses into service oriented businesses. For those organizational changes, the job design must also be considered because the distinctive characteristics of service businesses require different skills than what was found in manufacturing.

In reality, however, while the proportion of service businesses is increasing in such work organizations, service businesses produce job stress that can lead to health problems. Although stress perception appears to be the major factor of discomfort in IT services industry, studies about effective ways to design a job or avoid job stress are not so many. In this paper, several factors that produce job stress are discussed based on a conceptual model.

**Keywords:** Information Technology, Services Industry, Job Stress, Job Design.

## 1 Introduction

In many work organizations several strategies have been taken to adapt them to a harsh business environment. Of these, especially for manufacturing companies, shifting to service businesses is one of the ways to redesign the organization. IBM, for example, is one of the largest IT companies and generally thought as a systems and software company, but the business model was drastically changed to service businesses. As a result, IBM recently generated more than 50% of its revenue from its services division (Verma, 2008).

Services in the IT services industry include various kinds of IT-related jobs ranging from business consulting to system construction. Especially in a service delivery phase, employees at customers' sites are required to have a wide variety of skills to help clients understand their businesses and then to help clients build their desired systems. Thus, since shifting to service business would require workers with different skills compared to manufacturing workers, organizations must prepare education or training programs.

However, it is not easy to educate employees because most organizations can not afford to prepare such costly programs. As a result, employees who do not have suitable skills are assigned to a work project and exposed to a stressful work environment. Without careful consideration of their stress perception, any organization in IT services industry will fail to obtain desired business success.

As one of the conceptual models about job design and job stress, Smith and Carayon-Sainfort (1989) proposed a balance model. The model can be applied to organizations not only of manufacturing but also of service business. In the following sections, issues in IT services industry are examined, and several elements that consist of work environment are discussed based on the model.

## **2 Issues in Information Technology Services Industry**

Over the last decade, demand for customization has forced manufacturing companies to bundle more services with their products and service providers to rely more on personal interactions between customers and employees. Such business demands have inexorably forced transformations of job characteristics. However, one of the problems is that many organizations do not provide employees with enough opportunities to adapt to the changes. Such organizational changes certainly will produce psychological oppression in the workforce, and it can lead to negative outcomes such as reduced loyalty, increase of turnover rate, and job stress.

As one of the main issues in IT services industry, an increase of the number of employees who have job-related mental health problems has become critical for work organizations. According to the Japan Productivity Center (2006), for instance, the number of workers who have mental health problems caused by job stresses is increasing in 60% of major Japanese work organizations. In IBM Japan, about 90% of long-term absentee have mental health problems, and the total number of employees who have such symptoms is increasing.

Employees are a valuable human resource that may contribute in several different ways to a company's business activities. To avoid the negative outcomes, therefore, it is needed for any organization to find the elements that can produce negative influences and implement preventive measures.

## **3 Job Stress Model**

Many job stress models have been applied to simple production systems such as assembling lines in a plant. In those models, several stressors that can directly affect workers are examined such as repetitive simple tasks, noisy workplace, poor air quality, tight work schedule, and so on.

As one of the job stress models, Smith and Carayon-Sainfort (1989) proposed a way of conceptualizing job design and job stress based on the balance among job elements. It addresses how organization and job design can influence worker health. In this model, the five elements (person, task, technology, organization and environment) are defined to assess the impact of job stress. Since it can be assumed that those elements are important even in the service business organizations, each element is reviewed in the following sections.

## **4 Person**

In a service oriented business, the role of the individual has become more important because direct customer interaction is one of the important factors to successfully

complete a work project. In general, it is said that customer satisfaction is often influenced by the quality of the interpersonal interaction between the customers and the contact employee.

In other words, success of service business is highly dependent on employees' characteristics such as personality, skills, ability or motives. Especially, employees who excel at communicating with customers have a crucial advantage to smoothly run a project. In contrast, when an employee who does not have such characteristics is assigned to the work project, its service quality may go down. In such a case, the employee will feel psychological pressure.

## **5 Task**

In general, employees have their responsibility and job boundary. Compared to workers of manufacturing, employees in IT services industry have a wide job boundary. In recent years, for example, a project has become a basic work unit and there is no single task that is accomplished by a member. That is, employees must cooperate with other project members to do tasks.

In such work environment, role ambiguity in job boundaries or uncertainty of job demands becomes a source of job stress, and it easily produces physical work overload and psychological work pressure. These negative influences can gradually or sometimes rapidly produce job stress on employees and reduce their work motivation.

## **6 Technology**

In constructing a system, employees must have enough knowledge and skills to complete it within a short period of time because current sophisticated systems consist of combined high technologies. Furthermore, since total workload of an employee tends to increase, each employee must obtain a wide variety of knowledge about the latest technologies. Although the best way to obtain such knowledge is to attend the training programs, such time-consuming effort can be a big burden for IT specialists who construct business systems at customers' site.

## **7 Organization**

Effective organizations are those which produce excellent results by any measure of costs, quality or efficiency (Pasmore, 1988). When we think of the role of organizations, one of the most important factors is the relationships between an employee and his/her managers. In order to enhance employees' performance, it is important that the managers recognize the individual need and provide opportunities for satisfaction. That is, human resource management based on employees' needs or ability is extremely important to derive better performance from the employees.

## **8 Environment**

In the balance model, factors that produce sensory disruption such as noise or air quality are mainly discussed. In modern work offices, on the other hand, the stress

level of those factors has become low. Instead, for employees of IT services industry, different environmental stress must be considered. In the service delivery phase, for example, employees must work at a client site in closed networks, restricted access authority or insufficient software/hardware resources. These environmental factors highly depend on the workplace of customers' sites and each of them can be a source of job stress.

## 9 Discussion

Any organizational change can impinge upon each employee with different impact, and the resultant employee's perception is also unique. If it negatively affects employees, it will produce negative responses such as reduced loyalties and continuous psychological pressure. Because of the complex interactions of the human mind, it is not easy to measure the impacts to workers. In general, when a worker is given a job which does not fit his/her ability or sense of value, he/she can not perform with maximum power.

In terms of job design, the biggest limitations of existing job design research and theory is its narrow focus, and traditional theory does not consider an adequate range of work characteristics (Parker and Wall, 1998). As mentioned earlier, services in IT services industry include various kinds of IT-related jobs, and direct customer interaction has become an important factor to successfully complete a work project. It means that the mechanism of job-related mental health problems in service business can be different from the former mechanisms.

It is unquestionable that highly motivated persons tend to work harder and perform more effectively in their jobs than less motivated individuals. Therefore, the main question for all managers in work organizations must be how motivate employees to work. The answer is not simple especially in services business because there are many situational contexts such as workplace environment, social interactions and workers' characteristics. When we think of the characteristics of IT service business, flexible resource management system is highly recommended to place the right employees in the right jobs to encourage them to work.

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