The Study on the Space Management Influencing Human Working Performance

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Abstract*:* This essay aims to address the three main issues of space management discovered in ERA Company, which are the underusing of office space, lack of space functionalities and discomfort caused by the physical environment. Based on the review of the general space management concepts and principles, three strategies have been proposed: re-planning the space configurations, providing multi-functional supporting equipment and controlling work environment quality. To assess the effectiveness of implementing these strategies, four relevant performance measure indicators are suggested: user satisfaction, worker productivity, occupancy cost and carbon emissions. Finally, the new workplace planning and existing space changes that the ERA Company may face have been briefly discussed, as well as the predictions of the future implications of space changes having on facility management (FM) industry and on FM roles.

Keywords Space allocation; Working performance; Facility management; Physical environment

INTRODUCTION

With the fast development of the modern society, the concepts and practices of new ways of working have been evolving. Some workers may spend less time in offices due to their work natures, such as sales representatives and academic scholars (Marmot and Eley, 2000). In correspondence to flexible working, workplaces have been changing and non-territorial offices have been emerging (Marmot, 2012). As the built space cost accounts for the second largest operational cost of an organization, which is only after staff salary expenditure, a number of organizations focus on occupancy cost reduction, which covers expenditures on rent, property taxes, building services, annual costs of managing office space and et cetera (Marmot and Eley, 2000; Booty, 2006; Duffy, 1997). More importantly, the quantity and quality of space are vital to achieve corporate competitive advantages (Oseland *et al.*, 2011). Buildings are not only organizational resources, but also a part of company culture. It may direct the feelings of staff and visitors about the corporate (Duffy, 1997; Marmot and Eley, 2000). The physical aspects of environment quality may have a great influence on workplace productivity and wellbeing (Schwede *et al.*, 2008).

Due to the considerations on costs and on the support role that workplace plays in organizations, the calling for the proactive space management of workplace has been for years (Evans, 1993). However, studies have shown that less than five percent of US corporations tied the workplace to the corporate strategy to improve the organizational performance (Bell and Joroff, 2000). The undervaluing of workplace's support functions to the core business exists in numerous organizations as well. Through the personal observation and experience in ERA Group plc, which is a technology company in China, the author has identified three main problems in workspace management: underusing of office space, lack of space functionalities and discomfort caused by the physical environment. To alleviate these issues and to meet the development needs of ERA plc, solutions will be proposed for the optimization of workplace support functions. This essay will firstly introduce the general principles of space allocation and usage in office building context. Then it will draw on the space management issues that the ERA is facing, with the provision of recommended strategies and performance measurements. Finally, it will predict the future change of the company and suggest how facility managers may act to flourish organizations.

GENERAL PRINCIPLES OF SPACE ALLOCATION AND USAGE

The general goal of workplace management is to meet the current and future needs of the organizations (Becker et al., 1994). It has been warned by Keane (1999) that "never design a stage for today's props", which emphasizes the necessity of considering tomorrow's requirements (Roberston, 2000; Harmon-Vaughan, 1995). According to different needs by different organizations, space management strategies will vary over time to support core business. A wide range of cases have been reviewed in literature. Duffy (1997) mentioned that for organizations accommodated in old office buildings, the up-to-date of space was required to satisfy emerging demands and that the organizations needed to use space to improve the quality of the work and to add value to business performance. On the other hand, for some

modern intelligent workspaces, the enabling of short stay, flexible offer and high value-added serviced accommodation may best fit for varying occupiers (Bradley and Woodling, 2000; McGregor, 2000b). For the organizations eager for change, workspace can be used to drive work transformation, (Roberston, 2000), business change (OGC, 2004) and to foster the behavioral changes (Kampschroer et al., 2007). In all the situations, it is common that workplace should be designed and managed in a way to meet people's needs rapidly both in anticipation and as they arise (Leaman and Bordass, 1999).

Organizations will gain benefits such as improvements in work environment, work productivity and business results (Mohr, 1996). The occupancy costs may be reduced by reducing the space requirements and energy conservation (Becker et al., 1994; Marmot and Eley, 2000). To realize these advantages, the best practices for space management are providing flexible workstations and considering employee needs. In terms of flexible workstations, it is applicable that the ratio of users over workstations can be over 1:1, in the condition that employees are out of the office the majority of the time (Becker et al., 1994). For instance, accountancy firms and consultancy organizations have been applying "desk sharing", such as PwC building located near London Bridge, where desks are not assigned to specific individuals on a long-term basis and thereby to save space costs. It is also considered that with the provision of technology to support flexible working, mobile workstations will enable the ability to reconfigure furniture and to accommodate change (Becker et al., 1994; Leaman and Bordass, 1999).

As for the consideration of occupier demands, the first step is to identify and understand user needs (Hakkinen and Nuutinen, 2007). Office should be prepared and implemented only for people really suited (Marmot and Eley, 2000). Barrier-free settings in work environment should be guaranteed so that users can immediately understand how the space and equipment can be used (McGregor, 2000b; Marmot and Eley, 2000). Physical environment factors such as temperature, lighting and cleanliness which are closed associated with occupancy comfort and work effectiveness are suggested to be well controlled (OGC, 2004). The physical environment can also provide a platform for new ways of working (Kampschroer et al., 2007). For example, applying glasses in fitting-out may express a work culture of openness and transparency to the users (Duffy, 1997). It can be seen that workplace can be used as strategic tools to make work happen (McMorrow, 1996).

ANALYSIS OF WORKPLACE MANAGEMENT ISSUES IN THE ERA COMPANY

Three main problems in space management will be firstly identified, followed by three recommendations addressing the issues. Then proper performance measurements will be proposed to examine the effectiveness of the strategies. The first problem is its old way of planning workspace. Through face-to-face communication with the decision makers, it has been discovered that the basic concept they had was to use more spaces to absorb the growing head count, and that is why ERA has been fiercely spreading out its territory in the recent years. This unavoidably resulted in underusing of workspaces. In the office building, every employee was allocated with one set of workstation, whereas the space-time usage rate was low especially in engineering construction and quality control departments. I have observed that four desks were unoccupied for continuous two months because the owners were on business trip, and this obviously did not make economic sense (Marmot and Eley, 2000; Hakkinen and Nuutinen, 2007). The second problem is the lack of workspace functions and flexibility. The floor for the accommodation of engineering construction teams was a huge open plan with only fixed desks of the same shape and movable chairs. The third problem is the discomfort of physical environment, which may affect people's productivity (Leaman, 1995). When air conditioning is turned on, it will take a long period to achieve a comfort temperature in the open-plan office.

It seems that the space planners did not have strategic thinking of how to efficiently use the space and how much the building running costs would be. They might only tempt to deliver the services that were easy to deliver rather than those the users really wanted. The office workplace is closely associated with staff working efficiency and corporate expenditure, but if the company continues to plan space inappropriately, business performance can be greatly affected. In this circumstance, facilities and workspace planning should be integrated with business planning processes, whilst the participation from employees and outside expertise is needed (McGregor, 2000a; Lindahl, 2004).

Three strategies will be proposed to improve the current space allocation. The first strategy is to re-plan the space configurations. For the huge open-plan floor, it is considered that configuring it into a combination of closed spaces and open spaces will contribute to work effectiveness and efficiency (Peterson and Beard, 2004). After the breakout of space, the closed spaces will be better for private undisturbed concentration, while the open work spaces including well-equipped meeting room and shared desks for collaboration, social interaction, information sharing and inspiration (Hakkinen and Nuutinen, 2007; Vos and van der Voordt, 2001). This will diversify the space functions and the project team members may find an increasing of work flexibility. Meanwhile, the energy consumption may decrease through space segmentation because the office appliance controls will be more flexible. The second strategy is the supporting equipment provisions. The workstations are suggested to be arranged on a flexible basis to meet the multi-

functional demands and for the adaption of future changes. Thus adjustable furniture and well-designed equipment having good ergonomics are in favor in the office. In addition, the adoption of advanced technologies is recommended, such as bar coding for equipment and IT techniques for remote conferences, which may enhance work efficiency. The third strategy is work environment quality control. The environmental factors such as temperature and humidity need to be adjusted to a thermal comfort zone for the majority of occupants (Lindahl, 2004). Controlling the indoor air quality is also due to the health and safety considerations.

After the implementation of the three strategies, appropriate performance measurements should be conducted to test the actual changes in the office space. A number of new performance measurement techniques have been developing such as Building Appraisal, Workplace Envisioning, Time Utilization Studies and Post-occupancy Evaluation (Duffy, 1997). In this case, user satisfaction, worker productivity, occupancy cost and carbon emissions will be relevant performance measures. To assess occupier satisfaction, a satisfaction survey such as questionnaires can be conducted to collect the feedbacks from space users. Their opinions towards workplace allocation may provide enlightenments for future space management. Worker productivity is difficult to measure, but via observation and communication, their working motivation, which is a driver for productivity, can be perceived (Leaman, 1995). External experts can be invited to investigate the changes.

Another performance indicator is occupancy costs, and one way to get the result is to calculate the cost per unit area of office (Ilozor and Ilozor, 2006). The space rearrangement may require investment in refurbishment and equipment provision, but in the long term, it generates energy saving opportunities and thereby reduces building running costs. Sub-meters can be installed to reflect actual energy consumption of each floor. If energy conservations reductions are achieved, carbon emission reduction is realized correspondingly. It is held that carbon emissions can be saved by tighter space and flexible working (Marmot, 2012). Based on the power sources that the company is utilizing, carbon emissions can be calculated and compared with the previous emission amount.

FUTURE IMPLICATIONS OF SPACE MANAGEMENT

There are two contrary views towards the future changes of space management. One view is that the importance of changing working practices is overstated, and the other view is that the irreversible changes are always happening (Nutt and McLennan, 2000). Whatever the exact changes will be, it is necessary to think about the future business growth and changes on future work style and predict the implications for space. The ERA Company has

purchased new lands in the technology industrial center they are currently located at. When developing the new land, the planning group should realize that workplace design is a business imperative (OGC, 2008). The current concept of old-fashioned allocation of office space needs to be abandoned and the more efficient space use strategies should be applied (Duffy, 1997). If new offices are being built, space planners should consider the time spent in internal mobility such as going to meetings (Kampschroer et al., 2007). Another consideration is that in open-plan offices, a capacity of over 80 staff may benefit more from flexible time than the capacity with less than 30 staff (Ilozor and Oluwoye, 1998). With the reforming of business, merging two existing office buildings with smaller capacity into one with larger capacity may be applicable to achieve more flexible time in practice. In the space planning and changing process, resistances to move may be a prevalent problem and this will influence the change management success.

Future space changes in organizations also have implications on facility management (FM) industry and on FM roles. The general international trend shows that space leasing have becoming more common (Kadefors and Brochner, 2004), and this highlights the flexibility of spaces to be transformed and used for various demands over time. From the demand side viewpoint, choosing well-designed spaces with high space efficiency and thermal efficiency will be a good practice to enhance business performance (Marmot and Eley, 2000). For the facility managers, they are expected to acquire diversity and depth of skills, knowledge and resources to look for better ways to respond, react and cope with the inherent problems and opportunities in different space management situations (Harmon-Vaughan, 1995; McGregor, 2000b). They need to have a better understanding of true occupancy costs with the developing of better reporting and monitoring procedures and the practice of post-occupancy evaluation (Duffy, 1997). Workspace management may experience the changes from transactional-reactive role to strategic-proactive role for the preparation of the uncertain future (McGregor, 2000a).

CONCLUSION

In reviewing this essay, it firstly clarify that the general goal of workplace management is to meet the current and future needs of the organizations. It argues that according to different needs by different organizations, space management strategies should vary over time to support core business. Organizations will gain benefits through better use of workplaces. It is considered that the best practices for space management are providing flexible workstations and considering employee needs. Then it identifies three main problems in space management in the ERA Company: underusing of workspaces resulting from old way of planning

workspace, the lack of workspace functions and discomfort of physical environment. If the company continues to plan and use space inappropriately, business performance can be greatly affected.

Based on the principles of space allocation, three strategies are proposed for the optimization of workplace practices. The first strategy is to re-plan the space configurations. Breaking the current huge open-plan workspace into a combination of closed spaces and open spaces may meet different task needs and improve space use efficiency. The second strategy is to provide supporting equipment such as adjustable furniture and well-designed office appliances for the flexible use of space. The third strategy is work environment quality control for the achievement of occupier comfort. Then performance measurements are proposed to examine the actual changes in the office space after the implementation of the strategies. The key performance indicators are user satisfaction, worker productivity, occupancy cost and carbon emissions. Methods on how to operationalize the measures have been briefly discussed.

In the final section of the essay, it emphasizes the necessity of thinking about the future business growth and changes and predicting the implications for space. In the ERA Company, as they are extending territory, it is suggested that more efficient space use strategies should be applied in planning new workspaces. For the existing offices, merging two existing underused office buildings into one may be applicable. The problem of resistances to move is anticipated and this will influence the change management success. It also mentions the workplace management implications on facility management (FM) industry and on FM roles. The general trend is predicted that the demands for spaces with high flexibility will increase and the new challenge for facility managers is that they are expected to acquire diversity and depth of skills and knowledge to support the core business.

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