FACILITIES MANAGEMENT

Refereed Paper

FACILITY MANAGEMENT AS THE CATALYST TO ACCELERATE THE EVOLUTIONARY CHANGES IN WORKPLACE ARCHITECTURE

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ABSTRACT

Technology has fostered many alternative ways of working which have changed the way we work and the way we use the built environment. Whilst most of these alternative ways of working offer tangible benefits to companies that have properly adopted them, poor implementation has caused losses that have slowed down the process of adoption. This paper recognises the benefits of adopting alternative ways of working, but also warns about the fragility of working environments. A well planned adoption process is required in order to ensure implementation success. Based on strategic asset management together with Rogers’ diffusion of innovation theory, a method is proposed to accelerate the adoption process of alternative ways of working whilst keeping the balance between people, space and technology.

Keywords: office design, alternative ways of working, diffusion of innovation
1.0 INTRODUCTION

“In Australia the increasing use of technology is dramatically changing the way people live and work”
(Martino 2001)

Technology is transforming almost everything we do in a fashion that is modifying our society by changing our value systems, power structures, everyday routines and environment (Linturi 2000). Advances in technology are having a major impact on shaping the office environment and the way we work (Stallworth and Kleiner 1996; Robertson 2000).

The traditional definition of an office as the place where people read, think, write, and communicate; where proposals are considered and plans are made; where money is collected and spent; where business and other organisations are managed is shifting as technology is changing the way we perform such activities (Giuliano 1985). Further, office work is no longer confined to an office environment, mobile technology allows people to work as effectively from home, airports or cafes (Stocks 1998). As a consequence, workplace architecture needs to evolve.

These rapid and drastic changes in technology are creating an imbalance in the ‘organisational ecology’ which poses a challenge to office workers, business managers, facility managers and architects. Becker and Steel (1994) describe organisational ecology as the way “organisation leaders choose to arrange their employees in space and time in pursuit of a long-term competitive edge”. The three key elements of organisational ecology are: 1) the physical settings in which work is carried out, 2) the processes used for planning and designing the workplace system, and 3) the way space, equipment, and furnishings are allocated and used over time. These three elements are affected by the nature of the work and business processes, the organisational culture and corporate values, cost of space, operational health and safety requirements and workforce demographics. A change in any of them is likely to alter such ecology. It is this holist approach that differentiates organisational ecology from traditional organisational behaviour disciplines.

Some changes in office buildings are more evident than others. For example, whilst in 1892 the Masonic Temple in Chicago reached 20 storeys, today Taipei 101 building is 509m tall (Reuters 2003). However, office buildings are not just taller. More importantly and often overlooked, is the fact that their organisational ecology has evolved as a consequence of the technology adopted in the workplace.

Giuliano (1985) states that “new technology inevitably affects the organisation of work” and identifies three stages of office organisation characterised not only by technology but also by style of management, personal policies, hierarchy of supervisory and managerial staff, standards of performance and human relations amongst the people involved in the office and their clients. According to Giuliano there are three different office organisations:

1) The pre-industrial office: depends on the performance of the individuals, without much benefit from machines. There is little systematic organisation. Each person works independently, physically moving around to retrieve a file. Individuals have different styles of work and human relations and values are important. However, the only way to overcome an increase on the work load is by hiring more employees.

2) The industrial office: is a response to the limitations of its predecessor and introduces the principles of work simplification, specialisation, and time-and-motion efficiency. It is essentially a production line, where even personal interaction is standardised. Work moves from desk to desk as parts move along an assembly line, making jobs simple, repetitive and unsatisfying. The fragmentation of responsibility created bureaucracy and proliferation of paperwork. Workers may not know the overall task
Facility management as the catalyst to accelerate the evolutionary changes in workplace architecture

Agustin Chevez

 Clients Driving Innovation: Moving Ideas into Practice (12-14 March 2006) 3
 Cooperative Research Centre (CRC) for Construction Innovation

to which they are contributing. Everyone has to work together during the same hours in the same office to sustain the flow of paper.

3) The information age office: combines systems and machines to the benefit of workers and clients, but tries to maintain the values of the pre-industrial office. It exploits new technology, yet it returns to people-centred work rather than machine-centred work. The machine is paced to the needs and abilities of the person who works with it. Instead of executing a small number of steps repetitively for a large number of accounts, one individual handles all customer-related records. Staff reduction of as much as 50% is common. Information is updated as it becomes available, and there is no uncertainties related to the ‘work in process’. Productivity is not longer measured by hours of work or number of items processed, but by customer satisfaction.

It is unclear what will follow Giuliano’s information age office, but Marmot and Eley (2000) go further by questioning the need for office buildings in the future. They argue that while technology once acted as a ‘glue’ forcing people to be in a specific place in order to share equipment – e.g. typewriters, adding machines, etc. – and interact with their workmates, today’s technology is acting as a ‘solvent’ which eliminates such need and allows people to use mobile technology and interact from different places. Moreover, they maintain that whilst offices flowered as a building form and a social structure for a short, yet intense period, this could be a short-lived phenomenon, a transitional stage in economic revolution. Hence, it is uncertain what type of office building, if any, will be required in the future.

2.0 ALTERNATIVE WAYS OF WORKING

Since 1964, when IBM introduced a magnetic-card recording device into a Selectric typewriter, the future of the office and our expectations of it, changed forever. The feeling of technology domination felt after the post-industrial innovations (1960’s–1970’s) made us believe that offices in the future, that is today, would be run by robots whilst workers would enjoy free time (Dowdy 2000). This belief was so strong that social scientists worried about the vast amount of leisure time the workforce would have, and ignited fears of a jobless society (Castells 1996). Nevertheless, in Japan there were 160 official cases of ‘karoshi’, death from overwork in 2002, and 43 more people committed suicide because of overwork. The French government is assessing lengthening its 1998 workweek arrangement (Tischler 2005). Even Spain’s proud ‘siesta’ tradition is threatened by today’s working habits (Pogash, McLean et al. 2005). In Australia, the number of employees who work overtime on a regular basis increased to nearly 3 million in 2003 (ABS, 2005).

Although not in the expected time frame, and certainly not in the fashion of a “paperless, push-button, electronic world where high finance meets high technology in a triumph of white collar productivity” (Immel 1985), alternative ways of working are changing the way we work and the way we understand work (Austin, L.Bain et al. 2001).

Alternative workplaces emerged as a response to traditional offices. On the one hand, traditional offices are designed in accord with long-held and unspoken beliefs about the nature of work in order to support production rather than innovation. Traditional office arrangements are centralised, focus on status, and assume that employees will be in their assigned location during fixed hours. On the other hand, alternative workplaces have fewer preconceived notions about what constitutes correct workplace design, yet tend to include a variety of central and dispersed work locations. They balance production and innovation work, include work flexibility about when and where work is done and minimise design attributes that explicitly display status (Austin, L.Bain et al. 2001). Questions like: “do certain people need to come to the office? Does the office need to take a certain form? Can we do
“things differently and more efficiently?” are redefining the way we work by offering a new array of flexible working options (Stocks 1998).

There are numerous models of alternative ways of working such as teleworking, hot-desking, virtual office, hoteling, moteling, caves, commons, cottaging, guesting, just-in-time office, touchdown carrels, and so on (Stocks 1998; Marmot and Eley 2000; Austin, L.Bain et al. 2001). Whilst a full explanation of each of these options is beyond the scope of this paper, they share common traits like increased flexibility in workplace and working time as well as a more efficient use of space. Alternative ways of working not only represent benefits to individuals, companies and cities, but they also reflect benefits to the environment (ITAC 2004; SUSTEL 2004).

Companies that implement flexible working can reduce, or even eliminate, the need for buildings at all. In a study done by SUSTEL (2004), 12 out of 30 companies needed less office space as a result of teleworking, and an additional three were expecting such benefit in the near future. A UK company closed its central office. Alternative ways of working can also help to reduce the need for commuting – including the environmental impact that derives from it (Nilles 1998).

Unfortunately, “in practice it is economics rather than environment which is the main driver” (SUSTEL 2004). Still, a study done by Actium Consult and Cass Business School (2005) in the UK proves that from a financial point of view alternative ways of working make sense, since rent represents nearly 50% of total office cost. Therefore, considerable savings can be achieved if the amount of space required by each employee can be used in a more efficient fashion, reduced or simply eliminated. The same study argued that through alternative working a medium size business – 500 staff – can make a saving of £0.77m per annum on property costs. However, it is important to notice that flexible working alters the traditional ratio of 65% property costs and 35% IT costs, to 55% property and 44% IT. The remaining 1% is the cost of change in management required to balance the organisational ecology.

3.0 ADOPTION OF ALTERNATIVE WAYS OF WORKING

Poor implementation of alternative ways of working has resulted in costly mistakes with an impact on adopters’ trust which have slowed down the adoption process. One of the most representative and well-known cases is the endeavour undertaken by Jay Chiat, who transformed a multimillion dollar advertising agency into “the laughingstock of the industry” whilst trying to ‘go virtual’ (Tsuchiya and Vithayathawornwong 2005). After a painful implementation processes, Chiat’s virtual office project was declared officially dead and people moved back to the paper-factory, hardwired-phone and a-desk-per-person office (Marmot and Eley 2000).

Whilst the specific causes of failure in the Chiat Day case were poorly planned integration, intransigent policies, not enough resources and lack of personal space (Berger 1999; Tsuchiya and Vithayathawornwong 2005), the implementation of alternative ways of working across the board is full of challenges.

3.1 PARADIGM CHANGE

The first of these challenges is the inertia of old paradigms fuelled by our inherit resistance to change. In 1872 Walter Bagehot wrote “one of the greatest pains to human nature is the pain of a new idea. It… makes you think that after all, your favourite notions may be wrong, your firmest beliefs ill-founded… Naturally, therefore, common men hate a new idea, and are disposed more or less to ill-treat the original man who brings it” (Bagehot 1999).
3.2 CULTURAL CHANGE
Another hurdle to overcome is the strong cultural role that the old-fashioned office building still plays. Giuliano (1985) describes the attributes of a physical office as home for organisations, a place to meet face to face, and a work-oriented environment away from home.

Parallel to this, are the negative side effects of alternative ways of working. For example, hot-desking takes away the sense of belonging, which is a very secure symbol for people and teleworking jeopardizes the cherished boundaries between home and office (Dowdy 2000; Marmot and Eley 2000; Lake 2005).

3.3 CHANGES IN POWER AND COMMUNICATION AMONGST DISCIPLINES
A successful adoption of alternative ways of working requires effort from a variety of disciplines including Human Resources (HR), Information Technology (IT) and Facility Management (FM).

However, as noted by Robertson (2000) these groups rarely interact with each other and are mainly concerned about their own area of responsibility. The HR group is seen as the group that focuses on initiatives that are good for the employees, but without clearly adding real business value. The FM group is regarded as only interested in cutting real estate costs by relying on old paradigms – e.g. reduce the size of workstations – and rarely do they offer leading-edge solutions to space challenges. Finally, the IT group seems to deliver technology for the sake of technology, without fully taking into consideration people or management issues.

4. A PROPOSED MODEL TO ACCELERATE ALTERNATIVE WAYS OF WORKING

Due to the fragility of the organisational ecology and the challenges inherent in adopting alternative ways of working, a method is proposed to facilitate the implementation process within individual companies and accelerate the process of adoption on a global scale. To achieve this, the proposed method relies on timely adoption and tailored solutions based on FM principles as well as Rogers’ diffusion of innovation theory. Figure 1 summarises the steps and identifies the key players on each of them.

Figure 1: Model to accelerate adoption of alternative ways of working.

Step 1: Facility assessment
Facility management as the catalyst to accelerate the evolutionary changes in workplace architecture

Agustin Chevez

The first step is to identify when the facility is due for capital renewal. Capital renewal differs from maintenance and repair in that the former is a comprehensive action to completely replace an existing asset – even to the extent of changing its functionality or location – whereas maintenance and repair are interventions just to ensure an asset reaches its optimal service life (CICA 1989; Vanier 2001).

Matching the time when a facility requires capital renewal with the adoption of an alternative way of working will provide the flexibility required to redesign the space and functionality to host the new working environment. Therefore, the facility manager plays a crucial role in this step as he/she is the responsible for managing the substantial maintenance, repair and renewal work and is in a constant technical challenge to weight the cost of these decisions versus the technical and functional benefits of implementing a solution (Vanier 2001).

Gordon and Shore (1998) identify three planning horizons for asset management based on their projection into the future:

a) Operational planning: within the two-year time frame;
   b) Tactical planning: within the two to five years time horizon; and
   c) Strategic planning: planning beyond the five-year term.

Because most building components or systems have service lives ranging from 5 to 35 years (HAMP 1995; Vanier 2001) it is in the strategic asset planning horizon that capital renewal is planned. However, because not enough is spent on maintenance and repair, owners are accumulating an ever-increasing maintenance deficit, which leads to premature failures and premature renewals (Vanier 2001).

The capital renewal cost in the USA is approximately US$370.00 billion. Although this figure includes all type of infrastructure, not only office buildings, it denotes the magnitude of the challenge. Proportionally, similar scenarios are shared by Canada and Australia (Vanier 2001). It is estimated that the infrastructure renewal liabilities for Victoria, Australia, are in the order of AUD$23 billion (Burns, Hope et al. 1999).

Step 2: End-user profile

Once the facility is due for capital renewal, the end-user profile of such facility can be matched to one of the five types of adopters depending on their readiness and capability to adopt an innovation as per Rogers’ diffusion of innovation theory.

Rogers’ diffusion of innovation theory describe the process by which an innovation, in this case alternative ways of working, is communicated through certain channels over a period of time amongst the members of a social system. Such process starts with the awareness stage, followed by the interest stage, the evaluation stage and trial stage to culminate in the adoption stage. Through the awareness stage to the trial stage the individual has the option to reject the innovation. Once adopted, the innovation can be discontinued by disenchantment or by replacement (Rogers 1995).

Rogers classifies the unit of adoption, in this case the end users, into:

1) **Innovators**: The risk takers. They have the ability to understand and apply complex technical knowledge and to cope with high degree of uncertainty about the innovation. But most of all, they control substantial financial resources to absorb possible loss from an unprofitable innovation.

2) **Early adopters**: They are successful and respected by peers. Their high degree of opinion leadership affects most systems and they serve as role model for other members or society. They play a key role in the adoption process determining the time and extent in which an innovation will be adopted.
3) **Early majority**: Whilst they do not take as much risk as their predecessors, they do accept an innovation before the average person. They interact frequently with peers, yet seldom do they hold positions of opinion leadership. They deliberate before adopting a new idea.

4) **Late Majority**: Their education and income are limited. Being sceptical and cautious, they will usually adopt the innovation under economic or peer pressure.

5) **Laggards**: They possess no opinion leadership, are isolated or surrounded by other laggards. Their resources are limited. Their point of reference is the past, therefore are suspicious of innovations and frequently by the time they adopt an innovation there is a new one already starting to take its place.

**Step 3: Matching end-user profile with alternative ways of working**

The process of selecting an alternative way of working is complex. It depends on the type and size of business, management style, structure and philosophy of work amongst other variables. However, this method argues the type of alternative way of working and the fashion in which it is implemented depend on the type of the end-user as described in step 2.

For example, two similar companies in type, size, structure, etc, but one being an ‘early adopter’ and the other a ‘late majority’ will differ in the ratio of adoption and/or in the suitable type of alternative way of working. That is, a company with an end-user profile of ‘early adopter’ will be better-off with an adoption rate of 60% traditional – 40% alternative, whereas a ‘late majority’ end-user type company will benefit from a rate of 80% traditional and 20% alternative.

**Step 4: Balancing the organisational ecology**

Finally, a joint effort from FM, HR and IT, together with the architect is required in order to design the new space that will host the new activities in balance with the people and technology.

The timed and tailored adoptions of alternative way of working as suggested by this method are proposed to collectively accelerate the global adoption process as shown on figure 2. Figure 2 shows the typical S-shaped curve that indicates the standard adoption of alternative ways of working through time, continuous line, and the accelerated process, dotted line.

**Figure 2: Adoption Framework**

![Adoption Framework Diagram](image-url)
5.0 CONCLUSIONS

There is an evolution in workplace architecture and organisational ecology as a result of alternative ways of working fostered by technology. Technology is revolutionising the way we work, how we work and where work.

The future of the office is uncertain. The office and the workplace is in constant change and its direction will depend to a large extent on the time and manner by which alternative work practices are adopted by companies, organisations and society at large.

A planned, integrated and multi-disciplinary method of adoption of alternative ways of working is proposed to increase the success rate within individual implementations and to accelerate the process of adoption at a global scale.

Matching the implementation of alternative ways of working with the capital renewal will minimise the implementation costs. Therefore, facility managers play a crucial role as the agents that provoke the change. Parallel, Rogers’ diffusion of innovation theory helps accelerate the adoption process.

By applying the proposed method, an accelerated adoption can be achieved by reaching the same population in less time \( (t_2 < t_1) \). Such acceleration will capitalise sooner all the economic and environmental benefits of alternative ways of working.
6.0 REFERENCES