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Publication date

2000

Document Version

Final published version

Published in

Succesful corporate real estate strategies

Citation (APA)

van der Voordt, DJM., & van Meel, JJ. (2000). Lessons from Innovations. In G. Dewulf, P. Krumm, & H. de Jonge (Eds.), *Succesful corporate real estate strategies* (pp. 51-64). Arko Publishers.

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Lessons from Innovations

By Theo van der Voordt and Juriaan van Meel

Theo van der Voordt and Juriaan van Meel describe the interaction between workplace concepts and the performance of organisations and individual employees. Although there have been hardly any scientific evaluations, it may be concluded that innovative concepts fit better with new ways of working. However, psychological needs such as privacy and territoriality must not be underestimated.

5.1

Demand for change

One of the main functions of corporate real estate is to support the working processes of organisations. The aim is to find an optimal fit between organisational goals and values, activities, management style and the layout of the building. A well-designed building can contribute towards efficient and effective activity patterns, optimal productivity and high levels of satisfaction among managers, employees and customers. Buildings should create optimal physiological conditions in terms of temperature, air quality, daylight, artificial lighting and acoustics. Buildings have a symbolic meaning, too. They can be an expression of corporate identity, power, reliability, and so on. Finally, buildings have an economic function. They should be designed in a cost-effective way, in order to reduce investment costs and running costs. Good buildings comply with all these requirements.

Requirements are not static. Office design takes places in a context of dynamic social, technological, organisational and economic changes (Vos and Dewulf, 1999). For example, office buildings are being used less extensively than before, because of part-time work, reductions in labour time (a 36-hour working week is quite normal in the Netherlands), teleworking, training, or special leave granted for pregnancy and sabbaticals. On average, most office workspace is occupied for only about 50 percent of the time. Furthermore, technological innovations such as mobile phones and laptops, Internet and Intranet make work less dependent on time and place. Advanced computers make it possible to record, process and exchange huge amounts of information rapidly and easily. Organisations themselves are changing rapidly, too. They grow or shrink, try to tap into new markets and adapt their working processes to new technological infrastructures, focusing particularly on Information and Communication Technology (ICT). Organisational structures are becoming increasingly flexible and 'flat'. Highly specialised employees no longer work individually, but co-operate in multidisciplinary teams.

In this dynamic context, organisations are increasingly aware that real estate is an important cost factor, second only to human resources. Therefore, office design is increasingly viewed as a tool for realising cost reductions. At the same time, there is a growing awareness that real estate can submit to more efficient working processes ('real estate as the fifth resource'). In combination, all these developments lead to a reconsideration of the way we design and manage office buildings and workplaces.

5.2

New workplace concepts

Due to the developments discussed above, new office concepts are being introduced world-wide. These new concepts can take various forms. Usually, they consist of a combination of different types of intervention. At a conceptual level, three major trends can be distinguished: changes in workplace location, organisation of working space and the uses to which it is put (see Figure 5.1):

Change in workplace location: teleworking

This means that employees work at a distance from the central office, for example, in a satellite office or a business centre, at a client's office, at home or in a place that is not primarily intended for work ('instant office').

Change in the organisation of working space: new office layouts

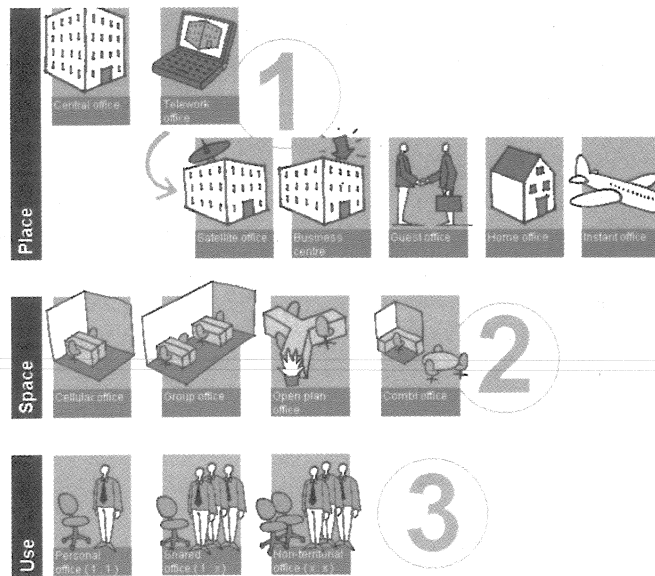
This means that the layout of the office is changed to adapt to new activities. For instance a change from a traditional cellular office to an open plan office, or to what is called a combi office or cocoon office — a concept that combines open spaces for communication with cellular spaces for concentration.

Change in how working spaces are used: flexible workspaces

One component of the flexible use of space is 'place rotation'. The employees move from place to place, depending on the activities of that moment. This requires a variety of workspaces, e.g. quiet cells or 'cockpits' for concentration work, group offices or open space for team work and interaction, touch-down workplaces for short-term activities, coffee corners for informal meetings, and so on. A related concept is desk sharing. Instead of having one's own workspace, people share one with colleagues or use a place which is free at that moment.

These three trends cannot be seen in isolation, because they are strongly interconnected. Teleworking, for example, results in lower occupation densities at the central office building. For this reason, teleworking is often combined with desk sharing and non-territorial offices. Other crucial changes that take place along with office innovation are changes in supportive facilities, particularly in office furniture, ICT and filing systems:

Figure 5.1. Typology of office organisations with reference to location, layout and use of workplaces (Source: Vos, Van Meel & Dijcks, 1999)



Adaptations in interior design

Office innovation often results in a total re-decoration of offices. In addition to a face-lift using bright colours and nice materials, it also includes the introduction of furniture that is both attractive and ergonomic, and adjustable to personal needs.

Introduction of advanced ICT facilities

Modern technologies, such as fast computers, mobile equipment, Internet and Intranet are both a prerequisite and a catalyst for other interventions.

New ways of filing

Most innovations include a shift away from individual paper archives to central digital filing systems, supported by professional office management. The idea of the 'paperless office' has been revived.

5.3

Experiences with new office concepts

Innovative projects receive a lot of media attention. Consultants give enthusiastic presentations at seminars. Design magazines love to feature showy, high-tech environments. But what happens when the photographers and journalists have gone? Are the projects as successful as they promise to be? Have the main objectives been achieved, such as alignment to new ways of working, improved performance of both individual employees and the organisation as a whole, cost reductions? Unfortunately, little is known as yet, because very few structural evaluations of projects have been

made, so far. Negative results are seldom published. Most reports only give rough descriptions, failing to look in depth at cause-effect relationships. However, as we have seen, office innovation may include different types of intervention and each type may have different effects. Moreover, effects depend strongly on the organisational context in which new solutions are implemented. Nevertheless, based on the literature and on our own evaluations of Dutch Government Building Agency projects and those of the ABN-AMRO Bank, we are able to make several general observations about experiences to date regarding innovative offices. With reference to frequently occurring objectives, we will focus in particular on the effects of new office concepts on employee interaction, satisfaction and productivity (all of them indicators of organisation performance), and accommodation costs.

5.3.1

Interaction, communication and concentration

Most projects aim to improve communication and interaction by creating openness, transparency and informal meeting places. The underlying idea is that interaction propels the exchange of ideas and better employee and organisation performance. Research shows that more open solutions with fewer walls and glazed partitions indeed result in better communication (Beunder and Bakker, 1997; Vos, 1999). People come into contact with their colleagues more easily, thereby getting to know better what is going on. The logic is simple: the chance of meeting someone is greater if other people are nearby and visible. Desk sharing stimulates employee interaction, too. Instead of being with the same colleagues, in the same room, day-in and day-out, employees meet different colleagues at different workplaces. However, this only works when employees actually move through the office.

When there is a surplus of workplaces, employees tend to use the same workplace repeatedly – just as people prefer to be seated at the same place at the dinner table. Territorial behaviour and a sense of personal belonging seem to be the explaining psychological factors.

When employees work on a truly non-territorial basis, it may be difficult to find them. Although this problem is often counterbalanced by a transparent and open layout, it can be problematic. An example is the office of TBWA Chiat/Day. This non-territorial open office has been widely regarded as an unquestioned exemplar of how the office of the future should look. Its design resembled a three-dimensional pop-art painting with vibrant colours, expressive shapes and unconventional materials. But this famous case proved to be a failure. Employees were unable to find each other. They couldn't find workspace either and their productivity plummeted (Berger, 1999). Later on the firm moved to another building.

Another problem concerning employee interaction is that informal meeting areas tend to be less effective than expected. Meeting areas with nice furniture, or even a fireplace,

do not automatically generate face-to-face interactions. There must be a predisposition to come to such a place, e.g. a water cooler, photocopier or coffee machine. The organisational culture must be supportive, too. Informal gathering or coffee drinking is often perceived as a waste of time and not as 'real work' – no matter what management gurus say about its value. In particular, in combination with high noise levels in an open layout, this can be a problem.

The reverse of increased employee interaction is loss of privacy and less suitable working conditions when performing work that requires concentration. Face-to-face and phone conversations are frequently cited as the most bothersome problems in innovative offices. Besides, communication is not necessarily job-related. It can also be about the latest football match or a controversial television show. Although it is natural to talk about such topics and small-talk does support the team spirit, it can also distract people. Surveys show that concentration is a major problem in almost every innovative office, in almost any type of organisation, ranging from government departments to banks, from consultancy firms to advertising agencies. One of the main challenges in office innovation is to find the right balance between privacy and interaction. Teleworking could be an interesting option. Office people find themselves being able to concentrate much better at home, or in a full-service hotel. This may improve productivity. According to Becker et al.'s (1993) research on 12 telework centres in Japan and the United States, 81 percent of the employees experienced increased productivity. Less distraction and time saving due to avoiding commuter traffic were given as the main reasons. The disadvantage is that telework also leads to less face-to-face interaction, and this sometimes results in feelings of social isolation, which, in turn, may be expressed in lower productivity. For many employees, eye contact with either supervisors or colleagues remains a motivating factor. At Getronics, one of the largest ICT suppliers in the Netherlands, teleworkers stated that reduced contact with colleagues was an important drawback of working at home.

5.3.2

Employee satisfaction

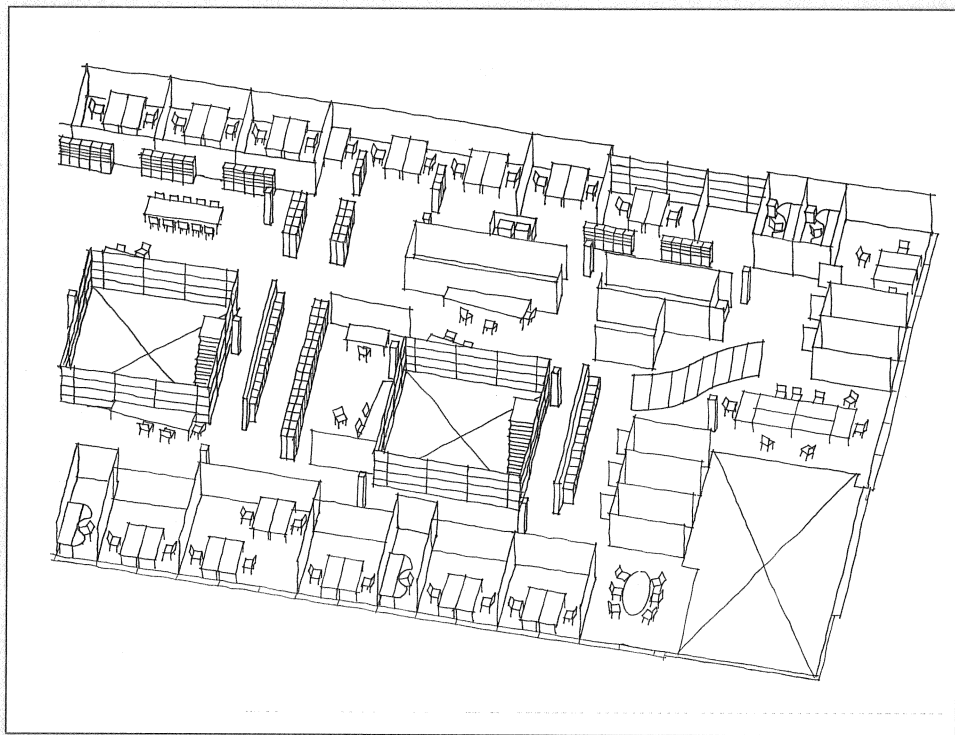
Innovative offices are usually judged first and foremost by their appearance. A nicely designed environment with bright colours, new furniture and the latest technological gimmicks will be positively appraised. A new office, so designed, sends out a message of professionalism and modernity. It gives a cutting-edge image, not only to the organisation but also to its employees. Many employees also appreciate the openness, improved interaction and flexible use of workspaces. However, paradoxically, the very same issues also raise negative responses. We have already mentioned the problem of privacy. Most users also experience concentration problems, because they are confronted with too many distractions in the open workspaces.

Box 1. Dynamic Office, Haarlem, the Netherlands

One of the exemplary innovative office projects of the Dutch Governmental Building Agency is the so-called Dynamic Office in Haarlem. This building accommodates six business units that, in the old situation, were scattered over different buildings. Most of the employees were used to working in a cellular setting. They did a lot of concentrated work and spent most of their working hours in the office. The objectives of the Dynamic Office are to stimulate new ways of working (more flexible with reference to place and time) and leadership (less hierarchical; employees should no longer be 'controlled' by presence, but by output). Furthermore, the new concept aims to generate more interaction and better communication and a more efficient use of space. The Dynamic Office can be characterised as a non-territorial combi office, with group spaces and concentration cells at the facade and formal and informal meeting places in the middle. There are 175 activity-related workplaces for 250 employees.

Most employees are positive about the increased level of communication and interaction and the closer contact with people from different units (Vos, 1999). They like the modern architecture of the building, its transparency (fewer walls than before and a lot of glass, with only a small strip of mat glass at eye level), the ICT

Figure 5.2. Workplace layout Dynamic Office, Haarlem

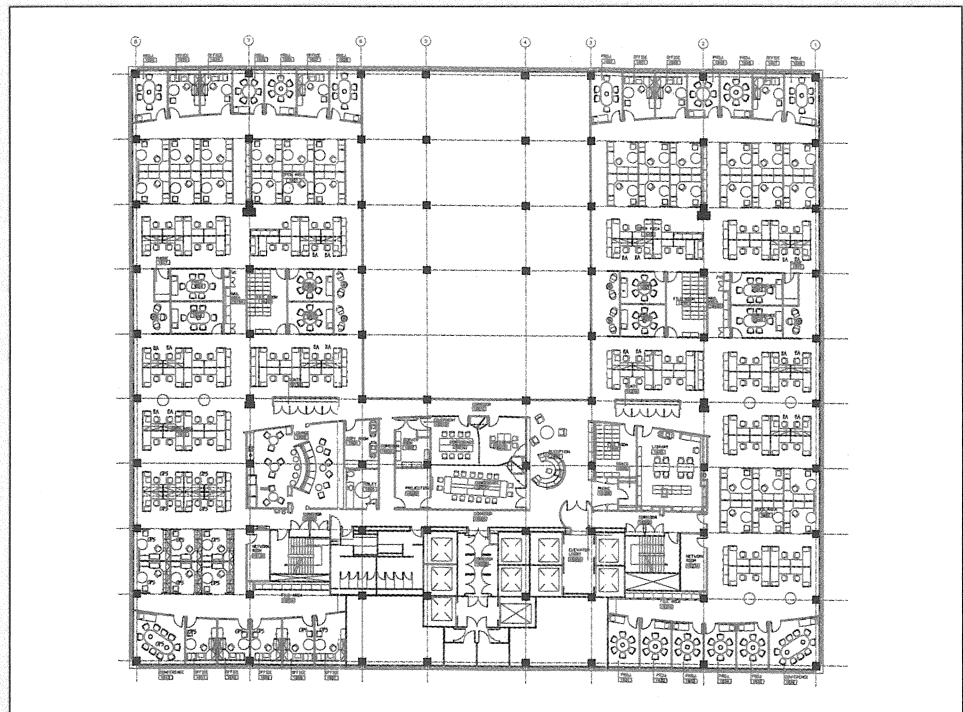


services and the luxurious, ergonomic furniture. About 65 percent of all employees are positive about desk sharing, while 75 percent say that the new environment is compatible with their activities. However, there are a lot of complaints about high noise levels, distraction, concentration problems and lack of privacy. We might speak of a 'transparency paradox', referring to both the positive and negative effects of a more transparent layout. The intended change in working patterns does not take place. People still work almost continuously behind their desks in the central office. Consequently, the new design did not appear to have improved the performance of the organisations involved. The percentage of employees wanting to return to the old situation (43 percent) is even a little bit larger than the percentage that doesn't (35 percent). The perceived productivity decreased from 7.5 to 6.9 on a 10-point scale.

Box 2. Arthur Andersen, Chicago, USA (Soullié, 2000)

Arthur Andersen (AA) is a major accounting and consulting firm of American origin. Its American offices play a leading role in office innovation. An interesting example is the accommodation of the business consulting (BC) group in the main office in Chicago. For more than three years, the majority of the BC group has been working in

Figure 5.3. Floorplan of the 15th floor of Arthur Andersen Chicago



non-territorial offices. The non-territoriality factor was made more pronounced in their new office. In the new concept, offices have only been assigned to the administrative personnel. None of the other employees has a personal desk anymore. They are given the freedom to choose where to work on a day-to-day basis. There are 386 non-assigned workstations of different types for 650 employees (to be increased, in 2 years time, to 830 employees). The most important change was that involving the partners in the office, who were not used to sharing desks at all. The open office was less of a problem, as this has been a familiar concept in the building for years. The goals of the Chicago office were to obtain more workspaces in a limited space, to save costs by reducing space requirements, and to improve communication between the teams and the different levels of hierarchy.

According to the users, three major issues have been improved: communication among colleagues, flexibility in the use of furniture and the overall atmosphere of the (modern) working environment. The three major disadvantages are noise and distractions in the office, lack of privacy with respect to telephone conversations or private meetings, and lack of storage space for work-related materials. Though the negative aspects are considered more important than the positive ones, there is overall satisfaction with the new office in that the majority prefers the current to the previous space.

Open office layouts and desk sharing also result in a loss of status and privacy, and poses a problem for those who feel the need to exercise territorial behaviour. Other complaints concern new styles of working. When people no longer have their own desk, they have to organise their work much more precisely by thinking in advance about the kinds of activities that have to be performed and the materials needed to carry them out. Initially, employees' problems centre around filing their documents and organising their work. To minimise the time lost in collecting materials and starting or closing PCs, and also because of the fact that there may be too few workplaces of a particular type, people actually move much less from place to place than one might expect. Beunder and Bakker's (1997) study showed that employees at the central office have more work to do on days when colleagues work at home or at a telework centre. They have to answer more phone calls and more questions and they have to clear more emergency cases. Teleworkers themselves experience a lower involvement in the day-to-day interactions at the central office.

When employees have more freedom to choose when and where they work, managers can no longer control their subordinates by simply supervising them at the same desk from nine to five. They have to adapt their management style to the new situation, by steering through output. Many managers need time to adjust to this new style and are ill at ease in the early stages.

Last, but not least, user satisfaction can be overshadowed by practical problems. When working at home, a slow or defect modem is very frustrating. The same is true for a defect network when someone is desk sharing. Such technical problems should be avoided, or solved as soon as possible.

An interesting observation, however, is that, despite all complaints, most employees do not want to return to the old situation of fixed workplaces in a cellular office. It seems that the overall impression carries more weight than the accumulation of small complaints. Besides, people project general complaints onto the new situation, even though the same problems occurred in the old situation without them being noticed explicitly. Last, but not least, people tend to give socially desirable answers in that the majority do not want to be perceived as conservative or reluctant to give up their personal workplace because they cannot break away from a traditional situation or are afraid of losing status.

5.3.3

Cost reduction

In most of the cases designers and clients emphasise that it is not the main goal of the project to reduce costs. Improved performance and cultural changes are stated as being as the main drivers for change. It is clear, however, that costs remain crucial. Employee interaction and satisfaction are interesting, but their added value is hard to quantify. Costs are much easier to quantify, and are therefore an important incentive for innovation. Many organisations aim at saving costs by changing cellular offices into open plan offices. Open plans tend to be more space efficient than cellular offices because more people can be 'squeezed' into them. This advantage is made most apparent when even managers give up their spacious rooms. At Arthur Andersen, for example, partners and senior consultants joined the rest of their staff in the open plan, and this resulted in large savings of space. Another popular way to save space is to create non-territorial offices. If desks are shared, fewer workplaces are needed, which means that fewer square meters are needed to house the company, and that there is less space to furnish, maintain, clean, heat, cool, and so on. In the Dynamic Office in Haarlem, 20 percent savings on space were achieved, compared with a traditional office (Vos, 1999). The Dutch insurance firm Interpolis even claims that desk sharing and teleworking reduced space requirements by 50 percent, so that instead of two new buildings, only one will had to be built.

Yet, it is important to realise that office innovation also entails extra costs. Investments have to be made in communal areas, high-style interior design, and advanced technology. In the case of teleworking at home, organisations have a responsibility to invest in that workplace too. Furthermore, new offices tend to be more costly in terms of management. The success of desk sharing is heavily dependent upon technology and somebody has to take care of that technology. It is often necessary to hire an office

manager who takes care of the reservation of workplaces and their maintenance. Troost's (1998) research in the Netherlands showed that at least 24 percent of the space has to be saved, if financial benefits are to be achieved from these changes.

5.4

Management of change

For many employees, office innovation brings with it an almost revolutionary change in how they use and experience their working environment. Although many people are open to change, there is a lot of resistance, too. People have to give up their personal workspace and get used to new ways of working. A well-organised process, therefore, is, in itself, at least as important as a product which fits well with the new requirements. From discussions with corporate real-estate managers and other people involved in office innovation, and also from our own involvement in several projects, we can identify several factors in this process that critically affect its success or failure (Vos and Dewulf, 1999; Van der Voordt and Vos, 2000).

A clear mission

Workplace innovation is not an objective in itself, but an instrument to support change. Management should have a clear mission, with realistic objectives and explicit priorities. They should focus on the particular context and not simply copy a concept that has proved to be successful in other organisations. The objectives should be formulated in such a way that the project performance is measurable and open for evaluation.

Information and communication

To create a design that fits optimally with the requirements of the organisation, day-to-day users have to be heavily involved in the design process. Users can best formulate their demands and wishes for the new workplace, since they are the ones who carry out the organisation's core activities.

Inspiring leadership

Employees will not ask for an alternative workplace, as long as they do not clearly know what the effects are of being accommodated in an alternative office. The manager has to be able to convince the employees. He has to set an example. Having a champion is important not only in the initial phase of a project, but also in the period after implementation.

Integrated and tailor-made approach

Implementation will only be successful, if an integrated approach is used. The working environment is no longer the concern of the facility manager alone, but also of finance, IT and Human Resources. The Swedish researchers Granath et al. (1996) stress the importance of 'collective design'. All actors, including the users, have to take part in the

Box 3. Ten recommendations for implementing innovative concepts
(Source: Van der Voordt, 1999)

1. Organise a start-up meeting to inform those concerned and to come to agreements about the objectives and approach of the process and the results envisaged.
2. Make sure there are enthusiastic project leaders among both management and users.
3. Set up a project organisation whose tasks and powers on behalf of the parties involved are clearly defined and where there is co-ordination between different levels (from top management to daily users) and different disciplines (Real-Estate Management, Facility Management, Human Resources, Information Technology, Finance).
4. Make sure there is a balance between policy-oriented guidance from the management ('top-down') and the grass roots development of the users' ideas ('bottom-up').
5. Organise workshops with users to collect data, develop ideas and test design proposals.
6. Attune the number of workshops to achieve a balance between the need for information and discussion, efficient time management and rapid throughput.
7. Alternate workshops with individual interviews and project team meetings during which more detailed discussions and decision making take place.
8. Involve the architect in the process at the appropriate time, as soon as working processes and trends are clear and the desired work space concepts begin to take shape.
9. Ensure that it is made clear when the project is completed.
10. Draw up clear agreements about any temporary accommodation and the use and management of the new accommodation. Make sure that there is proper training so that users are able to cope adequately with the new accommodation.

design process and be regarded as experts. Furthermore, the process has to fit with the particular context. Each organisation has its own mission, organisational structure, management style, culture and history. It also makes a lot of difference if an organisation wants to change slowly and gradually or aims at making far-reaching 'revolutionary' interventions.

Prerequisites

The implementation of workplace innovation should not be hurried. Implementing a new concept is a cultural change that requires a lot of time and energy of both management and employees. The budget must fit the ambitions. Good equipment is a prerequisite, too. Office innovation is often supported by information technology such

as laptops, portable phones and other advanced systems to allow people to work at a distance from their colleagues. As flashy as these tools might appear, it is of utmost importance that they work properly! The installation of a help desk with a short response time and the capacity to resolve problems quickly may contribute to the new concept being regarded positively.

Experiments and pre- and post-evaluation

By organising a full-scale mock-up in a small part of the organisation to test the new concept, employees can experience for themselves new ways of working. Then, adaptations can be made relatively easily, if necessary. Pre-evaluation of the organisational characteristics and work processes can help project organisers to gain an understanding of the fits and misfits and to generate ideas for future work environments. By comparing 'before' and 'after' situations, lessons can be learned about the effects of the new concept on user satisfaction, productivity, use of space, costs, and so on, and also about which factors are critical in the process of implementation.

After-care

After moving, several problems may arise. People have to get used to their new environment and new ways of working. It is therefore very important to organise a procedure to respond to complaints or requests for help and information. This may prevent resistance and at the same time stimulate a positive attitude from all those involved. Some training is often required, e.g. how to manage a central and digital filing system, or how to discuss new codes of behaviour such as the so-called 'clean desk policy', in the case of desk rotation.

5.5

Conclusions

It is clear that technological and organisational changes call for radical changes in office design. An increasing number of corporations are adopting new office concepts such as teleworking, combi-offices and desk sharing. The main question that arises is: How do these new concepts affect the performance of the organisation and its users? In this chapter we have summed up some of the early lessons. In summarising, we come to the following conclusions with reference to the place, layout and use of the workplaces and supportive facilities:

- Teleworking provides employees with better possibilities to perform work that requires concentration. The disadvantage is that there is less peer interaction and, as a result, employees begin to feel socially isolated.
- The use of more open layouts, desk sharing and activity-related settings generally result in more and better employee interaction. At the same time, it almost automatically results in problems concerning concentration and privacy.

- The use of open plans and desk sharing can result in large cost reductions. It is important, however, to realise that cost savings are often counterbalanced by extra investments in new furniture, technology, showy design, and office management.
- Ergonomic furniture and modern interior design have an unmistakably positive effect on employee satisfaction.
- New filing systems can save space by digitising information and sharing centrally stored documents. However, people need some training and support to get used to these new ways of filing.
- The use of innovative concepts makes organisations more dependent upon technology. This can be a problem as employees perceive (small) technological failures as a major annoyance. A short response time for dealing with these problems is absolutely crucial.

The exact impact of the introduction of a new concept differs for each new workplace concept and organisation. Before implementing new concepts, it is crucial to look at the type of organisation. In a university, for example, where people spend a lot of time alone, writing and thinking, it makes less sense to implement open layouts than in team-oriented organisations, such as architectural firms. Desk sharing and teleworking are much more appropriate for ambulant professions such as consultants than for those such as secretaries who do not need to leave the office to carry out their jobs. Furthermore, it is important to look at an organisation's culture and psychology. A hierarchical culture, for example, can pose an important obstacle, as managers do not wish to give up their spacious offices. Another cultural issue is the extent to which people feel comfortable with new technologies. IT firms are much more at ease with new ways of working than relatively traditional sectors, such as government. A thorough organisational analysis is crucial, therefore, before getting started. Another crucial factor for success or failure lies in the implementation of new office concepts. Where the aim is to make radical changes, the process is just as important as the product.

5.6

Debate

Now that we have learnt several lessons about office innovation, we should be able to expand our view to its future development. According to the glossy books and magazines on office design, we rapidly enter a fanciful future world in which technological innovations achieve revolutionary success. New concepts are claimed to bring almost innumerable benefits in terms of cost reduction, productivity increases, and user satisfaction. So one might expect that the forerunners in office innovation - most of them belonging to a professional elite involved in high technology and creative processes - will soon be followed by rank-and-file employees. However, predictions about the future of offices are often wrong. One only has to recall what people have been saying over the past twelve years or so about the prospects of the office. Office concepts

have a life cycle of their own: they emerge, they become popular, and then they are replaced by other ideas — a pattern similar to that of management theory. An illustrative example of the coming and going of concepts is the office landscape. In the 1960s, this concept was hailed as the perfect solution. To promote it, exactly the same arguments were used as today: organisations had to deal with an ever changing world, organisational structures were becoming ‘flatter’ and information technology would radically alter our world view. Yet, ten years later, the initial euphoria about the office landscape vanished when the concept became associated with employee complaints and the Sick Building Syndrome. Clients and designers seem willing to accept new concepts as much for their novelty, aesthetics (glamorous packaging) and prestige (the glitter of the designer or organisation involved) as for the real reasons (Does it actually do the job?). Office innovation is not only driven by organisational and technological changes, but also by fashion (Van Meel, 2000). With each new concept, proponents try to set themselves apart from the past in order to highlight the novelty of their ideas. In the end, however, success depends on the way the concept affects employee performance. Fashion may be fun for architects and consultants, but it is deadly for users. They are the ones who have to spend their lives in these offices and who are required to be productive. We should therefore pay close attention to how office design and technology affects human behaviour. When we want to say something sensible about future offices, we should look at tomorrow’s employees: kids growing up on the virtual playground. How will they respond to new office concepts? Some clues can already be found by looking at today’s geeks, nerds, and whizzkids. These groups prove, for example, to be much better at multi-tasking than we are. Reading a book can be hard for them, but listening to music, surfing on the web and watching television at the same time is not much of a problem. This is likely to affect their perception of visual and acoustic privacy. Likewise, they tend to be much better at electronic communication. To them ‘chatting’ on the Internet is not a novelty, but a natural occupation. From that perspective, they are much more likely to feel at ease with the concept of teleworking and virtual offices than older employees.

On the other hand, it is unlikely that deeply rooted human requirements such as the need for social interaction, trust, status and privacy will disappear because of the advent of the Internet. Humans are born with a toolkit at least 15,000 years old. We are equipped with bodies and brains evolved for hunting, gathering, and gratuitous violence, rather than for information-age tasks such as sitting behind desks, staring at screens and clicking a mouse. This idea is supported by the fact that, for example, more than 50 percent of the Dutch office population has computer-related health problems with their eyes, back, wrists, and so on. In office design, we should take such issues into account. For future offices, we should find a balance between deeply rooted human needs and new technologies. In other words: we must create an office in which the mammoth hunter goes virtual.