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Nordic Innovation Centre

January 2007

A Nordic guide to workplace design

- A Nordic perspective on workplace design: Architecture, facilities management, knowledge management, and organizational change
- Recommendations and dilemmas for workplace design
- Case studies in all the Nordic countries



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Title: DEKAR – Den Nordiske Kunnskapsarbeidsplassen (The Nordic Workplace Design for Knowledge Work)		
Nordic Innovation Centre project number: 02132		
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Abstract: In recent years, the theme of workplace design has emerged as a rich – and controversial – theme in workplace studies and workplace practices, where a number of promises about increased efficiency, better morale, and lower costs have been formulated. The bulk of literature in this area is from the Anglo-American cultural sphere, which has motivated the search for a Nordic perspective on workplace design, charting a territory between architecture, facilities management, knowledge management, and organizational change. The Guide is based on a series of case studies in all the Nordic countries, and is formulated as a set of recommendations and dilemmas for workplace design. Workplace design is locally anchored in order to reach particular goals. Hence it is important to formulate guidelines for local development practices – both for activities within enterprises, and for the enterprises to be qualified customers among the various professions providing workplace design services.		
Topic/NICe Focus Area: Management, Innovation Policy		
ISSN:	Language: English	Pages: 39 + viii
Key words: Workplace design, Nordic, Knowledge work, Cooperation, Creativity, Architecture, Facilities management, Knowledge management, Organizational change.		
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Executive summary

Background & Objectives

The *workplace design* – the physical environment for the enterprise – is an important characteristic of the enterprise. It provides accommodation for work processes and the employees, it is a meeting-place, it communicates to employees and potential customers, as well as investors and stakeholders, and other parts of the environment; it can be good or poor as a working environment; and it is located somewhere.

The goal of the project was to explore how workplace design – as a set of activities – can be deployed as a strategic instrument in knowledge-intensive industries in order to improve central aspects of operational functioning, such as concentration and co-operation – key factors for strengthening innovativeness and competitiveness.

This Guide focuses on the use of innovative office design as an instrument for creativity and knowledge sharing, and explores the territory between architecture, facilities management, knowledge management, and organizational change.

The study has achieved this aim through:

- A study of recent literature on workplace design and knowledge management
- A quantitative survey of the attitudes of Nordic managers and decision makers
- Case studies in selected companies in all the Nordic countries

Method

In the survey of Nordic managers, 150 telephone interviews were conducted in each of the Nordic countries Sweden, Finland, Denmark, Iceland and Norway. The respondents were recruited from the top management level, such as CEO, human resources manager, facility manager, information officer or equivalent positions. In order to get fairly robust results, four selected business segments were targeted: manufacturing, transportation / telecommunication, business services and public services. These segments were chosen in order to encompass a broad range of knowledge-intense industries.

Case studies were conducted within one to four companies in each of the Nordic countries, and in total some twenty cases were explored. In the selected companies, workplace design and workplace behaviour were explored through a combination of qualitative interviews, surveys, and observations within the workplace.

Main results

The survey showed that Nordic managers recognize workplace design as one instrument for changing workplace practices, and they are making plans to change the physical environment. Together, the awareness and the actual plans show large potentials for using workplace design for changing work practices.

In the DEKAR manager survey performed to support this Guide, over 40 per cent of the managers reported that they had conducted rearrangements in the use of office workspace during the last two years. Asking for their future plans, almost every third manager stated that their company had plans to rearrange, rebuild or make changes in the office buildings in the

coming two years. Even if their motives for making such plans are multiple, it is striking that most managers hold knowledge sharing and development of working practice as the most important factors. This suggests that the idea of using workplace design as a strategic tool for the development of their business is widespread, even if other efforts still are more common.

There are several dilemmas in workplace design: Since it is impossible to achieve *all* possible benefits from design processes, there has to be trade-offs between different ambitions and goals. Hence, each organization needs to set own goals for an eventual workplace (re)design project, and to undertake the (re)design process based on one's own situation and goals.

Based on the case studies and the research literature, a *procedural model* for workplace design has been developed, encompassing the phases from initial charting of motives for planning changes, all the way to the resulting workplace design and subsequent evaluation and revisions. This model is deployed for structuring the main content of the Guide. The main phases of the model include:

- Clarifying the multitude of factors actualising workplace design
- Investigations about workplace design
- The steps of actual workplace design processes
- Post-occupancy evaluation, and adjustments of the resulting design

All these phases ought to be supported by broad employee participation and top-leader support.

Workplace design has more dimensions than the common dichotomy between open-plan offices and cellular offices: Enterprises will typically provide access to a range of different workplaces, such as meeting rooms, open areas, cellular offices, canteens, and so on.

Key variables in the workplace design process include spatial layout, centrality, and visibility within the workplace; introduction strategies; technology availability and usage; and space usage, e.g. in the decision between personal workplaces and “non-territorial” workplaces.

Conclusions

Workplace design can be used, and is actually being used as a strategic instrument for changing workplace functioning. There is, however, no “architectural determinism”: Although design is important, design alone cannot determine workplace culture and workplace functioning. Similar spatial solutions may be deployed in quite different ways.

Workplace design will always be local, and needs to have both top-leader support and employee participation in order to achieve a fitting design, and to get support for necessary changes.

It is an aspiration of the Guide to empower enterprises and employees, to make them competent customers of services from professional providers, and to make professional providers even more professional. The main target groups for the Guide are

- Enterprises in private and public sector, including employers, employees, facilities managers, HR personnel, and trade union representatives
- Providers of products and services for workplace design, including interior architects, architects, facilities owners, workplace consultants, and ICT-suppliers
- Public authorities, including urban planners, and health and safety inspectors

Recommendations

The complex interrelations between workplace design and key organizational factors need to be pursued through subsequent studies, in order to explore the robustness of workplace design as a strategic instrument for knowledge sharing. Continued studies could encompass:

- Longitudinal studies of workplace behaviour in order to monitor and explore long-term effects of and experiences with alternative workplace design.
- Studies of the workplace behaviour of “newcomers” within an organization, in order to explore the impact of a workplace redesign project, *vis-à-vis* the impact of the physical design itself.
- Comparative studies of different organizations in identical physical environments
- Studies of workplace behaviour after changes in corporate policies (e.g. after a merger, the introduction of a new HR regime, or the advent of a new CEO with a different perspective on workplace behaviour).
- More elaborate studies of information and communication technologies within workplace design.

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Preface

In recent years, the theme of *workplace design* has emerged as a rich – and controversial – theme in workplace studies and workplace practices. Companies have adopted new design solutions with the aspiration of achieving flexibility, higher quality of the work done and a higher degree of creativity and innovation, as well as cutting office costs. New concepts, such as ‘touchdown offices’ and ‘hotdesking’ flourish, and previously disparate groups of professionals have engaged in discussions about the future of workplaces as well as the future of work. In these discussions, a number of promises about increased efficiency, better morale, and lower costs have been formulated. Nevertheless, there have been relatively few empirical studies of these new office forms and practices. The bulk of literature in this area and the majority of examples are from the Anglo-American cultural sphere. This motivated the establishment of a research and development project searching for a *Nordic* perspective on workplace design, charting a territory between architecture, facilities management, knowledge management, and organizational change.

This set of guidelines is the outcome of the Nordic research and development project *DEKAR*. DEKAR is an acronym for Den Nordiske Kunnskapsarbeidsplassen – *The Nordic Workplace for Knowledge Work*. Partners in the DEKAR project have been Telenor Research and Innovation (Norway) (project leader), Alexandra Instituttet (Denmark), Royal Institute of Technology: School of Architecture (Sweden), Helsinki University of Technology: Lifelong Learning Institute Dipoli (Finland), and Siminn / Iceland Telecom, with additional support from IMG Iceland. DEKAR is based on financial support from *Nordic Innovation Centre*, together with funding from the participating institutions.

The Guide has been developed on the basis of case studies in companies in all the Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden). An indispensable part of the project has been the contribution from the close to twenty enterprises that volunteered to share information about their work practice, and allowed us to ask questions, make observations, and to distribute questionnaires. The DEKAR project sincerely thanks the participant enterprises and respondents. – Without their generous assistance and efforts, this project would not have been feasible.

For the DEKAR project

John W. Bakke

PART I – BACKGROUND

Good [office] layout contributes much to the effective flow of work through an office, and to the efficiency of the worker as well.

L.C. Walker: *The office and tomorrow's business*.
New York, 1930

1. The office is not what it used to be

In the last couple of decades, the shape of offices has changed. Office design has emerged as a trendy professional speciality, with the publication of glossy office design books. Open-plan offices are introduced with the promise of adding extra value to the organization, and new mobile technologies abound. Closely related to the architectural changes is the development of new work practices, where fixed working hours change into flexible working hours, and working from a fixed place within the office building has in many cases been replaced by working from a diverse range of places – both inside and outside the traditional office buildings. Changes in workplace practices have led to the development of new concepts for work and workplace design. It is now common to see terms as flexible and mobile work, distributed work, touchdown offices, hot-desking, and hotelling, to name but a few.

Office design has more and more turned into a fashionable profession; the workplace has been assigned a major role as an instrument for changing activities, routines, and workplace cultures; and certain innovative offices now resemble tourist vistas, attracting visitors wanting to learn about the future of offices.

In addition to innovative aesthetic solutions and increased usage of information and communication technologies, it is common to find open-plan offices, often in the form of non-territorial offices, where one doesn't have a place of one's own, but finds a place within a pool of workplaces. The argument for introducing open-plan offices is that the openness will promote socializing and workplace learning, since it will be more easy to make contact, one may overhear information that may be important in one's work, and it is easy to rearrange seating plans due to shifting projects and work-teams. The introduction of non-territorial solutions is motivated by the observation that all employees will not be present at the same time: Meetings, mobile work, home work, journeys and so on take up an increasing part of the working day; hence there is no need to have one workplace per employee. This pattern is further corroborated by absences due to vacation, sickness, and so on.

The strengthened interest in office design may seem somewhat paradoxical, since new technologies make it possible to work from a multitude of places outside the office, where "The office is where you are". Over the past years the demise of the office has been forecast over and over again. The argument has been that coordination of activities and knowledge sharing to a large extent can be accomplished in distributed settings. Nevertheless, offices have shown a great ability to change and survive, and office design has become a thriving speciality. Although the fixed boundaries of a building seem less fixed, the office has not become as elusive as expected.

The opposite position has also been formulated: That new ways of working have made the office even more important as a site for collocated work – at least for parts of the working week – since mobile, flexible, and distributed work practices make the office an important meeting place. At the same time we today have a better understanding of the important role of

the regular, spontaneous interaction between co-workers for the knowledge sharing process within the organisation.

New office design is also an important example of how companies take more active approaches to their property strategies – from considering buildings and offices only as expenses, to seeing them as investments in the people working there: The introduction of new office forms is also seen as an opportunity to save property costs, since space requirements may be reduced; it is no longer taken for granted that companies own the building(s) where their activities are located; flexibility in operations may motivate alternatives to a fixed number of workplaces in cellular offices; and the facilities management function may be outsourced. Some companies become ‘virtual’, where presence on the Internet is more important than having a prominent street address, which, in turn, may motivate establishment in less expensive locations.

The many agendas for new office design, together with the large number of interest groups and stakeholders in this area, serve as indications that approaches to property strategies are and will be contested and other professions than the facilities managers will provide input to the property strategies. It is unlikely to find perspectives that cover all aspects of workplace design equally well, as what seems like a good area from one perspective may have negative impacts in other areas. One guiding idea is that workplace design has an impact on organizational processes, and – therefore – that office design can be deployed as a strategic tool. In order to achieve this strategic approach, it is necessary to specify and elaborate in some detail the strategic instrument, workplace design, and the range of possibilities for change.

Strategic workplace design

The goal of this Guide is to address one selected element within the vast area of property strategies: How workplace design can be deployed as a strategic instrument for collaboration, innovation and knowledge sharing within Nordic knowledge-intensive enterprises. The motivation for this focus is that creativity and innovation are unanimously seen as important for companies to compete and sustain in an increasingly competitive environment, and that the impact within knowledge-intensive enterprises would be particularly important.

The interest in making changes in the office environment is significant, and the number of managers with plans to make such changes is actually impressively high, as the development and re-building of workplaces seem to be a continuously ongoing activity in Nordic enterprises. In the DEKAR manager survey performed to support this Guide, over 40 per cent of the managers reported that they had conducted rearrangements in the use of office workspace during the last two years. Asking for their future plans, almost every third manager stated that their company had plans to rearrange, rebuild or make changes in the office buildings in the coming two years. Even if their motives for making such plans are multiple, it is striking that most managers hold knowledge sharing and development of working practice as the most important factors. This suggests that the idea of using workplace design as a strategic tool for the development of their business is widespread, even if other efforts still are more common. (See the *Appendix* for further details.)

A Nordic approach to workplace design?

Within the Nordic countries, concepts and models for innovative workplace design have to a large extent been adopted from Anglo-American contexts. Knowing that working life

practices differ from country to country, it seemed reasonable to ask if international concepts and models could be adopted directly, or if there was a *Nordic* approach to workplace design.

International office usage surveys show different national building traditions, where, for instance, there is a tradition in the United Kingdom and USA for open-plan offices, whereas continental European countries so far have shown a preference for cellular offices. Average company size is one explanation for these differences, whereas trade union strength is another: In the Scandinavian countries, trade unions used to oppose open-plan offices when these were introduced in the 1970s, and this is one explanation to the predominance of cellular offices (van Meel 2000). From the DEKAR survey, it is interesting to learn that Nordic managers do not see desk sharing as very relevant – an approach heavily promoted in the Anglo-American office design literature.

Although the most typical Nordic office environment seemed to encompass both individual offices, small open-plan offices and large open-plan offices, according to the DEKAR survey individual offices appear to be particularly common in Norwegian, Swedish, and Finnish enterprises. In Denmark the structure is different; small open-plan offices dominate in most organisations. In Iceland it seems to be common with a combination of small open-plan offices and individual offices.

Other factors that may support regional approaches to workplace design, are the large differences in office occupancy costs – within countries as well as between countries, the huge national differences in average space utilization per employee (see DTZ Research 2005), and the different sets of legislation and building regulations.

About the Guide

The area of workplace design is complex, since enterprises – both in private and public sectors – perform so many different work processes, with different requirements to concentration, privacy, and collaboration, as well as access to documents, to information and communication technologies (ICTs) and to other forms of office equipment. One major perspective in this Guide is that workplace design must be tailor-made: The mass of buildings with their associated ‘footprints’, walls and corridors also make workplace design and redesign into an area of specialized alignment, not the area of ‘one solution fits all’.

In the Guide we focus on companies that have a strategic approach to new office design. Companies that work strategically with new office design typically choose solutions encompassing open-plan solutions, since:

- Open-plan offices provide a high degree of flexibility
- Open-plan offices are often introduced with the goal of promoting knowledge sharing
- Solutions *primarily* with cellular offices do not provide similar options for using workplace design as a strategic instrument – although cellular offices have other qualities

Many guides and handbooks proceed as if it were possible to formulate extensive sets of universal, immutable design rules. In our research, we only found design rules at a high level of generality, in particular in terms of methodology, since workplace design processes need to be locally anchored and locally adapted. New office design in organisations should therefore be addressed with an organisation specific approach. This Guide will give organisations an introduction to the aspects that we found to be particularly important in our case studies.

Intended readers

The interest in workplace design should not be confined to professional groups, such as interior architects and workplace consultants. As elaborated in this Guide, workplace design cannot be seen as an area for the professional actors only: Workplace design can be analysed at least at two levels. The first is a more principal level where we can discern different qualities and conflicting demands and knowledge about how these interact in different situations. The second level is the more applied where we can see which choices are made in the specific design process. The design work is to find the relevant balance between these parts, knowing that it is difficult, on the one hand, to see general patterns but, on the other hand, dangerous to be too specific as it will limit the space of action and possibilities to change and adapt to new circumstances.

For workplace design to become a valid instrument for improving workplace functioning, the enterprise itself needs to be actively involved. In terms of methodology our findings are general: since workplace design processes need to be locally anchored and locally adapted the enterprises are to a large extent addressed through a ‘do-it-yourself’-approach for local activities.

It is also the aspiration of the Guide to make companies competent customers of services from professional providers, and to make professional providers even more professional. The main target groups for the Guide are

- Enterprises in private and public sectors, including employers, employees, facilities managers, HR personnel, and trade union representatives
- Providers of products and services for workplace design, including interior architects, architects, facilities owners, workplace consultants, and ICT-suppliers
- Public authorities, including urban planners, and health and safety inspectors.

Caveats

There is a wide range of factors in workplace design, and the current Guide could not possibly attempt to address everything; this is not a general, all-encompassing Guide to workplace design. There are many design issues that will not be discussed in the Guide, such as ergonomics; heating, ventilation and lighting; choice of colours; environmentally friendly architecture; and universal design, ensuring access to office facilities for the entire range of employees and clients. It is simply assumed that these aspects are well covered (see *References* for selected titles on facilities management).

The goal of this Guide is to explore and elaborate a theme that has gotten less attention in the literature – in particular within a Nordic perspective: How workplace design can be used as an instrument for knowledge sharing. This area “between” architecture, facilities management, knowledge management and organizational development is not yet well developed. It is even more important to explore this area, since many of the proposed solutions in the literature are developed under conditions quite different from what is found in the Nordic countries.

2. Workplace design for knowledge work

In today's competitive climate, creativity and innovation becomes ever more important – in particular for “knowledge work” – work that is not strongly routine-based. Over the past decade, knowledge management has been developed into an important speciality for knowledge work, helping companies to develop, identify, systematize, store and share knowledge.

One emergent trend in knowledge management is to deploy workplace design as an instrument for supporting the way people work and cooperate – including creativity and innovation. This trend is inspired by quotes such as: “*Influencing behaviour is almost all of what management is about, and buildings influence behaviour*” (John A. Seiler, in *Harvard Business Review*, Sept.-Oct. 1984). There is a series of studies showing that buildings “influence behaviour” – in both beneficial and malevolent ways. This demonstrates clearly that workplaces can be designed for advancing knowledge sharing and workplace learning, thereby supporting creativity and innovation (in *References*, see the literature on *Knowledge management* and *Alternative offices*).

A conceptual model for workplace design and organizational functioning

As a contribution to the discussion of creativity and innovation, this Guide should ideally have addressed directly the role of workplace design for these variables or processes. Since creativity and innovation prove to be difficult to measure directly, and since they are influenced by several other factors than workplace design, a somewhat less ambitious goal has guided the study and the current Guide: *To explore how workplace design may be deployed for strengthening collaboration and knowledge sharing*. This scope has been chosen since collaboration and knowledge sharing are core components of creativity and innovation; components that are somewhat more accessible in empirical settings.

Whereas the concepts “creativity” and “innovation” are acknowledged to be at a high level of generality, the concept of “workplace design” is deceptively simple. Nevertheless, even this concept encompasses a range of quite different elements and meanings. The concept refers to the *processes* whereby workplaces are shaped, and to the *result* of design processes. Within this Guide, a broad understanding of workplace design is deployed, including the design processes, as well as the localization of workplaces, the types of offices and the menu of available workstations, workplace technologies, the spatial configuration of the workplace and its elements (such as chairs, tables, windows and doors), and the aesthetics of the workplace. Such a broad approach to workplace design is necessary to promote informed discussions and processes of workplace design, and to avoid misleading, simplified discussions. A common example of the latter is that discussions of workplace design easily conflate into the debate ‘cellular offices *versus* open-plan offices’. This debate ignores that enterprises deploying alternative office solutions typically offer a menu of workplaces for the activities of the employees, not one singular office solution for the entire working day, and that workplaces may be used in different ways.

As an analytical tool for the study, the following conceptual model for workplace design was developed (see Figure 1). This model illustrates how we see the interrelations between workplace design and the selected knowledge management dimensions.

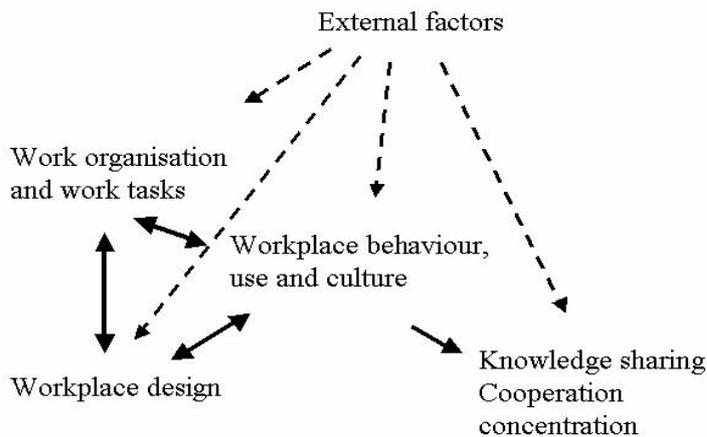


Figure 1: A conceptual model of workplace design for organizational functioning

This conceptual model expresses the view that the ‘workplace design’ does not influence the knowledge management variables directly; workplace design is moderated and modified by the workplace culture and behaviour. The variables ‘knowledge sharing’, ‘cooperation’ and ‘concentration’ are seen as influenced by ‘work organization and work tasks’, and by ‘workplace design’. These variables are seen as moderated by ‘workplace behaviour, workplace use and workplace culture’. Finally, there are external factors, influencing all the variables in the conceptual model.

One perspective expressed by the conceptual model is that workplace design may have different outcomes, and that workplaces may be used in different ways. This implies that design processes are, and always will be anchored in the local experiences, practices, values, and cultures of the specific enterprises.

The conceptual model has served as a framework for studying and analysing workplace processes and workplace behaviour within the DEKAR project, aiming to build knowledge on empirical data: Instead of creating abstracted visions of the ‘future workplace’, as many in this field do, we believe there is a need to substantiate the discussion in empirical studies of alternative workplace arrangements. This methodological basis for the Guide – to build knowledge on empirical studies – makes it possible to produce valuable scenarios of how things could be different.

A case study approach

The participants in the project carried out a total of close to twenty case studies over a period of three years. The case studies were carried out in organisations that were working strategically with new office design and the support of innovation, collaboration and knowledge sharing, most of them deploying open-plan offices as the default workspace, supplemented with a menu of specialized rooms.

The conceptual model served as a shared framework for the project, and a foundation for focusing on a set of general themes and methods across the case studies. All case studies were carried out with observations of people using the workplace, and interviews and questionnaires exploring work processes and attitudes to collaboration, knowledge sharing, and workplace design. Supplementary methods were used in some of the case studies,

including diaries, Space syntax analysis, and the registration of working patterns and office usage.

Our studies of office behaviour and use show that enterprises are not fully aware of the range of activities at work: ‘Office work’ is performed both inside and outside offices and office buildings. The registrations of usage carried out in a number of our case studies showed that employees spend less than 50 % of their working time at their desk, meaning that the workplaces are empty a considerable part of the working week – in particular for managers and senior employees; and reported work practices differ considerably from what can be observed. The lack of knowledge about current workplace activities clearly shows the need for empirical studies to guide workplace design.

A procedural model for workplace design

The conceptual model presented above is important for studying workplace behaviour. When it comes to workplace design and change, it has to be supplemented with another model to ensure a practical treatment of these complex, interrelated processes. The challenges in describing and studying workplace design seem almost trivial compared to the challenges of *applying* ideas about workplace design:

- How does one translate inspirational pictures of modern office buildings into applicable solutions for one’s own enterprise?
- How can descriptions of collaboration and knowledge sharing be made relevant in one’s own setting?
- What can be practically done in one’s own enterprise?
- How does one proceed in the design process?

Based on the DEKAR case studies, a procedural model for workplace design has been developed to support companies in their work with new office design and to help them come up with their own organisation specific answers to these questions (see Figure 2). The procedural model is here presented as a simplified linear model, whereas in actual design processes there will be zigzagging, loops and iterations.

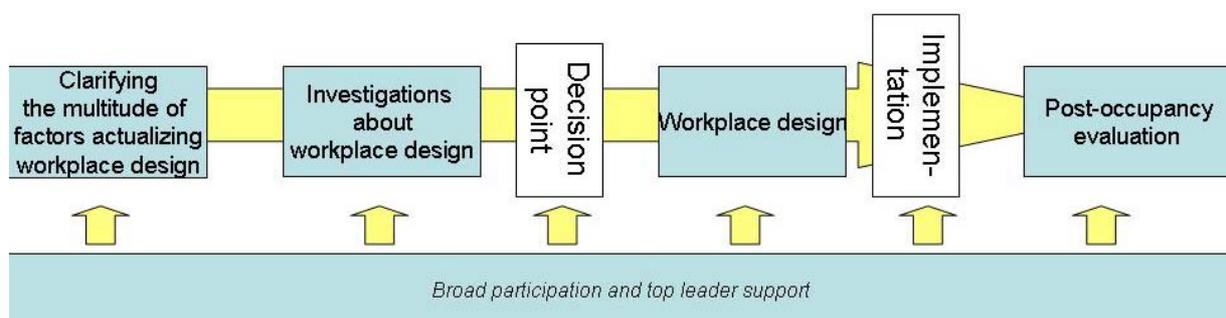


Figure 2: A procedural model of workplace design

The main elements of the procedural model are the identification of the many reasons to embark on workplace design processes, and the need to do thorough investigations to explore the many possible alternatives for workplace design. When a decision has been made, the actual design process may start – where workplace design for knowledge sharing is one aspect of the workplace design activities. After implementation, it is important to perform post-occupancy evaluations, to ensure that a better workplace solution has been achieved. In the following section, this model will be extended and elaborated.

Throughout all these phases, it is of crucial importance to have top leader support to ensure support for processes that may be controversial, and to allocate ample resources for the process. Equally important is the broad participation from the employees throughout the process – after all, they are the ones who are going to use the workplace design.

***PART II – RECOMMENDATIONS AND DILEMMAS IN
WORKPLACE DESIGN***

3. The format of the Guide

Workplace design is local

The main perspective or *leitmotif* for this Guide to workplace design is that design is important for workplace processes, and that certain design solutions are better suited than others to the workplace activities. – There is, however, no unambiguous mapping between activities and workplace design.

Design is a set of processes for adjusting a result – the design solution – to reach certain goals with an efficient usage of resources. The chosen solution will *always* be a trade-off and a compromise between different goals, hence it is important to clarify goals and options in order to get an overview of the range of possible alternatives; to assist in the decision making process, and to ensure that an eventual design process will be successful. To study alternatives is also a productive way to see and understand what kind of conflicting demands and wishes the design process will have to handle. What may be a good solution for one company in one situation, can be impractical or downright wrong in another context.

For enterprises that consider using workplace design as an instrument for supporting organizational processes, one practical implication is that workplace design is local, and will have local impacts based on general knowledge in an applied local process – local means here ‘for the enterprise’, not necessarily local in a geographical sense. In order to achieve a good, local fit, the workplace has to support the actual work processes of the organization, the workplace culture, and the available, physical workplaces. Neither of these may, however, be taken for granted, since work processes, workplace cultures, workplace design, and a number of other workplace-related dimensions are interrelated.

It would have been comforting to provide a large set of simple ‘*do this*’, and ‘*avoid that*’ rules for workplace design. Certain rules may also be formulated, but at a high level of generality, such as ‘*Do not enforce a workplace solution without proper preparatory work*’, and ‘*Ensure both top leader support and broad user participation*’. Since workplace design implies a high degree of end-user adaptation, the main approach has been to identify selected dimensions, dilemmas, and decision points, to serve as resources and instruments for local development processes within companies.

In an anticipation of the further discussion in the Guide, the extended version of the procedural model is presented in Figure 3, summarizing the main content of the section.

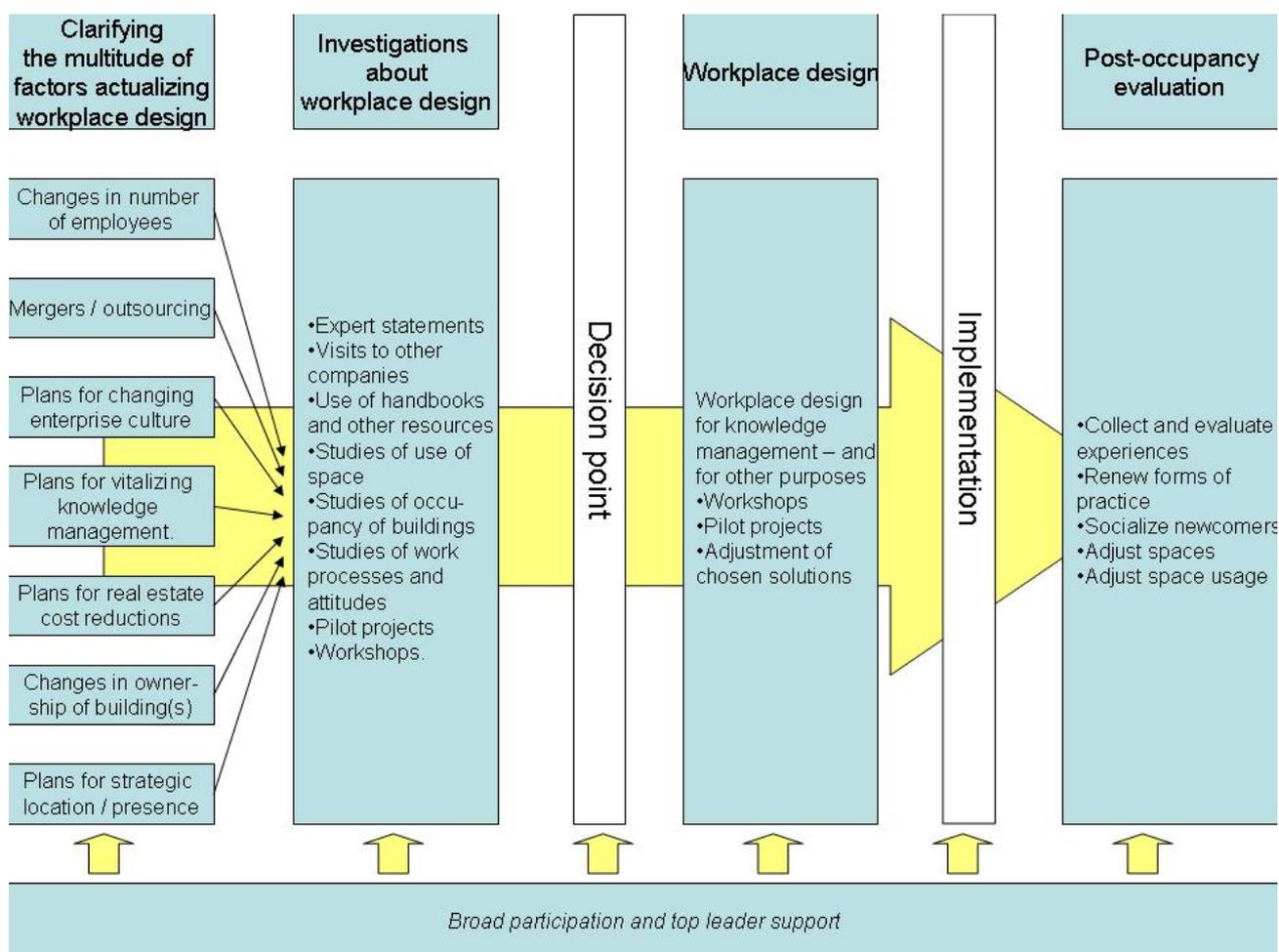


Figure 3: A procedural model of workplace design

Framing workplace design as a strategic process

To a certain extent, workplace design ‘just happens’. Wherever there is a workplace, there have been processes of workplace design – both in the form of formalized planning processes, through a series of adaptations at local levels, and through other activities influencing the workplace.

The main focus of the current Guide is planned design activities. Here, it is important to address the diversity of reasons for setting workplace design on the corporate agenda, since the further path of workplace design processes will be influenced by these activities, although they do not entirely determine the workplace design processes. The workplace design activities may also serve as an opportunity for addressing other strategic goals.

In workplace design processes, it is important to include other professions and interest groups as well, such as the human resources department, and representatives from the employees, since participants from several different perspectives will broaden the scope of the workplace design processes, and will make the entire process more informed.

- Acknowledge workplace design as a strategic activity, and allocate adequate resources and corporate attention

- As a strategic activity, workplace design processes will be expected to interrelate with other processes – strategic and otherwise. There is no such thing as a pure, technical design process
- Changes in workplace design must go hand-in-hand with changes in workplace cultures and practices.
- Not all strategies are well-considered

4. Clarifying motives and expectations

There is a multitude of factors that may actualize considerations about workplace design processes. Some of these considerations relate to decisions in facilities management, such as

- The wish to reduce office costs
- Changes in the number of employees
- Changes in ownership of the corporate building(s)
- Mergers or outsourcing
- Plans for improving the systems for light, heat and ventilation
- Plans for improvements of enterprise culture or vitalizing knowledge management within the company
- Plans for strategic location / presence.

The many potential factors do not simply represent an abstracted possibility: A study performed by the DEKAR project shows that more than 40 per cent of the managers reported that they had conducted rearrangements in the use of office workspace during the last two years, and almost every third manager stated that their company had plans to rearrange, rebuild or make changes in the office buildings in the coming two years (see Appendix). These findings show that there is a high level of workplace-related changes in Nordic enterprises, although to a large extent these changes are framed as facility management decision. Nevertheless, these figures show that there are ample opportunities to extend change processes to incorporate issues of importance for knowledge management and other aspects of workplace functioning.

Whereas design may occur without any elaborated design processes; the existence of plans for design processes usually spurs more elaborated organizational processes, and often conflicts. Plans for changes will almost inevitably be met with ambiguity, as they may be seen both as promising and threatening. With a high degree of uncertainty, people may become suspicious regarding the “real” motives for the planned changes. This will make planning processes and eventual changes difficult, whereas existing solutions may be reinterpreted as being not so bad, after all.

Workplaces are loci for territorial and affective processes in the range from job security and future employment, to minute details of workplace personalization. Therefore, workplace design is a theme that soon becomes a hot issue in terms of ‘office politics’. – Changes are rarely introduced in ways to which everyone agrees. The only viable response to this ‘problem’ is to acknowledge that questions of workplace design also are affective – they are not simply neutral and functional issues. Hence, it is important to inform employees consecutively; to engage in dialogue and discussions about motives and expectations; and to ensure broad user participation in the process. It is important to inform and engage on a large scale, since discussions behind closed doors may spur rumours and foster opposition on poorly grounded reasons.

- Clarify the multitude of motives for considering workplace design processes – not only the politically correct ones.
- There may be good reasons for *not* to embark on workplace design processes, and clarification of motives, together with broad participation, may guard against ill-considered workplace design strategies.
- Acknowledge that workplace design processes require resources – as all strategic efforts do.

5. Employee participation and top leader support

A recurrent theme in the case studies is the value of broad employee participation. There are several reasons for this emphasis, in particular within a Nordic setting:

- Employee participation is well established in labour legislation, and in collective agreements. In the Nordic corporate cultures with small status differences between employers and employees, there are few reasons why workplace design should be exempt from this general instrument – unless, of course, one sees workplace design as a purely technical issue, and of no importance for the employees' working conditions.
- Employee participation will typically provide detailed information about experiences with the current workplace.
- The employees will have the (re)designed workplaces as their future working environment, and should thereby be entitled to have influence.
- Participation in the workplace design process will make the employees prepared for the new solution, so hassle related to getting to know new ways of working may be reduced.
- Participation may promote an ownership to the new solution.

The objection may be raised that broad employee involvement may preserve *status quo*, or preclude other solutions than improvements of the existing situation. Some of the case studies did, however, demonstrate that quite radical changes could be achieved through broad participation, where broad user involvement generated ownership to the planned solution, and even enthusiasm for the new workplaces.

In spite of the experienced benefits of employee participation, this issue also introduces dilemmas regarding limits for participation: While employee participation is anchored in laws and regulation, and proves to give crucial contributions and insights, employee participation is not without boundaries. The experiences from the case companies indicate that it is far better and more satisfactory to have participation on a well defined area of issues, whereas employees who had gotten the impression of having influence on a large set of issues were very disappointed when the area of participation turned out to be more limited.

While employee participation is important, the successful implementation of new workplace design depends on support from top management – what is to be expected if workplace design is taken seriously as a strategic instrument. It seems improbable to harvest anything but modest benefits from workplace design without top management leading the way and participating and believing in the value of the change, and providing necessary resources for the planning, design and implementation processes.

After the preparatory work, the enterprise eventually reaches a decision point for which forms of workplace design to pursue – or if the enterprise shall leave the workplace as it is.

- Ensure top leader support, both politically and financially
- Ensure broad user participation at an early stage of the process
- Be explicit regarding the limits for participation. Exaggerated expectations about influence may be detrimental for the design process.
- Participative design may, however, also pre-empt promising design solutions.

6. Investigations about workplace design

In the exploratory phases of workplace design processes, it is valuable to learn from the experiences of others. This may be achieved by consulting experts on workplace design, learning from testimonials from persons and companies that have experiences with relevant office solutions, making visits to companies to get hands-on impressions of both promising and threatening examples of alternative offices, and by perusing handbooks and the research literature. Within these early phases, it is equally important to learn about the wide range of alternatives, in order to steer clear of biased discussions and premature decision making processes, where the range of alternatives is not well explored: The glossy books on alternative office architecture may be used as input to workshops on the range of possible solutions, instruments for creativity and scenario building may be deployed, or artists can be invited to challenge predefined understandings of what 'proper office design' implies.

By addressing workplace design issues from a wide set of perspectives, the company may avoid situations where poor or inappropriate solutions are cemented, or where only a limited set of choices are seen as the only possible alternatives: The polarized discussion 'for or against open-plan offices' may be seen as an example of such a prematurely delimited discussion.

These exploratory phases of possible workplace design may preferably be done in presentations and workshops, engaging many groups within the enterprise, thereby ensuring both a wide range of experiences with the current situation, and involvement from the employees.

A good next step in workplace design processes is to investigate the work processes in the organisation, and study to what extent the present work environment supports the goals and strategies of the organisation. In our case studies we found that most organisations were not fully aware of the diversity of work activities taking place in the organisations. Registrations of use of space, analysis of working patterns and studies of work and collaboration in the organisation can be useful tools for ensuring a sound basis for deciding the future design of the workspace. Having said this, we must also admit the difficulties for the office workers, including the management, to understand how these different alternatives really function. As it is quite complicated to understand one's own work process, it will be even more difficult to grasp what other persons are doing and to what extent the space and the facilities are relevant and support their work processes.

When plans to engage in workplace design processes have become more specific, it may be fruitful to stage field trials to become familiar with possible solutions. Thereby, field trials may be one manageable response to the dilemma: 'Adjust and improve today's solution, or apply a radically new design'.

In discussions about workplace design, another recurrent theme is whether the enterprise shall make adjustments or changes in their current building(s), or if the enterprise shall construct new offices or look for other, existing buildings. In addition to the cost issues of the two options, a common observation is that new buildings can be designed for a higher degree of flexibility for activities as well as the number of employees, whereas a number of existing buildings are fairly rigid, and prescribe in detail how they best can be used.

When investigating the possibilities and potentials for workplace design, it is important to:

- Gather expert statements in order to get information about existing and emerging solutions, where qualitatively new ways of working may be introduced
- Visit other companies, and learn from their experiences
- Use handbooks and other resources
- Study the use of space, and of the occupancy of buildings
- Study work processes and attitudes

And when plans become more specific, it will be fruitful to initiate

- Workshops and pilot projects, so practical experiences may be collected

7. Workplace design

Workplace design for knowledge sharing is the core issue in this Guide. Through the case studies, certain central dimensions in workplace design for knowledge sharing have been identified, which will be elaborated in the following sections: Conceptions of work; Space design; Workplace technologies and distributed work; Forms of collaboration and knowledge sharing; and Workplace symbolism.

In the entire chapter, issues and themes related to workplace design for knowledge sharing are explored. Since the impact of potential workplace solutions are not known to the enterprise, it is recommended that workshops and pilot projects are conducted, in order to get hands-on experiences with selected concepts and solutions, which – in turn – may lead to an adjustment of the chosen solutions.

Conceptions of work

The very basic idea in workplace design is that workplaces shall be designed to accommodate the diversity of activities within the enterprise. For a workplace design to be optimal, it is therefore necessary to have an understanding of the activities the workplace shall accommodate. This seemingly simple question of which activities a workplace shall accommodate proves, however, to be quite complex, since – typically – employees perform a wide variety of work tasks.

Employees and managers do pay little conscious attention to the minutiae of day-to-day work: Our case studies show that accounts of workplace behaviour are not consistent with what can be observed; people tend to be less present than they report, and less engaged in concentrated work, whereas they are more engaged in interaction with others than reported. Though most employees' working pattern was very varied with a lot of different work tasks and many different types of activities in different locations, most people focused on work as stationary, individual work tasks demanding quietness and concentration. They considered activities such as meetings, collaboration and informal conversations as secondary activities, activities that were preventing them from doing the 'real' work, and activities like fetching papers from the printer, going to the mailroom, or going to the bathroom were overlooked.

One way of explaining these discrepancies is that people's accounts of their working day are shaped both by inaccurate memory. Another explanation is found in the strong normative elements in what is seen as 'proper work'. In particular for knowledge work, there is a cultural code saying that 'real work' is concentrated work that will be disturbed by noise, whereas other activities are peripheral, or perhaps even a waste of time. – This code will often lead to *en bloc* rejections of anything but cellular offices. The valuation of individual work is somewhat bewildering, since everyone – in principle – agrees that one of these seemingly peripheral activities, knowledge sharing, is of utmost importance, both for oneself individually, and for the enterprise as a whole.

Workplace design activities may change the assessment and valuation of activities: In several of the case companies, there had been attitude shifts, where working together now was seen as the baseline state of activities – including intermittent conversations and fragments of telephone conversations, and that concentrated work that had to be done in isolation was seen more as exceptions, although important, but done in small, ad-hoc offices or at home. One practical implication of these observations is that conceptions of work have a strong

normative power, and that workplace design processes need to unveil assumptions and attitudes about what is seen as ‘real work’.

- In the workplace design process, explore conceptions of “proper work”
 - Which activities are most important during the working day?
 - What should be the most important activities?
 - Which activities are only time-consuming, or considered a waste of time?
- Examine actual work practices, and compare actual work patterns with ideals of work.
 - Explore in particular the actual distribution of individual concentration work and collaborative work.
- Explore tensions between ideals and realities, and deploy identified tensions and mismatches for
 - Challenging notions of workplace design
 - A re-evaluation of what should be considered as “proper work”
 - Organizational changes in order to reduce the amount of agreed unnecessary work tasks.

Space design

Every workplace solution has a spatial representation, and there is ample evidence that spatial design or spatial patterns influence behaviour, both within the office and between corporate locations. Thereby space design affects certain parameters for interaction, in particular for spontaneous interactions, which, in turn, have an impact on the probability for knowledge sharing.

In factory design, the links between activities and workplace design are well established, and in several instances, buildings are erected around a production line. For knowledge work, there are no equally impelling factors for workplace design, although it is common to cluster people within departmental units, and to locate related units close to each other.

One of the basic insights from studies of spatial configurations is that physical distance between colleagues influences the probability for chance encounters. More advanced approaches show that degrees of accessibility and of visibility modify the impact of distance, so even a nearby colleague can be perceived as distant, if located for instance at the dead end of a corridor. The location of facilities within an office, such as printers, coffee-machines or restrooms will generate movement, which in turn may facilitate or impede chance encounters, moulding the foundation for knowledge sharing. The proliferation of information and communication technologies within the workplace makes the spatial design of the office more open-ended, since ICTs make proximity less compelling.

What makes space design intriguing is that people typically do not know how they move in, and use space, hence observation studies are especially appropriate for spatial analyses: Figure 4 is a snapshot illustration of spatial interaction patterns in open-plan offices in twelve of the case study enterprises. The figure shows large differences in the location of interactions; some with the workstations as the primary meeting places, others with coffee areas or meeting rooms as preferred areas for interaction.

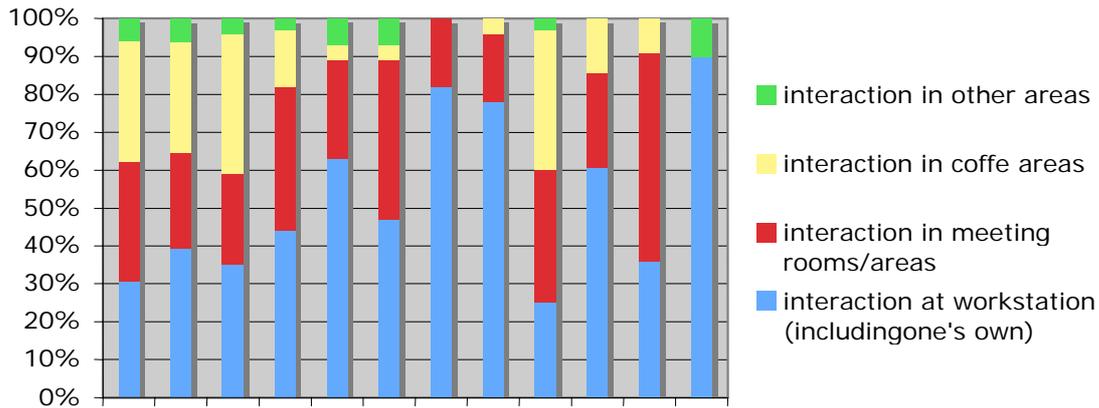


Figure 4: Snapshot illustration of spatial interaction patterns in twelve sample enterprises

Workplace design shapes knowledge sharing through mechanisms such as proximity and movement among colleagues, and the possibility for chance encounters. Offices as spatial systems, with walls, corridors, entrances, and stairwells form the paths of movement for the office workers, whereas other elements such as printers and coffee machines modify this picture. The spatial systems also allow for visibility amongst colleagues, and for the overhearing of others' conversations, either intentionally or accidentally, two other factors that are shaping the chances for spontaneous interaction and for peripheral learning. Visibility is important for developing a sense of presence among colleagues, and visibility also helps ameliorate some of the downsides of noise in open areas.

Another aspect of the spatial representation is the *degree of flexibility* of the spatial system, where open-plan office buildings provide higher degrees of flexibility than buildings with cellular offices, and where non-territorial working is another factor supporting workplace flexibility.

Space design in today's offices must encompass not only the building(s) seen as the main office, where everyone is expected to attend; space design solutions are increasingly more distributed, where colleagues may be at different sites, and where each individual may move from place to place, both inside and outside the office buildings. Consequently, spatial strategies and spatial analyses must encompass flexible, multi-located work.

There are different sets of recommendations in the space design area: The spatial system must allow for a diversity of activities by providing a diverse set of working spaces. It is possible – and inexpensive – to provide only one type of space solutions, such as open-plan offices or cellular offices, but offices based on the philosophy that 'one size fits all' will soon become an impediment for knowledge sharing and organizational well-being. Instead, it is possible to promote organizational well-being by providing a menu of different workplaces.

- How does the spatial system support chance encounters, overhearing, and peripheral learning?
- Is it possible to locate common functions such as printers and coffee machines to steer the paths of movement within the office?
- Is there a menu of specialized rooms to accommodate the different needs for workplaces during the day?
- Can the different rooms accommodate the needs of the existing employees?
- Is there room for changes in the number of employees?
- Do the employees have assigned, personal workstations, or do they share?

- How are workplaces assigned to different teams or groups?
- Are there manifestations of status hierarchies in the access to workplaces?
- Are managers collocated with the employees, or are they located in designated zones for the managers?
- For distributed work, analyse the motives for being located at several addresses:
 - Would it be beneficial for the enterprise to be collocated?
 - What is achieved through the distributed solution in terms of nearness to geographically dispersed markets, or access to a larger labour market?
- Should the workplace design attempt to reduce the amount of geographically dispersed work?

Other recommendations are methodologically oriented: In order to understand spatial behaviour and interaction, for instance when surveying a current workplace, or evaluating a field trial, observation studies provide important knowledge to supplement what is gathered through interviews.

Workplace technologies and distributed work

Technologies play pervasive roles in workplace design: In the development of the modern office buildings, technologies such as telephones, elevators, incandescent light, and heating and ventilation made the high-rise building possible. Today, it is impossible to conceive of work without information and communication technologies (ICT) – in particular for information processing and diffusion in knowledge work.

ICTs also link places together, and they accommodate for mobile and flexible work when deploying technologies that are available from more than one location. Thereby ICTs challenge stationary, collocated work as the *de facto* standard form of work, with work at other locations as second-rate activities.

In the area of workplace technologies, one important distinction and decision variable has been between stationary technologies, such as desktop computers, and mobile technologies, such as lap-tops. With the increased functionality of the mobile solutions, and the expressed wishes from employers as well as employees to have access to ICT solutions, also outside working hours, there has been a pronounced move from stationary products toward mobile ones. Technical improvement and lowered prices of the mobile technologies have supported this development.

Some of the case study companies had taken the step towards fully mobile technological solutions, and decided on a standard ICT equipment, including cell phones to all, and (almost) no fixed line telephones, lap-top PCs, optional wireless local area network (WLAN) throughout the building and the near environment with virtual private net (VPN) for secure communication, an electronic document management system, and net-based distribution of software. This solution makes it almost seamless to move within the office building, or to work from places outside the building, thereby supporting a high degree of mobility and flexibility. This also serves as an example of how technologies tweak spatial configurations by bridging what is near and what is distant.

- Technologies are constitutive elements of workplace design.
- Access to technologies may convert an area (such as a café) into a workplace.

- Mobile technologies allow for flexibility and mobility – both within the workplace and outside the premises of the enterprise.
- Technologies for distributed work are often deployed between collocated colleagues, e.g. in the form of e-mail to a neighbouring colleague. This pattern of behaviour goes hand in hand with mobile work, where mediated communication is a necessity.
- Technologies that are available from more than one location help the promotion of distributed and mobile work practices.
 - As an example; notice boards will usually be a poor solution, since they assume and require that people are passing by on a regular basis, whereas intranets allow for flexibility and mobility since they may be reached from a multitude of locations.

Forms of collaboration and knowledge sharing

While workplace design influences and shapes activities and interaction, behaviour cannot be directly derived or deducted from the workplace configuration. As outlined in the conceptual model, there is no architectural determinism; instead, behavioural variables together with workplace design shape knowledge sharing.

There is an almost trivial observation that knowledge is shared when people work together on common work tasks. Somewhat less obvious is the benefit of collocating people with no common work tasks, allowing them to learn from each other simply by being in the same room, where conversations may be overheard, where chance meetings occur, and where there is a low threshold for making contact. This form of peripheral or accidental learning deploying the workplace design, is quite different from, and may supplement formalized schemes for knowledge sharing.

The valuation of knowledge sharing through collocation and informal encounters may be in contradiction with the trend towards distributed and mobile work. The response to this apparent criticism is to establish a workplace culture balancing distributed and collocated work, ensuring space and time for informal, accidental meetings.

Within the case companies, there were several references to having achieved an improved social climate through workplace design. One particular concern was the introduction of newcomers within an enterprise: With an open-plan solution, newcomers rapidly got introduced to colleagues and learned the ways ‘things were done’ within the company.

Virtually all of the case study companies had adopted the conception about knowledge sharing aided by workplace design. Quite a few of them had also attempted to improve organizational processes by formalizing ‘Office rules’, trying to balance interaction (which is good for knowledge sharing) and privacy and silence (which is good for concentration, but poor for knowledge sharing). The studies show however, somewhat paradoxically, that strict, elaborated office rules such as ‘Do not have long phone conversations amidst your colleagues’ may stimulate the establishment of ‘mental walls’ or ‘virtual cellular offices’, which counteract the reasons for establishing alternative offices in the first place.

- Is the current workplace culture supportive of knowledge sharing?
- Review existing office rules – both the formalized ones, and the *de facto* rules.
 - To what extent do the rules support knowledge sharing – or isolation and individualization?

- Is work evaluated in individual terms, or is collaborative work acknowledged through financial bonuses, promotions and the like?
- Do all parts of the enterprise adhere to the same workplace solutions and office rules?

Workplace symbolism

It is common to discuss workplace design in purely rational or functional terms; therefore it may seem paradoxical to include a section on workplace symbolism in a Guide on workplace design. The motivation for including symbolism is that workplaces are locations heavily imbued with norms and affects. Office buildings are large manifestations of status and importance, as office size and office refurbishing are well known symbols of status.

With open-plan offices and non-territorial working, workplace symbolism takes other forms. Within such a flexible environment, it becomes difficult to personalize workplaces, and a term like ‘corner office’ loses its meaning. Instead, technological or social proficiency may become dimensions for expressing symbolism, or other dimensions may emerge.

Workplace aesthetics is not an expression of empty symbolism. Instead aesthetics is involved in acts of communication with the employees, with investors, and with the general audience: When, for instance, technological solutions for mobility are introduced, they have certain functional qualities, allowing employees to work from different places. These technologies do also have symbolic aspects, telling both employees and outsiders that ‘this is an advanced enterprise’. Similarly, alternative office solutions may also be seen as symbols aiming at both employees and the environment, saying: ‘We value our employees’, or ‘We support modern workplace practices’.

Workplace design may be interpreted in different ways, so design has to be supported by other forms of communication in order to reduce the risk of misunderstanding: Non-territorial offices may be intended as a symbol of a non-hierarchical organization, but may also be interpreted as an indication that everyone is replaceable.

Workplace design symbolizes and communicates to internal and external recipients:

- Symbolic markers may be deployed for distinguishing between the internal working of the organization, and areas for external contacts. Thereby, symbolism becomes one of many manifestations for expressing and for drawing the boundary lines of the organization.
- There is no unambiguous interpretation of workplace symbolism.
- Workplace design – as all forms of activities – will give information in both intentional and unintentional ways. Therefore, it is important to ensure coherence between the messages given (as “We value our employees”) and what can be read from the workplace design (as untidy rooms, or large differences in the quality of the workplaces assigned to different employees).

8. Implementation

It is well known from studies of organizational innovations that the implementation phase can be quite cumbersome; as when processes stretch out in time, when agreements fragment, when resources are inadequate, or when change of personnel challenges established understanding and agreements. Therefore, it is important that implementation is given attention and resources.

Through the project, we have identified two different perspectives on design processes and implementation strategies. The first position may be summarized as “It is not fruitful to impose solutions on an enterprise, no matter how good they might seem, according to certain criteria. What matters most is the workplace design process. Through broad user participation, employers and employees will find a solution that is correct *for them*, to which they will have developed a degree of affiliation and ownership”. The alternative position to workplace design processes may be formulated as “The final result is the most important, since it will have been developed according to specific criteria. Although implementation in some cases may be rough, the expert solution will prove to be the best, since each solution has certain characteristics that in the long term will influence and shape the use and usability of the workplace”.

Within the case studies, we found support for both positions; corroborating both that processes and participation are important, and that the chosen solution matter. This finding has been instrumental for the development of the procedural model within the Guide. It may be argued that solutions that are general and applicable for all will have greater legitimacy, although this position may be seen as contrary to a position acknowledging locally based development of workplace solutions.

- Acknowledge that workplace design processes involve both the participatory design processes, and a consideration of the impacts of the chosen design solution.

A different set of questions and design challenges relate to questions about the general applicability of the design solutions. It is important to avoid idiosyncratic or short-sighted generalizations, such as “this solution is fine for me and my unit, therefore it must be fine for the entire enterprise, and everyone else”. A related dilemma relates to employees who find the chosen solution less than perfect for them, such as “this is fine for you, but not for me”.

- Should there be room for workplace design based on individual preferences, such as cellular offices for some and open-plan offices for others; or should everyone obey to the same regime?

The findings from some of the case companies showed that workplace design processes had facilitated general organizational development processes. The case studies also indicate that workplace design for flexible and mobile ways of working also may promote a readiness to organizational change.

9. Post-occupancy evaluation

Workplace design processes are by no means finalized when the workplace solution eventually has been finalized and occupied by the employees. It is important to monitor experiences with the solution to assess if plans have been accomplished, if people have ‘reverted’ to old practices, or if other issues have emerged that need to be addressed.

In examples of post-occupancy evaluations, one may find that changes turned out to be different from what they assumed to be, where key issues wane whereas other themes emerge as more important. One example could be the assumed importance of house rules when change processes started, whereas they could prove to be less visible later on – or they could even have proven to be counterproductive.

After a few years, there will be newly-hired employees who will not have been through the change processes. One interesting observation from the case studies is that there are differences in attitudes between those who had participated in the design process, and those who had come to the office solution after it had been finalized: There is evidence that participation in the change processes has given a much better understanding of the possibilities provided by the workplaces, whereas those who had gotten the solution presented as “this is the way work here” showed less sensitivity for alternative practices. We have also experienced this the other way round; that those who had been part of the process longed for the past – before the new office – and that the new employees just used the workplace.

After the enterprise has gathered experiences with the workplace solution, central activities in the post-occupancy evaluation include:

- Collecting and evaluating experiences with the solution
- Renewing forms of practice, since experiences show that after a period of time, the organizational members may go back to previous forms of practice.
- The impact on socializing newcomers.
- Adjustments of spaces and of space usage
- One instrument for assessing the quality of the current workplace situation is to ask: *If possible, would you revert to your previous workplace?*

In every organization, there will be personnel turn-over. It is important to chart the assigned importance of workplace design for hiring, and for leaving the enterprise.

- Have people left the organization due to the workplace design?
 - Include experiences with workplace design as one theme in exit interviews.

PART III – DISCUSSION

10. Discussion and implications

The main message in this Guide is that workplace design is of great importance for cooperation and knowledge sharing, that employee participation together with top leader support is necessary to get a good solution, and that ways of introducing workplace designs will have great importance for the perception and use of the final result, while the final result nevertheless will have inherent qualities that influence workplace activities. Other findings include the need to have a well defined scope for employee participation, and the fruitfulness of performing post-occupancy evaluations.

A Nordic approach to workplace design

One of the motivations for the DEKAR project was to explore if one could identify a *Nordic* approach to workplace design that was different from approaches within an Anglo-American context.

Drawing on a number of different studies, one finds a series of national differences in office design. There are at least differences in building types, in the average size of companies, and the average size of offices. Further, there are different sets of legislation and regulations, such as employee participation, and different workplace culture. Employee participation was seen as particularly important, as a way to get employee perspectives into the design process, and to serve as a corrective to expert design. This plays together with a tradition for small status differences, a climate – as well as legislation – for cooperation, and the strength of the trade unions.

There are also certain differences within the Nordic sphere: Individual offices appeared to be particularly common in Norwegian, Finnish, Swedish and Icelandic enterprises, whereas in Denmark, the structure was different; with small open-plan offices dominating in most organisations. Nevertheless, it seems appropriate to assume the existence of a Nordic approach to workplace design.

Studies of workplace design processes show that user participation is important – and this corrective to expert design may be seen to constitute another distinct element in future Nordic workplace developments. This is especially important, since the Nordic countries are known for their small status differences.

Implications for further work

The complex interrelations between workplace design and key organizational factors need to be pursued through subsequent studies, in order to explore the robustness of workplace design as a strategic instrument for knowledge sharing. Continued studies could encompass:

- Longitudinal studies of workplace behaviour in order to monitor and explore long-term effects of and experiences with alternative workplace design.
- Studies of the workplace behaviour of “newcomers” within an organization, in order to explore the impact of a workplace redesign project, *vis-à-vis* the impact of the physical design itself.
- Comparative studies of different organizations in identical physical environments

- Studies of workplace behaviour after changes in corporate policies (e.g. after a merger, the introduction of a new HR regime, or the advent of a new CEO with a different perspective on workplace behaviour).
- More elaborate studies of information and communication technologies within workplace design.

11. Selected references

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APPENDIX

12. Workplace strategies in the Nordic countries – The DEKAR survey¹

In order to assess the potentials for deploying workplace design as an instrument for changing workplace functioning, it was seen as necessary to get more information about the status of office usage in Nordic enterprises. This was achieved through a survey of 750 companies in the Nordic countries. Starting with an outlook on the Nordic knowledge intensive workplace, we present findings on the managers' future plans for workplace development and an analysis of general attitude differences.

Methodology and sampling

TNS Gallup conducted the interviews on assignment of the DEKAR project in the period September 23 to October 3, 2003. 150 telephone interviews were conducted with managers in each of the Nordic countries Sweden, Finland, Denmark, Iceland and Norway, and the respondents were recruited from the top management level, including CEO, HR manager, facility manager, information officer or equivalent positions. In each country 75 interviews were conducted in enterprises with 26-50 employees and 75 interviews in enterprises with more than 50 employees. To get fairly representative results, four business segments were targeted: manufacturing, transportation / telecommunication, business services and public services.

A survey of Nordic offices

The survey demonstrates that individual offices, small open-plan offices, and large open-plan offices are all common in Nordic workplaces. Individual offices prove to be common in Norwegian, Finnish and Icelandic enterprises, whereas in Denmark, small open-plan offices are the most common form. Iceland shows a combination of small open-plan offices and individual offices (see figure 1).²

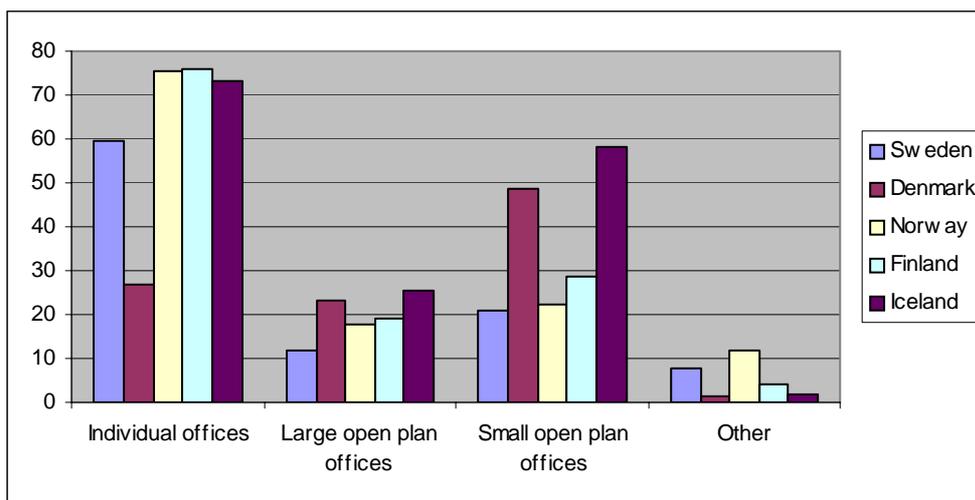


Figure 1. Most common types of workplaces in Nordic enterprises, country split. Percent (within country)

¹ This Appendix is a shortened version of a *DEKAR Newsletter*.

² "Large open-plan offices" was defined as more than 10 individuals in one room. "Small open-plan offices" was defined as less than 10 individuals in one room.

There are also certain differences between the selected industries, where in public service enterprises, individual offices prove to be particularly widespread, while forms of open-plan offices are somewhat more common in the other sectors (see figure 2).

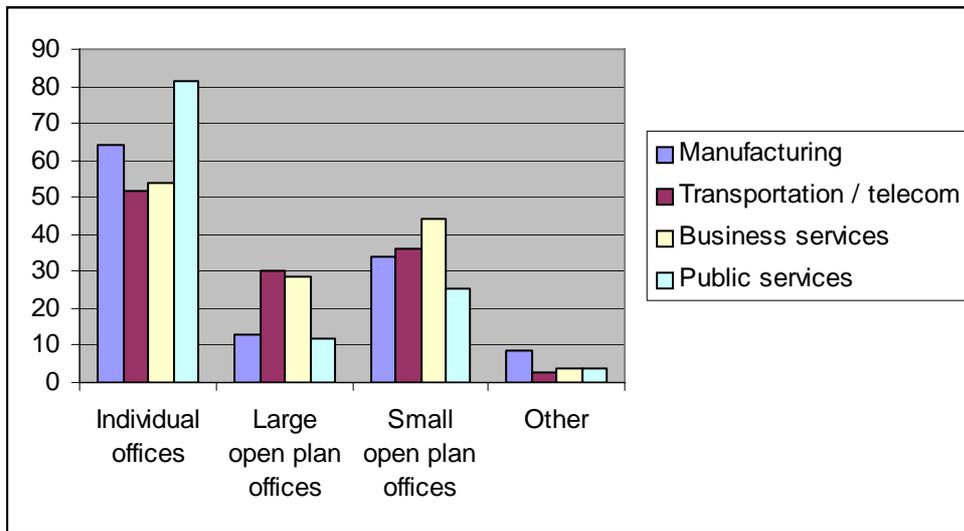


Figure 2. Most common type of workplace in Nordic enterprises. Percentages within each industry sector

There is a strong correlation between form of office and type of work conducted by the employees (see figure 3): Over 64 percent of the organisations with individual offices answered that these offices were used by the top level managers, followed by middle level management and skilled workers. The open-plan offices on the contrary, were in most enterprises used by skilled workers, followed by middle level managers and specialists. Thus, it seems clear that the Nordic managers in general prefer individual offices for themselves.

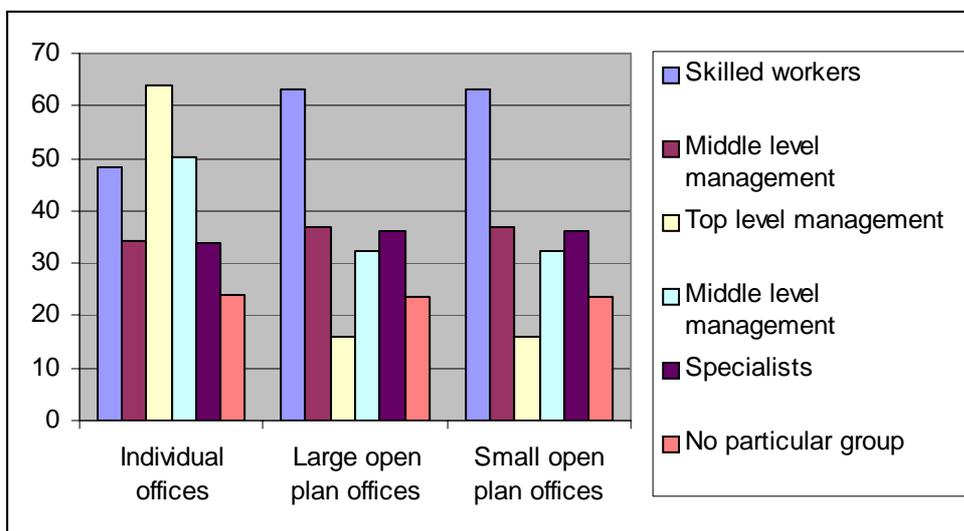


Figure 3. Distribution of workplaces among various groups of employees. Percent (within each type of offices)

Planned changes in office design

The development and re-building of workplaces seems to be a continuously ongoing activity in Nordic enterprises. More than 40 per cent of the managers reported that they had conducted rearrangements in the use of office workspace during the last two years, and almost every

third manager stated that their company had plans to rearrange, rebuild or make changes in the office buildings in the coming two years.

More contrasting views appeared between business segments and company size: In general, companies in public services were much more positive towards changing the office than the other sectors, and over 40 % had made such plans. This figure was almost twice as big as in manufacturing companies. The interest for making changes also increased significantly with company size, and in the category of large companies (more than 400 employees) every second enterprise had made plans for rearrangements.

The enterprises presented a diverse range of plans for rearranging their office environments: “Increased use of ICT to support work processes” appeared as the most relevant, and every third manager with reorganisation plans defined this item as highly relevant (see figure 4). Also “Improvements of light, heating and ventilation” was rated high, and approximately 26 % of the managers saw this as a highly relevant item. Moreover, small open-plan offices with individual reservation seemed to be the most popular workplace design, followed by large open-plan offices with individual reservation. It is interesting to see that individual offices – the most common way of working today – is far less relevant when it comes to future plans.

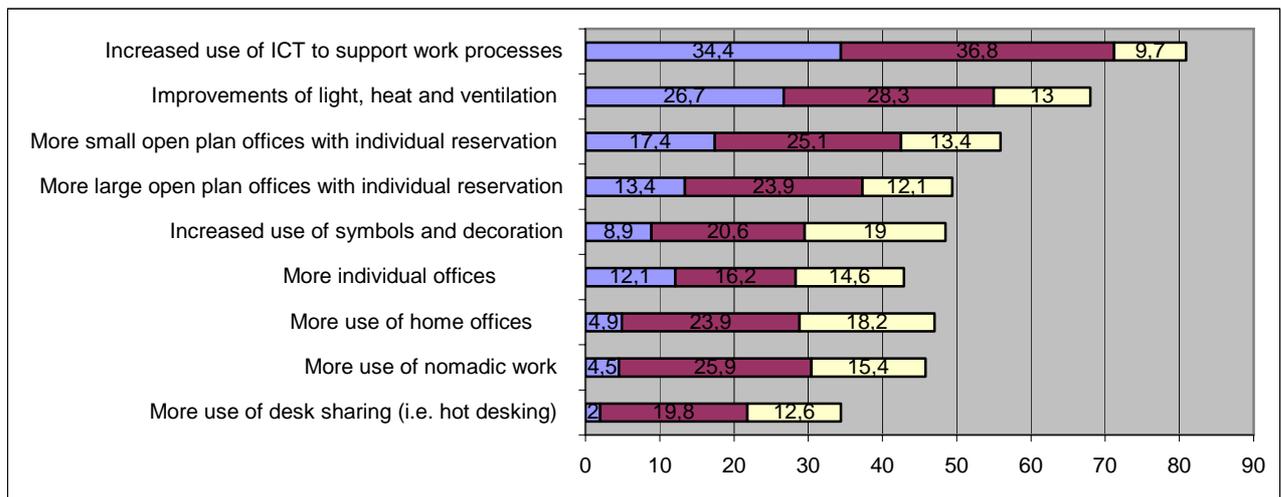


Figure 4 Possible future changes for the rearrangement, rebuilding and changes at the office the next two years. Item rated as “highly relevant”, “relevant” or “may be relevant”. Percent

We also asked the managers for the reasons for the planned changes (see figure 5). It turned out that “to develop more efficient ways of working” was held as the single most important item. In fact almost 40 % of the managers with rearrangement plans held this as a highly relevant motivation for their planned changes. This suggests that Nordic managers actually do recognize that workplace developments may play an important role in the development of their organisations. The second most relevant item was “need for more space due to increased number of employees” mentioned by 30 % as highly relevant, and then “to increase knowledge sharing in the company” (23.9 %). Interestingly, only 10.5 % held “cutting costs” as a highly relevant factor for the rearrangements.

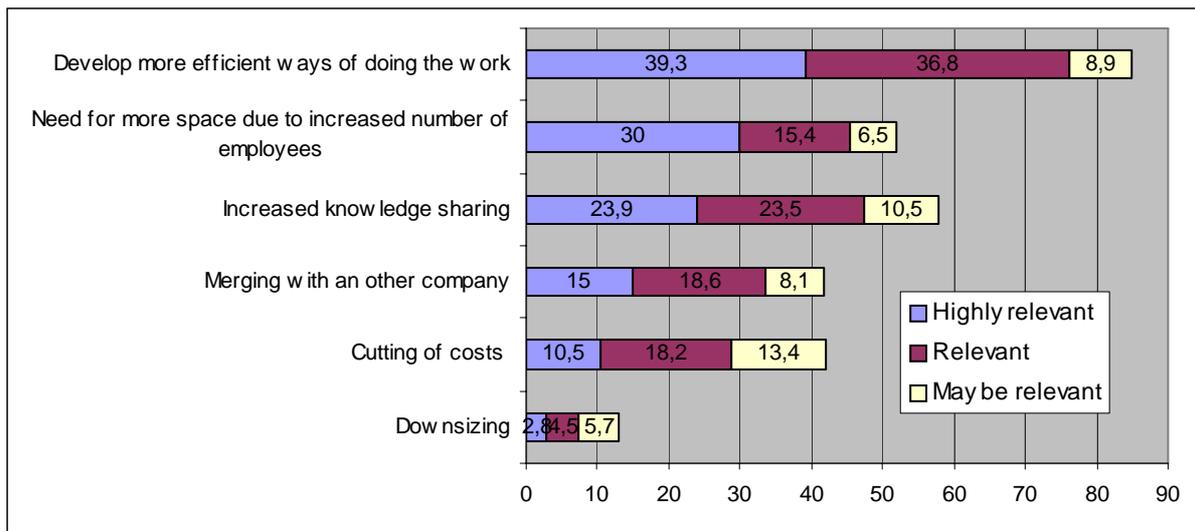


Figure 5. Reasons for the planned changes in office environment. Item rated as “highly relevant”, “relevant” or “may be relevant”. Percent

Technological needs

The managers who indicated that they had plans to increase the use of ICT to support work processes³ were also asked in what way they planned to do this (see figure 6). The most relevant technological change was to “give access to the office LAN from home offices and mobile offices”. Among managers who planned to implement ICT over 50 % perceived this as either highly relevant or relevant. Increased use of WLAN zones and introduction of EDI were held as highly relevant by 11 and 12 %. The option of replacing stationary PCs and phones with mobile terminals was valued as either relevant or highly relevant by every third manager in this category. Thus it seems that the Nordic managers in general are eager to make changes in the workplaces, and that investments in different ICTs are highly prioritised as well as building renovations. The motive is not primarily to cut costs, but rather to develop more efficient ways of doing the work. Still, the question remains how the workplace development is rated as a managerial tool compared with other options to enhance productivity.

³ As much as 81% of the sample indicated that increased use of ICT to support work processes was either highly relevant, relevant or may be relevant.

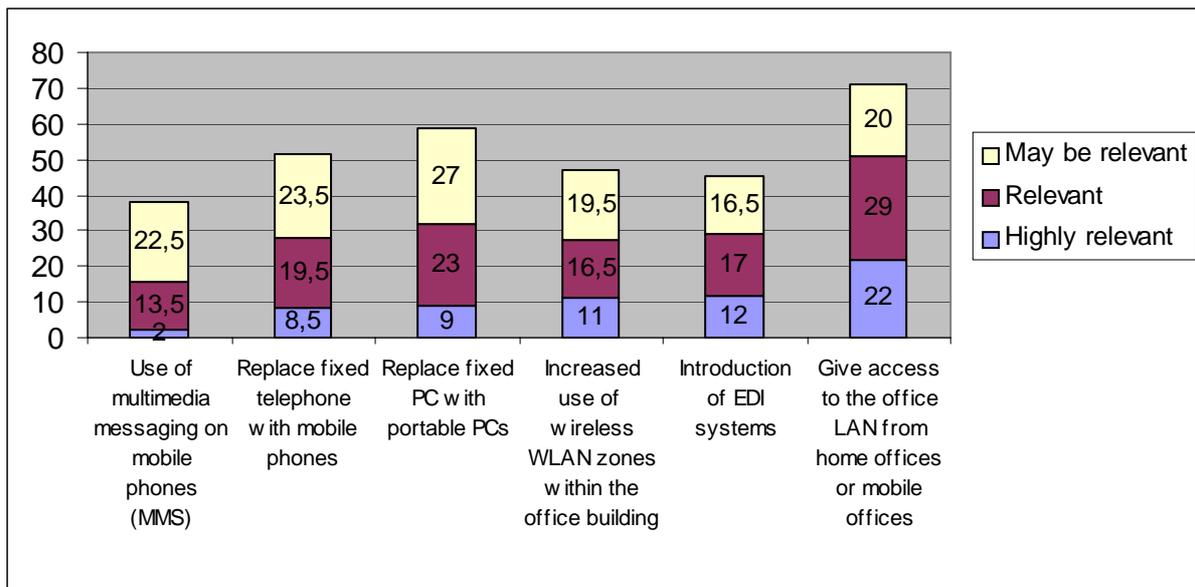


Figure 6. Relevant technological changes (if plans to increase the use of ICT to support work processes). Total sample. Percent

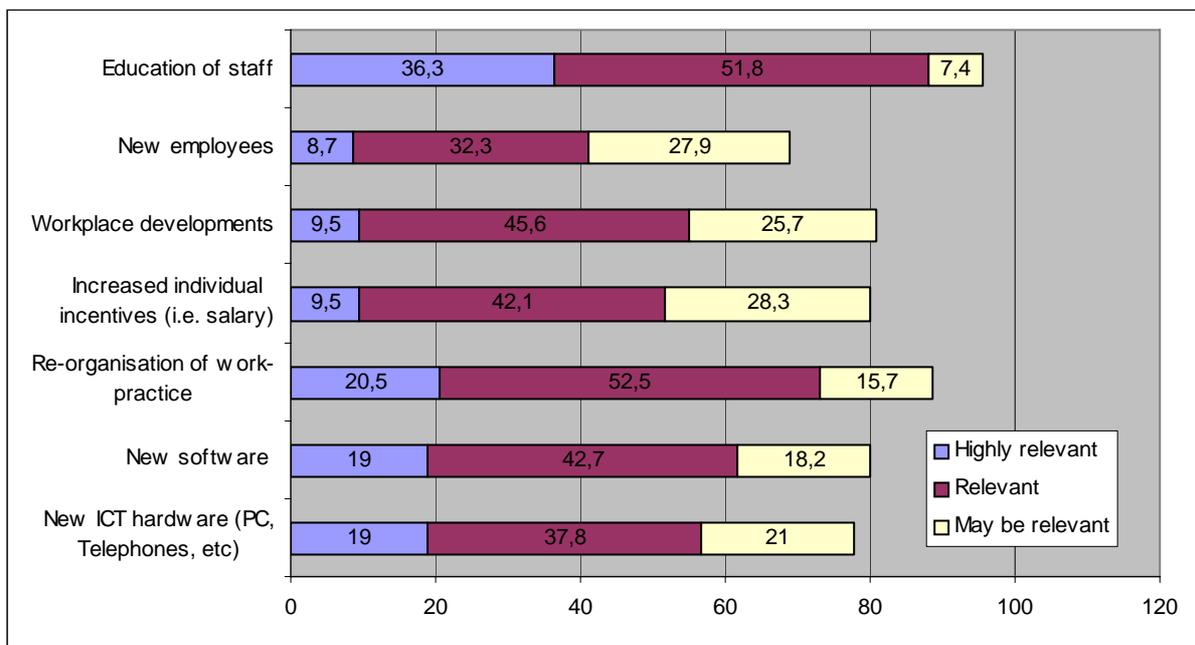


Figure 7. Managers' rating of the most relevant efforts to enhance efficiency in their companies. Percent

To get a clearer picture of this, we asked the managers to rate the relevance of workplace developments together with other efforts as a way to enhance efficiency in the company. It turned out that “education of the staff” was rated as a more relevant effort, followed by “reorganization of work practice” and investments in new ICT and software (see figure 7). However, workplace developments were rated as more relevant than hiring new employees or increasing individual salaries.

Differences in attitudes to workplaces

Turning to more general attitudes towards workplace design and workplace changes; we exposed the managers to a battery of statements about the use of open and flexible workplaces, possible positive and negative effects of such offices and belief in workplace

design in general. The seven statements, presented in the table below, gave us an opportunity to reveal more general differences and patterns between the managers' opinions and attitudes regarding this issue.

Attitude statements
<ul style="list-style-type: none">▪ Q1 - Implementation of more open and flexible workplaces can be used strategically to increase knowledge sharing in the company▪ Q2 - Increased use of open-plan offices is problematic for the need for concentration in the work processes▪ Q3 - Increased use of flexible offices is problematic for the employees' physical health▪ Q4 - The design of the office buildings is important to the company's external branding▪ Q5 - The most important thing with the introduction of flexible offices is to cut costs▪ Q6 - Appropriate use of mobile ICT can greatly enhance the productivity at our workplace▪ Q7 - Workplace design is irrelevant to how work is being done at the workplace

In general the managers believed that “Implementation of more open and flexible workplaces can be used strategically to increase knowledge sharing in the company” (Q1). This supports the findings presented earlier in the newsletter. Still, there was general agreement with the statement that “Increased use of open-plan offices is problematic for the need to concentrate in the work processes” (Q2). This indicates an interesting paradox in the use of open and flexible offices. However, most Nordic managers disagreed with the statement that “Increased use of flexible offices is problematic for the employees' physical health” (Q3). Regarding the statement that “The design of the office buildings is important to the company's external branding” (Q4) most managers agreed to this, but not that “The most important issue of the introduction of flexible offices is to cut costs” (Q5). There was general agreement that “Increased use of mobile ICT can greatly enhance the productivity at our workplace” (Q6). The strong disagreement regarding the statement “Workplace design is irrelevant for how work is being done at the workplace” (Q7) is naturally given the agreement to the first statement.

Conclusions

The findings from the DEKAR managers' survey clearly show that workplace development is an issue that is highly relevant to Nordic managers in knowledge intensive businesses. The interest in making changes in the office environment is significant, and the number of managers with plans to make such changes is actually impressively high. Even if their motives for making such plans are multiple, it is striking that most managers hold knowledge sharing and development of working practice as the most important factors. This suggests that the idea of using workplace design as a strategic tool for the development of their business is widespread, even if other efforts still are more common.

The answers and attitudes given by the managers in this survey indicate that the future Nordic workplace may take on another form and design than we are used to today: More use of open-plan offices might be more common, along with implementation of portable telecommunication equipment, use of WLAN zones and access to company networks for mobile workers. It is however interesting to see that desk sharing – a common feature in many modern European offices – is not perceived as very relevant by the Nordic managers. This indicates that the future Nordic workplace might be of a different kind than we find in other parts of the world.

The survey also gives us interesting findings regarding differences within the Nordic region, as well as between different business segments. Important variations exist in the

implementation and use of workplaces, as well as attitudes towards implementing new solutions. These variations cannot be explained without understanding the particular historical and cultural contexts they are part of, and it will be an important challenge for future research in this area to investigate these variations further.



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Nordic Innovation Centre

Nordic Innovation Centre

The Nordic Innovation Centre initiates and finances activities that enhance innovation collaboration and develop and maintain a smoothly functioning market in the Nordic region.

The Centre works primarily with small and medium-sized companies (SMEs) in the Nordic countries. Other important partners are those most closely involved with innovation and market surveillance, such as industrial organisations and interest groups, research institutions and public authorities.

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