

THE ACTIVITY-BASED WORKING PRACTICE GUIDE

(Second edition)

Juriaan van Meel



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CONTENTS

SUMMARY ACTIVITY-BASED WORKING (ABW)		4
FOREWORD TO THE SECOND EDITION		7
INTRODUCTION		9
PART 1: CONCEPT		
	What is ABW?	13
	A short history	15
	Related concepts	19
	Objectives	23
	What research says about ABW	27
	Issues and how to deal with them	33
PART 2: ANALYSIS		
	Analysing the existing situation	41
	Exploring new possibilities	45
	Validating new ideas	47
PART 3: PROCESS		
	Stage 1: Envision	53
	Stage 2: Define	54
	Stage 3: Design	55
	Stage 4: Build	56
	Stage 5: Settle-in	57
	Stage 6: Manage	58
PART 4: DESIGN		
	Sharing ratio	63
	Zoning	67
	Space types	71

PART 5: SUCCESS FACTORS	Analysis	81
	Process	83
	Design	85
PART 6: EXAMPLES	Ministry of Finance British Colombia (CA)	90
	West Dunbartonshire Council (UK)	94
	Ministry of Economic Affairs and Employment (FI)	98
	State Treasury and Patent office (FI)	102
	Public Services and Procurement Canada (CA)	106
	Danish Building and Property Agency (DK)	110
	Government Office 'De Knoop' (NL)	114
	Ofgem (UK)	118
	City of Hardenberg (NL)	122
	LAIKA (DK)	126
	Robeco (NL)	130
	Rabobank (NL)	134
Danone (NL)	138	
PART 7: APPENDICES	Specifications per space type	145
	More information	156
	Interviewees	157
	References	158

SUMMARY

ACTIVITY-BASED WORKING (ABW)

WHAT IS IT?

Activity-based working (ABW) is a way of working in which employees make shared use of a diversity of work settings that have been designed to support different kinds of activities (hence the name activity-based).

There are three crucial elements to this definition:

Diversity

The office provides a diversity of work settings to support different kinds of activities and work styles.

Sharing

All work settings are available to everyone. By sharing workspaces, it is possible to provide a greater diversity of settings while at the same time saving square metres.

A way of working

ABW is a way of working and not just a design concept. The core idea is that employees work in a mobile and flexible fashion, making their own decisions as to where and when to work.

WHY DO IT?

There is an obvious financial incentive for adopting ABW, as the concept allows organizations to make better use of their office space. Just as important, however, is the concept's aim to empower employees by giving them more control over where and when they work.

Benefits for the organization:

- Reduced occupancy costs
- Smaller environmental footprint
- Increased flexibility
- Better interaction across teams
- Potential improvement in staff performance
- Support for cultural change

Benefits for employees:

- More autonomy in choosing where to work
- More choice and variety in work settings
- Advanced technologies that facilitate mobile working
- More contact with colleagues
- Fewer hierarchical differences
- A less sedentary, healthier workstyle
- Fewer but better workplaces

WHAT DOES RESEARCH TELL US ABOUT ABW?

There is a lot of scientific research available on ABW, but it does not provide any simple or definitive answers about whether ABW is 'good' or 'bad'. The overall picture, however, is that ABW can work very well, provided it is implemented and executed properly.

Research observations

- Users tend to be quite happy with ABW, especially with respect to the increased interaction and freedom of choice;
- The main complaints about ABW concern distractions and a lack of privacy;
- Younger workers tend to be more positive about ABW than older ones, but the differences are small;
- ABW can have a positive impact on staff interaction, especially across teams;
- People's 'switching behaviour' is often limited, in which case people do not exploit ABW's full potential;
- ABW's impact on productivity is difficult to prove, but people's self-rated productivity can rise;
- The ABW concept can have a positive impact on people's health perception, probably because the concept gives them a sense of control over their work environment;
- ABW favours jobs that are characterized by a high level of autonomy, interaction and mobility;
- People's satisfaction depends not just on job type, but also on their personality traits—people's personal need for privacy is particularly important.
- Success is not a given. Making ABW work requires careful implementation, excellent execution, and strong management commitment.

HOW TO DEVELOP A CONCEPT?

Before deciding to adopt ABW, it is important to make a systematic analysis of the organization's needs and aspirations. The purpose of such an analysis is to assess the organization's readiness for ABW and to gather data and insights for the development of the concept.

Analysis activities

Understanding the existing situation

- Document analysis
- Walk-through
- Workplace survey
- Spatial analysis
- Occupancy measurements
- Stakeholder interviews
- Social network analysis

Exploring new possibilities

- Leadership workshops
- Visits to reference projects
- Staff workshops
- Scenario studies

Validating new ideas

- Focus groups
- Persona method
- Design prototyping
- Pilot projects

HOW TO IMPLEMENT IT?

The implementation process starts with the formulation of a broad vision, which is then translated, step-by-step, into concrete solutions. The process should be a combination of project management and change management activities. The change management activities are essential for creating acceptance and ownership among employees.

Process stages

- **Stage 1 Envision** – Analyse the organization and develop an inspiring vision for the work environment;
- **Stage 2 Define** – Translate the vision into specific workplace requirements;
- **Stage 3 Design** – Create design solutions for the spatial and technical environment;
- **Stage 4 Build** – Construct the new environment and prepare the organization for the move;
- **Stage 5 Settle in** – Support people in their new way of working and solve any teething problems;
- **Stage 6 Manage** – Make the work concept 'stick'; adjust and improve where necessary.

HOW TO MAKE IT A SUCCESS?

Implementing an ABW concept can be challenging. Like any major organizational change, it is likely to meet with a healthy dose of resistance. So when implementing ABW, make sure to do it properly. The most important factors for success are as follows:

Analysis

- Gather data on work processes and space usage in order to be able to make informed decisions;
- Look at numerical data, but also at the stories behind the numbers;
- Be aware of the latest insights from workplace research;
- Link the ABW concept to strategic organizational objectives;
- Visit other projects to gather inspiration and to benefit from the lessons learnt;
- Look at ABW as part of a bigger narrative about employee empowerment and flexibilization;
- Involve employees in the analysis process to create awareness and engagement.

Process

- Allow enough time for preparing the organization for ABW and for getting used to it after move-in;
- Bring in dedicated expertise on change management;
- Take a multidisciplinary approach; involve FM, HR and IT in the process;
- Make sure that the organization's leadership demonstrates ownership and leads by example;
- Involve employees, but be specific about the matters on which employee input is sought;
- Take employees' input seriously, otherwise their involvement will backfire;
- Communicate clearly and repeatedly what ABW is and why it is being implemented;
- Don't try to please everybody but take people's concerns seriously;
- Provide extra training and support for middle management as they are the ones who have to make ABW work in everyday office life.

Design

- Provide employees with real choice from a diversity of settings;
- Don't compromise on quality, thereby removing the need to compete for the best workplaces;
- Facilitate focus work by creating excellent acoustics and provide plenty of quiet spaces;
- Create a human scale; avoid large, open-plan work areas;
- Create a welcoming office where people feel they belong, despite not having a personal desk;
- Make sure the IT infrastructure and technologies are 'top notch' as they are crucial enablers of mobility in the office;
- Use design features to signal that the new office is different from a traditional office but avoid arbitrary design gimmicks.

FOREWORD TO THE SECOND EDITION

Much of this publication was written before the Covid-19 outbreak, which raises the obvious question of whether it is still relevant. After all, we have just been through the biggest working-from-home experiment ever. Aren't we witnessing the beginning of end of the office, with everybody working from home happily ever after?

It is too early to know, but that is the impression you get when reading the recent barrage of social media posts on this topic, typically headed by dramatic titles such as *The world of work has changed for ever* or *This is the end of the office as we know it* or even *The Office is Dead*. There is some truth in these titles in the sense that the Covid-19 crisis has demonstrated that organizations do not necessarily need offices. Managers have discovered that remote working is not as scary as they thought, and that staff productivity is more likely to go up than down. Employees, for their part, seem fairly happy as well. Working from home comes with downsides—distractions from kids or spouses, a risk of overworking, social isolation—but the overall experience appears to be positive.

Even so, I think that it is too early to write off the office as a relic of the past. Fundamentally people are social beings who seek out the company of others. Office buildings remain excellent places for this. Being in the same buildings facilitates both planned and unplanned meetings, enabling people to build social networks, collaborate, learn, build trust, exchange ideas and shape a common culture—all essential ingredients for organizational success.

Without doubt, some organizations will opt for a fully virtual way of working (a 'digital-first approach' in management-speak), but I expect that most will adopt a midway solution (a 'hybrid' or 'blended' or 'mixed-presence' approach), in which employees are allowed to split their time between different locations: home for solo-work, the office for collaboration. Depending on the type of work, cafes, hotels, libraries and co-workspaces might also be part of the mix. Obviously, this is not a new idea. In his 1997 classic *The New Office*, architect Frank Duffy predicted that the office would become a node in a wider network of workplaces, writing: "No longer is it necessary for an individual to occupy a particular place from nine to five, five days a week ... Most people will learn how to work from a variety of places."

Now that Duffy's ideas seem finally to have become reality, I expect that activity-based working (ABW) will become still more popular. Even before the pandemic, traditional desks were heavily underutilized, with occupancy levels of no more than 40 to 50% on average. If people are going to be working from home more often, these figures will drop further, making the logic for sharing workspaces at the office even more obvious.

It is important to stress, however, that ABW should not be viewed solely through the lens of efficiency. To be successful, the ABW concept should also be about creating a better, more attractive work environment. Less space but better space, so to speak. Better space means providing staff with a larger diversity of spaces to choose from: not just open-plan workstations, but also focus rooms, phone booths, break areas and informal collaboration areas. Better space also means more attention to design, using casual elements such as sofas, rugs and plants to create spaces where people actually enjoy spending time.

Also important are health and well-being. These were already key themes in office design before the pandemic, but post-Covid they will become even more important. Indoor climate aspects such as acoustics, daylight access, air quality and thermal comfort may finally get the attention they deserve. Likewise 'biophilia' (bringing natural elements like plants into the office) and 'active design' (design solutions that promote movement). Hygiene should now be added to this list as the pandemic has triggered a greater awareness of the risk of contagion in office buildings. This issue is of particular relevance to ABW offices where people share work settings. So, think of more frequent cleaning, dirt-trap-free furniture, easy-to-clean finishes and abundant wipes and hand sanitizers.

With these notions in mind, I would say that there is a promising future for activity-based working. But, in all honesty, it is hard to know for sure. There is no shortage of wild predictions about the future of the office. Decision makers should not be carried away by these alarmist prophecies. As before, organizations should base their workplace strategies on a careful and critical analysis of their work processes, their culture, and the needs and expectations of their employees. The Covid-19 crisis has provided them with an excellent opportunity to conduct such an analysis and, even better, make good use of it.

Copenhagen, September 2020

INTRODUCTION

What is the perfect workplace? There is no single answer to that question. Sometimes all you want are four walls and a door. At other times, an open space with colleagues. Or a project room with writable walls. A comfy sofa in a coffee lounge. Which setting works best, is likely to differ from time to time, depending on your activities, your personal preferences and your mood. So wouldn't it be great to be able to choose any of these, at any given moment?

Essentially, that is the promise of activity-based working (ABW). Instead of providing employees with just one, fixed workstation, ABW aims to offer a diversity of work settings that are designed to facilitate different kinds of activities (hence the name activity-based). To make sure that everybody has the same choice, all settings are shared, which comes with the additional benefit of requiring less space.

This concept is often considered as new—by some as shockingly new—but it isn't. The origins of activity-based working lie in the 1970s and since then it has become increasingly popular. This is not to suggest, however, that activity-based working has yet become the 'new normal'. In many projects the concept still gives rise to a lot of debate, if not resistance. And while many projects are successful—achieving both costs savings and increased staff satisfaction—there are also projects that fail due to design errors, cultural barriers and flawed implementation processes.

This practice guide's aim is to steer organizations through these complexities. It explains what the activity-based working concept is, what its aims are, how it works and how it can be implemented. The recommendations are based on the first-hand experience of experts and on a review of the available literature on ABW.

The book's main message is: when implementing ABW, make sure to get it right. Activity-based working is not some kind of formula that can simply be applied to any given situation. It is a way of working that touches upon deeply held assumptions about how we use space, how we interact with colleagues and how we organize our work lives. The implementation of ABW should therefore be seen as a change process rather than a fit-out project. As this guide will explain, its success requires excellent workplace design, a multidisciplinary approach, careful change management and, last but not least, commitment from the organization's leadership.



PART 1: CONCEPT

Activity-based working (ABW) is a much-discussed concept and there is no shortage of opinions about it. It is not always clear, however, what people have in mind when they talk about ABW. For example, it is often confused with the concept of an open-plan office, whereas ABW is actually a reaction to the lack of choice in open-plan offices. So this first part of the book aims to clarify what ABW is—and what it is not. It also explains the concept's background, the underlying objectives and the main issues that may arise.

- What is ABW?
- A short history
- Related concepts
- Objectives
- What research says about ABW
- Issues and how to deal with them



WHAT IS ABW?

If you do an Internet search on the term ‘activity-based working’ (ABW), you will get lots of results and lots of different interpretations. You are also likely to find lots of alternative terms (lean office, agile working, smart working, etc.), which all refer, more or less, to the same ideas. For the sake of clarity, this guide will stick to ‘activity-based working’. Not the catchiest term, but it is widely used, and it relates directly to the following definition.

Activity-based working (ABW): a way of working in which employees make shared use of a diversity of work settings that have been designed to support different kinds of activities.

There are three crucial elements in this definition.

1 Diversity

The essence of an ABW office is that it provides users with choice. Instead of the traditional binary model, in which people are stuck in either an open-plan or an enclosed office, the ABW concept provides employees with a diversity of settings in terms of openness, furniture, size, technology and atmosphere. For example, a mix of regular workstations, phone booths, quiet areas, break areas, lounges and project spaces. At any time, people can choose the setting that is right for them, depending on their task, mood and personal preferences.

2 Sharing

In an ABW office, everything is available to all, regardless of their hierarchical or functional status in the organization. The logic behind this ‘free seating’ approach is well known: traditional workstations tend to be underutilized as people spend a large part of their working hours away from their desk—in meetings, chatting at the water cooler, on the road, working from home. By sharing workspaces, it becomes possible to provide a greater diversity of settings while simultaneously saving square metres, which has both financial and environmental benefits.

WHAT IS NOT ABW?

There are a lot of misconceptions about ABW. So here is an overview of what it is not:

It is not hot desking

Hot-desking is only about the shared use of desks and not about empowering employees by giving them more choice about when and where to work.

It is not an open plan office

As the name implies, open-plan offices are just open. ABW is different in the sense that it provides a mix of both open and enclosed workspaces, available to all.

It is not interior design concept

There is a strong design component to ABW, as it usually requires new furniture and spatial changes, but the concept is primarily about organizational change.

It is not a cost cutting operation

The ABW concept will typically save money, but a one-sided focus on costs will not lead to success. The key objective should be to improve productivity by facilitating a diversity of office activities.

It is not a formula

ABW projects tend to have a lot in common, but ABW should not be seen as an off-the-peg solution. It is a concept that must be tailored to an organization’s specific culture and activities.

3 A way of working

The last defining characteristic of ABW is that it is a way of working, and not just a design concept. Compared to a traditional office setting, an ABW office requires employees to work much more independently, making their own choices about where and with whom they work. Managers for their part are expected to evaluate their staff by looking at their performance rather than just their presence in the office. These behavioural and managerial practices cannot be seen as separate from the physical work environment—they are at the core of the concept.

Three dimensions

Activity-based working touches upon the social, physical and technological dimensions of the work environment (often referred to as ‘people, place and technology’ or ‘bricks, bytes and behaviour’). Below is an overview of the key principles for each dimension.

SPATIAL DIMENSION	DIGITAL DIMENSION	SOCIAL DIMENSION
<p>The building and the spaces it provides.</p>	<p>The technologies needed for mobile working.</p>	<p>The way staff and management work, manage and interact.</p>
<p>Diversity – different settings for different activities, balancing open and enclosed spaces.</p> <p>Free seating – all spaces can be used by everyone.</p> <p>Availability – workspace numbers should provide staff with real choice.</p> <p>Ergonomics – all settings should be usable by everybody.</p> <p>Zoning – different areas for quiet and lively activities.</p> <p>Limited storage – as few filing cabinets as possible, although there should be room for personal items and some team storage.</p>	<p>Mobile devices – light, powerful tools with long battery lives that can be quickly fired up from any location.</p> <p>Collaboration apps – applications that allow employees to stay in touch in an easy and intuitive way.</p> <p>Workplace apps – apps that enable employees to find empty workspaces and to locate their colleagues.</p> <p>Cloud solutions – Internet-based applications and filing systems that allow employees to work from anywhere.</p> <p>Top-notch infrastructure – all the practicalities: docking stations, power sockets, a robust Wi-Fi network and high-quality screens.</p>	<p>Autonomy – greater freedom (and responsibility) for employees to decide when and where to work.</p> <p>Results-oriented management – judging employees on their performance rather than their presence in the office.</p> <p>Mutual trust – as employees are not necessarily in the direct sight of their managers, mutual trust is essential.</p> <p>Courtesy and respect – sharing workspaces requires that people are more considerate of one another’s workplace needs.</p> <p>Being mobile – moving to different spaces or locations when the task requires it.</p>

A SHORT HISTORY

Activity-based working is often trumpeted as a new phenomenon, but it isn't. The concept has been around for decades, albeit under different names and guises. This short history will explain how ABW has moved from being a novelty to becoming a mainstream solution, driven by changes in technology, culture and work processes.

Way back in 1970, a group of about twenty IBM product engineers moved, somewhat reluctantly, into what was called a 'non-territorial office'. This was probably the first ABW office ever, even though it was not called that at the time.¹ In their new office, the IBM employees no longer had personal workstations, but a variety of shared workspaces: ordinary desks, but also work benches, a quiet area and even a 'total quiet area' (formerly the department head's office). A thorough evaluation of the project showed that the new concept had improved communications and satisfaction levels. The research report did, however, warn that the concept was liable to provoke "a good deal of fear or even panic" among users who were new to the concept.² Sound familiar?



In 1989, the Digital Equipment Corporation (DEC) created its 'Office of the future' in Finland. One of the novelties of this 'non-territorial office' was that staff were equipped with cordless phones.³ (photo: Digital Equipment Corporation)

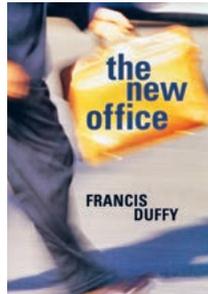
The IBM experiment was an isolated blip in 1970s office design. It did not receive much publicity nor any emulation—not so strange since at that time office work was still very much paper-based. This changed however in the 1980s when laptops, Internet and email started to enter the world of work. On the back of these technological advances, the idea of the 'non-territorial office' resurfaced. In his 1982 book *The Successful Office*, Franklin Becker explained the logic behind the concept, stating that no single workspace could satisfy the myriad of functions people perform.⁴ He anticipated that new technologies ("portable computers the size of a briefcase") would allow people to use a network of different workspaces, each designed for a distinct function and psychological or social need. The same idea was discussed by the architects Stone and Luchetti in their seminal 1985 article 'Your office is where you are', which quickly became a popular slogan among office innovators.⁵

It was not until the 1990s that activity-based working really took off. Triggered by economic expansion, the ICT revolution and the dot-com boom, there was a huge eagerness to create exciting, innovative spaces.⁶ Much of the idea development came from the British firm DEGW,

headed by Frank Duffy and John Worthington. In their writings, their projects and their talks, they promoted the idea of a 'distributed workplace' for 'footloose' nomadic office workers who could work anywhere they wanted. Early adopters were IT companies and consultancy firms. The public sector showed a lot of interest as well. In countries like the Netherlands, Denmark and the UK, government organizations launched pilot projects and experiments based on these new ways of working.

In the decade that followed, the concept's popularity continued to rise. It was then that the term 'activity-based working' was coined by the Dutch workplace strategist Erik Veldhoen.⁷ The increased adoption rate was accompanied by more critical notes as well. For example, in its study *The State of the Office*, the British Industrial Society wrote that "It [the flexible office] might be all the rage, but not with employees" and that "private offices for senior staff remain the norm, even while non-territorial forms of flexible working are introduced for everyone else".⁹ And so it was. There were both success stories and projects that failed. Many organizations were simply not yet ready for such radical change. For many managers, the status of a private office was still too important. Mobile technologies were still too slow or too expensive. And there was still too much paper around.

Today, twenty years later, the world of work is more receptive to the ABW concept. Many of the technological and practical challenges faced by the early ABW projects have simply disappeared. Wireless networks, smart devices, long battery life and cloud computing are no longer novelties but mainstream solutions, and they have made mobile work easier than ever. Even the paperless office is, at last, coming of age. And, just as important, many managers and employees seem to have become used to the concept. ABW is no longer shockingly new—many employees have 'been there and done that'. Another factor is that remote working has become much more common. The number of people who frequently work from home has been slowly rising in past decades, but the Covid-19 crisis has really pushed the concept into the mainstream. This will further increase the relevance of ABW as working from home reduces the need (and probably also the desire) for having a personal workstation at the office.



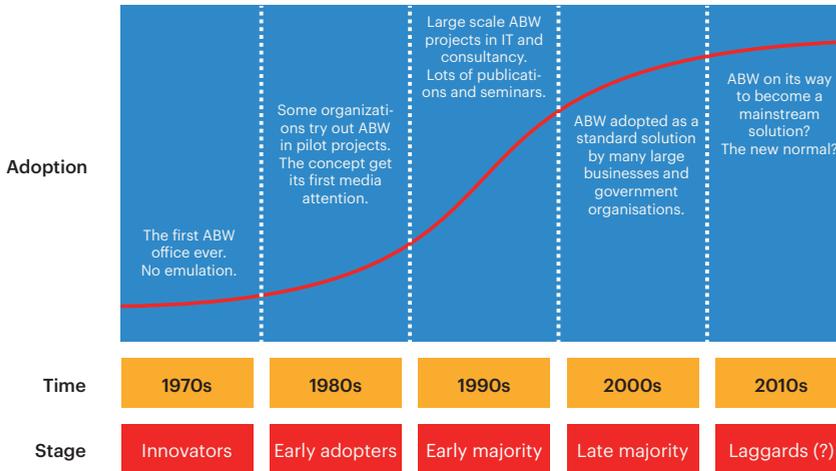
In 1997, Francis Duffy published his classic *The New Office*, in which he discussed the concept of the 'club office', described as an office where "individuals and teams occupy space on an as-needed basis, moving around it to take advantage of a wide range of facilities".⁸



Employee retrieving her 'flex-suitcase' with personal items at the office of the Dutch insurance company Interpolis (1998). In the Netherlands, this project created a wave of media attention for the flexible workplace concept. Workplace consultant Erik Veldhoen, who was responsible for the project, would later coin the term activity-based working. (photo: Hollandse Hoogte)

The adoption of ABW over time

The evolution of activity-based working seems to follow the classic ‘innovation diffusion pattern’.¹⁰ The concept started out as an isolated experiment; it was then embraced by an enthusiastic group of early adopters; after that, the ‘late majority’ became interested as the necessary technologies became more mature. And today, the ABW concept seems, at last, to be on the verge of becoming a mainstream solution.



Q&A

John Worthington, Founder DEGW, Collaborative Urbanist

When did DEGW start to work with the idea of sharing work settings?

The seeds were sown in the early 1970s when Frank returned from Princeton and established a listening post for JFN Associates, a leading practice of New York space planners. In our projects, we questioned the status quo in office design and looked for more egalitarian and flexible ways of allocating space.

What triggered the idea?

As with most insightful and lasting ideas there was not one eureka moment. Frank’s 1974 doctoral dissertation Office Interiors and Organisations acted as the catalyst. Over the next two decades, working with innovative corporations and developers, and supported by a global research programme, a robust conceptual platform was established for championing distributed ways of working and shared activity-based settings.

How did ABW evolve into a mainstream solution?

Change is incremental, until a seismic occurrence triggers a change in perceptions. The recession of 1989–93 was the catalyst to appraise the impact of ICT on the office. The focus was shifting from costs (efficiency) to maximizing people’s performance (effectiveness) and how the organization presented itself (expression). From then on, the interest in New Ways of Working only grew and grew.

Will we witness the demise of the office any time soon?

The need to congregate, build trust and exchange knowledge and ideas will continue to exist. It may not be located in a place we now call an office. It could be in a castle or a canteen. The use class called office is outdated. Long live the coffee house and bourse.

RELATED CONCEPTS

In practice, the activity-based concept is often combined with other workplace concepts and design ideas. Below we discuss the most important ones. They are all concepts that can help to strengthen the ABW concept, but they are not by definition part of it.

Remote working

Remote working is about working from places other than the office, such as home, co-workspaces or public spaces like cafes. The concept is an obvious companion to ABW because it builds upon the same idea of giving people more freedom to choose when and where to work. Managers often have mixed feelings about remote working—especially about working from home—but this seems to have changed during the Covid-19 crisis. Their fears of organizational disintegration proved to be unjustified. Nor did productivity figures go down. It is as yet unclear how these matters will play out in the long run, but for now there seems to be a broad acceptance of the concept of working from home. This will have a positive impact on staff acceptance of ABW, as sharing office space makes more sense if you are not always there.



Remote working is an obvious companion to ABW as it builds upon the same idea of giving people more control over where and when they work.

Collaborative space

Much of today's office design is geared towards the promotion of collaboration in organizations. Offices are designed as 'serendipity machines' with attractive meeting spaces and strategically located circulation routes that increase the likelihood of people crossing paths. The idea is that 'chance encounters' and 'creative collisions' foster the exchange of knowledge and ideas in the organization. For the same reason, work areas are often designed as open spaces, allowing for teamwork and a greater awareness of what colleagues are doing. These ideas and ambitions overlap to a large extent with the concept of activity-based working. It is important to stress, however, that the design of ABW offices is not just about promoting collaboration. It is just as much about facilitating solo work and concentration.



The idea behind the creation of collaborative spaces is that they facilitate the exchange of knowledge and ideas in organizations.

Co-working

Co-working is a membership-based office concept in which members—typically freelancers and small businesses—get access to workspaces, office facilities and services in return for a monthly fee. As in the ABW concept, the range of spaces tends to be diverse and members can choose to work where they want. The main difference is that co-working is an ‘out-of-house’ concept in which people from different companies make use of the same spaces and facilities, while ABW is an ‘in-house’ concept. The lines are blurring, however. Some organizations are creating their own co-workspaces, aiming for synergies with external parties such as start-ups. Other organizations provide their employees with corporate co-work memberships so they can work in co-workspaces and be part of a more diverse environment.



Co-work offices are like a hybrid of a cafe, a serviced office and a community space. The facilities provided are just as important as the sense of community on offer.

Smart offices and ‘proptech’

To an increasing extent, office buildings are equipped with various kinds of sensors that measure how the building is being used. Such buildings are referred to as ‘smart offices’ and the technologies used are called ‘proptech’ (property technology). The sensors can automatically detect who is in the building and which work and meeting spaces are being used. Employees can use their phones to locate colleagues, find available workstations, book meeting rooms, adjust the lighting levels in a space, rate the quality of spaces, and create service tickets if something is wrong with a space. For users, this can make office life easier, especially in an activity-based office where everybody is mobile. A point of concern is whether the use of sensors infringes on people’s privacy rights.



Sensors can be used to monitor where people are and where there are available workspaces. Both kinds of information can help staff to navigate an ABW office.

Healthy offices

Health and well-being are currently big themes in workplace design (although not exactly new for anyone who remembers the ‘sick building syndrome’ of the 1990s). The central idea is that buildings should be designed in such a way that they have a positive impact on people’s mental and physical well-being. Much of this relates to indoor climate: acoustics, daylight access, air quality and thermal comfort. Because of the Corona crisis, hygiene can be added to this list as a crucial topic (see page 35). Other relevant concepts are ‘biophilia’ (bringing natural elements like plants into the office and using natural materials like wood) and ‘active design’ (design solutions that promote movement, for example by creating attractive stairs). The idea of encouraging movement fits neatly into the ABW philosophy as the sharing of workspaces requires a higher level of staff mobility in the office.



Biophilic elements, like plants, are likely to have positive impact on people’s well-being in the office, making it a more natural and less artificial environment.

Agile working

Agile working is highly popular, but a somewhat confusing concept as the term has different meanings in different industries. Workplace professionals often use the term 'agile' to refer to the flexibility of spaces. But in the world of software development (and increasingly beyond), agile refers to the flexibility of work processes. This can be explained as a highly interactive and iterative way of working, in which teams work in small 'sprints' with lots of feedback loops. In terms of space, the most important requirement of this way of working is that team members can sit together and can have daily meetings ('stand-ups') to discuss their activities. The workstyle is not incompatible with activity-based working, but it is not the same. The emphasis is on keeping teams together rather than promoting the mobility of individual employees.



Agile working requires that team members can sit together and have daily meetings ('stand-ups') to discuss their activities.

Casual aesthetics

Traditionally, office aesthetics have been dominated by what architectural historians call 'corporate modernism': copious glass and metal, grey suspended ceilings, beige carpets, and large numbers of identical workstations, neatly arranged on orthogonal floor grids. In recent decades, this manifestation of efficiency and order has been challenged by more casual and home-like aesthetics. Many of today's offices feature lots of colour, graphics, plants, and domestic elements like rugs, sofas and armchairs. Some offices even incorporate playful features such as basketball hoops or foosball tables. This is also what you see in many activity-based offices where design is used to create different kinds of informal settings, expressing the idea that office work is not just desk work.



Domestic elements like armchairs and sofas are used to make the office less office-like.

Q&A

Jeremy Myerson, Director WORKTECH Academy

There is more interest in the design of the work environment than ever. How come?

Workplace design used to be a specialist subject with its own rules. Now the work environment has been consumerized and many offices look like hotel lobbies or retail showrooms. Workplace design has joined the mainstream design discourse.

What are your top three workplace trends?

- (1) **Mental Health and Well-being** – a growing awareness of behavioural psychology and neuroscience to avoid stress and burnout and increase productivity.
- (2) **Augmented Intelligence** – there is a lot of interest in AI and automation, but the real gains will be in augmented work where humans and machines collaborate and coexist.
- (3) **New Generational Leadership** – leadership redefined not as a property of charismatic individuals but as a property of a particular environment or culture. Workplace design and leadership strategy will work more closely together.

Are those the things that users want?

Users in office buildings definitely want better mental health and more preparedness for the challenges of 24/7 digital working. Most would willingly swap command-and-control leadership for something more empathic and responsive. But whether bringing robots and machine learning into the workplace might be a route to either is a moot point.

Is the desk going to survive?

The desk featured in Antonello da Messina's 1475 painting *Saint Jerome in His Study* and it features today in Apple Park's campus. The desk will survive as long as evolutionary traits remain. It will, however, become more intelligent, monitoring our health and our work, correcting our mistakes and connecting us to others.

OBJECTIVES

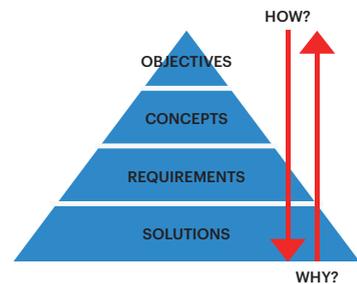
To make ABW a success, it needs to have a purpose. Having clear objectives will help to give direction to the design of both the concept and the implementation process. Furthermore, it will help foster acceptance as employees are more likely to accept change when they understand the reasons behind it. Below, we discuss the most common objectives of ABW—some of which are easier to achieve than others.

Reducing costs

It is often argued that cost reduction should not be the prime objective of activity-based working, which is true. A one-sided cost focus sends the wrong message to employees and it is likely to result in an office that is too cramped and too crowded to be productive. Yet it would be naïve to suggest that costs are irrelevant. As mentioned earlier, traditional workplaces are not very efficient in terms of occupancy. Applying ABW means better space utilization and thereby a reduction in occupancy costs, typically by 20 to 40%, depending on how radical the concept is. Part of these savings can be reinvested to create better workspaces, part can be seen as real savings.

Reducing the environmental footprint

By increasing workspace utilization, ABW helps to reduce the environmental footprint; organizations will require less space to serve the same number of employees. This means lower amounts of energy needed to light, heat and cool the office space, and thus fewer carbon emissions. Moreover, it reduces the environmental impact of construction activities in terms of the use of raw materials, the production of construction waste, and the use of energy for manufacturing and transporting building materials and elements.



FROM OBJECTIVES TO SOLUTIONS

The formulation of clear objectives can be seen as the start of a process in which strategic intentions are translated step-by-step into concrete design solutions. This process can be represented as a pyramid consisting of four levels:¹¹

- 1 **Objectives:** strategic benefits that must be delivered (e.g. enhancing staff performance)
- 2 **Concepts:** general ideas about how that can be done (e.g. good acoustics)
- 3 **Requirements:** specific, verifiable requirements (e.g. a reverb time of 0,6 sec)
- 4 **Solutions:** design solutions that meet those requirements (e.g. specific ceiling panels)

Increasing productivity

Increasing productivity is a crucial objective of ABW, albeit a challenging one because it is not so easy to prove or measure ABW's impact on productivity (see page 28). There is a general belief, however, that ABW can help to improve people's performance as it allows people to choose those spaces that best suit their activities, which should make it easier to perform those activities. Moreover, productivity should benefit from the accompanying change in management thinking, which focuses on people's performance rather than their presence in the office.

Improving employee experience

When done right, ABW can contribute positively to people's satisfaction and their experience of the work environment. The concept's most important quality is the freedom of choice it offers, which can give people a sense of empowerment. The extra attention to design that usually comes with ABW is a positive factor as well. It is important to keep in mind, however, that people's satisfaction and workplace experience will, in part, depend on what they are used to. Staff coming from a crowded open-plan office will be easier to please than those coming from spacious private offices.

Supporting cultural change

Activity-based working can be used as tool to support particular cultural changes. For example, it can play a role in creating a more egalitarian culture, as both management and employees make use of the same set of spaces. It may also help to foster a collaborative culture because there are no longer clear boundaries between departments. It is important to note, however, that cultural change is notoriously difficult to achieve. Changes in the workplace will only work if they go hand in hand with changes in management style and employee behaviour.

Increasing flexibility

ABW offices have the great advantage of being extremely flexible. Employees and teams can be moved without having to clear out filing cabinets or having to pack and unpack moving boxes. Fluctuations in team sizes can easily be accommodated as there is no 1:1 link between head count and workstations (although there is obviously a limit to how much growth can be absorbed within a given area). The overall effect is that the 'rate of churn' (the percentage of employees moved during a year) and the related costs are relatively low.

THE BENEFITS OF ABW

ABW's benefits for the organization as a whole are different from its benefits for individual employees. It is an important distinction because individual users will want to know 'What's in it for me?'.

What's in it for the organization?

- Reduced occupancy costs
- Smaller environmental footprint
- Potential improvement in staff performance
- Increased flexibility
- Better interaction across teams
- Support for cultural change

What's in it for the staff?

- More autonomy in choosing where to work
- More choice and variety in work settings
- Advanced technologies that allow mobile working
- More contact with colleagues
- Fewer hierarchical differences
- A less sedentary, healthier workstyle
- Fewer workplaces, but better ones



Do not expect cultural change to happen by itself. Moving into a new work environment can help and stimulate cultural change, but it is rarely, if ever, enough. Organizational leaders and other 'influencers' have to lead by example in the envisioned new way of working and they have to be consistent, persistent and insistent in their message.

Enhancing interaction

Face-to-face interactions are critical for the exchange of ideas and information within organizations. ABW can help to promote such interactions by providing inviting meeting areas and effective collaboration spaces. Furthermore, the concept of 'free seating' increases the likelihood that employees will rub shoulders with people other than those from their own team. It should be noted, however, that internal team interactions may suffer in ABW concepts as teams no longer necessarily sit together—although the creation of team zones can help with this (see page 67).

Attracting new generations of staff

The attraction and retention of new generations of staff (referred to as Millennials, Generation Y, or Gen Z) is often given as an objective of ABW. The reasoning is that a dynamic and vibrant ABW office will be more appealing to this group than a 'dull' traditional office with outdated furniture and a hierarchical set-up. That is probably true, but this objective requires some nuance. It is not so much the sharing of workspace that younger generations are interested in (research suggests the opposite^{12,13}), but more the general notion of flexibility in terms of hours and work-at-home options.^{14,15}

Improving health and well-being

Activity-based working can be linked to health and well-being in the sense that it gently encourages people to move around the office. More movement and changes in posture can help to reduce the risk of cardiovascular diseases, chronic back problems and other 'office diseases'. In addition, an ABW concept may positively affect people's sense of well-being by giving them more control over their work environment—although it must be said that a causal link with well-being is hard to prove (see page 29).



It is often argued that sitting is the new smoking—which isn't true because smoking is far worse—but prolonged sitting does hurt people's health. Activity-based working can contribute to a healthier workstyle as the concept promotes movement and typically offers ergonomic workplace solutions like sit-stand desks.

Q&A

Harald V. Nikolaisen, Director General of Statsbygg

What is the strategic relevance of ABW for public organizations like yours?

ABW allows flexibility for the organization when it comes to space utilization, while simultaneously reducing real estate costs. Flexible working environments reduce the property footprint and support sustainability. They accommodate more informal meetings and thereby create a culture of collaboration. The physical solutions are part of organizational development, management and technology, not isolated projects.

Is there a difference between public and private organizations when it comes to ABW?

Many private companies are better at meeting the expectations of younger employees looking for new ways of working. These companies are keenly aware of operating costs and alert to the benefits of concepts that can accommodate more people and adapt to

changing business conditions. Perhaps this makes it easier to achieve ABW in the private sector. In the public sector, we struggle to overcome employee anxiety and resistance to change.

Is the concept part of the plans for the future government quarter in Oslo?

Yes. For the first time Statsbygg has been given a mandate to test ABW as a workplace concept. The emphasis is on variation and freedom of choice, rather than a personal desk for everyone. But from the start this has been the subject of a debate that is still ongoing, so we do not yet know the final outcome.

Are you planning to give up your own office?

What office? I gave up my office ages ago! I work in an open plan workspace and enjoy being close to my colleagues.

Making objectives more specific

The objectives as described here are still very broad. In an actual project, they would need to be more specific to be effective. The objectives should ideally be linked to concrete metrics to make them actionable and measurable.

OBJECTIVES	INDICATORS
Reducing costs	Lease / occupancy costs
Reducing environmental footprint	CO ₂ emissions per employee
	Use of energy, water and materials per employee
Increasing productivity	Productivity as perceived by staff (survey)
	Output/input data (e.g. hours worked for particular tasks)
Improving employee experience	Employee satisfaction levels (survey data)
Supporting cultural change	Staff perception of culture (survey data)
Increasing flexibility	Rate of churn (# of people moved/year)
	Cost of internal moves
Enhancing interaction	Staff perception of interaction/ social cohesion (survey data)
	Actual interaction data (e.g. from a social network analysis)
Attracting and retaining employees	Staff retention rate
Improving health and wellbeing	Staff perception of their own health and wellbeing (survey data)
	Annual number of sick days

WHAT RESEARCH SAYS ABOUT ABW

There is a lot of research dedicated to figuring out how ABW affects people's behaviour and wellbeing. This section summarizes the findings. Before doing so, it is important to note two caveats. First, almost all research concerns user surveys that measure people's perceptions rather than their actual behaviour. The second caveat is that the evidence base is still rather limited, with a lot of individual case studies and only a few large data sets. This means that the conclusions below should be regarded as indications rather than absolute truths.

Quite happy

Are employees happy in an ABW office? Research suggests that they are, but the evidence is mixed. Multiple studies show that people appreciate the availability of spaces for breaks and collaboration, the aesthetics, and the improved interaction with colleagues.^{16,17} But there are also reports of dissatisfaction, especially in relation to misuse of the concept (e.g. territorial behaviour), design mistakes (e.g. bad acoustics) and flawed implementation processes (e.g. a lack of user involvement).^{18,19} In general, however, the pros seem to outweigh the cons. An extensive Swedish study showed that ABW offices, together with cellular offices, generated the highest satisfaction scores, while open-plan offices scored worst.²⁰

Small generational differences

It is often argued that activity-based working is more suitable for younger workers than for older ones. There is some data that seems to support this. Research from the Dutch Center for People and Buildings shows that young employees (< 31 years) are generally more positive about ABW than older ones.²² Likewise, data from Leesman, a commercial research company, shows that young employees consider ABW more effective than their older colleagues.²³ The question is why. Are young workers more flexible, and older ones more change-averse? Perhaps, but in both data sets the differences are too small to justify such generational stereotyping. Other factors, such as where people are in their career, are more likely to play a role.²⁴

Better interaction

Many organizations hope that ABW will help to improve employee interaction ('breaking down the silos', as managers like to say) and this notion is supported by research.²⁵ In surveys conducted by the Center for People

MIXED FEELINGS

There are things that employees like about activity-based working, and there are things that they don't like. According to benchmark data from the Center for People and Buildings, the picture is as follows:²¹

Best liked

(>50% respondents satisfied/very satisfied)

- Possibilities for communication
- Atmosphere/expression of the interior
- Quality of support services
- Functionality/comfort of workplaces
- ICT facilities
- Spatial layout
- Openness of spaces

Least liked

(>50% respondents dissatisfied/very dissatisfied)

- Lack of privacy
- Possibilities for concentration

and Buildings, users generally rate the ‘possibility for knowledge sharing’ as one of the concept’s most positive aspects.²⁶ In similar fashion, the surveys conducted by Leesman show consistently high scores for the facilitation of ‘informal social interaction’ and ‘unplanned meetings’.²⁷ One point to note, however, is that it is mostly interaction across teams that benefits from ABW.²⁸ Interactions within teams may actually deteriorate as team members are no longer necessarily located in the same area.²⁹

Distractions and a lack of privacy

The almost inevitable downside of improved interaction is a decline in the ability to concentrate. Distractions, noise and a lack of privacy are often mentioned as ABW’s main weaknesses (although matters are worse in open-plan offices).^{32, 33, 34, 35} This is somewhat surprising as the ABW concept explicitly aims to facilitate both collaborative and individual work. It is probable that many first-generation ABW offices were too open. The complaints also seem to relate to people’s limited ‘switching behaviour’ (see below) which means that people stay put at a workstation even when they consider that area too noisy. The challenge is therefore not only to provide quiet spaces, but also to get people to use them.

Less mobile than expected

Several studies show that employees are less mobile in ABW offices than expected, making use of only a limited set of workplaces rather than the full range of available options.^{36, 37, 38} The reasons for this are diverse. A practical barrier concerns the inefficiency of moving around (plugging out/in, packing/unpacking, adjusting furniture). A psychological reason may be people’s tendency to develop routines, such as using the same desk, as means to manage their busy work lives.³⁹ A social reason is that people want to remain seated close to their colleagues.⁴⁰ All three are valid reasons, but it is important to encourage mobility as research shows that the more mobile people are, the happier they are with the ABW concept.^{41, 42, 43}

Productivity remains elusive

The impact on productivity is the holy grail of workplace research: much sought after, but notoriously hard to find. The problem is that there are many factors involved and that the productivity of office workers is usually hard to measure. To deal with this, most studies limit themselves to ‘perceived’ or ‘self-rated’ productivity. But even then, it is difficult to reach conclusions. Some studies have found positive impacts, others negative ones, and some have found zero effects.^{45, 46} Positive impacts are associated with improved communications and an increased sense of empowerment.⁴⁷ Negative impacts relate to an increase in distractions and the extra time needed to find a workplace.⁴⁸



When reviewing research outcomes in relation to ABW, it is important to look closely at what was actually being studied. This is well illustrated by a Swedish study of office types which found that employee satisfaction was highest in cell offices and lowest in hot-desking offices.³⁰ This study is often seized on by ABW opponents in arguing that ABW is a bad idea.³¹ But that may be too hasty a conclusion. The study looked at ‘hot desking’, which the researchers explicitly define as desk sharing in open-plan offices—without support spaces such as quiet rooms. So not really ABW at all. This does not make the study any less interesting—it is an excellent study—but it does mean that its outcomes should be treated with care when discussing ABW.



The modern workplace is filled with what researchers call ‘externally generated involuntary distractions’ or ‘EGIDS’:⁴⁴ noisy colleagues, phone calls and people walking past. Such distractions can be acceptable while performing well-learned, routine tasks, but they can hamper people’s performance when it comes to new or complex tasks. The ABW office aims to deal with this issue by providing spaces for both communication and concentration.

Probably healthier

As with productivity, the available research on health is based on self-reported ratings rather than actual measurements of people’s well-being. So, ‘hard’ data is missing thus far. But there are some studies that indicate that ABW offices (and cell offices) scoring higher on health than open-plan offices.⁴⁹ One explanation for this may lie in the increased sense of personal control over the work environment that can come with ABW. Another possible explanation may lie in the notion that the ABW concept promotes motion and change of posture. There is an Australian study in which employees reported reduced sitting time (by 14%) and increased time spent standing (11%) and walking (3%).⁵⁰ It should be said, however, that there are also studies that suggest that the concept’s impact on sitting behaviour is marginal.⁵¹

More suitable for some jobs than for others

ABW seems to favour high-end office jobs: job types that come with a high level of autonomy, task diversity, mobility and interaction. Think project managers and policy makers rather than administrative workers or help desk employees. Data from Leesman shows that people who have a complex activity profile (lots of different tasks) regard ABW as more effective than people with a simpler activity profile (little diversity in tasks).⁵³ Dutch research points in a similar direction, showing that satisfaction ratings are highest among employees whose work is characterized by high levels of interaction and autonomy.⁵⁴ This makes sense because such traits are in line with ABW’s philosophy of self-managing employees who make their own decisions about when and where to work.

More suitable for some people than for others

In addition to the job characteristics discussed above, people’s personal preferences and personality traits may play an important role in their perception of the work environment. Dutch research indicates that people’s personal need for privacy (‘PNP’) is a key factor in determining their satisfaction with ABW.⁵⁵ Freely interpreted: some people’s brains are wired in such a way that they don’t mind the interruptions and distractions in a ‘buzzing’ office, while others cannot concentrate and become nervous and ultimately frustrated in such environments. Not surprisingly, the latter group is more critical of activity-based working than the first. Other personality traits—such as degrees of introversion or extroversion—are also likely to play a role, but there is no data available on this matter in relation to ABW.^{56, 57}

MOBILE WORKERS FEEL MOST PRODUCTIVE
The data from Leesman shows that the mobile employees in an ABW office feel more productive than their sedentary colleagues. In their data, Leesman distinguish between four mobility profiles. The percentage of people who agree with the statement that their office helps them to be more productive is different for each profile.⁵²

Profile	Increased productivity agreement
The camper / squatter Works in a single work setting, rarely using other settings in the office	42%
The timid traveller Uses a single work setting, occasionally tries other locations within the office	55%
The intrepid explorer Uses a single work setting, but often uses other locations within the office	60%
The true transient Moves around. Rarely bases him/herself in a single location within the office	67%



Mobile workers are happier with ABW than their sedentary colleagues.

Reality can be messy

The ABW concept is based on particular assumptions about user behaviour. Perhaps unsurprisingly, research shows that those assumptions do not always obtain in everyday office life. For example, one of ABW's central ideas is that of a 'status-free' work environment. In several studies, however, it was observed how (some) managers recreate private offices by systematically commandeering small meeting rooms.^{58,59} ABW's assumption about sharing spaces is also often challenged, as was shown in a Dutch case study where a team 'territorialized' a section of the office by leaving papers on cabinets and decorating the walls with posters.⁶⁰ Such observations show that one should be not naïve about the importance and difficulty of organizational change.

Success depends on execution and implementation

As mentioned earlier, ABW research comes up with many different, often contrasting findings, with examples of both very successful and unsuccessful cases. Much seems to depend on how the concept is executed and implemented. This is nicely illustrated by a study carried out by the Center for People and Buildings in which four ABW projects of the same organization were compared, two with very high satisfaction ratings, and two with very low ratings. These differences were due to differences in the design (the worst-rated projects were more open plan), the implementation process (the best-rated projects had a lot of user involvement) and the role of management (the successful projects enjoyed strong management commitment).⁶¹

Q&A

Wim Pullen, Director of the Center for People and Buildings

Why is workplace research relevant to practice?

First because research looks for patterns, for example in people's behaviour, which is relevant input for the design process. We try to discover the 'laws of nature' of the work environment. Second because research can provide a rich understanding of reality. Research is about numbers, but also about the stories behind those numbers. There is a lot that can be learnt from a good case description.

In your database there are both successful and unsuccessful ABW projects. What makes the difference?

Success is very much about providing the right mix of settings that match people's activities and their psychological needs, facilitating both communication and concentration. Other success factors are strong management commitment, a balance between top-down and bottom-up decision-making, and clear guidelines.

Why is it so difficult to prove ABW's impact on productivity growth?

Productivity is a complex metric. It requires the measurement of all the organization's inputs and outputs, both before and after the introduction of ABW. And even then, it is difficult to isolate the workplace from other variables. It is possible, however, to use 'perceived productivity' as a proxy.

What is on CFPB's research agenda for the coming years?

We want to discover more about what we call 'Total Benefits of Usership' (as opposed to 'Total Cost of Ownership'). We already know that there are many variables at play, but we want to know more about causal relations and, thereby, about effective interventions. The word 'total' describes our ideal of knowing it all.

Change management is key

There isn't much research available on change management in relation to activity-based working, but many research publications do stress its importance.^{62, 63, 64, 65} User involvement and communication in particular are seen as critical change management activities. A Swedish study that compared four ABW cases noted that the two most successful cases were characterized by long design and implementation processes, extensive employee involvement and clear communication about the concept.⁶⁶ The study showed that employee involvement facilitated the employees' mental preparation for the new work environment and the creation, acceptance and implementation of new workstyles.

Conclusion

The available evidence based on ABW does not provide any simple or definitive answers about whether ABW is good or bad.⁶⁷ The overall impression, however, is that ABW can work very well provided it is implemented and executed properly. The concept's strength is that it can have a positive impact on interaction, satisfaction and people's sense of productivity, especially when work processes are characterized by a high level of autonomy, mobility and interaction. The concept's weakness is that people may find it difficult to concentrate. Research also shows that people are by nature more sedentary than expected and so fail to realize the concept's full potential. These issues must be addressed explicitly in the design and implementation process. Providing plentiful spaces for focus work, and encouraging people to actually use those spaces, is likely to help.

RECOMMENDATIONS FOR FURTHER RESEARCH
The comment 'further research is needed' is a scientific cliché, but nonetheless true for ABW. Despite a rapidly growing evidence base, many questions remain unanswered. Here are some recommendations for further research.

Promote research

Urge organizations to evaluate their ABW effort systematically and to share the findings.

Make sure that research is relevant to practice

Try to develop practical recommendations on matters like sharing ratios and workplace densities.

Make research more accessible to practice

Do not publish in scientific journals only, but also in blogs and trade journals that are accessible to practitioners.

Link satisfaction data to design characteristics

Do not regard ABW as a general concept. Take a closer look and try to isolate the impact of design variables such as floor sizes, sharing ratios and workplace densities.

Go for 'gold standard' research

To get reliable evidence about how office concepts work, there is a need for some more 'randomized controlled trials' (RCTs), conducted in real-life workplace settings.⁶⁸

Use a mix of methods

Combine quantitative surveys with qualitative methods such as interviews and observational studies to understand the 'why' of the research outcomes.

Use data from new technologies

Make use of sensors, cameras or wearable devices to get an in-depth insight into user behaviour (but beware of privacy issues).

Investigate the impact of process design

Do not study the concept in isolation, but also the process behind it, looking at the duration of processes, the degree of user involvement and the role of management.

ISSUES AND HOW TO DEAL WITH THEM

Activity-based working is a powerful concept, but it is not without its challenges. Understandably, employees worry about things like noise, hygiene and the availability of sufficient numbers of workspaces. To make ABW a success, and to convince sceptical employees, such issues should not be glossed over, but explicitly addressed. Below is a list of the ten biggest issues with recommendations for how to deal with them.

Noise and distractions

As explained in the research section, one of the biggest issues of the ABW office is that people experience distractions and a lack of privacy, which impairs their ability to concentrate. This need not be the case. The central idea of ABW is to provide options for both communication and concentration.

- Provide plentiful focus rooms and/or quiet areas so that people can escape the buzz;
- Provide lots of meeting areas so that conversations do not have to take place in open work areas;
- Divide the office floor into zones with different levels of liveliness (e.g. a 'hot' zone for lively activities and 'cold' zone for quiet ones, see page 69);
- Make sure that spaces have excellent acoustics (plenty of sound absorption; sound blocking where needed);
- Formulate rules for how spaces should be used (e.g. no video meetings or loud ringtones in open work areas);
- Limit 'visual noise' (i.e. blocking distractions in people's peripheral vision by placing screens between workstations, applying privacy film to glass partitions and locating workstations away from busy circulation areas).



The use of acoustic panels will help to soundproof the office. Acoustic panels are made of sound-deadening materials that allow people to have a conversation in an open work area without immediately disturbing their co-workers. (photo: Anna Autio)

Feeling lost or disconnected

Without a personal workstation, some people may feel uprooted, lost or disconnected from their teams. A mix of spatial, technical and organizational strategies can be used to mitigate those feelings and to strengthen the social ties within teams.

- Establish 'team zones' or 'anchor points' as a first port of call for team members (see page 68);
- Create 'identity spaces' where teams and individuals can place and display their trophies and other kinds of memorabilia (e.g. snapshots of all team members, branding materials, etc.);

- Ask team members to share their schedules and calendars, so that everyone knows where and when their colleagues are working;
- Create rules concerning people’s availability/accessibility (e.g. availability via chat during work hours);
- Provide easy-to-use tools for sharing files and communication (video, chat, voice) and make sure that those tools are used;
- Have set meetings and social rituals (e.g. eating lunch together when at the office);
- Pay added attention to newcomers who do not yet know their colleagues and may have trouble—literately and figuratively—in finding their way around the office.

Territorial behaviour

In ABW offices some users may try to claim certain workplaces in the office as their own—for example, by leaving personal items, such as a jacket or papers, at a workstation to signal that it is ‘theirs’ while not using it. This is a natural tendency, but it restricts other employees’ choice.

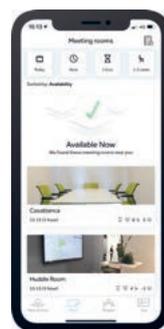
- Make sure that all the standard workstations are of equal quality—there is no need for competition for desks or ‘desk envy’ when everything is of the same (good) quality;
- Formulate guidelines for how spaces should be used (e.g. stating that people must clear a workstation when they expect to be away for more than 2 hours);
- Make sure that managers lead by example (and not treat focus rooms or meeting rooms as their private office);
- Make sure that switching between spaces is easy by providing easily adjustable furniture and wireless technologies;
- Emphasize that clearing one’s desk is not just a matter of following rules, but more especially of being considerate of your colleagues;
- Ask the cleaners to clear all desks at the end of the day.

Availability of spaces

Closely related to the issue above, is anxiety about the availability of workspaces, which may result in people going to the office earlier so as to be able to get a good work spot. It happens, but there should be no need for such behaviour. A well-designed ABW office should offer plenty of good seating possibilities, even during peak hours.

- Make sure that the sharing ratio isn’t too tight. Avoid regular occupancy levels over 70% (see also page 63);
- Create ‘overflow areas’ to deal with peak occupancies (e.g. informal work settings in the restaurant and other break areas);
- Make a clear distinction between bookable spaces and non-bookable spaces;

THE TERRITORY ISSUE	
<p>The social psychologist Irwin Altman theorized in the 1970s that people’s sense of territoriality is dependent on two factors: (1) how central a place is in a person’s life, and (2) how much time a person spends there.⁶⁹ He distinguished three types of territories.</p>	
<p>Primary territory</p>	<p>Private places where the owner has exclusive rights to use the space (e.g. a place in the home).</p>
<p>Secondary territory</p>	<p>Semi-public places where a person interacts with acquaintances or peers on a regular basis (e.g. a local pub).</p>
<p>Tertiary territory</p>	<p>Public spaces where almost anyone is allowed temporary access, providing they observe the relevant regulations (e.g. a public park).</p>
<p>The first type of territory will raise the strongest resistance when it has to be shared, the third one the weakest. Work areas can be seen as ‘secondary territories’: places where it is nice or convenient to have a regular seat, but not a must.</p>	



Linking workplace sensors to a smart phone app gives employees access to live data about which workstations are in use and which are not, so they spend less time looking for available workstations. (photo: Mapiq)

- Correct people who show ‘claiming behaviour’;
- Establish (and enforce) a ‘clear desk’ policy;
- Create visual overview in the office so people can easily see which workspaces and focus rooms are available;
- Provide employees with a ‘place finder’ app for their phone to help them to locate available workstations.

Paper and stuff

An often-heard concern is ‘Where am I going to leave all my stuff?’ It is obvious that ABW is not going to work if people have a lot of things to carry around. But people still have things, such as a laptop, a mug, books and printouts or marketing materials. There should be places where people can store those items.

- Digitalize work processes, in so far as that hasn’t been done already;
- Organize a ‘clean up’ of filing cabinets, pedestals and storage spaces before moving into the ABW office;
- Provide employees with lockers where they can store personal items;
- Provide a cloakroom for storing clothing such as bicycle helmets and coats;
- Provide team storage where needed.



Provide employees with a basket or company bag that they can use to carry their things while on the move in the office. The size should be such that it can easily fit into a locker. (photo: Anna Autio)

Hygiene

Employees may worry about hygiene as workstations are used by multiple persons. The Covid-19 pandemic has exacerbated this concern. Many people dislike the idea of unseen germs, bacteria, microbes and viruses harboured by shared desk surfaces and peripherals such as keyboards and mice.

- Increase cleaning frequency (e.g. extra cleaning round during office hours to wipe down desks and keyboards);
- Place a canister of disinfectant wipes and/or a bottle of hand sanitizer on desks (NB without harmful chemicals, preferably biodegradable);
- Draw up a protocol that asks employees to keep workspaces clear, clean and tidy;
- Provide people with their own headsets, keyboards and mice (although this means that they have more stuff to carry around);
- Place hand sanitizers at strategic places (entrance, pantry, toilets) and make sure they are regularly refilled;
- In case of a virus outbreak, allow employees to book/use workstations for an entire day. Clean and disinfect these workstations thoroughly at the end of the day.



Sharing workspaces means higher standards for cleaning, especially in times of virus outbreaks.



In most ABW offices employees get their own personal locker so that everyone has a place to store personal items (e.g. one’s laptop at the end of the day). In practice, however, not everyone uses them, in which case a shared locker system might be considered. (photo: Anna Autio)

The hassle of moving

One practical issue concerns the practicalities of switching workspaces over the course of a day. Each move entails finding a spot, adjusting the furniture, clicking the laptop into the docking station, and placing one's stuff on the desk. These 'micro-inefficiencies' cannot be avoided entirely, but there are ways to make switching places easier.

- Provide all employees with the same laptop (type/brand) and equip all workstations with the same docking station (or at least provide the right set of cables and dongles for every type of equipment);
- Limit the number of wires/cables required (e.g. wireless chargers for phones);
- Choose furniture that can easily be adjusted to individual preferences (without having to read a manual first);
- Provide all employees with a bag or basket in which to carry a few personal things (notebooks, favourite pens, mug);
- Position focus rooms and phone booths close to open work areas so people don't have to walk far if they want to switch places to make a phone call or when they need some time to focus.

Ergonomics

People come in different sizes and with different preferences, and they will need to adjust their chairs and desks accordingly. Compared with ordinary office projects, the ergonomic standards in ABW offices need to be higher. If work settings meet the needs of the 'outliers', the needs of everyone else should be covered as well.

- Invest in highly adjustable, high-quality furniture (adjustable chairs, sit-stand desks);
- Make sure that the height of monitors can be easily adjusted;
- Train all employees in workspace ergonomics (giving advice about posture, but also about the importance of movement and variation);
- Make exceptions for people with special needs (e.g. persons with allergies, light sensitivity, hearing problems, wheelchair users, etc.);
- Consider investing in 'smart furniture', such as desks that automatically self-adjust to a person's digitally stored preferences.



Use furniture solutions that people can easily adjust to their preferences. (photo: Ahrend)

Loss of status

For managers, ABW can create ‘status anxiety’. The proverbial corner office is no longer there. In addition, they must get used to managing mobile employees (managing with their brains, instead of their eyeballs, so to speak). Practice shows that this is not always easy. It is essential, however, that they are ‘on board’ and lead by example.

- Provide training in change management and information about ABW that is specifically targeted at managers;
- Make managers part of, and responsible for, the change process;
- Make sure that top management is involved and actively pushing the ideas to all management levels;
- Provide sufficient bookable meeting rooms with visual privacy, where managers can have confidential meetings (e.g. employee assessments).

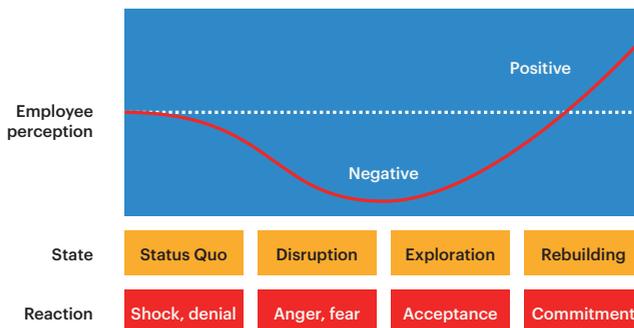
Resistance to change

When introducing ABW, be prepared for a healthy dose of staff resistance. When they first hear about it, many employees will be anxious, or even angry, about the prospect of losing ‘their’ workstation. But if properly informed and involved, people can move from resisting the change to accepting or even embracing it (see also page 83).

- Communicate extensively about the ‘why’, ‘what’ and ‘how’ of the concept;
- Listen seriously to and address all concerns and practical questions employees may have;
- Involve employees actively in the development of the concept (see page 46);
- Where necessary, provide training (e.g. in use of new technologies);
- Make sure that management leads by example.



Why is losing one’s desk such a daunting perspective, even when you know that you will get more options in return? One likely culprit is the psychological phenomenon of ‘loss aversion’, which is encapsulated in the expression “losses loom larger than gains.”⁷⁰ To deal with this phenomenon, it is important to look carefully at the ‘framing’ of the ABW concept. The new work environment has to be presented and designed as a gain (i.e. in terms of choice and quality) rather than as a loss. This will not solve the issue entirely, but one can take comfort from the idea that once people have become used to ABW, they won’t want to lose it, for the very same reason.



Stages of acceptance

The process of accepting change is often likened to the process of grieving, which is said to move from denial, to anger, to bargaining and ultimately to acceptance.^{71,72} The analogy may seem a bit over the top (grieving over the loss of a desk?), but it provides insight into people’s responses to an ABW project. People’s initial reaction is often resistance, while actually working in the new office tends to lead to acceptance.



PART 2: ANALYSIS

Before deciding whether to adopt ABW, and in what form, it is important to undertake a systematic analysis of the organization's needs and aspirations. The purpose of such an analysis is to assess the organization's readiness for activity-based working and to gather data and insights to inform the detailed development of the concept.

An additional purpose of the analysis process is to prepare the organization for change. Analysing existing and new ways of working helps to create an awareness of how and where the work environment can be improved. Involving users in this process is an excellent way of creating engagement. Participative activities such as workshops and interviews can be particularly powerful change management tools.

The overall analysis process can be split into three parts:

- 1 Analysing the existing situation
- 2 Exploring new possibilities
- 3 Validating new ideas

Each part comes with its own methods, which will be discussed in the following.⁷³ Please note that it will not always be necessary to use the full set of methods, but any project will benefit from gathering solid data that enables informed decisions to be made.



ANALYSING THE EXISTING SITUATION

The aim of analysing the existing situation is to gain an understanding of the organization, its work processes and its current ways of using space. How does the organization work? What kind of culture does it have? What kind of work settings are available and how are they used? And where is there a need for improvement? These questions can be answered by analysing various kinds of organizational data as well as by simply 'looking and listening'.



Document analysis

A good place to start the overall analysis is to go through already available documentation: documents on matters like the organization's mission, structure, strategy, and brand or identity. Such documents can provide an insight into what is important to the organization and where it is heading. Also relevant is documentation relating to headcount, although headcount data are notoriously inaccurate (outdated or excluding external contractors), so additional data gathering may be necessary.

Walk-through

As the name suggests, a 'walk-through' is basically a walk around a building. It is a tour of the existing work environment together with a group of users who explain how they use it. The aim is to get an initial impression of the organization and its work environment. What is the atmosphere like? Are workspaces crowded or empty, noisy or quiet, messy or organized? How do users perceive these spaces? What do they like and dislike? What would they like to have changed, and why? Conducting such a tour is a very effective way of getting to know a lot in a short period of time.

Outcomes

- An initial understanding of the organization's processes, strategy and mission
- Basic data on the organization's structure and headcount

Recommendations

- Beware of possible discrepancies between how things are presented in documents and how they are in everyday practice.
- Conduct follow-up interviews to clarify and validate data.

Outcomes

- First impressions of both the organization and the existing work environment

Recommendations

- Prepare the walk-through. Make sure that the routing and stopping points cover all relevant spaces. Prepare a list of discussion topics for each stop.
- Consider turning the tour into a 'photo safari' during which users are asked to make photos as visual documentation of the positive and negative aspects of their office.
- Conduct tours with different kinds of users (e.g. employees, managers, facility manager) to get different perspectives on the existing situation.

Workplace survey

A survey is an excellent way of gathering input from large numbers of people. It can be used to measure people's satisfaction with their existing work environment, which will help to identify areas for improvement. Surveys can also be used to gain an insight into people's work processes by asking them which activities (e.g. solo work, group work, etc.) are critical to them. It is important to note, however, that a survey basically measures people's opinions. To be able to interpret the outcomes, survey data should be 'triangulated' with data from interviews, workshops and occupancy measurements.

Spatial analysis

Analysing the existing spatial layout will provide insight into what people are currently used to and baseline data for the new concept. The analysis should look at the general use of space (e.g. square metres per employee/workspace) and at the kinds of work settings that are provided in the current situation. Ideally, you should learn three things about each space type: (1) the design characteristics of the space, (2) people's satisfaction with it, and (3) the degree to which the space is used.

Occupancy measurements

Occupancy measurements provide insight into the extent to which employees use the available work settings. Occupancy data can be gathered by using either human observers or digital sensors. The outcomes are key to determining the 'sharing ratio' for the concept, which is the ratio between people and workstations. The lower the occupancy levels, the higher the potential for sharing. When analysing the data it is important to look at both 'average occupancy' (occupancy levels averaged over a period of time), 'peak occupancy' (the highest level measured), and the frequency with which they occur (more on this on page 63)

Outcomes

- Quantitative data on staff satisfaction
- Quantitative insights into people's work processes

Recommendations

- Check out existing survey methods, for example from the Center for People and Buildings (www.cfpb.nl), WPA (www.wpa.works) and Leesman (www.leesmanindex.com).
- Make sure the survey's timing isn't too close that of other surveys (e.g. regular staff satisfaction surveys).
- Critically review all survey questions beforehand (surveys tend to be too long).
- Combine the survey with interviews, occupancy measurements and an analysis of the building's design in order to be able to interpret the outcomes accurately.

Outcomes

- Baseline data on the existing use of space
- An understanding of what employees are currently used to

Recommendations

- When analysing the use of square metres (i.e. per person and per workstation), make sure that it is clear what the square metre measurement refers to (gross floor area, net floor area, lettable area, etc.)
- Try to get accurate digital files of the existing office floor layouts as that makes it easier to analyse the use of space.
- Connect the spatial information (quantity, size, features) to satisfaction data (e.g. from a survey) and use data (e.g. from occupancy measurements).

Outcomes

- Quantitative data on space occupancy

Recommendations

- Measure the occupancy levels of workspaces, meeting spaces and support spaces.
- Communicate clearly when and why the occupancy measurements will take place and that they are not being used to collect data on individuals.
- Make sure that the measurement period is representative (i.e. avoid holiday periods).
- Be aware that occupancy measurements reflect current usage, based on existing behaviours. Future use patterns may be different.
- Combine occupancy measurements with interviews in order to be able to interpret the outcomes (i.e. why are certain spaces intensively used or underutilized?)

Stakeholder interviews

Interviews are a good way to get 'up close and personal' with all the stakeholders. At the start of the process, it is a good idea to talk to the decision makers in the various departments involved (i.e. HR, IT, FM, CRE). What do they see as the opportunities and challenges? How can they contribute to concept's success? In addition, it will be useful to interview employee representatives (e.g. from unions or workers councils) or a cross section of employees (e.g. a manager, a policy maker, etc.) to get their perspective on the concept. These insights can be used as input for both the shaping of the concept and the related change management strategy.

Outcomes

- Insight into expectations, needs and attitudes of stakeholders

Recommendations

- Keep the interviews focused on organizational needs rather than people's personal opinions.
- Consider further involvement of the interviewees in the later stages the project (e.g. in focus groups or work groups).
- Evaluate whether the interview outcomes converge or diverge (e.g. differences between management and employees?).
- Consider making brief video interviews for communication purposes.

Social network analysis

Social network analysis is a method for mapping and analysing the social interactions in an organization. The data is usually gleaned from email traffic, surveys or (wearable) sensors. The outcomes are visualized in web-like diagrams with 'nodes' and 'ties' that show who is in touch with whom. Such data will be relevant for organizations keen to improve staff interaction or looking for particular gaps that need to be filled or 'silos' that need to be broken down. These kinds of insights can then be used for decisions on team adjacencies, circulation routings or for the location of classic meeting spots such as coffee machines.

Outcomes

- Quantitative data on interactions between people and between teams

Recommendations

- Make sure that the data (e.g. from email/social media/GPS trackers) are anonymized before they are analysed. Always ask users for their consent.
- Do not get bogged down in the (typically) immense quantity of data. Focus on general patterns and the interaction between groups rather than individuals.
- Define beforehand what the purpose of the analysis is and how it relates to the objectives of the ABW concept.

Q&A

Siri Blakstad, Business Development Director at SINTEF

How important is it to conduct an analysis before implementing ABW?

If your aim is to change the organization's work processes, analysis is of vital importance. You will need 'neutral facts' for decision-making and for setting clear objectives. Furthermore, the analysis process is important because it helps to create an awareness of how and where things can be improved. In that sense, the process itself is almost as important as the outcomes.

Which analysis activities do you regard as crucial?

Occupancy studies are very useful for getting an understanding of how people currently use space. Interviews and workshops are essential for discussing present and future work practices.

To what extent should users be part of the analysis process?

Extensively. When carrying out an analysis, you rely on the users' knowledge. Involvement can also help to foster user engagement—but only if it is well planned and if it is clear to people how the outcomes will be used.

What's the secret to successful user involvement?

First, the process needs to be owned by the organization's leadership—and not just the project team or the real estate department. Second, as I mentioned earlier, you need to be clear about the purpose of their involvement. The project will suffer if you involve people and later choose to ignore their contribution. People are smart and appreciate honesty. So, if there is no room for any kind of co-creation, just say so, and put the emphasis on training and learning rather than concept development.

EXPLORING NEW POSSIBILITIES

The analysis methods discussed in the earlier section are all very much focused on describing and understanding the ‘as is’ situation. It is just as important, however, to discuss and investigate the possible ‘to be’ situation by exploring new ideas and future trends. This part of the analysis is not so much about ‘hard’ numerical data, but more about ‘soft’ qualitative data such as ideas, inspiration and ambitions, which are just as important as numbers because they determine the nature of the concept.



Leadership workshops

To make the ABW concept relevant to an organization and its employees, it must be embedded in a wider narrative about organizational change. It is therefore important to know in which direction the organization is heading and to know what the top decision makers’ aspirations are. Workshops with leadership can be used to explain what ABW is and to discuss its relevance for the organization. Important points for discussion are: strategic aims (what do they want to achieve with ABW?); the concept’s relation to other change projects (e.g. in IT and HR); and the role of management itself (are they willing to lead by example?).

Reference projects

Visiting the ABW projects of other organizations is recommended when looking for new ideas and inspiration. Other projects provide an excellent opportunity to ‘look and learn’. What are the latest design solutions and technological tools that are available? What works and what not? What would these organizations have done differently in hindsight? For employees, the additional advantage of project visits is that they give them a very tangible impression of how ABW offices can look and work in practice, making the concept less abstract and less daunting.

Outcomes

- Definition of strategic objectives for the ABW concept
- Awareness among leadership about what ABW is (and what is expected from them)
- Management buy-in

Recommendations

- Make sure that the workshop is inspiring, but also honest about possible challenges.
- Give managers a clear understanding of their own role in the process (not just as decision makers, but also as advocates).
- Beware of producing outcomes that are too vague or too consensus-driven to be useful.

Outcomes

- Inspiration, ideas and experiences from other projects

Recommendations

- Gather factual information about reference projects (i.e. floor plans, evaluations, cost figures).
- Make sure to have access to the right people: not just the designers or consultants (who are likely to be biased in favour of their own work), but also the building’s facility manager and users.
- Document the visit so as to be able to communicate the lessons learnt to the rest of the organization.

Staff workshops

Engaging staff in the analysis process by means of workshops is a good way of creating acceptance, ownership and enthusiasm for the concept. Workshops can be used for two purposes. The first is to create an informal setting where it is possible to discuss the general idea of activity-based working with staff. The second purpose is to explore the staff's ideas, wishes and needs concerning their work environment. It will, for example, be useful to brainstorm about the types of work settings the new office should provide and the ways in which staff should or will use these settings in practice.

Scenario studies

When thinking about a new work environment, it is important to explore how ways of working may change in the near future. This can be done by examining different future scenarios that are based on changes in both society at large (e.g. the rise of AI and robotics) and the organization itself (e.g. changes in staff demographics). The different scenarios can then explore how such changes may affect workplace needs. It should be noted that future scenarios are inherently uncertain—they may never come true—but discussing them is still productive as it helps people to think beyond the status quo.

Outcomes

- Staff awareness of what ABW is
- A qualitative understanding of staff needs
- Ideas that can serve as input for the project brief and design development

Recommendations

- Be clear about the matters on which staff's input is sought and how their input will be used.
- Organize dedicated workshops for different departments/teams as needs are likely to differ.
- Keep discussions focused on functional needs rather than personal 'wants'.
- Hold workshops early in the process so that outcomes can be incorporated into the project brief and/or design proposals.

Outcomes

- An understanding of possible changes that will affect workspace needs

Recommendations

- Scenarios should be plausible, but not too bland. Adding provocative or extreme scenarios can help to sharpen people's thinking and their awareness of future change.
- Look at existing scenario studies before developing one's own. There are plenty of scenario studies available on the Internet.
- When creating a scenario, differentiate between fairly certain developments (e.g. demographics) and uncertain developments (e.g. social change)

VALIDATING NEW IDEAS

New ideas and concepts should be tested and validated before they are implemented. This can be done in various ways. Focus groups can be used to discuss the validity of a concept with employees. The persona method can be used in the same way, with an emphasis on different user types. The spatial consequences of the ABW concept can be tested by means of design prototyping. Real-life testing can be done through pilot projects.

Focus groups

A focus group is a small group of specially selected employees who are asked to review and discuss the ABW concept during the development and implementation process. It is a test panel that can be used to validate the usability of ideas and particular design solutions from a user perspective. Members of a focus group are usually selected from a cross section of the organization. An alternative approach is to select 'lead users': users who are a step ahead of the others. In both cases it will be important to 'prep' the focus group about the nature of ABW before they are asked to respond to it.

Development of personas

The persona method is a technique in which ideas can be tested and developed by looking at the needs of typical, fictional personas. Examples of such personas might be a manager, an administrative worker, or an employee in a wheelchair. For each persona it is possible to develop a 'user journey' through the new work environment. What is the first thing they do when they enter the office? Which spaces do they use and what do they do there? What technologies and equipment do they use? By drawing up a detailed description of such a user journey it is possible to validate the concept from the perspective of different user types with different needs.



Outcomes

- Validation of the usability and relevance of specific ideas and solutions

Recommendations

- A group size of 10 to 15 persons will usually suffice: large enough to incorporate diverse voices and small enough for the informal exchange of ideas.
- Include not only enthusiasts, but also sceptics—although all participants should have a constructive attitude.
- Ensure proper facilitation and training of the focus group.
- Make sure that the group is not dominated by a few loud voices. Every participant should be able to put forward his or her ideas.

Outcomes

- Qualitative insights into the needs of different user types
- Validation of the concept's usability

Recommendations

- Avoid making personas too stereotypical and simplistic.
- Make sure that personas are grounded in reality by using data (from interviews, workshops, desk research) as input.

Design prototyping

When discussing activity-based working it is easy to get lost in abstract numbers about square metres and sharing ratios. To add meaning to such figures, and to test their feasibility, it is a good idea to test different design options early in the process. Not by means of detailed design proposals, but with diagrammatic plans and reference images that visualize how the envisioned work environment might look in terms of zoning, room types and densities. This will help to validate assumptions about the need for square metres and it will aid communication with employees and decision makers.

Pilot projects

Conducting a pilot or 'pathfinder' project is probably the best way for an organization to test out the ABW concept. Pilot projects will deliver practical lessons about both the design and the implementation of the concept, especially when an organization is new to ABW. Moreover, a pilot project can be used as a means of communication. It can be a place that can be visited by employees from other departments to see what ABW is and how it can work. For pilot projects to be useful, they should be well researched and documented. Furthermore, they need to be well managed and they require resources if they are to work.

Outcomes

- Insight into the feasibility of ratios and sizes of the envisioned work settings

Recommendations

- Generate feedback about design prototypes through focus groups and workshops.
- Keep design prototypes deliberately diagrammatic, focused on functional properties ('works like ...') and not on the actual design ('looks like ...').
- If the design team is already on board, make them responsible for developing the prototypes.

Outcomes

- Practical insights for the organization-wide roll-out of the ABW concept

Recommendations

- Be aware that the outcomes of a pilot project are not always 'scalable'.
- Set up a proper before and after evaluation of the pilot project.
- Treat the pilot project as a real project, with a sufficiently large budget to realize a realistic and attractive solution.
- Use the pilot project as an 'ABW showroom' that can be visited by the rest of the organization.



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- Udfordring
- Udfordring og udfordringer
- Udfordring og udfordringer
- Udfordring og udfordringer

PART 3: PROCESS

Once an organization has decided to adopt activity-based working, it will be necessary to set up a process for implementation. Such a process usually starts with the formulation of a broad vision, which is then translated, step-by-step, into concrete solutions, ultimately resulting in the new work environment. Here, this process is divided into six stages:

- Stage 1 **Envision**: developing a general vision;
- Stage 2 **Define**: formulating specific requirements;
- Stage 3 **Design**: designing the spatial and technical environment;
- Stage 4 **Build**: building the new environment and getting it ready for use;
- Stage 5 **Settle in**: moving in and solving teething problems;
- Stage 6 **Manage**: making the concept work in practice.

These stages are not intended as a procedural straight jacket. It is crucial that the process should be a combination of project management and change management activities. This is important because implementing an ABW project is not just about managing time and costs, but equally about preparing the organization for the upcoming changes. For employees, ABW means a break with the routine, and convenience, of having a fixed desk. Managers, for their part, must get used to not having a private office and learn how to manage on the basis of trust. Such changes are not automatic. They require that people be informed, prepared and involved at each stage of the process.

In the following we give a brief overview of the different activities in each stage.



STAGE 1: ENVISION



When initiating an ABW project, the first step is to explore what ABW is and what it could mean for the organization. This can be done by reading up on the concept, visiting projects and talking to experts. In parallel with this, it will be useful to conduct an organizational analysis, looking at the organization's existing use of space and its work processes (see page 41)

At the same time it will be a good idea to put out feelers among major stakeholders such as top management and decision makers in the HR, IT and FM departments. What do they think of the concept? What is on their change agenda and how does ABW fit into that? Furthermore, it will be useful to involve a number of 'lead users' (forward-looking, influential staff members) to find out their ideas concerning ABW.

The concrete result of this stage should be an inspiring vision for the new work environment. This vision can be formulated in broad terms, but it should be of sufficient detail to be able to serve as input for the next stages. What kind of spaces will be on offer? What kind of 'sharing ratio' should be applied? What kind 'vibe' should there be? What are the associated workstyles? And what benefits should it bring? The vision should be accompanied by a business case, with a preliminary indication of costs and benefits, and a change management plan outlining how to implement the concept.

Before moving on to the next stage, the vision will need approval—and backing—from top management.

Project activities

- Appoint a project team and a steering committee;
- Analyse the existing accommodation situation (see page 41);
- Analyse the organization's headcount figures (see page 41);
- Gather inspiration (talk to experts, visit other projects, read up on the concept);
- Identify and involve internal and external experts;
- Develop an overall vision;
- Make a business case (e.g. based on benchmark data from other projects);
- Draw up a budget and an overall plan.

Change management activities

- Select a change manager or change management team, link to the project team;
- Organize a leadership workshop about ABW (see page 45);
- Assess the organization's cultural and technical readiness for the concept;
- Find allies among major stakeholders (FM, CRE, IT and HR and top management);
- Involve (selected) users in idea development (e.g. via interviews, workshops and focus groups, see pages 41-48);
- Communicate with staff about the formulated vision. Avoid a 'rumour mill' ('We'll be crammed into a big open-plan office!').
- Develop a change management plan (activities, planning).

Deliverables

- An inspiring vision for the new work environment;
- A change management plan;
- A business case with a preliminary indication of costs and benefits;
- Budget and planning.

STAGE 2: DEFINE



Once the developed vision has been approved, it must be translated into functional requirements concerning matters like workspace quantities, types and sizes, indoor climate, furniture and IT equipment. To determine these requirements, it will be necessary to delve deeper into the organization, looking at the type of tasks employees perform, their mobility profiles and the relations between teams.

Ideally, employees should be actively involved in this process via interviews and workshops. It will not be possible to involve everybody, but the process should include a cross section of people from the entire organizational spectrum (management, administration, HR, etc.). When done right, such involvement will result in a greater sense of ownership and acceptance of the concept. It is important, however, to be clear about which aspects are non-negotiable (e.g. the sharing of workplaces) and which aspects are open for discussion (e.g. the type of settings that will be provided).

At this stage it will also be important to start communicating about the concept with the organization as a whole. The communications should cover both the general concept (i.e. why are we doing this?) and the practical concerns that staff may have (e.g. What do I do with all my paper? Will there be enough workstations?). This can be done via townhall sessions, a project website, newsletters, a FAQ, and/or posts on relevant social media.

Project activities

- Make a detailed needs analysis (looking at tasks, team/employee profiles, IT needs);
- Refine the sharing ratio (see page 63) and workplace quantities (see page 71);
- Define requirements for all necessary space types (size, look & feel, furniture, etc.);
- Formulate requirements for necessary changes in IT infrastructure and equipment;
- Identify any special needs (e.g. specific equipment or security);
- Investigate the need for interim accommodation (in the case of renovation projects);
- Refine and validate budget and planning.

Change management activities

- Actively engage with diversity of teams and employees via workshops (see page 46), interviews (see page 43) and/or a survey (see page 42);
- Communicate the concept to the entire organization (website, presentations, social media);
- Approach 'influencers' who are passionate about the concept and willing to take part in this;
- Develop a FAQ that answers any questions and concerns that employees may have;
- Initiate a discussion with middle management about their role in the new concept;
- Make sure that top management is vocal about the importance of the concept (e.g. via a video message, taking the lead in townhall sessions).

Deliverables

- Functional brief for the required spatial changes;
- Technical brief for the IT infrastructure/equipment;
- Communication material about the concept (presentation, FAQ, etc.);
- Detailed budget and planning.

STAGE 3: DESIGN



In this stage, the ideas of the previous stages must be consolidated in a design proposal in terms of spaces, materials, furnishings, equipment and practical essentials such as power sockets and data connections.

Much of this can be left to the architect and engineers and internal experts from the FM and IT departments, but employees can play an active role at this stage as well—not so much as designers, but as experts on functional quality. They can be involved in design workshops and design reviews to provide input, to validate design ideas and to assess the usability of the developed plans. Organizing and facilitating such sessions takes time, but they are a good way of generating enthusiasm, creating a sense of ownership and making sure that the design will meet user needs.

In addition, it can be useful to have a more formal verification process in which design proposals are tested against the requirements that have been formulated in the earlier stages. Do design proposals indeed meet all the set requirements? It is a good idea, for example, to ask the design team for 'proof' (e.g. by means of a simulation study) that their design will deliver the desired acoustic comfort, as that tends to be a major problem in modern offices.

The output of this phase can include plans, models, 3D renders, short films or VR representations of the future work environment. All are excellent ways of communicating with employees about what it is to come.

Project activities

- Select a design and engineering team;
- Produce a concept design (outline proposal, design principles for the interior);
- Produce a developed design (detailed floor plans, conceptual technical solutions);
- Produce a technical design (detailed specification for all building elements/ systems);
- Verify design proposals against the previously formulated requirements and ambitions;
- Initiate the selection processes for purchasing new technologies and furniture;
- Refine and validate budget and planning.

Change management activities

- Engage employees in design sessions to validate the functionality of the developed design solutions;
- Pay special attention to middle management; train them in change management and provide them with an 'ABW kit' they can use to inform their teams about the concept;
- Communicate the design (and the ideas behind it) via a blog, interview sessions, presentations and video clips on social media;
- Update the 'ABW FAQ', adding more detail.

Deliverables

- Functional and technical designs for the work environment;
- Information material about the design;
- Definitive budget and planning.

STAGE 4: BUILD



During this stage, the new work environment will actually take shape. Contractors will be putting up partitions and installing fixtures. Suppliers will deliver new furniture and equipment. The architect may be making last minute changes.

The facility management or real estate department will have to prepare extensively at this stage to make sure that the project has a ‘soft landing’. They will need to learn how to operate any new systems and they must develop procedures for handling possible problems.

Employees will need to prepare for the move as well, both practically and mentally. This can be accomplished by appointing dedicated ‘workplace coordinators’ or ‘move mentors’ for each team. They can inform employees about the concept and help them plan practical activities such as clearing out filing cabinets, the digitalization of paper files and the packing up of remaining office items. They can also initiate a discussion about ‘office etiquette’ in the new situation, such as the need for rules or guidelines concerning issues like noise and clearing desks before vacating.

To give employees a taste of what is coming, it will be helpful to organize tours of the construction site and to create mock-ups—life-sized models of a specific section of the work environment (e.g. a standard workstation or a quiet room).

Project activities

- Select/tender for contractors to build, supply and install everything that is needed;
- Arrange temporary accommodation for the organization if necessary;
- Manage the implementation/construction process;
- Conduct acceptance tests for all major all systems (e.g. HVAC, booking systems, lighting, Wi-Fi, etc.);
- Make sure that the FM and/or CRE department is well informed and capable of operating these systems;
- Plan the moving-in day and organize the move itself (packing, unpacking, etc.).

Change management activities

- Appoint dedicated ‘change managers’ or ‘move mentors’ for each team;
- Prepare all levels of the organization for the move and the new way of working in a practical sense (where to go on day one, how to book a meeting room, where to ask for help, etc.);
- Organize a clearing out of filing cabinets to minimize paper and ‘stuff’. If necessary, provide extra resources for digitalization;
- Organize site visits so that people see the physical changes taking place;
- Create mock-ups, for example of different kinds of workstations;
- Develop rules or protocols for the new building, preferably at team level;
- Develop a short manual (an ‘ABW quick guide’) for the new office;
- Plan a festive opening of the project.

Deliverables

- A ‘turnkey’ work environment, ready for occupancy;
- A script/plan for the move-in and first day of occupancy;
- A manual on how to use the new work environment.

STAGE 5: SETTLE IN



This stage starts when the new environment has been completed and the organization has moved in. It is now that the concept must really come to life. This will not happen automatically. Both managers and employees are likely to need time and support to familiarize themselves with their new surroundings and to develop new routines. It will be important to have an ongoing conversation about the operation of the concept in the first weeks after moving in. It is preferable that managers play a leading role in this, setting a good example themselves and prepared to correct people's behaviour if it is not in line with the concept.

It is important to be aware that this stage is likely to be accompanied by all sorts of practical problems. The HVAC system may need fine-tuning, printers may not yet work properly; there may be a delay in furniture deliveries. Such practical problems can reflect badly on the overall concept. To counteract this, there needs to be a central point where employees can report any problems and these need to be dealt with expeditiously.

This stage should end with a thorough evaluation of the project, but not before people have been given some time to get used to it. Six months after move-in is usually a good point in time. The evaluation can consist of a survey and/or staff interviews. The idea is to find out where there is a need for improving or fine-tuning the concept.

Project activities

- Create a central point (mailbox/help desk/ ideas box) for complaints and suggestions;
- Rapidly resolve reported practical problems (e.g. fine-tuning HVAC system);
- Project team hands the project over to the FM/ CRE department;
- Plan and organize a formal evaluation of the project (no earlier than six months after move-in).

Change management activities

- Visit all departments and teams to see how people are dealing with their new way of working, providing extra guidance and help where needed;
- Where necessary, address incorrect use of the environment (e.g. people claiming focus rooms as their own).

Deliverables

- Project dossier with all relevant documentation (warranties, specifications, manuals);
- Protocol for reporting, resolving and providing feedback on any practical problems that arise;
- Evaluation of the concept.

STAGE 6: MANAGE



Once the organization has settled in, the ABW concept will ideally have become the 'new normal'. Yet there may still be a need to reinforce the concept at given times, making sure that people do not relapse into old behaviours. This reinforcement should preferably take place at a team level, with managers reminding their team members of the concept's principles and encouraging adoption of the 'right' way of working.

At regular intervals it will useful to conduct follow-up evaluations. Are people still happy with their work environment? Is there pressure on particular space settings? Are functional needs changing? Regular occupancy measurements and staff satisfaction surveys can provide useful input on these matters. It is also important to monitor fluctuations in headcount, which may require some fine-tuning of the sharing ratio or the type of workplaces provided.

The responsibility for this usually lies with the facility management department, although it might make sense to set up a dedicated workplace unit tasked with managing the total workplace experience by covering and connecting all departments involved (FM, HR, IT, general management).

Project activities

- Monitor space utilization levels;
- Monitor service requests from users;
- Monitor staff satisfaction levels;
- Manage workplace services (cleaning, catering, security, etc.);
- Expand/adjust/maintain the office environment.

Change management activities

- Monitor staff behaviour and use patterns;
- Guide new staff;
- Provide 'refresher courses' where needed;
- Update protocols/'office etiquette' where needed.

Deliverables

- Regular reports on occupancy levels and staff satisfaction.



PART 4: DESIGN

As already noted, activity-based working is a way of working rather than a design concept. Even so, good design is absolutely critical. All too often the success of the ABW concept is hampered by design errors that could easily have been avoided, such as too tight sharing ratios, a lack of places for making phone calls, meeting areas furnished with stylish yet uncomfortable seating, or workspaces located next to noisy pantries. There is no room here to discuss all ABW design aspects, but the following pages will explain some of the essentials, in particular:

- Sharing ratio
- Zoning
- Space types



SHARING RATIO

One of the most basic questions when designing an ABW office is how many workspaces there should be. If there are too few, people will have difficulty finding a workspace to their liking, and quickly become frustrated. If there are too many, people are likely to settle at fixed positions. The key figure here is the ‘sharing ratio’, which expresses the degree of sharing.

Sharing ratio = the available number of workspaces / the number of employees

For example: a ratio of 0.8 means 8 workplaces for every 10 employees. It is also possible to turn the ratio upside down. In that case 0.8 becomes 1.25 (12.5 employees for every 10 workplaces), which obviously amounts to same thing. It is a simple enough metric, but only if the terms ‘workspace’ and ‘employee’ have been clearly defined.

The number of workspaces

When counting workspaces, the question is whether to count desks only or to count any place where people can open their laptop and work? The ABW philosophy argues for the latter, but for the sake of clarity, the recommendation is to focus on the first and to count ‘proper’ workstations only (those with an ergonomic chair, a height-adjustable work surface, a monitor and daylight access). Those are the kind of workspaces that employees are most interested in and that still have the largest impact on the space requirement. The many other, informal workspaces (e.g. booths, soft seating) are relevant, but they are ‘seats’ rather than workstations. The number of seats is typically much larger than the number of workstations (double or even more).

The number of employees

When it comes to the number of employees, the question is whether the figure includes external workers such as freelancers and contractors. These groups seldom feature in organizational charts, but they may still need a workspace. So the recommendation is to include them, although it can be difficult to get accurate numbers for these categories.

Another question is whether employees are counted in terms of ‘heads’ or as ‘fulltime equivalents’ (FTEs). When a headcount is used, each employee is counted as one. With FTEs, people are counted according to their working hours (e.g. a person working half time is counted as 0.5).

The advantage of using 'heads' is that this figure is easier to understand ('you are sharing a desk with such and such number of colleagues')

What is a good ratio?

The question of what constitutes a good ratio remains. The easy answer is that a ratio of around 0.7 tends to work fine for most organizations. It is probably the most widely used ratio in practice. The logic behind it is that it seldom happens that more than 70% of the staff are in need of a desk at the same time. It is thus a safe ratio that still offers space savings with only a small risk of desk shortages. Risk-averse organizations may go for a ratio of 0.8, while the more daring ones may opt for 0.6. Some organizations even go for a ratio of 0.5 or 0.4 workspaces per employee. Before the Covid-19 outbreak, such ratios were seen as rather tight. But it is quite likely that working from home will become a much more common practice. In that case, a ratio of 0.5 or 0.4 workstations per person may very well be feasible.

Using occupancy data

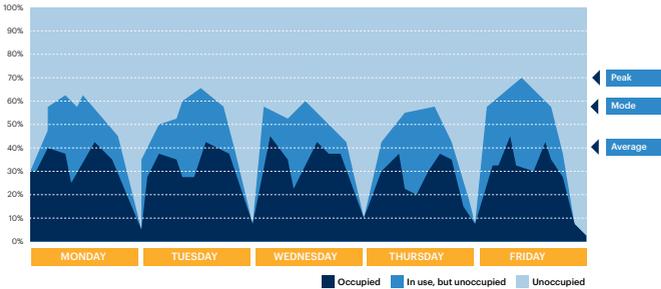
To be able to make an informed decision about the sharing ratio, it is best to get a detailed insight into workspace occupancy levels in the existing office (see page 42). The lower the occupancy levels, the higher the potential for sharing. One should be careful, however, when interpreting occupancy data. When average occupancy is around 40% (which it often is), there is a temptation to slash 60% of the desks. But this will result in a serious shortage of workstations at peak moments. So it is best to look at average, peak and modal occupancies (the occupancy levels that occur most frequently).



You don't want people to be worried about the availability of good workstations. It is therefore crucial to design for the most frequently occurring occupancy level rather than the average level.

Using employee profiles

An alternative way of determining sharing ratios is to look people’s workstyles. Many organizations make a distinction between workers who are ‘fixed’ or ‘residential’ (performing mostly desk work in the office), ‘flexible’ (a mix of activities in the office, including many meetings) and ‘mobile’ (spending a lot of time outside the office, e.g. working from home or on the road). Each workstyle can be linked to a different sharing ratio, which can then be used to calculate an overall ratio. The advantage of this approach is that it focuses on people’s way of working rather just occupancy levels. The disadvantage is that it is not always easy to get good data on workstyles and mobility patterns.



Occupancy level diagram

Diagram showing workplace occupancy levels over the course of a week. The diagram distinguishes between workstations that are occupied (someone working there), unoccupied (totally empty) and ‘in use but unoccupied’ (no one there, but there is still a laptop or a coat hanging over a chair).

Example: Employee profiles

The sharing ratio is in this case calculated by identifying different employee profiles and by linking these to different sharing factors.

Profile	Description	Percentage of total workforce	Workstation/employee
Fixed workers	Mainly individual desk work in the office.	35%	1
Flexible workers	Diverse activity profile, often in meetings, occasionally works at home	40%	0.5
Mobile workers	Frequently work at other locations and visit clients in the field.	10%	0.2
Home-based workers	Work two or more days a week from home	5%	0.2
		Overall sharing ratio	0.6

Differentiating between teams

An essential question in any ABW project is whether the sharing ratio should be differentiated within the organization. A finance department, for example, is likely to have relatively high occupancy levels as many people do desk work, while a project management department may have low occupancy levels as people spend a lot of time on project sites. Should such differences translate into a different ratio? The answer depends on how stark the difference is and how big these teams are. If, for example, one team has an occupancy level of 70% and the other of 30%, and they occupy different floors, it will make sense to apply different ratios. But if differences are small and if departments can make use of each other’s spaces, it is best to keep things simple and apply one averaged ratio.

ZONING

At several points in this book the importance of offering a diversity of settings in an ABW office has been emphasized. However, this does not mean that an ABW office should be a hotchpotch of different space types. To make an ABW office work, it is important to think carefully about how functions should be located in relation to one another, giving due consideration to walking distances, routings, sightlines, accessibility and enclosure. Some functions should be clustered and open to one another, others separated and enclosed. The reasons for this are various. Functionally, for example, it will be wise to separate 'noisy' spaces such as kitchenettes from 'quiet' spaces such as work areas. Organizationally, it may make sense to locate particular teams together. Socially, 'magnet functions' like cafes can be centralized and shared among teams to promote chance encounters. And from a security perspective, you may want to cluster formal meeting rooms near the entrance so that visitors do not have to enter the regular office floors.

The following pages provide an overview of the main zoning principles that are relevant to ABW, focusing on:

1. Organizational zoning
2. Activity zoning
3. Security zoning

Detailed requirements concerning adjacencies and walking distances between spaces can be found in the appendix.

ORGANIZATIONAL ZONING

Organizational zoning is about whether the organization's teams or units should have a fixed position in the building or not. There are three different models, each with a different degree of 'team ownership'. The free range model is the most flexible. The team zone model is static, but useful when you want keep teams together. The team anchor model is a midway solution.

Large office projects are often a mix of these models. Some floors are 'free range' and available to all. Other floors (or parts of it) are assigned to specific departments or teams.



Free-range

In this model there are no assigned areas whatsoever. It is the ultimate ABW model, based on the idea that employees and teams can best decide for themselves where to sit. People pick up their things from centralized lockers and then find themselves a place somewhere in the building. Workplace expert Neil Usher calls it the 'free-range' model.²⁴ Its advantage is that it is extremely flexible and that it encourages mingling across team boundaries. The disadvantage is that team members may be scattered over the entire building, which may hinder collaboration.

Team anchors

The team anchor model is midway solution. In this model, teams do not have a dedicated work area, but a small 'anchor point' where they can find their lockers, shared storage, team memorabilia, and perhaps a 'community table'. Team members will gravitate around these points for both practical and social reasons. So the model helps to keep teams together, but there are no clear borders. It is thus more fluid and flexible than the team zone model.

Team zones

In this model, teams are assigned to a particular floor or part of it. It is not mandatory for team members to work there, nor is it a team's exclusive territory, but it is like a 'home base' where people can expect to find team colleagues. This model's advantage is that it keeps teams together, which can be of particular importance for organizations that have adopted 'agile working', which is all about teamwork (see also page 21). The model's disadvantage is that it is less flexible than the free-range model as the 'borders' between zones have to be redrawn when team structures or team sizes change.

ACTIVITY ZONING

Activity zoning is about the clustering of activities with similar characteristics so as to avoid friction due to incompatible activities. Many ABW projects differentiate between three zones: a focus zone, a social zone and an interactive zone.

The interactive zone acts as a buffer between the quiet zone and the social zone. The quiet zone is typically located furthest away from the access point of the office floor. So, the deeper you venture into the office space, the quieter it gets.



Social zone

This is the area where social and lively activities can take place. Examples might include having a cup of coffee with colleagues, celebrating birthdays or team achievements, or just hanging out and taking a break. It is the area where 'people magnets' like larger meeting rooms, print/copy rooms and lockers can be located. This area will typically be used by multiple teams, so it is a good place to promote chance encounters across teams.

Interactive zone

The interactive zone (sometimes also referred to as a transitional zone) is where all mainstream office activities and collaborative activities can take place. It should not be a noisy area, but there will be a certain 'buzz' as people may be chatting, working together or making phone calls. Workspaces tend to be largely open. Small meeting rooms and phone booths in between the workspaces help to reduce noise levels.

Quiet zone

The quiet zone is the area where people should be able to work in peace and quiet. Its purpose is to facilitate individual, concentrated work. It may offer enclosed focus rooms and/or open and semi-open workstations. Users are expected to keep their voices down and to take their phone calls outside the quiet zone, a bit like in the reading room of a library. To keep the area quiet, there should be no functions that generate traffic (e.g. no large meeting rooms) and it should be located away from or shielded from main circulation routes.

SECURITY ZONING

The idea that employees should be able to use the entire office as their workplace may need to be restricted for security reasons. There may, for example, be teams who are working on confidential projects that should not be accessible or visible to others. In such cases it will be necessary to apply some degree of security zoning in the office, making a distinction between areas that are only accessible to specific teams or persons, areas that are accessible to all employees, and semi-public areas where visitors are also allowed.

Ideally the different zones should be 'embedded' in one another, thereby increasing the level of security with each new zone.



Public zone

This zone is accessible to both staff and visitors. Typically, it will be the area right behind the entrance, with a waiting area and a reception desk where visitors can obtain an access pass. Depending on the size of the project, there may also be a coffee point and informal work and meeting spots in this zone. In some projects, the area may include a publicly accessible cafe and/or an exhibition area.

Semi-public zone

This zone is accessible to staff and to visitors with temporary access cards (usually via turnstiles with card readers). This zone often houses the conference spaces where meetings with visitors take place. The company restaurant may be located here as well, allowing staff and visitors to have lunch or coffee together. In some cases, this zone also features co-work areas for external partners.

Operation zone

The term 'operations zone' is security jargon for the regular office floors of a building, where the organization's staff carry out their daily work activities. Only staff will have access to these areas, gaining entrance via doors with card readers. The challenge with operations zones is to design them in such a way that staff can move around freely, without too much card swiping.

Security zone / High-security zone

This is a zone or space that is accessible to specific employees only and is often located within the operations zone. Examples include spaces for teams working on a confidential project or for staff working with security-sensitive data. In some cases, there may be even be a need for 'high security' spaces (e.g. a crisis room) within that zone, which will often have some kind of biometric access control.

SPACE TYPES

As the adjective ‘activity based’ points out, an ABW office should provide work settings that match the match the kind of activities people perform—project rooms for project work, quiet rooms for quiet work, phone booths for phone calls and so on. The following pages present an overview of possible space types, making a distinction between:

- **Workspaces:** spaces for desk-bound/computer-related activities;
- **Collaboration spaces:** spaces for meetings and other types of interaction;
- **Support spaces:** spaces for practical activities like printing and getting coffee.

Please note that the sizes⁷⁵ and ratios mentioned are only very general guidelines. The exact need for space will differ from organisation to organisation, or even from department to department. For example, an R&D department will need a different mix of spaces than an IT department. So, to determine what is needed, it is important to analyse what people do at the office. What are the characteristics and nature of their tasks? How many people are involved? Do activities involve the use of particular equipment? How are activities interrelated? This can be done by conducting surveys, doing observation studies and by simply talking to people (see page 41-48 for an overview of possible techniques).

A more detailed overview of the specifications per space type can be found in the appendix (see page 145).

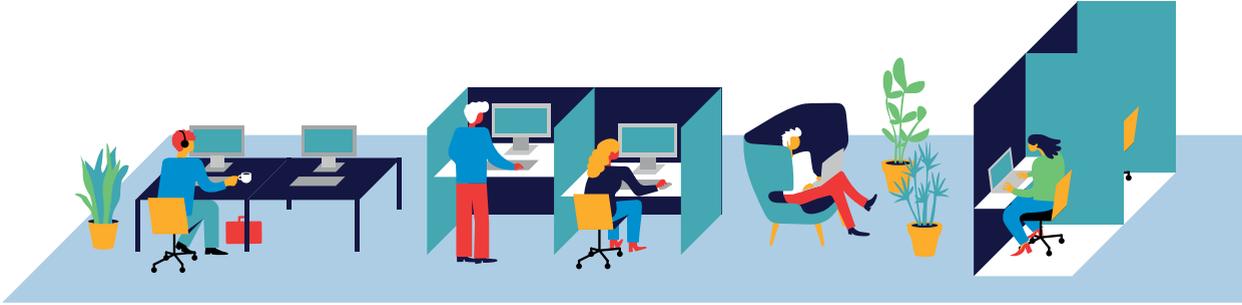
GETTING THE MIX RIGHT

To determine what kind of spaces are needed, and in what quantities, it necessary to make an analysis of people’s activities at the office. Relevant dimensions are:

Task complexity	The extent to which activities are cognitively demanding (relates to the need for visual and auditory privacy)
Interaction	The extent to which tasks involve face-to-face interaction and collaboration (relates to the need for collaboration spaces)
Task autonomy	The degree to which tasks can be performed independently (relates to the need for access to/ proximity of one’s team or supervisor)
Task variation	The degree to which people’s tasks differ over the course of a day (relates to the variation of work settings that must be provided)
Mobility	The degree to which employees are mobile, inside and outside the office (relates to the need for ‘touch down’ spaces)
Equipment/ artefacts	The kind of ‘stuff’ people use in their work, such as video screens or white boards (relates to the provision of these items)
Mode	The degree to which activities are formal or informal (relates to the kind of ‘look and feel’ that is needed in a space).

WORKSPACES

Workspaces are defined here as those spaces that are specifically designed for desk-related activities such as reading, researching, writing, phoning. The main differentiator between the different kinds of workspaces is the degree of enclosure.



Open workstation

Workstation placed in an open area, typically in groups of 4, 6 or 8 units. Suitable for collaborative work and general office tasks that require a medium level of concentration. This type will usually make up the majority of work settings. Make sure that they are all of equal (good) quality so there is no inclination to compete for a particular workstation.

Semi-open workstation

Workstation with semi-high enclosure (a modern version of the classic cubicle), providing a sense of visual and acoustic privacy in the absence of floor-to-ceiling partitions. Suitable for activities which demand medium concentration and medium interaction.

Focus room

Fully enclosed, sound-insulated room that allows people to escape the buzz of the open work area. Suitable for activities that require concentration and/or privacy. Ideally, the room should be designed in such a way that it can also be used for small meetings and phone/video calls.

Size:	4 to 6 sqm
Ratio:	4 to 6 per 10 employees
Position:	Away from busy circulation areas and social functions

Size:	4 to 6 sqm
Ratio:	1 to 2 per 20 employees
Position:	Close to open workstations

Size:	6 sqm
Ratio:	1 to 2 per 20 employees
Position:	Close to open workstations



Study

Enclosed room with multiple workstations, intended for ‘heads-down’ work in a group setting. A getaway from the chat and interruptions of open work areas. Similar to a library reading room (phone-free, muted conversations only).

Phone booth

Enclosed or semi-enclosed area where people can go when they have to make or take a phone call or video call that requires a degree of focus and privacy. Can be used as a way of removing noisy activities from open work areas.

Project room

Enclosed room with several workstations, combined with collaborative features such as meeting tables and whiteboards. Suitable for project work or teamwork that is confidential and/or demands frequent consultation.

Size:	Dependent on # of workstations
Ratio:	1 per 50 or 100 employees
Position:	Close to open workstations or centralized

Size:	2 to 4 sqm
Ratio:	1 per 20 to 30 employees
Position:	Close to open workstations

Size:	Dependent on # of workstations
Ratio:	Dependent on degree of project work
Position:	Close to open workstations or deliberately away from them

COLLABORATION SPACES

As the name implies, collaboration spaces are spaces that are explicitly designed for collaboration, such as formal meetings, informal chats, brainstorming sessions, one-on-one conversations, 'stand-ups' and other kinds of interactions.



Booth

Semi-enclosed space for small meetings, collaboration and individual work. Typically has high-backed seating, as in a classic diner booth, that provides a sense of visual privacy while still being part of the open space around it. In some cases, booths are ceilinged.

Size:	5 to 8 sqm
Ratio:	1 to 2 per 50 workstations
Position:	Close to work and meeting areas. Can be part of kitchenette/restaurant.

Huddle

An open meeting space with an informal, comfortable feel. It can function as a congregating point for teams or departments. Suitable for informal discussions, relaxation or work, should people so wish.

Size:	20 to 32 sqm
Ratio:	1 per 100 workstations, or 1 per floor
Position:	Close to kitchenette or other shared facilities that attract people.

Stand-up space

Open or semi-enclosed space for 'stand-ups' (a specific kind of meeting associated with scrum/agile working). Suitable for informal discussions and meetings that do not require seating. Typically features a large video screen and/or a writeable 'scrum board'.

Size:	Dependent on team size
Ratio:	Dependent on number of scrum/agile teams
Position:	Close to/inside the work areas of the people making use of this space



Small meeting room

An enclosed meeting room for two to four persons. Suitable for small meetings and confidential discussions. Typically available on a first-come-first-served basis. Can overlap/be combined with focus rooms to create flexibility in use.

Medium meeting room

Conference room for planned group meetings with larger groups (8-12 persons). Should provide wall space for writing, brainstorming or presentations. It can be a good idea to create meeting rooms with different ambiances for different kinds of meetings.

Large meeting room

Conference room for planned group meetings with larger groups (≥ 14 persons), typically providing some formality and privacy. Should provide wall space for writing, brainstorming or presentations.

Size:	6 to 10 sqm
Ratio:	1 per 10-20 workstations
Position:	Close to open workstations

Size:	24-30 sqm
Ratio:	1 or 2 per 50 workstations, or 1 per floor/security zone
Position:	Close to office floor entrance and main circulation areas

Size:	48 sqm or more
Ratio:	Dependent on frequency of large meetings
Position:	Centralized, usually grouped with other facilities in a conference zone

SUPPORT SPACES

Support spaces concern the practical facilities that provide employees with water, food, storage, stationery and other essentials. Because of their practical purpose, support spaces tend to attract people, so they can be used to influence social interaction within an organization.



Kitchenette

Facility that gives employees easy access to water, coffee and tea. Sometimes it is a full kitchen with refrigerator and microwave. Ideally designed as a place that encourages socialization as it is a destination where people run in to each other.

Locker space

Area with lockers for the storage of personal items. It is often decided to give everyone their own personal locker, even though shared lockers are more efficient.

Storage (group/individual)

Space for the storage of documents or other 'stuff'. Can be either individual or group storage. The need for storage is very much dependent on the nature of people's work processes and the degree of digitalization.

Size:	6 to 15 sqm, depending on the available facilities
Ratio:	1 per 50 employees, or 1 per floor/security zone
Position:	Close to work areas, but beware of noise issues (people chatting, coffee grinding)

Size:	0.5 sqm per locker
Ratio:	1 locker per person or shared lockers (e.g. for 60% of employees)
Position:	Close to entrance of office floor/building, or close to team zones/anchors

Size:	1 sqm per person (preferably less)
Ratio:	1 storage point per team/group
Position:	Close to workstations



Print/copy space

Enclosed space containing a multifunctional machine for copying, scanning and printing. May also accommodate a shredder and office supplies.

Lobby

Entrance area with seating for visitors and reception desk and/or reception screen. Provides visitors with their first impression of the organization. Large lobbies can double as informal meeting areas when combined with a coffee facility.

Restaurant

Facility where employees can go for lunch and in some cases breakfast and dinner as well. Can be designed and serviced in such a way that the areas can be used as informal meeting or workspace outside mealtimes.

Size:	5 sqm
Ratio:	1 per floor/security zone
Position:	Close to main circulation, away from open work areas

Size:	site dependent
Ratio:	1 per building/office unit
Position:	Close to elevators, stairs and meeting rooms

Size	2.5 sqm per seat
Ratio:	1 per building/office unit
Position:	central, close to entrance



PART 5: SUCCESS FACTORS

Throughout this guide there have been recommendations and tips for how to do things. In this chapter, the key factors for success are summarized. Many of these are obvious, almost clichés, but that does not diminish their importance. The challenge lies in actually applying these success factors—and not just paying lip service.

- Analysis
- Process
- Design



ANALYSIS

Prior to implementing an ABW solution, it is crucial to get an in-depth understanding of what the concept entails and of what the organisation's needs are. In general, the following is recommended:

Do your research

No organization should adopt activity-based working on a whim. Decision-making should be based on a careful study of the concept's pros and cons and an analysis of the organization's needs. Data on occupancy levels, satisfaction levels and work patterns will aid informed decision-making.

Look at both quantitative and qualitative data

As indicated above, it will be useful to gather quantitative workplace data, but do not forget the 'softer' qualitative data: people's ideas, stories, opinions and feelings about their work environment. Understanding these subjective matters is essential to creating a meaningful concept.

Find out what the science says

When considering implementing ABW, expect to be challenged. There will be no shortage of strong opinions about the concept, both positive and negative. To keep discussions fact-based and constructive, it will be useful to be know what the latest scientific research has to say about the concept.

Find strategic meaning

As part of the analysis process, look at the organization's mission, strategy and policies for 'hooks' that support the relevance of the ABW concept—for example on matters such as sustainability or employees' work-life balance. A strategic orientation will help to gain management commitment.

Learn from others

Many organizations have already implemented the ABW concept and thus have a lot of practical knowledge about how the concept should be designed and implemented. Visit such organizations, talk to the people working there, and take advantage of their experience.

Take a wide perspective

When carrying out an analysis of the organization, take a wide perspective. Look at the physical work environment, but also at working hours, work-from-home policies, employee autonomy and management practices. Making ABW part of a bigger story about flexibility and employee empowerment will increase the chances of success.

Make the analysis part of change management

Actively involving employees in the analysis activities is an excellent way of starting the change management process. It is an opportunity for employees to look at their own work environment from a fresh and critical perspective and to create an awareness of both its strengths and weaknesses.

Q&A

Nicola Gillen, Head of Total Workplace EMEA at Cushman & Wakefield

Is ABW for everyone?

The world of work is changing for everyone. The drivers that impact mobility, a key principle of ABW, are impacting work everywhere. Having the choice over where and how to work is for everyone. Having a variety of spaces from which to work, inside and outside the office is also for everyone. Very few roles remain tied to specific tech solutions and these will continue to diminish.

Where do you start when any client is interested in ABW?

I ask them why? Any sustainable workplace solution needs to be based in genuine business need. There needs to be a clear vision as to why this is happening and how it will benefit their business. ABW driven from purely from financial metrics will be difficult to sustain, people and technology enablement are key.

What kind data do you need as input for the design/development of the concept?

A balance of data points is key; opinion based to engage people in the process, observation based, to challenge preconceived perceptions of space use and behaviour based to appropriately reflect culture.

What do you consider as the most important success factors for an ABW project?

- Led from the top;
- Clear vision—understand why we are doing this;
- Routed in holistic business need—not just cost;
- Data driven;
- Built upon change management—your people will always matter most.

PROCESS

The implementation of ABW can be a challenge. One may have to deal with conflicting stakeholder interests, anxieties about change and office politics. There is a risk that projects get stranded due to insufficient support from management or a hastily considered process. See below for general recommendations for how to avoid this.

Expect resistance

No matter how bad the status quo, there will always be resistance to changing it. This is because change costs energy and because people fear the unknown. Resistance cannot be 'massaged' away entirely, but it can be mitigated by informing people, listening to them and by winning them over and reassuring them.

Take your time

Decision makers have a tendency to underestimate the time it takes for an organization to change its way of working. Change takes time, especially when there is a big gap between the 'as is' and 'to be' situations. As a rule of thumb, the formal change process should start a year before the planned move into the new environment and continue for a year after it.

Set up a change management team

Change management is different from project management. Make it a dedicated function or team and select the right people for it: people with skills in communication rather than engineering. In addition, provide them with sufficient resources in terms people, time, money and external support.

Take a multidisciplinary approach

Because of the multifaceted nature of workplace change, the project should integrate the expertise from the organization's HR, IT, FM, CRE and communication departments. All these disciplines should be represented in both the project's steering committee and the project team.

Involve leadership at all stages

As with any organizational change, leadership is essential. Top management should not just take the main decisions concerning ABW, but also be willing to play their part. This means advocating the concept, demonstrating ownership and leading by example.

Involve employees, within clear boundaries

Involving employees will help to create better solutions and generate a sense of ownership. The potential risk, however, is that employees will use the process as a means to prevent change or that they will expostulate beyond their own area of expertise. It is therefore crucial to be clear about the topics on which employees' input is sought.

Really listen to users

Involving employees (as mentioned above) only makes sense when their input is taken seriously. If people are asked for input but not listened to, the whole idea of user involvement can be counterproductive. So, listen to employees, discuss their ideas, provide them with feedback and address their concerns.

Communicate, communicate, communicate

The entire organization should know what ABW is, how it works, and why it is being implemented. Be aware that employees will be primarily interested in how ABW affects their daily work life. Do not be tempted to sugar-coat the potential downsides. Being open and emphatic will go a long way in creating acceptance.

Allow scope for criticism

Not everybody will be enthusiastic about the concept. People will have concerns, or they may question the motivations behind the concept ('it's all about cost-cutting'). Take such feelings seriously and address them by means of dialogue and by providing detailed information about the concept.

Pay extra attention to middle management

Middle managers have a tough job when implementing of ABW. They must adjust their own way of working, while at the same time helping their teams through the change process. So they merit extra attention. Help them to grow into their change management role by organizing a training programme early in the process and providing them with toolkits (e.g. a quick guide to ABW).

Institute a 'freeze period' after move-in

After moving into the new environment, it can be useful to have a 'hundred-day freeze' period. The idea is that there should be no major changes to the concept immediately after moving in. Practical issues obviously have to be resolved, but otherwise people should take time to get used to the new way of working.

Be brave

To a certain extent, changes must be pushed ahead. Giving in to everybody's wishes and trying to please all stakeholders, will result in watered-down compromise solutions that do not work. It is important to know that when a (well-designed) office concept is finally realized and people are working in it, resistance tends to be replaced by acceptance.

Q&A

Størdal Kjersti Bjørkeng,
Market area manager at
Gottlieb Paludan Architects

ABW tends to trigger a fair amount of employee resistance. Is that resistance justified?

To some degree. People who haven't worked in an ABW office before, often fear that it won't work. It is a bit like being pregnant and hearing all those horror stories about what can go wrong, while most births actually work out fine. Similarly, most ABW offices are great places for work. No need for horror stories.

Is there a magic solution for dealing with resistance?

First, make management the frontrunners in using the new solutions. Second, make sure that you have the technology and the organizational incentives needed to support the work process that you are trying to foster. And third, if possible, try out the concept in a pilot project so you can get user feedback.

How can organizations sustain changed behaviour?

By talking. Even after move-in, people must continue to talk about how they want their office to work for them. With their manager, their colleagues, their facility manager. About how everyday practice can be enhanced? It is about continuous improvement. So, keep on talking.

You are working in an ABW yourself. What is your favourite work spot?

Surprisingly, it is the 'silent room'. It is my favourite not because I use it often, but because the option is always there. For me and my colleagues, this enables vibrancy in the rest of the office set-up, as we know that anyone who wants silence and individual focus has an attractive place to go to.

DESIGN

Workplace design does not have a deterministic influence on the way people work or feel, but it can promote and facilitate new ways of working and it can have a big impact on people's feelings and attitude towards the ABW concept.

Provide choice

The essence of ABW is that it provides choice. An ABW office should thus not be open plan with a couple of focus rooms that are always occupied. The office should offer a real diversity of spaces—in terms of privacy, size and ambience—that matches the diversity of preferences and activities of its users.

Don't compromise on quality

Providing fewer workplaces should be offset by providing better workplaces. Better means better design in terms of ergonomics, indoor climate, aesthetics and functionality. The ABW concept is already efficient in terms of space usage, so there should be no need to go for the cheapest design solutions.

Focus on focus work

The main complaint in modern offices is that people cannot focus due to interruptions and distractions. It is therefore important to create ample work areas where people can work in peace and quiet: small focus rooms, library-like study areas and 'hideouts' scattered throughout the building where people can have a quiet moment.

Create excellent acoustics

Related to the above, is the recommendation to create excellent acoustics in the office. Acoustics are easily overlooked in the design process because it is something that cannot be seen. The recommendation is to formulate explicit acoustic requirements (i.e. for speech privacy, reverb times, sound insulation) and to test whether design proposals actually meet these requirements.

Create a human scale

Give large office floors a human scale by breaking them down into smaller parts. Some degree of openness and overview is needed to be able to spot colleagues and available seating, but the office should not present as a sea of desks. Consider creating clusters of 10 to 16 workstations, with focus rooms and meeting areas acting as buffers between different clusters.

Make people feel at home

ABW offices sometimes feel like furniture showrooms with clean desks and designer furniture. To make ABW offices less sterile and more welcoming, consider the use of soft fabrics and rugs, a diversity of furniture solutions, plants, and cabinets or wall space where teams can place photos and other paraphernalia.

Provide IT perfection

The whole ABW concept is built on the idea that technology makes people 'footloose'. So make sure that it does. Invest in lightweight but powerful laptops, plentiful power sockets, seamless networks, workstations with double screens, standardized docking stations, intuitive collaboration tools and an excellent helpdesk.

Avoid design gimmicks

ABW office interiors often incorporate playful design features intended to convey the notion that the new office is more casual and 'cooler' than the old one. There is a certain relevance in that, but don't overdo it. Design gimmicks such as slides and beanbags quickly lose their gloss and become unused obstructions.

Keep it clean

The Covid-19 outbreak has pushed hygiene to the forefront of employee concerns. In terms of design, this means that you should avoid closely-packed open-plan work areas. Furthermore, workplace design should allow for easy cleaning. Think of easy-to-clean finishes and furniture, and ready access to cleaning/disinfecting wipes and hand sanitizers.

Q&A

Primo Orpilla, Principal, Studio O+A

Mies van Rohe said 'God is in the details'. Does that also apply to workplace design?

Design intent is more effective when done well. So yes, it is in the detail. Have a good concept, execute it well, and people's experience will be more compelling. You don't want this experience to be influenced negatively by arbitrary design features or poor detailing.

ABW offices feature a lot of social spaces. How do you design a successful social space?

Social spaces should be carefully considered in their placement in relation to the flow of people. The number of these spaces is important as well, as you want to maintain a degree of specialness. And then there are practicalities such as devices for charging and whiteboards to make sure that spaces are useful.

Noise and a lack of privacy are frequently heard complaints. How do you deal with that?

This issue seems to vary between companies and generations. Younger workers have a different sense of what is appropriate than older workers, also in terms of 'visual noise' (movement in one's peripheral vision). Workplace design can help here, providing different places for individuals with different work habits, so that everybody can find a suitable workspace.

Do desks still matter in contemporary office design?

Yes, but we should probably redefine the desk. Work can be done in many postures or places in the office. So the desk can take many different forms.. It can be a place for sitting or for standing; a classic workstation, but also a coffee table or a tablet arm on a lounge chair.



PART 6: EXAMPLES

To demonstrate how ABW can work in practice, this part of the publication describes several real-life projects. Each project description is based on interviews with people who have been responsible for the implementation process and, in most cases, with some of the users. The cases differ in terms of size, location and type of organization. Given their diversity, it is notable how similar their experiences with ABW have been. In all cases, change management was critical for ABW success, as was the need to engage with users and to address their practical concerns.

- Ministry of Finance British Colombia (Vancouver, Canada)
- West Dunbartonshire Council (Dumbarton, Scotland)
- Ministry of Economic Affairs and Employment (Helsinki, Finland)
- State Treasury and Patent office (Helsinki, Finland)
- Public Services and Procurement Canada (Montreal, Canada)
- Danish Building and Property Agency (Copenhagen, Denmark)
- Government office De Knoop (Utrecht, the Netherlands)
- Ofgem (London, United Kingdom)
- City of Hardenberg (Hardenberg, the Netherlands)
- LAIKA (Copenhagen, Denmark)
- Robeco (Rotterdam, the Netherlands)
- Rabobank (Eindhoven, the Netherlands)
- Danone (Hoofddorp, the Netherlands)



The office's break area is big and flexible enough to accommodate all the staff for the monthly staff meetings. (photo: James Alfred)



MINISTRY OF FINANCE, TAX AUDITING DEPARTMENT (VANCOUVER, CANADA)

For the Government of British Columbia, the Ministry of Finance Tax Auditing Department was an obvious candidate for the implementation of a flexible workplace concept. In their existing office, all the department's employees had a personal workstation even though many of them spent the better part of their working hours outside of the office—conducting tax audits, attending meetings and, in some cases, working from home. So when the department had to move to a new building, a decision was made to lease fewer square metres in favour of better space utilization and an improved workplace.

The new office was designed according to the government's 'Leading Workplace Strategies' initiative (LWS), which aims to replace the traditional 'one worker, one desk' approach with more flexible solutions. The strategy is the brainchild of the government's Workplace Strategies and Planning team, which is headed by Robert Macdonald. Robert explains the rationale behind the strategy: "We wanted to respond to the changes around us. Changes in demographics, changes in citizens' needs and the rapid advancement in technology. There is a greater demand for flexibility, mobility and choice for employees, and the office environment should reflect that."

At 900 Howe Street, the LWS principles translated into a 1000 sqm office floor—significantly smaller than the 1300 sqm at their previous location. All the open workstations are located along the building's facade, allowing everyone to have access to natural light and outside views. In the inner areas of the floor, there are meeting rooms, quiet rooms, privacy rooms and enclosed offices. There is also a spacious break area that serves as the floor's social meeting point and gives access to adjacent meeting rooms.

In total, the floor provides 83 workstations for 128 employees. However, not all workstations are shared.

USER	MINISTRY OF FINANCE, TAX AUDITING DEPARTMENT
Property agency	Government of BC, Real Property Division
Design	Government of BC, Real Property Division
Completion	2016
Total floor area	1013 sqm (usable area)
Total # of employees	128
Total # of workstations	83
Sharing ratio	0.65 workstation/employee
Area/employee	7.9 sqm (usable area)
Area/workstation	12.2 sqm (usable area)



A work lounge with soft seating and a bar table. The latter has proved particularly popular. (photo: James Alfred)

Of the total workstations, 31 are ‘resident workplaces’ that are assigned to employees who spend the majority of their time at the office or, in some cases, employees who require special equipment or have special needs. This makes this project an interesting contrast to other the projects in this guide, which do not provide any assigned seating.

The provision of resident workstations is a deliberate choice, says Robert. “Arguably, we may be less radical, or more cautious, than other organizations. But when we started the LWS initiative, it was decided that we would take an incremental approach. We persuaded our clients by sharing the many benefits, but do not force the concept upon them.” A more top-down approach would probably have resulted in a higher uptake of the concept, but Robert notes that there are advantages to this approach. “We go for evolution rather than revolution. It increases the chances of employee buy-in and success. If there is a lot of resistance, or a lack of management commitment, projects can fail and then the whole initiative gets a bad name.”

The incremental approach has nevertheless kept Robert and his team busy. The LWS concept has been implemented in 30 projects, and another 30 projects are currently under way. “Our ideas are gaining momentum,” says Robert. “The more people that work this way, the easier it becomes to convince others.” When asked about their main challenges, Robert explains: “You have probably heard this before, but some managers believe that they are entitled to an enclosed office and so it becomes difficult for us when we start reducing the number of dedicated offices to create an alternative of shared enclosed spaces.”

The 900 Howe Street project features four enclosed offices, but they are small and located close to the building’s core. Russell Treloar and Andrew Lisson, colleagues of Robert Macdonald, explain that in the earlier office, around 20% per cent of workstations were



Lounge area near the floor’s entrance and close to the lockers. (photo: James Alfred)

Q&A

Various employees

What do you like best about this new way of working?

We love the open collaboration hubs as it has introduced a new form of support for collaboration, meetings and stand-ups. We are also pleased that we now have a space where we can host our monthly full staff meeting.

What aspect could be improved?

Nothing really. But, if given the choice, some of us still have a desire to have more private offices and more larger boardrooms. The leadership manages the space in the spirit it was designed for, but if new management were to come in there is a fear this could alter the current, flexible culture.

How often do you change places in the office?

On a daily basis. Some of us enjoy going to the same spots, but not a rigid way—moving elsewhere if those spots are taken. Overall, however, we like having various options for space to work in and utilize the different collaboration, quiet rooms and privacy rooms frequently throughout a day.

What is your favourite workspace within the office?

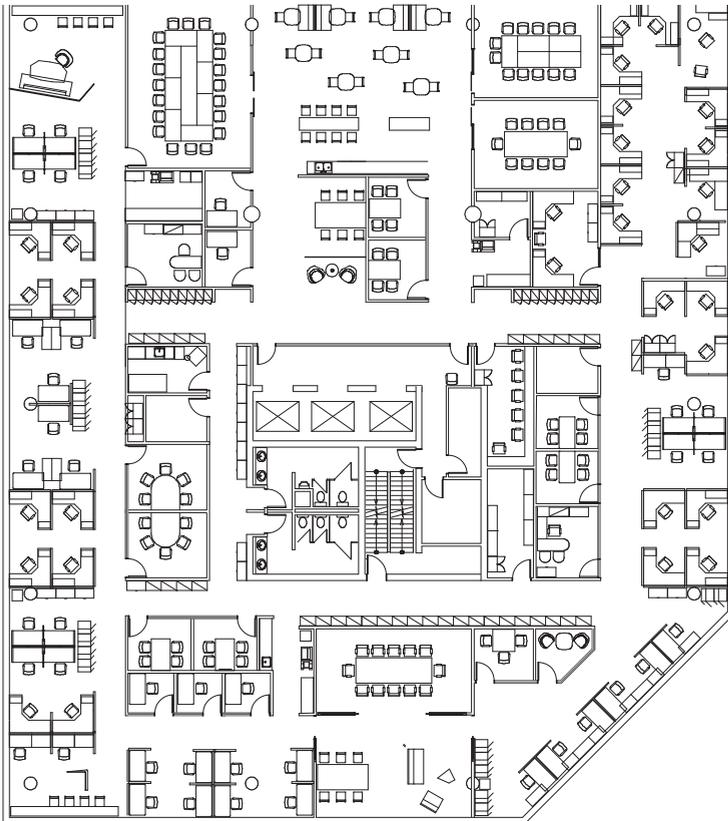
The network bars! The bar height tables are some of the most sought-after spaces. There is also a special appreciation for quiet rooms and privacy rooms where heads-down work and meetings can occur more frequently. The most loved space, however, is the open area soft seating space that has views to broader Vancouver—it feels like a private lounge.

enclosed offices and the rest were cubicles. "It was a typical government office. A set-up that no longer matches people's activities. People do not need only large meeting rooms and cubicles, but places where they can take Skype calls, have informal chats, collaborate in small groups or do solo work when needed."

The Leading Workplace Strategies programme aims to offer all of these elements, and Robert is confident that more and more projects will look like this one. "By providing a diversity of spaces, we are nudging people into more mobile workstyles. Furthermore, we see that remote working and flexible work hours are not only becoming more common but sought after. The necessary tools, such as smart phones and laptops, are mainstream these days. All this makes flexible working an obvious choice."



The floor's largest meeting room, which can be opened up towards the break area via two large sliding doors. (photo: James Alfred)



A classic office floor plan with a central core. All the open workstations are located around the floor's perimeter while support spaces, such as small meeting rooms, enclosed offices and storage are located towards the building's core.

The building's three floors are wrapped around an atrium which forms the heart of the building. The atrium provides breakout space, gathering space, touchdown stations and informal workspaces. (photo: Jim Stephenson)



WEST DUNBARTONSHIRE COUNCIL

(DUMBARTON, SCOTLAND)

The new West Dunbartonshire council office stands in the heart of the Scottish town of Dumbarton, on Church Street. Approaching the building, the first thing you see is a beautifully restored Gothic facade, which suggests that the council has moved into a historical building. However, only the facade is historical. Behind it lies a completely new building with three storeys of office space that meet all the latest standards and feature a highly contemporary workplace concept.

The council decided to build this new office because its old building—a typical 1960s concrete office block, located on the outskirts of the town—was dated, shabby and too large for their requirements. Another major driver for the project was the possibility of moving to the town's centre. Like many other towns, Dumbarton is suffering from a decline in high street retail. Relocating the council's Dumbarton office to the town centre was seen as a way of both supporting economic development and maximizing the benefits of the initiative. The relocation brings over 700 employees, plus visitors, to the town centre, which means a lot of new life and activity. In line with this idea, the new council office deliberately lacks a canteen. The aim was to motivate employees to go out to buy their lunch from local shops and cafes, thereby supporting the local economy, and this seems to be working. Dumbarton now features three new cafes and a new supermarket has applied for planning permission for an adjacent site.

The business case for the project was helped by the fact that the council decided to implement an activity-based workplace concept. This reduced the need for space by more than half as the concept provides only 5 to 6 workstations for every 10 employees. This sharing ratio is based on the council's previous experiences with ABW and the fact that many of the council's employees are mobile—'out and about', engaging with the local community, or attending meetings at the council's other offices.

USER	WEST DUNBARTONSHIRE COUNCIL
Adviser	Scottish Futures Trust
Design	Keppie
Completion	2018
Total floor area	4216 sqm (net internal area)
Total # of employees	755 (or 630 as FTE or Full time Equivalent)
Total # of workstations	366
Sharing ratio	0.48 workstations per employee or 0.58 workstations per FTE
Area/employee	5.58 sqm per employee/6.69 sqm per FTE
Area/workstation	11.5 sqm (net internal area)



The council's protocol states that "vacant desks and spaces can be used by anyone and are not exclusive to the assigned team. Visiting staff and colleagues should always be made to feel welcome." (photo: Jim Stephenson)

This makes the sharing of workstations easier. Working from home is another factor, but it was not an explicit motivation for the project. The council prefers to emphasize the notion of working in a workspace that suits the task at hand, which could be anywhere: their own activity-based workspace, at home, in another council office, at the library, in a cafe or some other place that suits their needs.

A formal evaluation of the project is not yet available, but anecdotal evidence suggests that the new workplace concept is a success. This is not surprising as the West Dunbartonshire Council has been developing its smarter working concept (known as 'Workplace of the Future') for some time. Back in 2012 the council undertook a pathfinder project on the top floor of their previous building in Dumbarton to explore the potential of activity-based working. Since then, the council has refined the concept and its delivery via six other projects. So many employees had already experienced this new way of working before moving to the new Dumbarton office. Another positive factor was the council's extensive change management programme (called Focus, Engage and Deliver), which informed employees about the proposed changes via events, workshops, FAQs, issue logs, newsletters, and information boards and gave employees plenty of opportunities to provide input and influence their workplace design.

The role of the council's chief executive, Joyce White, was crucial for the success of the change process as well. She was very supportive of the concept and works within the open-plan workspace, just like the rest of the organization. In one of the case study videos for the project, she states, "I don't need to sit behind a big desk in a room with the door closed," clearly implying that others don't need that either.

EMPLOYEE PROFILES	
To calculate the required number of workstations per team, a distinction was made between three employee profiles.	
Profile	Description
Fixed Worker	Primarily works at a single base or location 80-100% of the time.
Flexible worker	Able to work at different/ multiple locations and out of the office approx. 50%. Occasionally works at home 1-2 days per week or directly home to external appointments.
Mobile worker	Able to work at home or travel directly from home to other locations and client visits out in the field. Out of the office 60-80% of the time.



The building provides employees with a range of work settings, including breakout acoustic sofas, touchdown stations and access to quiet rooms. (photo: Jim Stephenson)

Q&A

Louise Hastings, Human Resource Business Partner

What do you like best about this new way of working?

I like that it's open and encourages people to talk—we can see each other and go over and chat rather than sending an email and this is helping us build better relationships. I like the openness and natural light of the building. We have a place to go for lunch now and we eat together as a team which has really helped with team dynamics.

What aspect could be improved?

There isn't much that could be improved. The quiet booths can be busy so a few more would be useful, particularly for my role, but I find ways to work around it.

How often do you change places in the office?

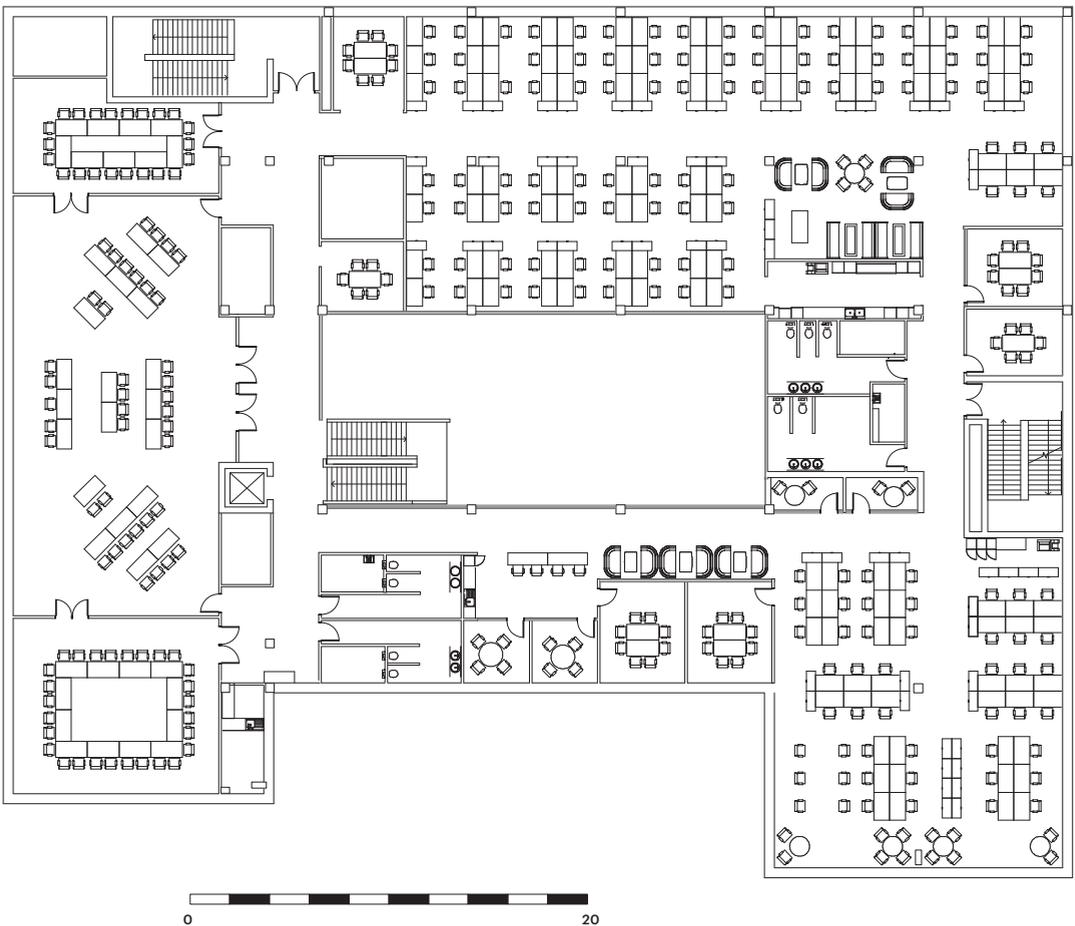
We have team zones, so I tend to change desk a couple of times a week. We have daily 10-minute meetings at 10am every day so the breakout spaces work well for that and I also use the atrium and quiet rooms regularly.

What is your favourite workspace within the office?

The desks mostly have screens but there are some banks of desks that are more like tables with display screens, but no barriers. They are my favourite as they provide a big open space, it's easy to talk to colleagues and different people tend to sit here.



Meeting rooms with large monitors and audio equipment for presentations and video conferencing. The acoustic tiles on the wall help to create pleasant acoustics. (photo: Jim Stephenson)



The building features a simple floor plan with large areas for workstations. Meeting rooms and informal seating are clustered in the narrow part of the floor. The civic space, where the council meetings are held, is located at the front of the building.

Each part of the building features a small kitchenette which is designed for breaks and informal meetings. The space is located right next to the lockers where employees pick up their personal items when they enter the office. (photo: Jaakko Lukumaa)



MINISTRY OF ECONOMIC AFFAIRS AND EMPLOYMENT (HELSINKI, FINLAND)

The Finnish Ministry of Economic Affairs and Employment has gone from occupying four buildings in 2008, to two buildings in 2015, to just one building today. Kari Klemm, the ministry's head of general administration, explains how this happened: "In 2008, we were spread over multiple buildings because we had merged with other government departments. Over the years, however, our headcount was reduced, so we needed less space. And then activity-based working came along, which further reduced the need for space." Ultimately the entire ministry was able to fit into one building. Kari: "For which we are grateful as it makes collaboration easier and allows for synergies."

The ministry is housed in a neoclassical Empire-style building in Helsinki's inner city, close to all the other ministries and only a few steps away from the Government Palace. Before the ministry could move in, the building had to undergo a major renovation under the watchful eye of the Finnish Heritage Agency. Major investments were made in the building's technical services to create a comfortable indoor climate. Security was another aspect that required a major upgrade. For the rest, the historical building lent itself surprisingly well to activity-based working. The building's structure, with narrow floors and a lot of load-bearing walls, did not allow for large open spaces, but that was fine with the ministry because that was exactly what they wanted to avoid. The building's large rooms could be turned into work areas with 4 to 16 workstations. Smaller rooms could be used as quiet rooms, meeting spaces and support spaces such as copy rooms. The building's finest rooms, with painted ceilings and stucco ornaments, were fitted out as conference rooms and a cafeteria so they could be enjoyed by all.

Unlike many other ABW projects, the building does not feature specific team zones or team neighbourhoods. Kari: "Everyone can sit everywhere, which makes sense because our idea was to increase collaboration and to break down

USER	MINISTRY OF ECONOMIC AFFAIRS AND EMPLOYMENT
Property Agency	Senate Properties
Design	Laatio Architects
Completion	2018
Total floor area	5396 sqm (lettable area)
Total # of employees	391
Total # of workstations	329
Sharing ratio	0.84 workstation/employee
Area/employee	13.8 sqm (lettable area)
Area/workstation	16.4 sqm (lettable area)



Open work area. The filing cabinets have been kept low to maintain sightlines. The number of cabinets was drastically reduced before move-in. (photo: Jaakko Lukumaa)

the barriers between different teams. In practice, however, teams tend to flock together in the same part of the building, usually close to where their lockers are. But we haven't formalized that in the floor plan."

Adapting to the ABW concept went fairly smoothly as many employees had already experienced activity-based working in their previous office building. Even so, Kari notes: "The implementation process required a lot of talking. We have many lawyers working in the ministry—I am one myself—and we like peace and quiet. So there were concerns about that. The good thing was that there were lots of opportunities to discuss those concerns." Part of this dialogue was conducted by special 'move mentors' from the ministry's HR unit who were attached to each department. These mentors helped to prepare the departments for the move, and they talked with employees about how the concept would work in practice.

What surprised Kari was that people's concerns related to practicalities rather than the overall concept. "We spent a lot of time talking about mundane things such as the number of toilets, the quality of the coffee machines and the possibilities for storing winter clothing." Smiling, he adds, "Sometimes, I really had to remind people that the bigger goal was collaboration and that we needed to talk about that as well."

The other ministries of the Finnish state are likely to take a keen interest in the project, as they will also have to adopt the concept at some point. The responsibility for this lies with Senate Properties, the government's real estate organization, and their internal client, the Prime Minister's office. Pertti Siekkinen from Senate Properties says: "The trigger for activity-based working comes from the Ministry of Finance's 2015 decision to reduce the government's real estate expenses by around 20%." He stresses, however, that the concept is not just about costs, but also about modernizing government. Heikki Hovi, Ministerial Adviser and Head of Unit at the Prime Minister's office, has the same message. "It is about improving collaboration between different parts of government, about the digitalization of work processes, and about creating attractive workplaces for today's and tomorrow's civil servants."



Just outside the formal meeting rooms there is soft seating where employees can have their pre- and post-meeting chats. (photo: Jaakko Lukumaa)



The building's finest historical rooms have been transformed into meeting rooms that are available to all. (photo: Jaakko Lukumaa)



Informal seating and moveable whiteboards in the work areas are intended to facilitate collaboration. (photo: Jaakko Lukumaa)

Q&A

Vivi Markkanen, Assistant at the Ministry's Human Resources and Administration Unit.

What do you like best about this new way of working?
It is easy, practical, and modern. I have all I need.

How often do you change places in the office?
About twice a week, I try to stay near my colleagues.

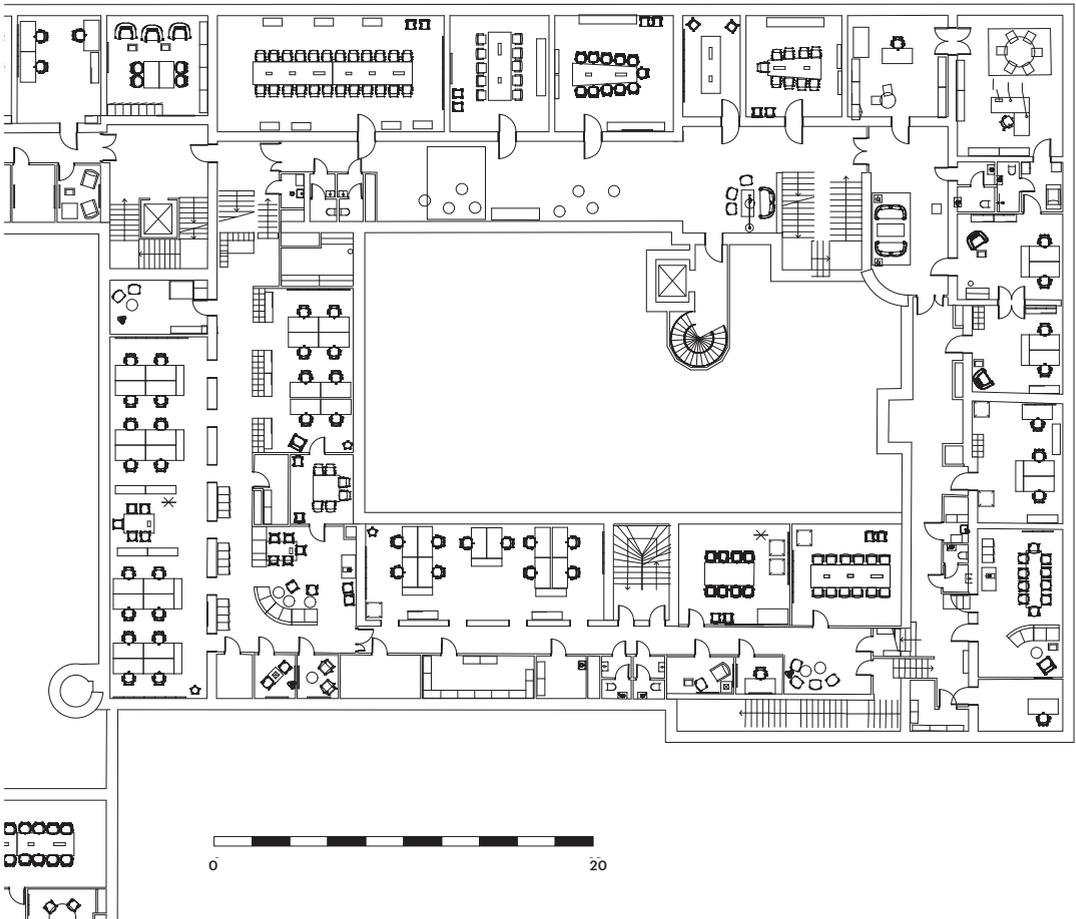
What aspect could be improved?
I wouldn't change anything because personally I am satisfied.

What is your favourite workspace within the office?
The cafeteria. It is a very beautiful place with chandeliers.

Heikki acknowledges that it will be a challenging process. “Some people have been working in the same way, on the same spot, with the same view, in the same chair for twenty years. Hesitancy is thus understandable. So we must talk to people, listen to their concerns, and deal with those concerns”. He warns, however, that all that talking and listening should not result in compromise solutions. “Employees can provide meaningful input on many things, but the overall concept should remain intact.” His advice to other organizations wanting to implement activity-based working: “Choose the boldest option. Be brave!”



The staff cafeteria is housed in the building's most magnificent room. (photo: Jaakko Lukumaa)



The old building's structure, with its thick walls and narrow floors, lent itself surprisingly well to the ABW concept, allowing the creation of small work areas with 4 to 16 workstations.

Workstations are designed to provide comfort for everybody. This means adjustable chairs, sit-stand desks, two computer monitors and felt screens that provide a degree of visual and acoustic privacy. (photo: Anna Autio)



STATE TREASURY AND THE PATENT AND REGISTRATION OFFICE (HELSINKI, FINLAND)

Ideas about workplace design change over time and Mikko Kangaspunta has witnessed several of these changes. Mikko is financial director at the State Treasury and he and his organization are accommodated in a 1980s office block on the edge of Helsinki's city centre. "When I started working here, in the 1990s, it was a typical government office in which most people had private offices. After a couple of years, however, it was decided to remove all walls and to create open offices. The aim was to improve communications, but employees were not too happy with it. People complained about noise and a lack of privacy. And now, we have activity-based working. There are different kinds of workplaces and we are free to choose where we work."

According to Mikko this latest change is for the better. "Coming from an open office, it is surely an improvement. We still have open spaces, but they are combined with rooms where we can take phone calls and work in concentration." Asked about the most positive aspect of the new concept, Mikko points to the improved interaction with colleagues. "It is refreshing. You can sit next to different people every day, instead of always the same ones."

The decision to adopt activity-based working coincided with a reduction in headcount, which meant that the State Treasury needed only two of the building's five office floors. Another state tenant was sought, which turned out to be the Finnish Patent and Registration Office. This organization had previously been located in the inner city, but their lease was expiring, and they were looking for a new location because the government's real estate strategy stipulates that only ministries can be located in Helsinki's central 'government campus'.

The two cohabiting state organizations share a reception, a floor with conference rooms and a staff restaurant. Typically Finnish, there is also a shared rooftop sauna, although it is hardly ever used these days. There are plans for more

USER	STATE TREASURY AND PATENT OFFICE
Property agency	Senate Properties
Design	KVA Architects
Completion	2018
Total floor area	10,813 sqm (lettable area)
Total # of employees	725
Total # of workstations	508
Sharing ratio	0.7 workstation/employee
Area/employee	14.9 sqm (lettable area)
Area/workstation	21.3 sqm (lettable area)



The building's canteen is shared by the two tenants as are the conference centre and the rooftop sauna. (photo: Anna Autio)

sharing, says Mikko. “We are currently discussing whether we can co-locate our IT units. Putting them together creates possibilities for knowledge sharing. It makes sense because we are using the same infrastructure. But we have different systems so there are a lot of things that need to be sorted out.”

Like the State Treasury, the Patent and Registration Office has adopted activity-based working. They did so with some misgivings, however. In their old office, all the staff had either a private room or a shared room. They weren’t looking forward to saying goodbye to that, fearing a noisy environment where they would not be able to do their job well. But there wasn’t really much choice as activity-based working is standard policy within the Finnish government. The concept must be applied to any new office project, whether people like it or not. It turned out, however, that the concept wasn’t as bad as people feared. After a brief period of familiarization, the Patent and Registration Office’s employees proved to be quite happy with their new office. The areas with ‘no talking’ rules work well and there has been a lot of praise for the acoustics. Another favourable factor was the Patent Office’s decision to update its remote working guidelines, which now allow staff to work remotely for up to three days a week.

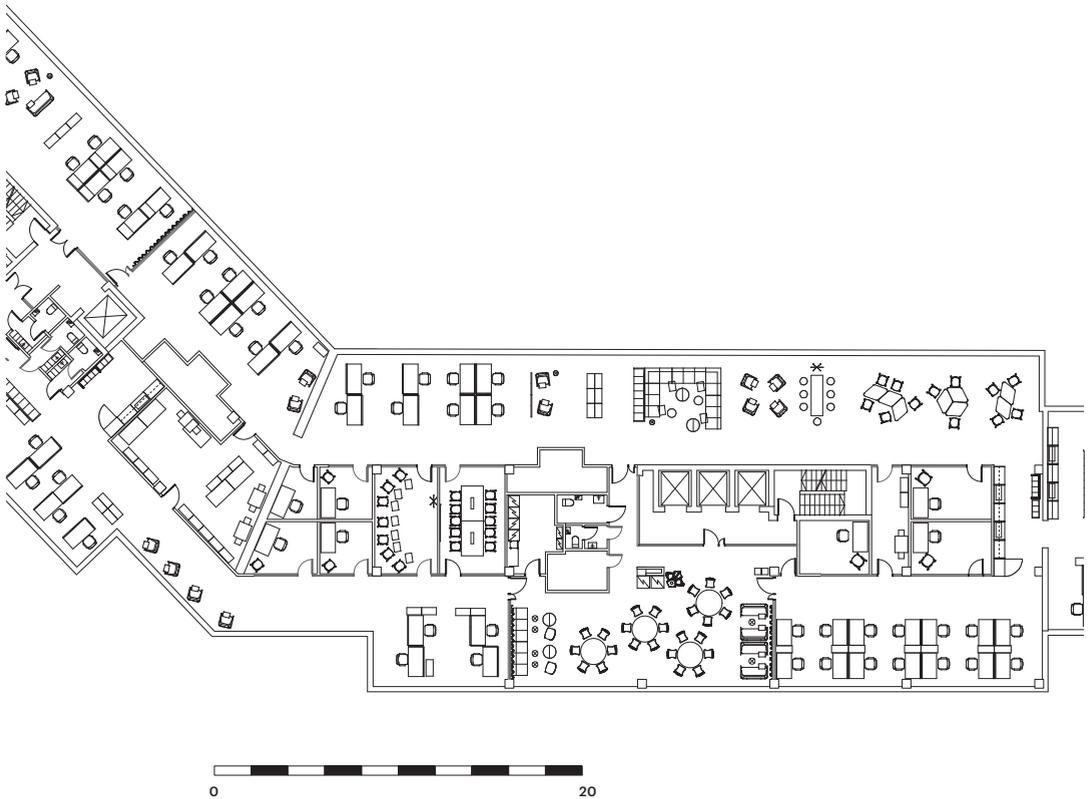
All this is reflected in the satisfaction scores of the regular staff surveys conducted within the government. Scores have improved for both organizations. Mikko says, “Our scores [at the State Treasury] were already good, but since the renovation they have even gotten a bit better.” He reflects that activity-based working has become the ‘new normal’ for people. “People adjust. The concept isn’t as shocking as people think beforehand.” He warns, however, that it is important to keep an eye on how the concept works in everyday practice. “You have to avoid the behaviour of a few individuals having negative consequences for the whole group. We had, for example, some colleagues who were rather loud. In such cases, you have to be straightforward and explain to your colleagues that they have to behave differently.” He adds: “People usually understand. We all want to work in a pleasant environment.”



Places to ‘chill out’, designed for taking a break or chatting with colleagues (photo: Anna Autio).



The space allowance per employee dropped to well below the government's 18 m² limit. Yet it was still possible to create plenty of additional facilities, such as informal meeting areas. (photo: Anna Autio).



Like many continental European offices, the building has a narrow floor plan that admits copious daylight. Desk clusters are limited to two to four desks, interspersed with various more informal work settings.

In the open work areas there are small pods for phone calls and video conferencing. The pods are ventilated and echo-free. Sound insulation ensures that colleagues nearby are not disturbed. (photo: Stéphane Dubé)



PUBLIC SERVICES AND PROCUREMENT CANADA

(MONTREAL, CANADA)

The Montreal office of PSPC (Public Services and Procurement Canada) is on the same floor as before, but its work environment and working practices have changed radically. Before renovation, many of the staff worked in dreary, beige-coloured cubicles. Executives had enclosed private offices. Daylight and outside views were for the lucky few. It was an office that looked crowded, with lots of partitions and filing cabinets, even though many of the desks were unoccupied during the day.

Now the office is largely open and filled with light. Along the facade there are workstations, benches, phone booths and 'cocoon'. Closer to the building's core are the semi-enclosed and closed spaces: reflection rooms and collaboration spaces. All these settings are available to all employees regardless of their departmental or hierarchical position. The overall impression is one of variety and spaciousness, which is remarkable since the total floor area has shrunk by over forty per cent.

France Vigneault, the project's cultural change leader, explains how these changes came about: "The idea for a concept came in 2015, when we got a new director general. One of his first tasks concerned the renewal of our office lease, and he decided that we should go for 'hoteling', as he called it at that time, which rapidly evolved to activity-based working." France adds: "This idea was met with scepticism within the organization. Even so, the decision was taken." It was not a blunt top-down process, however. There were small townhall meetings of fifty employees at a time, where management explained the idea and staff could pose questions and air their concerns. Furthermore, around sixty employees participated in twelve working sessions to analyse work processes and the use of paper and equipment. Their findings were translated into a project brief which served as the basis for the design process.

USER	PUBLIC SERVICES AND PROCUREMENT CANADA (PSPC)
Property agency	Public Services and Procurement Canada (PSPC)
Design	PSPC & Aedifica
Completion	2018
Total floor area	4845 sqm (usable floor area)
Total # of employees	400
Total # of workstations	322
Sharing ratio	0.8 workstation/employee
Area/employee	12 sqm/employee (usable floor area)
Area/workstation	15 sqm/workstation (usable floor area)



Small meeting rooms with fully glazed partitions are available on a 'first come, first served' basis. Larger meeting rooms have to be booked. (photo: Stéphane Dubé)

During the project, staff and management were informed via presentations about the proposed design solutions. In these sessions, staff could put forward their own ideas, many of which were integrated into the concept. According to France, the active involvement of staff and managers was a critical success factor: “Loss of personal space can be very confusing for employees. To help them regain a sense of control, you have to turn people from spectators into players. That may sound like a change management cliché, but the trick is to put people in the action.”

One of the interesting decisions that came out of those sessions was that there would be no ‘house rules’ concerning to use of the work environment. France: “We are all adults, right? So instead of making a long list of rules, we emphasized the importance of basic values such as courtesy, communication, respect and awareness of one’s own and each other’s needs.”

Evaluations of the project confirm its success. The first survey was conducted three months after move-in and it showed that over eighty per cent of the staff preferred the new office over the old one. A second survey, six months later, showed even better results, with high satisfaction scores on all the aspects that were covered in the survey (noise level, air quality, availability of quiet rooms, etc.). Only one aspect, that of workplace personalization, was unsurprisingly, rated lower than before.

The PSPC Montreal project is now a leading example in the wider roll-out of the workplace concept (now called ‘GCworkplace’) within the Canadian government. Michael DeKelder, workplace strategist at PSPC, explains: “The GCworkplace concept will become the program vision and guideline, so it must be applied in any major office project”. But this is not always easy, Michael notes. “Change is happening, but we still meet managers who



Informal meeting area located away from the work floor to avoid disturbing colleagues. (photo: Stéphane Dubé)

Q&A

Liette Brisebois, Administrative Assistant

What do you like best about this new way of working?

The flexibility of adapting where you want to work according to what you need to accomplish. It reminds me of a university library; there are quiet areas, noisier ones, and collaborative spaces for both informal and formal meetings. There is a space for whatever your need may be.

What aspect could be improved?

Not much, as it is really well designed. In terms of adapting to the space however, I think it would be helpful for new employees to have a go-to colleague who can familiarize them with the technology and the different spaces. The technology and open space can make you feel vulnerable at first, so having a ‘buddy’ would relieve some of the stress that comes with a new job.

How often do you change places in the office?

Every day! I typically make sure I sit in the general area where my team is; however, I choose spots according to my mood or the tasks I need to get done. For example, if I have a lot of deadlines and I need to crunch down, I will take one of the individual meeting rooms or booths.

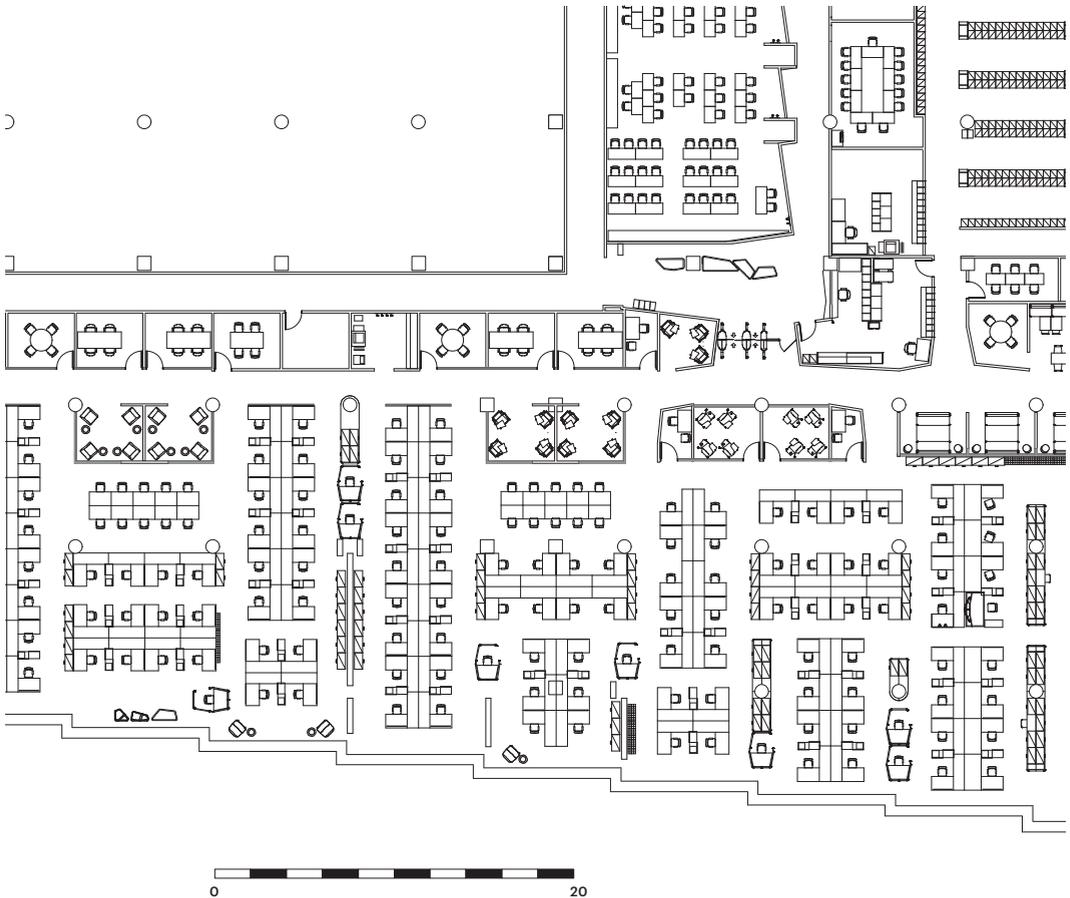
What is your favourite workspace within the office?

I love this one little cosy, collaborative space, where there are only two chairs and a light dimmer. Since there is no door, you don’t feel isolated, yet you have the privacy of an independent room. I go there for a lot of my phone calls and one-on-one video meetings.

desperately want to hold on to their private office. And there is always a minority that simply does not want to change, no matter what the change is.” A practical obstacle is that the technology isn’t always ready, with some parts of government still working with bulky PCs and landline phones. Michael stresses therefore the importance of a multidisciplinary approach. “Activity-based working is not just about property. To make the concept work, we need IT, IM, HR and Security on board as well. They need to invest in new tools and work practices. It is a shared business case.”

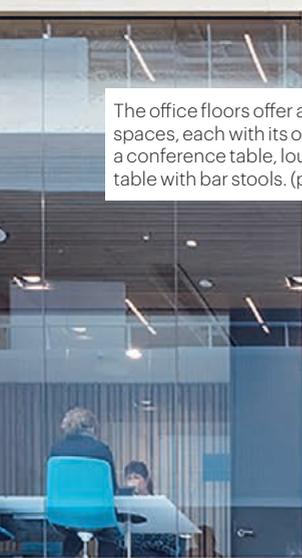


Workstations feature two computer screens, allowing employees to view or work with multiple applications or documents simultaneously. (photo: Stéphane Dubé)



The building has a deep floor plan, which makes it difficult to provide daylight and outside views in all work settings. To deal with this, all open workstations are located along the facade, while facilities for temporary use (i.e. meeting rooms, kitchenette, informal areas) are located towards the centre of the floor.

The office floors offer a row of small meeting spaces, each with its own kind of furnishing: a conference table, lounge seating or a high table with bar stools. (photo: Niels Nygaard)



DANISH BUILDING AND PROPERTY AGENCY

(COPENHAGEN, DENMARK)

The Danish Building and Property agency has just moved into its new activity-based office in the Nexus building in Copenhagen. The project is so new that it is still in its 'hundred-day freeze' period. Michelle Schlippe-Steffensen from the Building and Property Agency explains: "In the first hundred days after move-in we don't want to make any major changes. Activity-based working is new for us. People have to get used to it. We want to give it some time." In the meantime, employees can send in suggestions for improvement by email or drop them in the ideas box. Michelle: "All suggestions will be considered. Practical concerns, like complaints about cleaning or missing toilet paper, are solved straight away."

Michelle was project leader for the implementation of the ABW concept and is eager to make it a success. "Being a property organization, we should be leading in the efficient use of space. We should eat our own medicine, so to say." The other two reasons for ABW were a wish to reduce costs and to improve collaboration. "We are now occupying two floors instead of three. This saved us a lot of money. Moreover, it means that we are closer together, which makes it easier to see and meet colleagues."

The project's interior is very Scandinavian in its expression. It is open and filled with daylight. The finishes are in white or timber. Michelle notes that some of her colleagues would have liked more colour. "The interior is viewed as a bit sterile, but the possibilities for making changes were limited by the fact that we wanted to re-use the furniture from our previous office." In line with the ABW philosophy, the office provides employees with different kinds of work settings: social areas, open workstations, small meeting rooms and quiet areas. Michelle: "Interestingly enough, the quiet areas are not very much in demand. We have created them because our staff said they would need them. But practice shows that people rarely seek total quietness for longer periods of time." The informal meeting area on the

USER	DANISH BUILDING AND PROPERTY AGENCY
Property agency	Danish Building and Property Agency
Design	Arkitema/Danish Building and Property Agency
Completion	2019
Total floor area	3000 sqm (lettable area)
Total # of employees	230
Total # of workstations	168
Sharing ratio	0.7 workstation/employee
Area/employee	13 sqm (lettable area)
Area/workstation	17.8 sqm (lettable area)



The building's ground floor houses a canteen, cafe and conference centre that are shared by the building's five tenants. (photo: Niels Nygaard)

lower floor is not much used either. Michelle: “The soft seating is right next to the workstations, so people probably feel too exposed there. We are going to add bookshelves as a way of shielding.” Otherwise, all spaces are well used. The standard workstations and the small meeting rooms in particular are popular. Michelle: “It can be a bit hectic around eight in the morning, when everyone comes in and seeks a workstation. But once people are in, many have to attend meetings, and things get quieter.”

The project has not been formally evaluated yet, but Michelle observed that there are differences between functions. “For our administrative workers, who mostly do desk work, the change seems to be the hardest. In contrast, our project managers quickly took to the concept, as they were already used to mobile working.” For Michelle, the project’s most important lesson is to pay attention to change management. “Ideally, the chiefs are the ones who promote the concept and lead by example. But some of them find that difficult. I would have liked to have more time to prepare them for this role, but it is was a very rushed project with a timeline of only six months.”

Soon, the ‘hundred-day freeze’ period will be over. That will be the moment to evaluate the concept and see where it can be improved, in terms of both design and implementation. Ultimately, the ambition is to inspire all ministries and government agencies with this office. Michelle: “Many departments view the concept as radical, but we have already inspired organizations around Denmark to consider ABW.” She adds, “In this building, we are the only ones who went for full ABW. The other four tenants thought it was safer to go for open-plan offices.” It is a decision that puzzles Michelle. “I think that choice is to be preferred over a personal desk, especially when that desk is placed in a noisy open-plan office.”



The office floors are open towards the atrium. Thanks to high levels of sound absorption, this produces a light background ‘buzz’. (photo: Niels Nygaard)



One of the floors has a small library that can also be used as an informal meeting spot. (photo: Niels Nygaard)

Q&A

**Tania Lorich, FM innovation, communication and UX manager,
Center for Facility Management**

What do you like best about this new way of working?

More interaction with colleagues outside of my team. And the possibility to choose from different kind of work spaces, with sofas, phone booths and flex rooms.

What aspect could be improved?

More scope for conversational activities. My team used to have work-related discussions at their office desks, which now disturbs the other colleagues.

How often do you change places in the office?

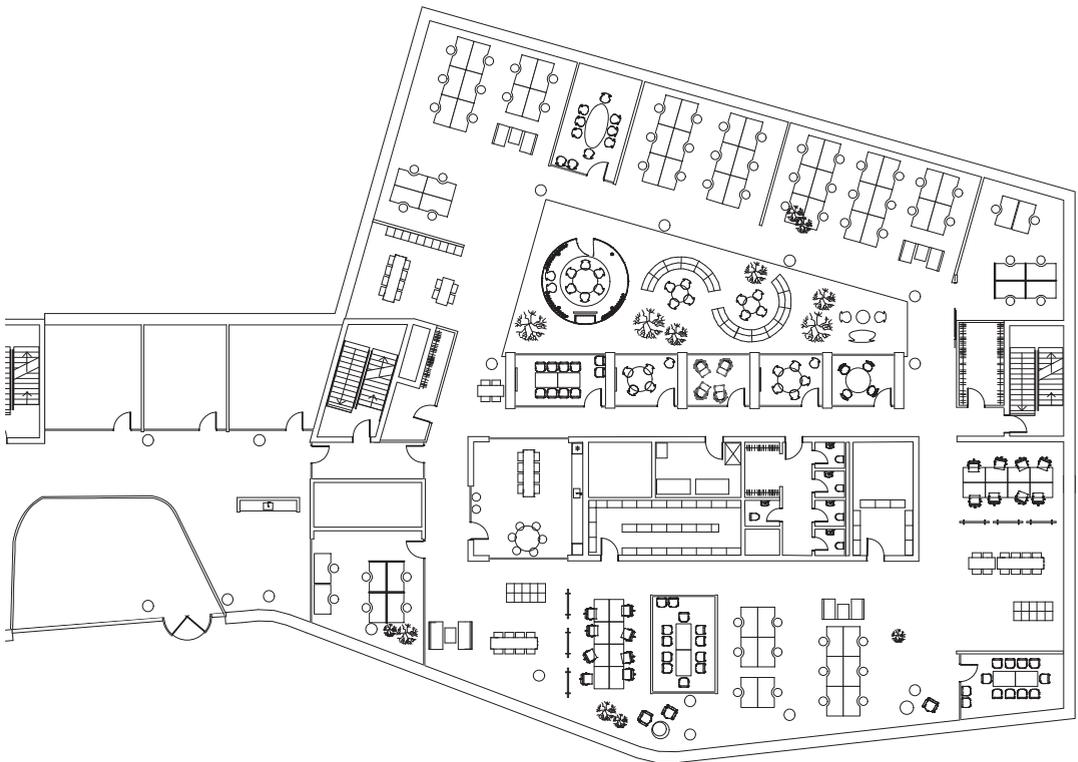
I change desk daily, but usually sit in the same two areas. When I arrive at the office, I just sit at whatever desk is still free.

What is your favourite workspace within the office?

A specific so-called focus area, with two screens, close to a window and with a mix of colleagues.



As might be expected from a Danish office, it features classic Arne Jacobsen furniture. (photo: Niels Nygaard)



The building has compact office floors (approx. 80 workstations per floor unit). Workspaces are located around a central core which houses a kitchenette, toilets and storage. A central atrium ensures that all spaces have access to daylight.

The old building and the new addition are united via a large atrium that features glass-walled elevators, open stairs and balconies (photo: Lucas van der Wee)



GOVERNMENT OFFICE 'DE KNOOP'

(UTRECHT, NETHERLANDS)

In its earlier life, the government building 'De Knoop' served as the headquarters of the Royal Netherlands Army. As one might expect from such a facility, it was no-nonsense building. It featured a heavy concrete construction, dark corridors, low ceilings and immovable brick partitions. Not very fancy, but robust. These days, however, the building is spacious, open and filled with light. It is no longer populated by uniformed army staff, but by civil servants in casual business attire, who can be found engaging in brainstorming sessions in the building's conference centre, sipping cappuccinos in the ground floor Grand Cafe, or tapping away on their laptops at one or other of the building's many flexible workstations.

The transformation of the building was carried out via a public-private partnership (PPP), in which the Dutch government acted as the commissioning client, while a selected consortium of market parties (called 'R creators') was responsible for the design, financing and construction of the project. The same consortium is responsible for the building's maintenance and operation for a period of 20 years.

The government's original ambition was to turn the building into a generic government hub, available to any department of the Dutch central government but with the Dutch Tax Office as privileged user. In reality, the Dutch Tax office is the building's main occupant. Bram van Wijk is the Tax Office' contract manager for the project and he has been involved in the project from its inception. He explains: "The building is designed according to government standards. This means that, in principle, any civil servant can work here. But we are the key tenant and we are using almost the entire building, including the general areas. This is because of the building's central location and because a number of headquarter staff are located here. It is an extremely popular venue for meetings and many of the attendees then stay on to work here. So there isn't much room for anyone else."

USER	DUTCH TAX OFFICE
Property agency	Dutch Central Government Real Estate Agency
Design	Cepezed and Fokkema & Partners
Completion	2018
Total floor area	30,078 sqm (net internal area, incl. conference centre)
Total # of employees	1700 (excl. conference centre visitors)
Total # of workstations	1063
Sharing ratio	0.6 workstation/employee
Area/employee	17.7 sqm (net internal area, incl. conference centre)
Area/workstation	28.3 sqm (net internal area, incl. conference centre)

The building's office floors are fitted out according to the principles of activity-based working (ABW). For the Tax Office, this is by no means a new concept. Bram: "We have been working with the ABW concept for over a decade and we have a lot expertise with how it works." Even so, this project presented some challenges. "We discovered that the ABW concept works fine for most, but not for all," Bram remarks, referring to the Dutch anti-fraud agency that occupies four of the building's twelve floors. "The anti-fraud agency is different from other departments because their work is highly confidential. Some of their investigators have literally piles of paper evidence on their desks. Furthermore, some of investigators need locks on their rooms because the material they work with is so sensitive. These are issues that do not sit well with the ABW concept."

This perception was reflected in project's evaluation, which was conducted nine months after move-in.⁷⁶ The evaluation data showed that anti-fraud agency employees are less happy with the concept than the building's other users. For example: only 13% of the anti-fraud agency respondents rated the comfort of workstations as satisfactory, while in other departments over 70% of the staff were satisfied or even very satisfied with this aspect. Bram: "The results show that you have to keep a close eye on specialized needs. In retrospect, I think that project would have benefited from more user involvement. Working with a standardized concept is fine, but you still need to engage with users to get a good understanding of their needs, and to give them a sense of ownership."

In response to the evaluation, Bram and his colleagues are planning to make several improvements to the work environment. But because it is a PPP-project this will require agreement from the consortium that is maintaining and operating the building. Bram: "That sounds cumbersome, but I am actually quite glad of it. The consortium looks closely at both the financial and functional impact of any change we want to make. They do this because the PPP contract contains strict performance criteria on workplace quality. Changes to the building's layout are therefore closely scrutinized for their impact on things like acoustics and air quality. That takes a bit more time, but it ensures that we get a good solution rather than just a quick fix."



The building's interior includes several 'biophilic' elements such as green walls. Other health-related features are the building's natural ventilation system and the use of CO₂ detection in meeting rooms. (photo: Lucas van der Wee)



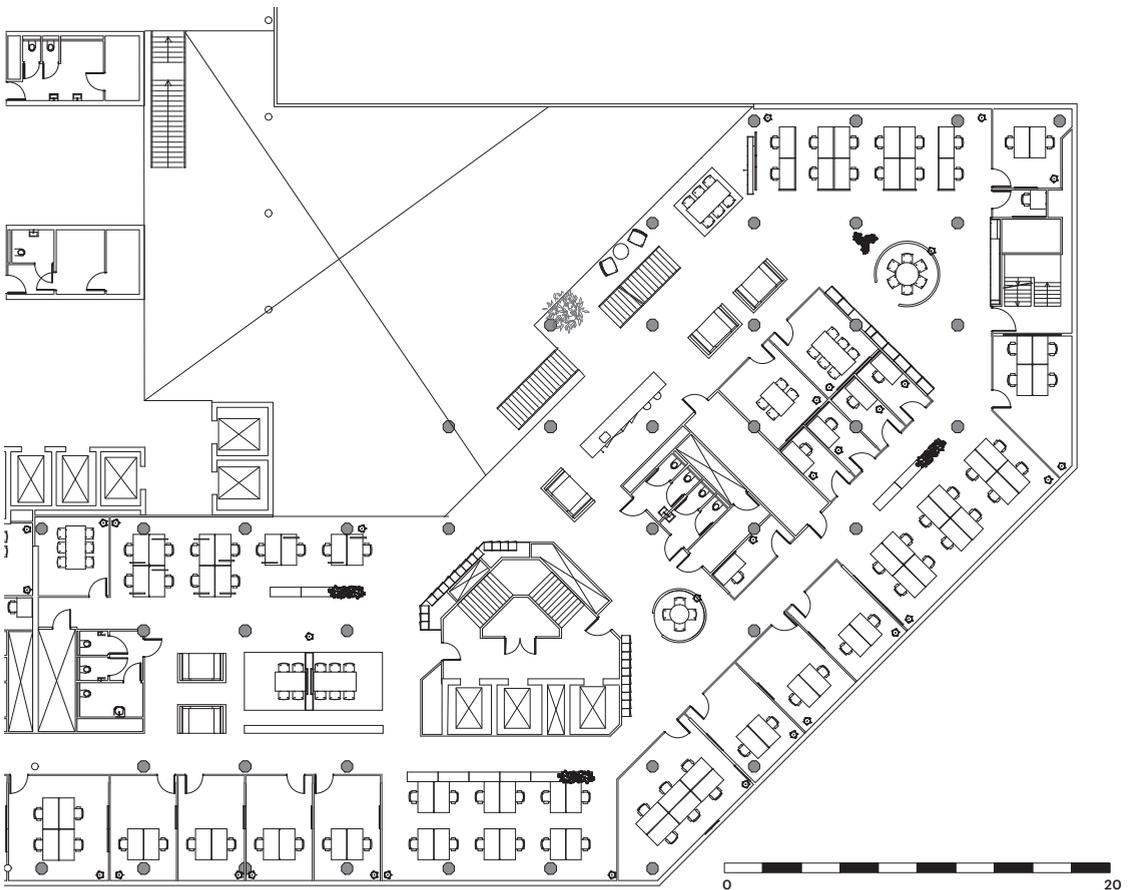
The building's interior has been completely transformed, but its concrete structure, complete with its characteristic octagonal columns, is still there and visible. (photo: Lucas van der Wee)



Around 20% of the building's workspaces are explicitly designed to facilitate communication. They include collaboration rooms, lounge-like settings and booths like those pictured in this photo. (photo: Lucas van der Wee)



There are plenty of attractive meeting rooms available in the building. In the project evaluation, however, users stated that they would like to have more screens, smart boards and/or whiteboards in these spaces. (photo: Lucas van der Wee)



The office floors feature a mix of open and enclosed workplaces. The numbers of the various space types were based on the government's generic workplace standards.

On the Ofgem floor there is a café called 'The Deck'. It is a formal part of the Ofgem office, but it is available to all the building's users. (photo: Hufton+Crow)



OFGEM

(LONDON, UNITED KINGDOM)

London's Canary Wharf is best known as a financial district, populated by bankers and other business people. However, now that the British government has opened a large hub in the area, the district's population mix is becoming more diverse. This project is part of a bigger shake-up of the UK's civil service, which will reduce the number of government buildings from 800 to around 200 by 2030, with the aim of reducing costs and increasing synergies between departments. In this instance, this meant moving around 6000 civil servants from their old, often cramped, offices in Whitehall—London's traditional government district—to a newly fitted-out, modern office building in Canary Wharf.

One of the relocated departments is Ofgem, the British government's energy watchdog. Ofgem is an interesting case because it is one of the front runners in the government's drive towards 'smart working'—an umbrella term for a wide range of flexible working practices, including remote working and activity-based working in the office. Kim Pivett, Ofgem's manager for building services, says: "We are one of the first to have fully implemented the government's smart working policy, but ultimately the entire government will have to work this way. That means that there is a lot of interest in how we are doing this. We have already shown around more than 50 departments."

What visitors get to see is a brand-new, light, modern work environment where there is an almost palpable sense of energy. When walking around, you see people chatting, laughing, having phone conversations, and working on their computers at large work benches. In between the work areas, there are semi-open collaboration spaces where groups of people can be seen drawing on whiteboards and holding video meetings via large screens. In other words, a lot of buzz and activity, but there are also small quiet rooms for those who do not want to be disturbed by the sight and sounds of their colleagues.

USER	OFGEM
Property agency	Government Property Agency
Design	AECOM
Completion	2018
Total floor area	4899 sqm (net internal area, excl. central facilities)
Total # of employees	750 (target is 800)
Total # of workstations	495
Sharing ratio	0.66 workstation/employee (target is 0.6)
Area/employee	6.5 sqm (net internal area; target is 6.0)
Area/workstation	9.9 sqm (net internal area)



The building's restaurant, doubling as a space for meetings, working, town hall sessions and presentations. (photo: Hufton+Crow)

Kim explains that the floor features a total of 495 workstations for about 750 employees. That sounds crowded, but according to Kim that isn't the case: "The government's standard is 6 workstations for every 10 employees. We are still a bit above that. I am actually looking for a team to join us." Kim's colleague Warren Bentley, the site and business continuity manager, adds: "We know that we can add an extra 100 or so users because we are closely tracking the office's occupancy levels. All workstations and meeting rooms are equipped with sensors that give us live data about how busy or quiet the office is."

The same technology allows staff to get an overview of where they can find a spot to work. Near the floor's entrance there is a large digital screen showing which workstations are available. Warren explains: "Workstations get a green dot, signalling that they are available, when they haven't been occupied for more than 90 minutes. So, when working at a desk, you can go somewhere else without immediately 'losing' it. But, if you plan to be away for more than 90 minutes, you have to clear your desk."

There has not been a formal evaluation of the project, but it seems to function well. Kim says that the new technology in particular—everyone works on a Microsoft Surface Pro—is highly appreciated by the staff. "With the move, we also changed all the technology: laptops and smart phones for everyone, fewer printers and advanced video screens in all the collaboration spaces." Nicola Gray, business partner for HR at Ofgem, adds: "Our staff is fairly young. They like, and expect, advanced technologies and the flexibility that comes with it."



Informal, non-bookable, touch-down space with Dock views, located in the shared part of the building (photo: Hufton+Crow)

Q&A

S. Corbett, Project Co-ordinator

What do you like best about this new way of working?

I could not say there is a single thing. I like the fact it is one large area and not split up into several floors. I frequently run across colleagues that I have worked with on other projects and we always smile at each other when we pass by. I also benefit from the agile spaces and that I can sit in other areas—handy when I need to finish off something without interruptions. WFH [working from home, ed.] is also great as I still feel connected to the office via Skype and recently solved a problem without having to come in.

What aspect could be improved?

Speakers' Corner [one of the floor's collaboration spaces, ed.] would benefit from soundproofing. I understand this is being looked at.

How often do you change places in the office?

Two or three times a week depending on the work I am doing.

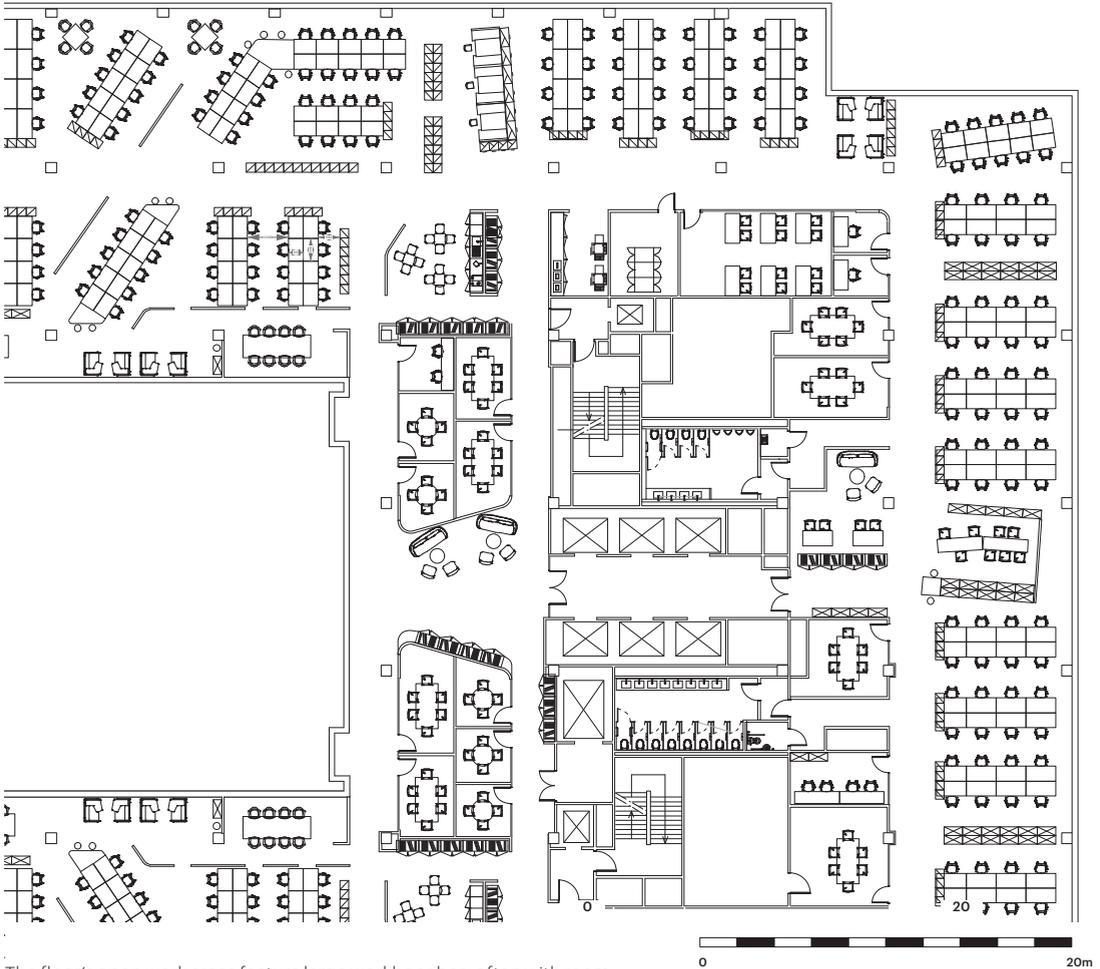
What is your favourite work space within the office?

I like the Deck [the coffee area, right at the floor's entrance, ed.]. It is a reasonably quiet area and gives me the opportunity to meet with friends and have discussions.

As in any project, there have also been some grumbles. Nicola explains that the change of location raised a lot of concern. "Some of the staff were very much against the move to Canary Wharf. They even threatened to quit their job." But that didn't happen. Nicola: "The move went hand-in-hand with the implementation of the smart working concept. Some of the people that were very much against the move, are now very happy because the smart working concept helps them to manage their busy work and family lives." She concludes: "So, the move is quite a success. Even for those that were against it."



A Meet & Greet bench that is part of the shared conference area, suitable for informal gatherings before and after meetings (photo: Hufton+Crow)



The floor's open work areas feature large workbenches, often with room for eight persons. In the middle of the floor, there are enclosed rooms for quiet work and small meetings. The circular space in the top left corner is completely flexible and can be used for workshops, presentations and town hall sessions.

Earlier, the building's coffee corners were open towards the atrium, which caused noise problems as the sounds of chatting people easily transferred from lower to higher floors and vice versa. Now, the coffee corners are acoustically enclosed and located away from the atrium. (photo: Royal HaskingDHV)



CITY OF HARDENBERG

(THE NETHERLANDS)

Hardenberg, a small town in the east of the Netherlands, has a striking town hall. The building, which was completed in 2012, has a compact, rounded shape and a yellow, gold-like facade with an irregular window pattern. When the sun shines, the quirky building looks like a glittering jewel box—although the locals have also likened it to a pineapple and a beehive.

From a functional point of view, the beehive metaphor is a good one as with several hundred people working there, the building does indeed ‘buzz’ with activity. In fact, until recently, many employees felt that there was too much ‘buzz’ and complained about the noise and distractions in the largely open work areas.

In 2017, the city embarked on a refurbishment project to improve the acoustics and to solve several other practical issues. The direct trigger for the project was the desire to add a further 80 employees to the building’s existing 320 users. In terms of capacity, the building could easily accommodate these extra users, but all stakeholders agreed that for this to work, the overall work environment would need to be significantly improved.

The engineering firm Royal HaskoningDHV was brought in to explore how this could be done. Its consultant, Niek Janssen, explains: “To accommodate the extra users, it was decided to make better use of the available space, aiming at a sharing ratio of 0.7 workstation per FTE, instead of existing 1.0 workstation per FTE.” He explains that a ratio of 0.7 is quite normal in the Netherlands, especially for public sector organizations where a lot of people work part-time, resulting in relatively low occupancy levels.

Niek stresses, however, that the operation was not just about intensifying the use of space. “Based on extensive talks with staff, management and the workers’ council, we made several changes to the mix of work settings.

USER	CITY OF HARDENBERG
Property agency	Royal HaskoningDHV
Design	Architecten Cie/OTH Architects (original building) and Royal HaskoningDHV (modifications)
Completion	2012 (original building) 2017 (modifications)
Total floor area	2,370 sqm (usable floor area, office areas only)
Total # of employees	400 full-time equivalents (FTEs)
Total # of workstations	280 (desks; final situation)
Sharing ratio	0.7 workstation/ fulltime equivalent
Area/employee	5.9 sqm (usable floor area, office areas only)
Area/workstation	8.5 sqm (usable floor area, office areas only)

We created extra project spaces, extra ‘touchdown’ workplaces and extra meeting rooms. We also looked into how the building’s indoor gardens and the restaurant could be used more effectively as temporary places for work, meetings and phone calls.”

And, obviously, there was the challenge of the building’s acoustics, which happens to be Niek’s key area of expertise. He explains: “This building has several special features that strongly influence the acoustic qualities. For example, it has no suspended ceilings. It is all bare concrete, which looks good and helps to regulate the temperature level, but such hard surfaces reflect the sounds that people produce.” Furthermore, the building’s shape plays a role. “For energy saving purposes, the architects had created a circular floor plan, but this also facilitates the propagation of sound along the curved external wall. In addition, that wall inclines inwards, which promotes the reflection of sound. It enhances the ‘whispering’ effect—an effect you might know from the ‘whispering gallery’ in the dome of St Paul’s Cathedral in London.”

Some of the acoustic problems had to do with the way spaces were positioned in relation to one another. Niek: “People were bothered by sounds coming from neighbouring departments and from social meeting points, such as the coffee corners in the atrium. The atrium is open to all floors, so sounds are easily transferred from lower to higher floors and vice versa.”

To deal with these issues, Niek and his team opted for an approach of ‘elimination’ and ‘compartmentalization’: the coffee corners were removed from the atrium (elimination) and at their new location they were acoustically enclosed (compartmentalization). Furthermore, it was decided to acoustically compartmentalize the office floors. Acoustic walls or elements were placed at regular intervals in order to limit the transmission of sound over long distances and the propagation of sound along the external wall. To retain the transparency of the interior, the wall elements were



The building does not feature a traditional suspended ceiling, but acoustic panels with lighting fixtures in them. The use of such panels allows for ‘concrete core activation’, which means that the thermal mass of the building’s concrete structure is used to regulate the indoor climate. (photo: Royal HaskoningDHV)



Partitions divide the open plan office into smaller parts. The lower part of the partition consists of sound absorbing panels. The upper part is glazed, which helps to maintain a sense of openness and allows daylight to penetrate the inner parts of the building. (photo: Royal HaskoningDHV)

Q&A

Luc Luijben, Associate Manager Spatial Planning department

What do you like best about this new way of working?

I like the openness, the transparency and the long internal views combined with ample space for concentrated working.

What aspect could be improved?

The nice double-storey winter gardens could be better incorporated into the work concept.

How often do you change places in the office?

When I work here, in the Town Hall, I am highly mobile, working in a different room at every opportunity. But

overall, people’s mobility differs per type of department. Also personal preferences play a large role. Our urban design staff, for example, like to have a lot of wall surface on which to display drawings so that they can discuss new plans. So they prefer to be in a specific place in the office.

What is your favourite workspace within the office?

The best place for me to work is a place where I am in contact with my immediate colleagues—the people with whom I work every day. So I prefer to sit within my own familiar group of work colleagues.

made of glass. Niek: “An unconventional, yet intentional solution in terms of acoustics”. He adds: “You catch two birds with one stone: dividing the open work floor into smaller units while maintaining transparency.”

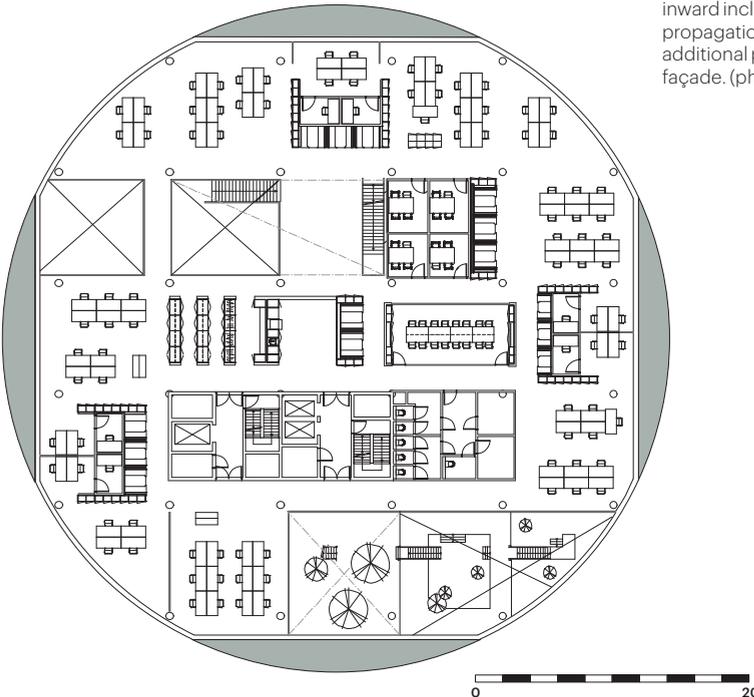
Initial measurements and reactions from employees show that the acoustic comfort has improved considerably. Niek: “Our measurements have shown that the transmission of noise along the external wall and throughout the space has been greatly reduced, and the same is true for the ‘distraction distance’. In laymen’s terms this simply means a quieter work environment, with fewer distractions and improved concentration—which will surely contribute to a better workplace experience for the staff working here.”



The building’s ground floor locates all the public and semi-public functions such as the counters where people can pick up their passport or driving license. (photo: Royal HaskoningDHV)



The building has a circular floorplan with an inward inclining façade. This facilitates the propagation of sound. To solve this issue, additional panels have been placed against the façade. (photo: Royal HaskoningDHV)



The building’s floors have a circular shape. This leads to a favourable ratio between floor space and façade surface, which helps to reduce heat loss. It also leads to shorter walking distances (when compared to a traditional corridor type of floorplan), which allows for easy interaction within the organization.

LAIKA's main work area. As is usual in Denmark, all workstations are sit-stand desks. (photo: Kristian Ridder-Nielsen)



LAIKA

(COPENHAGEN, DENMARK)

Architecture studios are not obvious candidates for activity-based working (ABW). Typically, there is a too much ‘stuff’ involved in the work process (material samples, sketches, models, photos) for staff to be truly mobile. But for Danish architecture firm LAIKA there was no other option than ABW. As Lene Becker, the firm’s founder, explains: “We are doing a lot of workplace projects and we are always pushing our clients to explore flexible, shared workplace options. It would have been weird not to do that ourselves. We must eat our own dog food, so to speak. Fortunately, we really like the taste of it!”.

This “dog food” (an apt metaphor since the company is named after the famed Russian astronaut-dog) comes in the shape of an elegantly designed office in an old tobacco plant in Copenhagen. The building is in the city’s north-west district, an area that has for long been characterized by social housing and small businesses, but which is now slowly transforming into a creative hotspot. Lene: “Our old office was in an historical building in Copenhagen’s inner city. Very cosy, with lots of small rooms and steep stairs, but we were growing, and we needed more space. Furthermore, I sensed that it was time for a change of scenery. Copenhagen’s inner city is charming, but perhaps a bit too staid. It was time for something edgier.”

LAIKA’s new office is a combination of raw, industrial elements and highly sophisticated fittings and furnishings, as might be expected from an architecture firm. It is not overly designed however. It comes with a touch of ‘hygge’—the famed Danish concept of cosiness. The colour palette is warm, there are comfortable chairs, the lighting is intimate and the (excellent) coffee is served in rustic ceramic mugs. Lene: “We aimed for a very welcoming, inviting place. Staff should feel at home. And the same goes for our clients and other people that we work with. They should feel free to grab an empty desk and work here, side by side with our staff.”

USER	LAIKA
Property agency	LAIKA
Design	LAIKA
Completion	2019
Total floor area	450 sqm (usable floor area)
Total # of employees	25
Total # of workstations	16
Sharing ratio	0.64 workstation/ employee
Area/employee	18 sqm (usable floor area)
Area/workstation	28 sqm (usable floor area)



The neon sign says ‘Space Matters’, which is the slogan under which LAIKA has been working for over 10 years. The slogan represents the company’s core belief that well-designed spaces can have a large impact on people’s well-being and behaviour. (photo: Kristian Ridder-Nielsen)

LAIKA's office is relatively small when compared with the other cases in this book, yet it manages to offer a diversity of work settings. There are different kinds of workstations and different kinds of meeting spots, and there is a 'materials library' in the middle of the floor, with a large table where designers can pore over material samples and large drawings. There is also a quiet room—which is not really a room, but a space with thick curtains around it. Lene: "Quiet rooms normally have walls to keep distractions out. But we found out that curtains work just as well, while also adding the benefit of flexibility. The only prerequisite is a rule that stipulates that the people working there should not be disturbed." "Unless there is a fire obviously," she adds, smiling.



LAIKA's quiet space has been created with the use of curtains. The rule is that people who sit there should not be disturbed. (photo: Kristian Ridder-Nielsen)

All the workstations in the office are shared. There are 16 desks for 25 people and Lene thinks that there is still plenty of space to grow. She wants to emphasize however that hot-desking is not central to her thinking. "We are not religious about desk sharing. Over the years, I have noticed that there are three kinds of people. Those who are immediately enthusiastic about the concept. Those who are a bit cautious. And then there are those few who almost literally dissolve into tears when hearing about the concept. I think that there should be room for those people as well, especially since it is often a minority."



The sample room is located in the middle of the office. The large work table is frequently used for design discussions. (photo: Kristian Ridder-Nielsen)

She continues: "The most important thing is to look at people's actual needs, making a distinction between collaboration and concentration. These needs relate to people's daily tasks, but also to how their brains are wired. Sometimes people need social stimuli, sometimes quietness, and at other times something different altogether, like a walk outside."

LAIKA's new office aims to satisfy these different needs, but Lene does not consider the office as finished yet. "For us, this office is both a workspace and a laboratory. We are testing out different kinds of furniture solutions and spatial typologies. We learn every day, which is for the benefit of both our clients and ourselves."

Q&A

Benedikte Møller, CFO

What do you like best about this way of working?

Flexibility: being able to choose a workplace in relation to the kind of work that I am doing, and in relation to the people with whom I have to work.

What aspect could be improved?

My own behaviour, not forgetting to switch places when my needs change.

How often do you change places in the office?

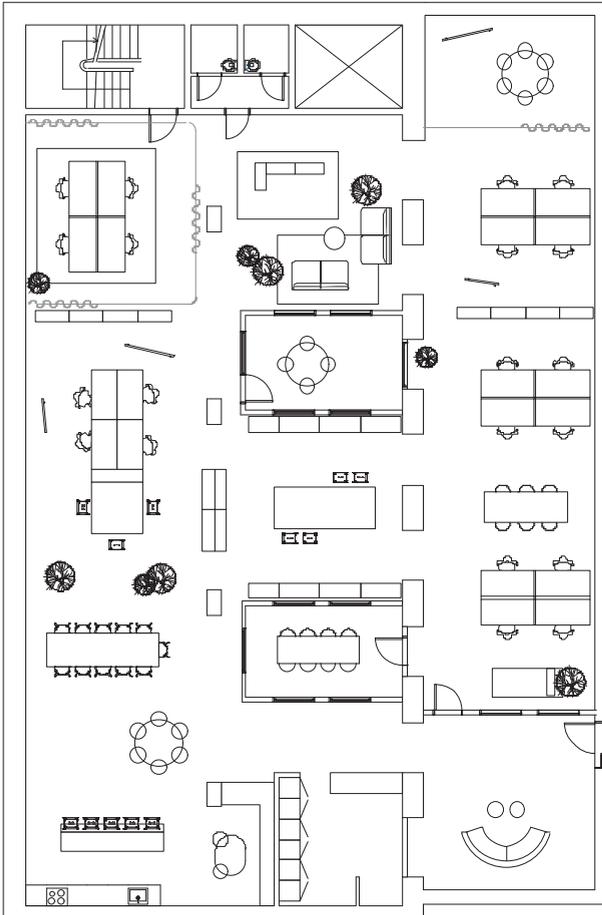
Several times a day. My movement in the office is mostly governed by my communication needs, moving when I need to have a dialogue with another colleague.

What is your favourite workspace within the office?

The "Fly-inn" space. This is a space where I can sit and work, while still being accessible for my colleagues. Sitting there signals that it is OK to disturb me, which I think creates a good dynamic and provides excellent conditions for dialogue.



Various kinds of meeting spots around the office allow for quick, informal meetings. (photo: Kristian Ridder-Nielsen)



LAIKA's office is relatively small when compared with the other cases in this book, yet it manages to offer a diversity of work settings.

Robeco's departments are spread over seven office floors. Each department has its own designated work area to make sure that team members can easily collaborate. The investment teams sit on the fourth floor, which is the centre of the office. (photo: Horizon Photoworks)



ROBECO

(ROTTERDAM, THE NETHERLANDS)

Robeco is an international asset management firm with its head office based in Rotterdam, the Netherlands. The company occupies the first seven floors of a high-rise located right next to Rotterdam's futuristic central train station. The building's facade consists of large areas of glass ('urban windows' as the architect calls them) that offer passers-by a view of what is going on inside the building.

Robeco's purchasing specialist Sjoerd Hoedemaekers explains that visibility—alongside other factors such as costs, sustainability and accessibility—was a major reason why they chose this building. "We did not want to be located in a sealed fortress. It may sound like a cliché, but openness and transparency are important to us."

This commitment to openness is also evident in the interior. All the work areas in the building are open. A full-height atrium, topped by a glazed roof, connects all the floors. The aesthetics could be described as corporate, but also as warm and friendly. White desks are neatly arranged on grey or beige carpets. Social areas are dotted with designer furniture and modern art. Natural elements such as bamboo flooring and plants add a human touch. Sjoerd remarks: "We asked for 'understated chic' and the architects have been successful in delivering this."

In terms of functionality, too, the building works as it should. Sjoerd: "Our earlier building was a high-rise with small floors and people tend to stay on their own floors. So, people were sending one other emails instead of meeting face-to-face. Here, we see much more of one other." One the best decisions according to Sjoerd was to provide only one coffee corner per floor. "It's a simple but effective strategy. There are around 140 people on each floor, and they all go to the same spot to get their coffee. This means they get to see a lot of different colleagues and not just the members of their own team."

USER	ROBECO
Property agency	-
Design	Fokkema & Partners (interior) and Architecten Cie (building)
Completion	2016
Total floor area	16,042 sqm (usable floor area)
Total # of employees	850 (approx.)
Total # of workstations	766 (desks, excl. phone booths or touchdown spots)
Sharing ratio	0.9 workstation/employee
Area/employee	18.9 sqm (usable floor area)
Area/workstation	20.9 sqm (usable floor area)



Meeting rooms are frequently used for phone calls. Robeco is considering adding dedicated phone rooms for this purpose. (photo: Horizon Photoworks)

Karin Jansen of Fokkema and Partners, who designed the building, adds that the coffee corners were deliberately located next to the open staircases. “They are part of the office’s central routing that starts at the entrance, then moves along all office floors, and ends up at the bar and roof terrace on the 7th floor. The routing provides maximum possibilities for chance encounters.”

The office provides around 8 desks for every 10 employees. A tighter ratio would be possible, but according to Sjoerd this ratio works very well. “It means that there are always plenty of desks to choose from. Moreover, it means that people don’t have to clear their desks every time they go to a meeting.” Although people do have to clear their desk before they go home: “If security finds any stuff on your desk at the end of the day, they will remove it and you will have to collect it from them. That’s also for security purposes.”

According to a recent evaluation of the project, there are some aspects that can be improved. One of the main issues is a lack of dedicated places for phone calls. Sjoerd: “Currently, people are having phone conversations in corners and in meeting rooms. There are not many places to go if you need to make a quick private call or if you don’t want to disturb your colleagues with your call.” A related observation is that the meeting rooms are not being used as intended. “Our six-person meeting rooms are mostly used for one-on-one meetings. So, it might be that we will make some changes to the mix of settings.”



Although this photo suggests otherwise, the open meeting spots that are located right next to workstations are not used very often. They offer little acoustic privacy and people don’t want to disturb their colleagues. (photo: Horizon Photoworks)



There are different kinds of meeting rooms to choose from. There are rooms with normal meeting chairs, with bar stools (as in this photo) and there are rooms for ‘standing meetings’, with no seating at all. The latter kind is Sjoerd’s favourite as it encourages short but efficient meetings. (photo: Horizon Photoworks)

Q&A

Emiel van Nielen, Manager IT Delivery Professional Services

What do you like best about this new way of working?

I have three scrum teams under my wing, and they are to a large extent ‘self-steering’. It is a way of working that is facilitated by the office concept as the teams can choose their own ‘project spots’. Where they work depends on their tasks, their meeting schedules, the presence or absence of team members, the collaboration with business counterparts, and so on. Their mobility is helped by the fact that we have a clean-desk policy and plenty of lockers and cabinets to store our things.

What aspect could be improved?

At peak moments there can be a shortage of workstations. In such an instance, we have to improvise and negotiate with other teams. It may be that a team member has to find a spot elsewhere in the building, which is not very practical. But this only happens once a month or so.

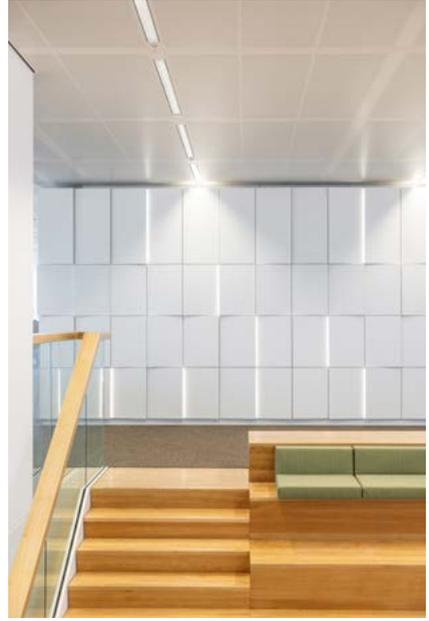
How often do you change places in the office?

Daily. Our scrum teams differ in size and they may sit at different locations in the building at different moments. This creates a sense of dynamism, but it can be difficult to keep overview of all teams. But not all teams in the organization are that ‘adventurous’. Some of them always sit in the same place. That’s what works for them, or it may be that they work with confidential data.

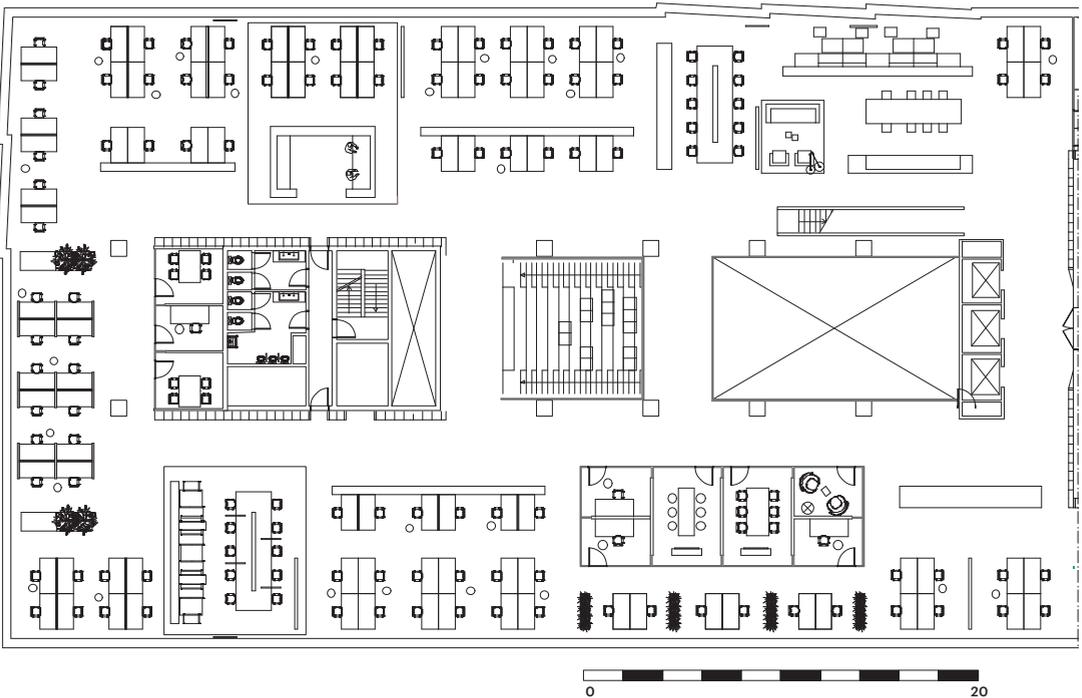
What is your favourite workspace within the office?

The meeting point zone on the first floor. It is a place where you can work in relative peace without having to shield yourself from disturbances. Another thing I like about that area is that you often get to meet colleagues from abroad who are visiting the office, so you get a sense of the international scale on which we operate.

In the coming period, Sjoerd and his colleagues will take a closer look at how this can be done. “We are looking very carefully at the evaluation outcomes because we want our staff to be happy with their working environment. As in any other organization, our success is dependent on the people working here. There are many different reasons why people work here but the flexibility on offer is especially highly valued.” He adds that he himself works one day a week from home. “It’s great. I have small kids and it allows me to eat lunch with them.” However, one day a week is enough for him: “I don’t want to be disconnected from my team, and we shouldn’t forget that, as the whole idea of this office is to increase collaboration and facilitate a good working culture.”



The architects have subtly integrated the many staff lockers into the design. (photo: Horizon Photoworks)



The office floors measure 33 by 82 metres, what is unusually large by Dutch standards. To bring daylight into these spaces, the architects created a large atrium in the middle and several small ones along the facade. Open staircases have been used to connect the floors.

Open spaces with large screens are the places where the Rabobank's teams can conduct their 'stand-ups' (also known as the 'daily scrum'). The idea is that such meetings are short and informal. The main purpose is to keep the team connected and informed about the tasks ahead before they start their working day. (photo: Christiaan de Bruijne)



RABOBANK

(EINDHOVEN, THE NETHERLANDS)

The Dutch Rabobank has always been a pioneer in the adoption of new ways of working. The bank had already started to develop a flexible work style back in 2007. ‘Rabo Unplugged’ followed all the core principles of activity-based working (ABW): unassigned workstations, a diversity of work settings, advanced IT tools, and a results-oriented way of managing people. In many ways, the Unplugged concept was a success. It was rolled out on a voluntary basis, but it was soon embraced by over 90% of the organization and staff evaluations showed high satisfaction levels.

Even so, the bank is now moving on to a new concept. Ten years after its inception, the Unplugged concept is being replaced by what the Rabobank calls ‘FOCUS working’. Laurens van Gilst, programme manager at the Rabobank, explains: “Focus working is our term for what is commonly known as ‘agile working’. Basically, it means that we all work in small teams—or ‘squads’ as we call them—that focus on the development of specific products or projects. It is a work style that is very collaborative, with short development cycles, aimed at continuous improvement. It is low on hierarchy and high on team autonomy, which is intended to speed up decision making.”

Laurens explains that this way of working is not necessarily incompatible with activity-based working, but there is a crucial difference: “ABW is all about the individual. The basic assumption is that each employee should be able to decide individually when, with whom, and where to work. In contrast, agile working is all about the team. Teams should be tight-knit and seated close together to allow everyday collaboration and quick feedback loops.”

The Rabobank’s switch in thinking is visible in the design of its Eindhoven office. This highly sustainable, 25,000 square metre (lettable floor area) building was completed in 2017. The original design brief was based on the

USER	RABOBANK
Advice	CBRE
Design	OTH Architects (interior) and UNStudio (building)
Completion	2017
Total floor area	Approx. 25,000 sqm (lettable floor area)
Total # of employees	Approx. 2285
Total # of workstations	1600 (desks)
Sharing ratio	0.7 workstation/employee
Area/employee	Approx. 11 sqm (lettable floor area)
Area/workstation	15.6 sqm (lettable floor area)



The architects used felt—produced from recycled PET bottles—in wall finishes and desk panels for the purpose sound absorption. (photo: Christiaan de Bruijne)

Unplugged concept, but the brief changed during course of the project, which is visible in the outcome. Laurens characterized the building's space planning as a hybrid of ABW and agile. All the facilities and support spaces in the building are shared, but teams have their own designated spaces. Other typical agile elements are the scrum boards and open meeting spaces where staff can congregate for quick and informal 'stand-up' meetings."

A practical consequence of the agile way of working is that the bank needs more space than before. Laurens: "The Unplugged concept was based on a ratio of 7 workstations for every 10 employees—which makes sense if you assume that people can work wherever they like. But with agile working, you will lose some efficiency because teams need to sit together and they spend more time in the office." Ferdinand van Dam is partner at OTH Architects, the firm that was responsible for the building's interior design. Reflecting on the project, he says: "The good thing about this building is that it has large floorplates compared with traditional Dutch office buildings, while there is still plenty of daylight access because of the atrium. To connect the large floors, we added open staircases, which make it easier for the staff to move between different parts of the building and creates a sense of unity. In addition, the stairs stimulate movement as they 'nudge' people to walk through the building rather than using the elevators."

The advantage of the building's large floorplates is that they offer a lot of flexibility in terms of fit-out. This is crucial according to Ferdinand: "Some user needs are timeless—such as the need for daylight and good acoustics—while other things are in constant flux. Think of changing needs in relation to group sizes and technologies. Our challenge is to create work environments that can adapt to such changes." Also Laurens stresses the importance of flexibility: "Our current focus is on agile working, but, for sure, that will change too. As they say, change is the only constant." His ideal office building would be like a gym. "In a gym, you only have to pull down equipment from the ceiling, or put up a net, to change the functionality of the space entirely. It is maximum flexibility, with very limited effort. It would be great if office buildings could be 'future proofed' in the same way."



Teams sit at blocks of 6 to 8 desks to ensure easy collaboration. Laurens van Gilst notes that in their newer offices, teams not only get their own team base, but also the possibility to express their team identity by means posters or other kinds of artefacts. (photo: Christiaan de Bruijne)



The building's ground floor is designed to act as a city square, where employees from the different 'neighbourhoods' on the office floors can congregate for common events and use shared facilities such as the restaurant. (photo: Christiaan de Bruijne)

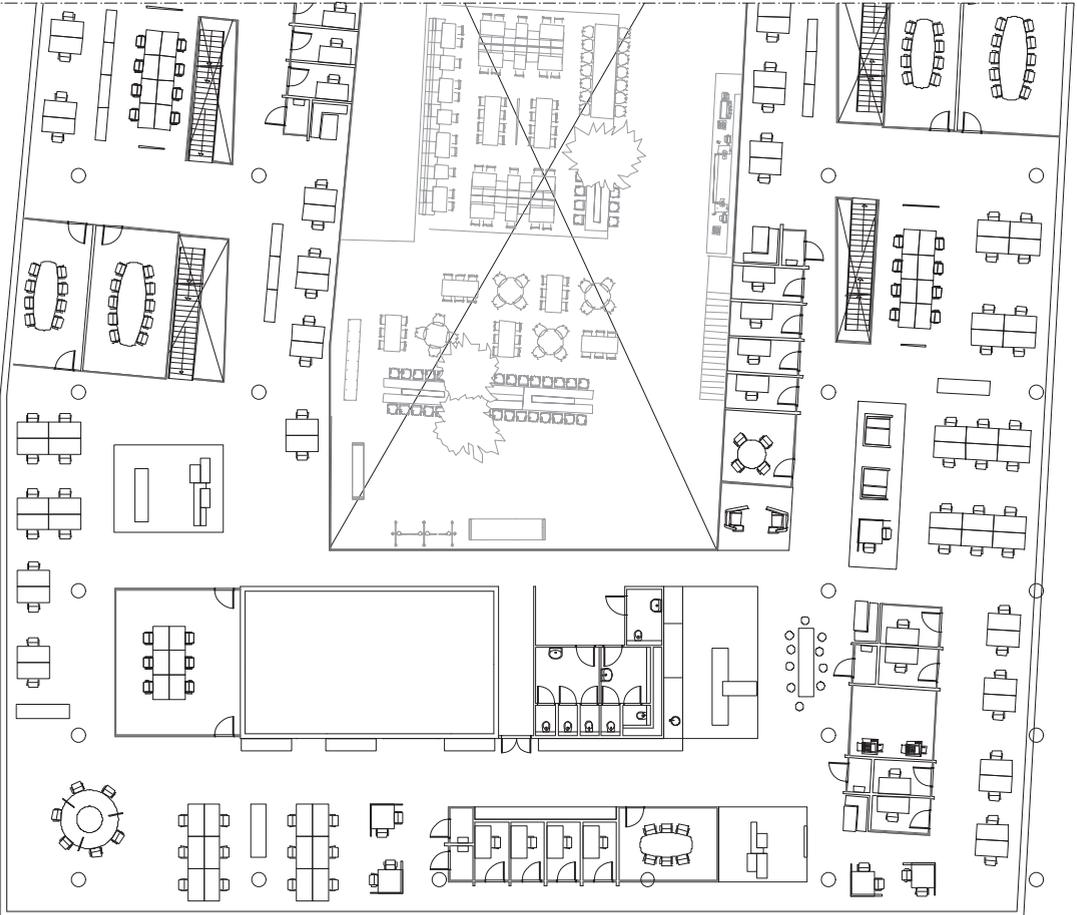


Open staircases connect the different floors and stimulate people to take the stairs rather than the elevator. (photo: Christiaan de Bruijne)



Small phone booths take the noise disturbance of phone calls away from the open-plan office, while also offering employees a place for private phone calls. (photo: Christiaan de Bruijne)

The workstations located right next to the atrium are highly visible to anyone looking up from the atrium. The architects were therefore careful to select a desk that would look good from all sides, including from below. (photo: Christiaan de Bruijne)



By Dutch standards, the office floors are unusually large. The enclosed spaces (meeting rooms, focus rooms) are positioned so as to break up the large floor plates into smaller areas. The stairs in the atrium were added to improve connections between the different floors.



The building's atrium features a large green wall. It is a functional feature that helps maintain a healthy indoor climate. Just as important, however, is its symbolic function in expressing Danone's commitment to sustainability. (photo: Sebastian van Damme)



DANONE

(HOOFDDORP, THE NETHERLANDS)

Danone's new global head office in the Netherlands, which houses their Specialized Nutrition business and their global Cycles & Procurement function, is called 'Danone Place Amsterdam'. When entering the atrium of this building, one of the first things you see is a large wall covered in air-purifying plants, which stretches the full height of the atrium. It is the largest of its kind in Europe and is of particular relevance to Danone, says Nick van der Kloor, who is HR Site manager of Danone Place Amsterdam. "We are a food company with a strong focus on health and sustainability. Our vision is 'One Planet, One Health'. So, quite obviously, we wanted to create a building that would positively contribute to both the environment and the well-being of our staff."

This ambition manifests itself in various ways. The company restaurant serves healthy, fresh and sustainably produced food only. A large garden encourages exercise and outdoor activities. Attractively designed staircases promote the use of stairs rather than lifts. The building's materials were selected on strict health and sustainability criteria. Sensors keep track of the quality of the indoor climate. Solar panels on the building's roof help to reduce the building's CO₂ footprint. The building was certified as 'LEED Gold' for its sustainability and as 'WELL Gold' for its focus on staff well-being.

A tour of the building suggests that it is very well used. On the ground floor, people are using the café lounge and the restaurant as informal meeting places—there is chatter in English, French and Dutch. On the first floor, there are people coming and going from the large meetings rooms. On the office floors, things are quieter, but there is no lack of people there either. Almost all desks are occupied. Also many informal work spots are in use—people are tapping away on their laptops at large rounded 'touchdown' tables and at the bar-like balustrade of the atrium.

USER	DANONE
Property agency	Cushman & Wakefield
Design	Powerhouse (building) and DZAP (interior)
Completion	2019
Total floor area	8,350 sqm (lettable floor area)
Total # of employees	850 (plus daily approx. 70 visiting staff from other locations)
Total # of workstations	260 (desks, excl. touchdown spaces/ focus rooms)
Sharing ratio	0.3 (desks, excl. touchdown spaces/ focus rooms)
Area/employee	9.8 sqm (lettable floor area)
Area/workstation	32 sqm (lettable floor area)



The round tables are intended as touchdown workspaces. They can be used as 'overflow spaces' during peak occupancy. (photo: Dimitri Valentijn)

The overall impression is one of dynamism and energy. Nick says: “That’s what we aimed for. Earlier, we were spread over two buildings and people hardly knew each other. Here, there is much more interaction.” He adds, however, that the building is a bit too crowded at the moment. “The building offers lots of work spots, but the number of desks is actually quite limited. There are 260 desks for around 850 people. This shouldn’t be a problem as our staff travel a lot and, when they are here, they spend a lot of time in meetings. Even so, there is high demand for desk space.”

One of the reasons for this is that there are more people using the building than expected. “We did extensive calculations before move-in, but we have just been through a major organizational transformation,” says Nick. “Some teams got smaller, others bigger, and we need to adapt to that.” The other issue is that the building has proved to be very popular among Danone staff from other locations. “We have state-of-the-art facilities, and we are only one train stop away from the airport. This makes this building a popular destination. Every day, we have around 70 people from other locations working here. That is a good thing, but it adds to a sense of crowding.”

To deal with this, Nick and his colleagues are planning to fine-tune the concept. They will start with an extensive post-occupancy evaluation (POE) to get a better idea of the staff’s workplace experience. Nick: “We have been here for several months now, so it is a good time to evaluate. We will do a staff survey and we will take a close look at our occupancy data.” The occupancy data come from the building’s advanced occupancy measurement system. Each desk is equipped with a sensor that glows red when occupied. It glows green when the desk has been empty for more than 50 minutes. All the meeting rooms are equipped with sensors as well. Nick: “We have already noticed that our desks have high occupancy levels, while the meeting rooms are underutilized, so there are opportunities for optimization.”

Nick also plans to put additional effort into the behavioural side of the workplace concept. “We had a year to prepare staff for the move to this new building. During that time, we did some really great stuff to promote a new way of working. But new people are constantly coming into the organization and we have to make sure that everybody is on board. My work as HR Site manager has only just begun.”



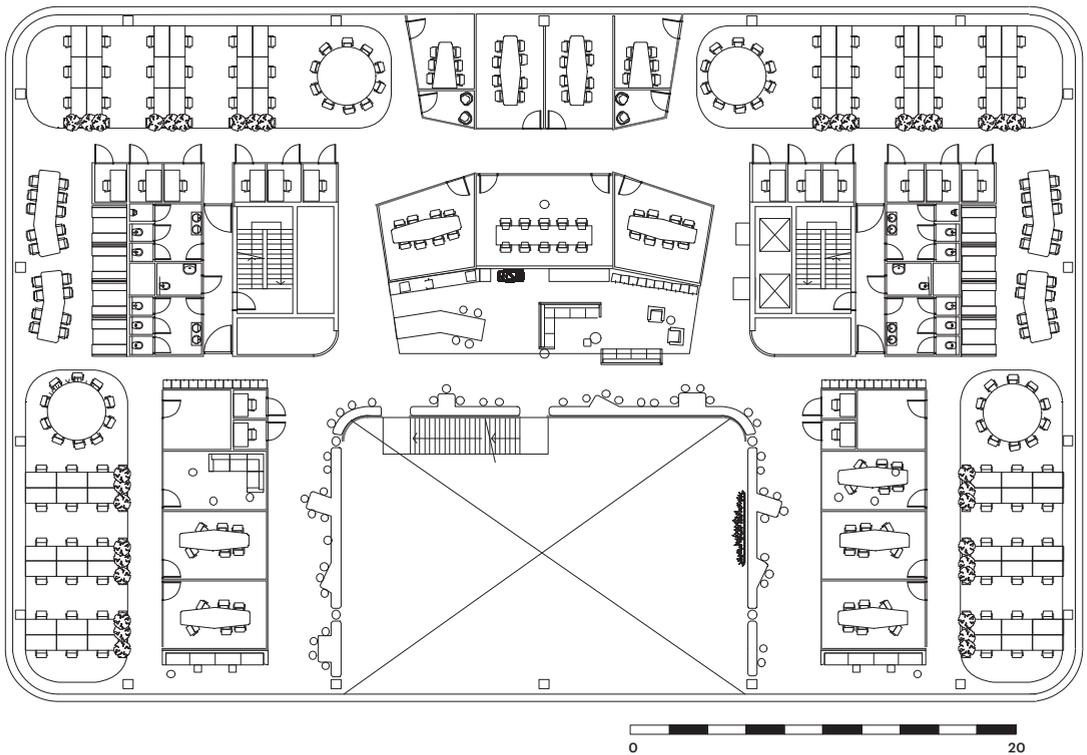
The seats around the atrium have proved to be a popular spot for work, informal chats and phone calls. (photo: Sebastian van Damme)



The wide staircase on the ground floor can be used as seating for large events involving the whole company. (photo: Stijn Poelstra)



Outside lunch hours, the ground floor café and restaurant are used as informal meeting spaces. (photo: Maurice Heesen)



Each office floor features four zones ('neighbourhoods') where specific teams have their base. The work areas are located away from the atrium where all the traffic is. The small meeting rooms and focus booths act as buffers between these spaces.

PART 7: APPENDICES

Specifications per space type

More information

Interviewees

References

SPECIFICATIONS PER SPACE TYPE

This appendix provides detailed requirements for the different kinds of spaces that can be created in an ABW office. The requirements cover everything from sizes and quantities, to adjacencies and acoustics. The definitions used for the various requirements can be found on page 155.

The requirements are rather detailed in recognition of the fact that design details can have a critical impact on people's workplace experience. All too often high-flying office projects fail to deliver on common-sense matters such as good acoustics, the avoidance of glare on computer screens and easy-to-reach power sockets. Having a clear set of requirements, combined with systematic design verification, will help to avoid such problems.

It is important to note that the requirements presented here are generic guidelines only—they should not be copy-pasted into your situation. To create a successful work environment, the requirements need to be tailored to the specific needs of an organization. A software organization will for example have different needs from a sales organization, requiring a different mix of spaces and different kinds of technologies.

Local culture and regulations must also be taken into consideration. In Norway, for example, the minimum workplace size is seven square metres, while this book mentions a size of five square metres. It is thus essential to check whether the requirements are in line with a country's health and safety regulations and building codes.

Furthermore, it is important to consider the client's ambition level and budget. The indoor climate requirements presented in this book represent a 'standard' quality level in terms of comfort. Depending on the type of project, it is possible to set both higher and lower standards.

WORKSPACES

- Open workstation
- Semi-open workstation
- Phone booth
- Focus room
- Project room
- Study

COLLABORATION SPACES

- Booth
- Huddle
- Stand-up space
- Small meeting room (2-4 pers.)
- Medium meeting room (8-12 pers.)
- Large meeting room (> 14 pers.)

SUPPORT SPACES

- Kitchenette
- Locker space
- Storage space
- Print/copy space
- Entrance/lobby
- Restaurant
- Primary circulation

Sound insulation (R'w) towards circulation spaces	≥ 30 dB	≥ 30 dB	≥ 30 dB	≥ 30 dB	≥ 40 dB	≥ 30 dB
Sound insulation (R'w) towards functional spaces	≥ 40 dB	≥ 40 dB	≥ 40 dB	≥ 40 dB	≥ 45 dB	≥ 40 dB
Sound insulation (R'w) towards sanitary spaces	≥ 45 dB	≥ 45 dB	≥ 45 dB	≥ 45 dB	≥ 45 dB	≥ 45 dB
Impact noise insulation (LnTA)	≤ 59 dB	≤ 59 dB	≤ 59 dB	≤ 59 dB	≤ 59 dB	≤ 59 dB
Distraction distance (rD)	n/a	n/a	n/a	n/a	n/a	n/a
Thermal comfort						
Predicted Percentage Dissatisfied (PPD)	< 10%	< 10%	< 10%	< 10%	< 10%	< 10%
Operative temperature winter min.	≥ 20 oC	≥ 20 oC	≥ 20 oC	≥ 20 oC	≥ 20 oC	≥ 20 oC
Operative temperature winter max.	≤ 24 oC	≤ 24 oC	≤ 24 oC	≤ 24 oC	≤ 24 oC	≤ 24 oC
Operative temperature summer min.	≥ 23 oC	≥ 23 oC	≥ 23 oC	≥ 23 oC	≥ 23 oC	≥ 23 oC
Operative temperature summer max.	≤ 26 oC	≤ 26 oC	≤ 26 oC	≤ 26 oC	≤ 26 oC	≤ 26 oC
Relative humidity	≤ 60%	≤ 60%	≤ 60%	≤ 60%	≤ 60%	≤ 60%
Operable windows	Preferred (dependent on location)	Preferred (dependent on location)	Not required	Not required	Preferred (dependent on location)	Preferred (dependent on location)
Air quality						
CO ₂ level	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂
Ventilation rate average	≥ 60 m ³ fresh air/hour/person	≥ 60 m ³ fresh air/hour/person	≥ 60 m ³ fresh air/hour/person	≥ 60 m ³ fresh air/hour/person	≥ 60 m ³ fresh air/hour/person	≥ 60 m ³ fresh air/hour/person
Elements to be placed	<ul style="list-style-type: none"> 1x Floor finish - sound absorbing 1x Ceiling finish - sound absorbing 3x Power outlet (preferably incorporated in desk) 1x USB outlet (preferably incorporated in desk) 2x Data outlet (preferably incorporated in desk) 1x Occupancy sensor 1x Sit-stand desk 1x Ergonomic task chair 	<ul style="list-style-type: none"> 1x Floor finish - sound absorbing 1x Ceiling finish - sound absorbing 3x Power outlet (preferably incorporated in desk) 1x USB outlet (preferably incorporated in desk) 2x Data outlet (preferably incorporated in desk) 1x Occupancy sensor 1x Sit-stand desk 1x Ergonomic task chair 	<ul style="list-style-type: none"> 1x Floor finish - sound absorbing 1x Ceiling finish - sound absorbing 3x Power outlet (preferably incorporated in desk) 1x USB outlet (preferably incorporated in desk) 1x Acoustic desk separation panel (providing visual/acoustic privacy on all sides) 	<ul style="list-style-type: none"> 1x Floor finish - sound absorbing 1x Ceiling finish - sound absorbing 3x Power outlet (preferably incorporated in desk) 1x USB outlet (preferably incorporated in desk) 1x Occupancy sensor 1x Height-adjustable work surface 1x Ergonomic task chair 	<ul style="list-style-type: none"> 1x Demountable partition - glazed (users should be able to see whether a room is available or not). Furthermore, the use of glass. 1x Floor finish - sound absorbing 1x Ceiling finish - sound absorbing 3x Power outlet per workstation 1x USB outlet per workstation 2x Data outlet per workstation 1x Occupancy sensor 1x Ergonomic task chair per workstation 	<ul style="list-style-type: none"> 1x Demountable partition - glazed (users should be able to see whether a room is available or not). Furthermore, the use of glass. 1x Floor finish - sound absorbing 1x Ceiling finish - sound absorbing 3x Power outlet per workstation 1x USB outlet per workstation 2x Data outlet per workstation 1x Occupancy sensor 1x Ergonomic task chair per workstation

WORKSPACES

	OPEN WORKSTATION	SEMI-OPEN WORKSTATION	PHONE BOOTH	FOCUS ROOM	PROJECT ROOM	STUDY
Equipment to be placed	<ul style="list-style-type: none"> • 1x Adjustable monitor arm • 1x Computer monitor (preferably 2x) • 1x Docking station 	<ul style="list-style-type: none"> • 1x Adjustable monitor arm • 1x Computer monitor (preferably 2x) • 1x Docking station 	<ul style="list-style-type: none"> • 1x Computer monitor (optional, useful for video calls) 	<ul style="list-style-type: none"> • 1x Computer monitor • 1x Docking station 	<ul style="list-style-type: none"> • 1x Computer monitor per workstation • 1x Docking station per workstation • 1x Large screen (positioned in such a way that it is visible from all workstations) 	<ul style="list-style-type: none"> • 1x Computer monitor per workstation • 1x Docking station per workstation

Adjacencies	<ul style="list-style-type: none"> • Small meeting room (2-4 pers.) (≤ 10 m) • Stand-up space (≤ 25 m) • Kitchenette (≤ 50 m) • Print/copy space (≤ 50 m) • Storage space (≤ 25 m) • Focus room (≤ 10 m) • Phone booth (≤ 10 m) 	<ul style="list-style-type: none"> • Kitchenette (≤ 50 m) 	<ul style="list-style-type: none"> • Open workstation (≤ 10 m) 	<ul style="list-style-type: none"> • Open workstation (≤ 10 m) 	<ul style="list-style-type: none"> • Kitchenette (≤ 50 m) 	
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COLLABORATION SPACES

	BOOTH	HUDDLE	STAND-UP SPACE	SMALL MEETING ROOM (2-4 PERS.)	MEDIUM MEETING ROOM (8-12 PERS.)	LARGE MEETING ROOM (>14 PERS.)
	Semi-enclosed space for small meetings, collaboration and individual work. Typically has high backed seating, as in a classic diner booth, that provides a sense of visual privacy while still being part of the open space around it. In some cases, booths can be ceilinged.	An open meeting space with an informal, comfortable feel. It can function as a congregating point for teams or departments. Suitable for informal discussions, relaxation or work, should people so wish.	Open or semi-enclosed space for 'stand-ups' (a specific kind of meeting associated with scrum/agile working). Suitable for informal discussions and meetings that do not require seating. Typically features a large video screen and/or a writable 'scrum board'.	An enclosed meeting room for two to four persons. Suitable for small meetings and confidential discussions. Typically available on a first-come, first-served basis. Can overlap/be combined with focus rooms to create flexibility in use.	Conference room for planned group meetings with mid-sized groups (8-12 persons). Should provide wall space for writing, brainstorming or presentations. It can be a good idea to create meeting rooms with different ambiances for different kinds of meetings.	Conference room for planned group meetings with larger groups (>14 persons), typically providing some formality and privacy. Should provide wall space for writing, brainstorming or presentations.
Activities to be facilitated	<ul style="list-style-type: none"> • 1:1 Meetings • Generic computer work • Phone calls 	<ul style="list-style-type: none"> • Hanging out/taking a break • Team meetings 	<ul style="list-style-type: none"> • Stand-up meetings • Team meetings 	<ul style="list-style-type: none"> • 1:1 Meetings • Video calls 	<ul style="list-style-type: none"> • Team meetings • Video conferencing 	<ul style="list-style-type: none"> • Formal meetings • Team meetings • Video conferencing
Standard properties						
Quantity	1 to 2 per 50 workstations	1 per 100 workstations or 1 per floor	Dependent on number of scrum/agile teams	1 per 10 to 20 workstations	1 or 2 per 50 workstations, or 1 per floor/security zone	Dependent on frequency of large meetings
Usable floor area	≥ 8 m ²	≥ 20 m ²	Dependent on team size. Min. 2 m ² per person	≥ 6 m ²	≥ 24 m ²	≥ 48 m ²
Capacity	4 persons	10 persons	Dependent on team size	4 persons	8 - 12 persons	14 persons or more
Ambiance	Informal, friendly	Collaborative, informal	Collaborative, high-energy	Informal, inviting	Formal, inviting	Formal, inviting
Activity zone	Social zone	Social zone	Interactive zone	Interactive zone	Social zone	Social zone
Visual comfort						
Illuminance	≥ 500 lux	≥ 500 lux	≥ 500 lux	≥ 500 lux	≥ 500 lux	≥ 500 lux
Unified Glare Rating (UGR)	≤ 19	≤ 19	≤ 19	≤ 19	≤ 19	≤ 19
Colour rendering	≥ 80%	≥ 80%	≥ 80%	≥ 80%	≥ 80%	≥ 80%
Light colour temperature	3000 K - 4000 K	3000 K - 4000 K	3000 K - 4000 K	3000 K - 4000 K	3000 K - 4000 K	3000 K - 4000 K
Daylight factor	n/a	n/a	n/a	n/a	n/a	n/a
Solar shading	n/a	n/a	n/a	n/a	n/a	n/a
Outside View	Not required	Not required	Not required	Not required	Preferred	Preferred
Acoustic comfort						
Reverberation time (T30)	≤ 0.5 s (based on the assumption that there is an open connection with a work area)	≤ 0.5 s (based on the assumption that there is an open connection with a work area)	≤ 0.5 s (based on the assumption that there is an open connection with a work area)	≤ 0.7 s	≤ 0.7 s	≤ 0.7 s
Background noise (LA eq)	≤ 40 dB (based on the assumption that there is an open connection with a work area)	≤ 40 dB (based on the assumption that there is an open connection with a work area)	≤ 40 dB (based on the assumption that there is an open connection with a work area)	≤ 40 dB	≤ 40 dB	≤ 40 dB
Noise from MEP (LA eq)	≤ 35 dB (based on the assumption that there is an open connection with a work area)	≤ 35 dB (based on the assumption that there is an open connection with a work area)	≤ 35 dB (based on the assumption that there is an open connection with a work area)	≤ 35 dB	≤ 35 dB	≤ 35 dB
Sound insulation (R'w) towards circulation spaces	n/a	n/a	n/a	≥ 35 dB	≥ 35 dB	≥ 35 dB
Sound insulation (R'w) towards functional spaces	n/a	n/a	n/a	≥ 45 dB	≥ 45 dB	≥ 45 dB

COLLABORATION SPACES

	BOOTH	HUDDLE	STAND-UP SPACE	SMALL MEETING ROOM (2-4 PERS.)	MEDIUM MEETING ROOM (8-12 PERS.)	LARGE MEETING ROOM (>14 PERS.)
Sound insulation (R'w) towards sanitary spaces	n/a	n/a	n/a	≥ 45 dB	≥ 45 dB	≥ 45 dB
Impact noise insulation (LnTA)	n/a	n/a	n/a	≤ 59 dB	≤ 59 dB	≤ 59 dB
Distraction distance (rd)	n/a	n/a	n/a	n/a	n/a	n/a
Thermal comfort						
Predicted Percentage Dissatisfied (PPD)	< 10%	< 10%	< 10%	< 10%	< 10%	< 10%
Operative temperature winter min.	≥ 20 oC	≥ 20 oC	≥ 20 oC	≥ 20 oC	≥ 20 oC	≥ 20 oC
Operative temperature winter max.	≤ 24 oC	≤ 24 oC	≤ 24 oC	≤ 24 oC	≤ 24 oC	≤ 24 oC
Operative temperature summer min.	≥ 23 oC	≥ 23 oC	≥ 23 oC	≥ 23 oC	≥ 23 oC	≥ 23 oC
Operative temperature summer max.	≤ 26 oC	≤ 26 oC	≤ 26 oC	≤ 26 oC	≤ 26 oC	≤ 26 oC
Relative humidity	≤ 60%	≤ 60%	≤ 60%	≤ 60%	≤ 60%	≤ 60%
Operable windows	Not required	Not required	Not required	Not required	Preferred (dependent on location)	Preferred (dependent on location)
Air quality						
CO ₂ level	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂
Ventilation rate average	n/a	n/a	n/a	≥ 60 m ³ fresh air/hour/person	≥ 60 m ³ fresh air/hour/person	≥ 60 m ³ fresh air/hour/person
Elements to be placed	<ul style="list-style-type: none"> • 1x Floor finish - sound absorbing • 1x Ceiling finish - sound absorbing • 2x Power outlet • 1X Occupancy sensor 	<ul style="list-style-type: none"> • 1x Floor finish - sound absorbing • 1x Ceiling finish - sound absorbing • 10x Power outlet • 1x Data outlet • 1X Occupancy sensor • 10x Seat (soft seating) • 1x Whiteboard (does not have to be a furniture item. Can also be another kind of writable/tackable surface, for example a wall with a whiteboard paint finish) 	<ul style="list-style-type: none"> • 1x Floor finish - sound absorbing • 1x Ceiling finish - sound absorbing • 4x Power outlet • 1x Data outlet • 1X Occupancy sensor • 1x Touchscreen booking system (next to the space's entrance, part of smart office system) • 1x Scrum board (optional, dependent on how teams work) • 1x Whiteboard (does not have to be a furniture item. Can also be another kind of writable/tackable surface, for example a wall with a whiteboard paint finish) 	<ul style="list-style-type: none"> • 1x Demountable partition - glazed (users should be able to see whether a room is available or not.) • 1x Floor finish - sound absorbing • 1x Ceiling finish - sound absorbing • 12x Power outlet • 1x Data outlet • 1x Occupancy sensor • 1x Conference table • 4x Conference chair • 1x Privacy film or curtain (should be possible to provide a degree of visual privacy in case of sensitive or confidential meetings) • 1x Whiteboard (does not have to be a furniture item. Can also be another kind of writable/tackable surface, for example a wall with a whiteboard paint finish) • 1x Touchscreen booking system 	<ul style="list-style-type: none"> • 1x Demountable partition - glazed (users should be able to see whether a room is available or not.) • 1x Floor finish - sound absorbing • 1x Ceiling finish - sound absorbing • 14x Power outlet • 1x Data outlet • 1x Occupancy sensor • 1x Conference table (preferably a table system that can be reconfigured to create different kinds of meeting settings (cafe, classroom, conference)) • 14x Conference chair • 1x Privacy film or curtain (should be possible to provide a degree of visual privacy in case of sensitive or confidential meetings) 	

- 1x Whiteboard (does not have to be a furniture item. Can also be another kind of writable/tackable surface, for example a wall with a whiteboard paint finish)
- 1x Touchscreen booking system

Equipment to be placed

• 1x Large screen (optional) • 1x Large screen • 1x Large screen • 1x Large screen • 1x Large screen

Adjacencies

• Kitchenette (≤ 25 m) • Kitchenette (≤ 25 m) • Kitchenette (≤ 25 m) • Open workstation (≤ 10 m) • Open workstation (≤ 25 m) • Kitchenette (≤ 25 m) • Entrance/lobby (≤ 25 m)

SUPPORT SPACES

	KITCHENETTE	LOCKER SPACE	STORAGE SPACE	PRINT/COPY SPACE	ENTRANCE/LOBBY	RESTAURANT
	Facility that gives employees easy access to water, coffee and tea. Sometimes it is a full kitchen with refrigerator and microwave. Ideally designed as a place that encourages socialization as it is a destination where people run in to each other.	Area with lockers for the storage of personal items. Organizations often decide to give everyone their own personal locker, even though shared lockers are more efficient	Space for the storage of documents or other 'stuff'. Can be either individual or group storage. The need for storage is very much dependent on the nature of people's work processes and the degree of digitalization.	Enclosed space containing a multifunctional machine for copying, scanning and printing. May also accommodate a shredder and office supplies.	Entrance area with seating for visitors and reception desk and/or reception screen. Provides visitors with their first impression of the organization. Large lobbies can double as informal meeting areas when combined with a coffee facility.	Facility where employees can go for lunch and in some cases breakfast and dinner as well. Can be designed and serviced in such a way that the areas can be used as informal meeting or workspace outside mealtimes.
Activities to be facilitated	<ul style="list-style-type: none"> Getting coffee or a snack Hanging out/taking a break Impromptu conversations Recycling 	<ul style="list-style-type: none"> Storing personal items 	<ul style="list-style-type: none"> Storing team items 	<ul style="list-style-type: none"> Paper-based work (printing/scanning/shredding) Storing office supplies 	<ul style="list-style-type: none"> Visitor reception/registration Waiting Taking phone calls (receptionist) Handing out security passes (receptionist) 	<ul style="list-style-type: none"> All-hands meetings Brief collaboration Generic computer work Getting coffee or a snack Hanging out/taking a break Having lunch Impromptu conversations
Standard properties						
Quantity	1 per 50 employees, or 1 per floor/security zone	1 per floor/security zone	1 storage point per team/group	1 per floor/security zone	1 per office unit or building	1 (in larger buildings, the restaurant facility may be shared with other tenants)
Usable floor area	≥ 6 m ²	0.5 m ² per locker	1 m ² per person, preferably less (depending on degree of digitalization)	≥ 5 m ²	Dependent on required capacity	Dependent on number of occupants and food service. Typically, 2.5 m ² per seat. Should also be big enough for all-hands group meetings.
Capacity	4 persons (standing)	n/a	n/a	3 persons (standing)	Dependent on size location. Think of receptionist/host(s) plus waiting visitors	Dependent on size organization and location (i.e. presence of nearby eateries)
Ambiance	Relaxing, inviting	Functional	Functional	Functional	Welcoming, understated refinement	Should be different from the workspaces: more informal, quietly 'buzzing' and comfortable
Activity zone	Social zone	Social zone	Interactive zone	Social zone	Social zone	Social zone
Visual comfort						
Illuminance	≥ 500 lux	≥ 300 lux	≥ 300 lux	≥ 300 lux	≥ 300 lux	≥ 300 lux
Unified Glare Rating (UGR)	≤ 22	≤ 22	n/a	≤ 22	≤ 22	≤ 22
Colour rendering	≥ 80%	≥ 80%	n/a	≥ 80%	≥ 80%	≥ 80%
Light colour temperature	3000 K - 4000 K	3000 K - 4000 K	n/a	3000 K - 4000 K	3000 K - 4000 K	3000 K - 4000 K
Daylight factor	n/a	n/a	n/a	n/a	n/a	n/a
Solar shading	n/a	n/a	n/a	n/a	n/a	n/a
Outside View	Not required	Not required	Not required	Not required	Not required	Not required
Acoustic comfort						
Reverberation time (T30)	≤ 1 s	≤ 1 s	n/a	≤ 1 s	≤ 1 s	≤ 0.9 s
Background noise (LA eq)	≤ 50 dB	≤ 45 dB	n/a	≤ 45 dB	≤ 40 dB	≤ 40 dB
Noise from MEP (LA eq)	≤ 45 dB	≤ 40 dB	n/a	≤ 40 dB	≤ 35 dB	≤ 35 dB

Sound insulation (R'w) towards circulation spaces	≥ 30 dB	n/a	≥ 30 dB	≥ 30 dB	≥ 30 dB	≥ 30 dB
Sound insulation (R'w) towards functional spaces	≥ 50 dB	n/a	≥ 45 dB	≥ 40 dB	≥ 45 dB	≥ 45 dB
Sound insulation (R'w) towards sanitary spaces	≥ 45 dB	n/a	≥ 45 dB	≥ 45 dB	≥ 45 dB	≥ 45 dB
Impact noise insulation (LnTA)	≤ 59 dB	n/a	≤ 59 dB	≤ 59 dB	≤ 59 dB	≤ 59 dB
Distraction distance (rD)	n/a	n/a	n/a	n/a	n/a	n/a
Thermal comfort						
Predicted Percentage Dissatisfied (PPD)	< 15%	n/a	n/a	< 15%	< 20%	< 20%
Operative temperature winter min.	≥ 19 oC	≥ 19 oC	≥ 19 oC	≥ 19 oC	≥ 20 oC	≥ 20 oC
Operative temperature winter max.	≤ 25 oC	≤ 25 oC	≤ 25 oC	≤ 25 oC	≤ 24 oC	≤ 24 oC
Operative temperature summer min.	≥ 22 oC	≥ 22 oC	≥ 22 oC	≥ 22 oC	≥ 23 oC	≥ 23 oC
Operative temperature summer max.	≤ 27 oC	≤ 27 oC	≤ 27 oC	≤ 27 oC	≤ 26 oC	≤ 26 oC
Relative humidity	≤ 70%	≤ 60%	≤ 60%	≤ 60%	≤ 60%	≤ 60%
Operable windows	Not required	Not required	Not required	Not required	Not required	Not required
Air quality						
CO ₂ level	≤ 550 ppm above outside ppm CO ₂	n/a	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂	≤ 550 ppm above outside ppm CO ₂
Ventilation rate average	n/a	n/a	n/a	≥ 25 m ³ fresh air/hour/person	≥ 25 m ³ fresh air/hour/person	≥ 25 m ³ fresh air/hour/person
Elements to be placed						
	<ul style="list-style-type: none"> • 1x Floor finish - splash resistant • 1x Ceiling finish - sound absorbing • 1x Water tap - cold • 1x Water tap - warm • 4x Power outlet (sufficient for equipment) • 1x Coffee machine • 1x Counter space • 1x Cupboard • 1x Dishwasher • 1x Microwave • 1x Recycling unit • 1x Refrigerator • 1x Sink • 1x Water cooler 	<ul style="list-style-type: none"> • 1x Floor finish - sound absorbing • 1x Ceiling finish - sound absorbing • 1x Locker per person (consider shared lockers, for example for 60% of employees, as they are not always used efficiently) 	<ul style="list-style-type: none"> • 1x Floor finish - sound absorbing • 1x Ceiling finish - sound absorbing • 1x Filing cabinet for every 2-8 workstations (typically 1 metre of shelf space per person, but dependent on degree of digitalization of work processes) 	<ul style="list-style-type: none"> • 1x Floor finish - sound absorbing • 1x Ceiling finish - sound absorbing • 4x Power outlet (dependent on placed equipment) • 2x Data outlet (dependent on placed equipment) • 1x Reception desk • 1x Soft seating (dependent on expected number of visitors/waiting time) • 1x Coat closet (could be a walk-in closet, depending on the expected number of visitors) 	<ul style="list-style-type: none"> • 1x Floor finish - splash resistant • 1x Ceiling finish - sound absorbing • (td)x Water tap - cold (dependent on equipment) • (td)x Water tap - warm (dependent on equipment) • (td)x Occupancy sensor (seating area) • (td)x Cafe table (dependent on capacity. Can be a mix of classic cafe tables, picnic tables, bench tables) • (td)x Cafe seating (dependent on capacity. Can be a mix of cafe chairs, bar stools, booths) • (td)x Professional kitchen equipment (the exact need for equipment such as ovens, cold/hot storage, sinks - is dependent on the scope/menu of the restaurant) 	

SUPPORT SPACES

KITCHENETTE	LOCKER SPACE	STORAGE SPACE	PRINT/COPY SPACE	ENTRANCE/LOBBY	RESTAURANT
<ul style="list-style-type: none"> 1x Large screen (Optional) 			<ul style="list-style-type: none"> 1x Multifunctional printer 1x Plotter (optional) 1x Shredder (optional) 	<ul style="list-style-type: none"> 1x Adjustable monitor arm (at reception desk) 1x Computer (at reception desk) 1x Computer monitor (at reception desk) 1x Digital concierge (optional) 1x Large screen (one targeted at guests who are waiting (e.g. showing news) and one targeted at staff (showing available workspaces on floor plan)) 	<ul style="list-style-type: none"> 1x Large screen (or more, dependent on the size of the space)

Adjacencies	Entrance/Lobby (≤ 10 m)	Open workstation (≤ 25 m)	Open workstation (≤ 50 m)	Large meeting room (≤ 25 m)	Kitchenette (≤ 25 m)	Entrance/Lobby (≤ 10 m)	Restaurant (≤ 25 m)
<ul style="list-style-type: none"> Booth (≤ 25 m) Huddle (≤ 25 m) Medium meeting room (≤ 25 m) Large meeting room (≤ 25 m) Open/semi-open workstation (≤ 50 m) Project room (≤ 50 m) Entrance/lobby (≤ 25 m) 	<ul style="list-style-type: none"> Entrance/lobby (≤ 10 m) 	<ul style="list-style-type: none"> Open workstation (≤ 25 m) 	<ul style="list-style-type: none"> Open workstation (≤ 50 m) 	<ul style="list-style-type: none"> Large meeting room (≤ 25 m) Kitchenette (≤ 25 m) Entrance/lobby (≤ 10 m) Restaurant (≤ 25 m) 	<ul style="list-style-type: none"> Large meeting room (≤ 25 m) Kitchenette (≤ 25 m) Entrance/lobby (≤ 10 m) Restaurant (≤ 25 m) 	<ul style="list-style-type: none"> Entrance/lobby (≤ 10 m) 	<ul style="list-style-type: none"> Entrance/lobby (≤ 25 m)

REQUIREMENT DEFINITIONS

Standard properties

Quantity	The number of spaces that are required in a particular part of the building/project
Usable floor area	The floor area needed/available for user activities, calculated as the gross floor area, minus the floor areas taken up by lobbies, enclosed machinery rooms on the roof, stairs and escalators, mechanical and electrical services, lifts, columns, ducts, and risers.
Capacity	The maximum number of people who can comfortably occupy a space. To be used for calculations concerning indoor climate (i.e. ventilation)
Ambiance	Keywords for the kind of atmosphere that has to be created in a space.
Activity zone	Placement on floor plan according to the kind of activity that is taking place.
Activities	The user activities or processes that have to be facilitated/accommodated in a space

Visual comfort

Illumination	Light level on work surface, as defined in EN 12464-1
Unified Glare Rating (UGR)	As defined in EN 12464-1
Colour rendering	As defined in EN 12464-1
Light colour temperature	As defined in EN 12464-1
Daylight factor	Defined as the ratio of the daylight level inside a space to the daylight level outside. Formula: $DF = (E_i / E_o) \times 100\%$
Solar shading	A form of solar control that protects users against overheating and glare on hot or sunny days. It can also provide privacy.
Outside view	To be understood as the view a user has from a sitting position. Users should be able to get a sense of the weather conditions outside. Ideally there should be a view of natural elements and/or traffic or other kinds of activity.

Acoustic comfort

Reverberation time (T30)	As defined in ISO 3382-2. To be measured in a furnished but unoccupied room.
Background noise (LA eq)	Background noise level including ambient noise. To be used to determine sound insulation of the facade/building envelope
Noise from MEP (LA eq)	As defined in ISO 16032
Sound insulation (R'w) towards circulation spaces	As defined in ISO 16283 1
Sound insulation (R'w) towards functional spaces	As defined in ISO 16283 1
Sound insulation (R'w) towards sanitary spaces	As defined in ISO 16283 1
Impact noise insulation (LnTA)	As defined in ISO 16283 2
Distraction distance (rD)	As defined in ISO 3382-3

Thermal comfort

Predicted Percentage Dissatisfied (PPD)	As defined in ISO 7730
Operative temperature winter min./max.	As defined in ISO 7730
Operative temperature summer min./max.	As defined in ISO 7730
Relative humidity	The water vapour density of air compared to the water vapour density for saturated air at the same temperature and pressure.
Operable windows	To be understood as a window with an operable part of at least 0.5 m ²

Air quality

CO ₂ level	Indicator of indoor air quality. If outside level ppm is unknown choose 400 ppm.
Ventilation rate average	As defined in EN 16798-3

Elements to be placed

Elements	Tangible construction parts of elements that need to be placed in a space. Can be furniture, building elements (e.g. partitions), mechanical elements (e.g. water tap) and/or electrical outlets (e.g. power or data outlet).
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Equipment to be placed

Equipment	Equipment needed by the users a space. Typically organized by the IT department of the organization and not within the scope of the design/construction project.
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Adjacencies

Distance	The walking distance to spaces that need to be adjacent/in close proximity to a space
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MORE INFORMATION

This publication is an introduction to activity-based working. There is obviously much more to learn about the topic. Below, you will find an overview of the most important books, websites, conferences and journals where you can find more inspiration and information.

WEBSITES:

Workplace insight <https://workplaceinsight.net/>

All things workplace. Excellent overview of news, opinions and research.

Workdesign Magazine - <https://workdesign.com/>

Tips and trends in workplace design

Office snapshots <https://officesnapshots.com/>

Large collection of photos of workplace projects, sorted by type.

Research Design Connections <https://researchdesignconnections.com/>
Summaries of scientific studies on the topic of design and behaviour.

JOURNALS/MAGAZINES:

Work&Place <https://workandplace.com/>
Magazine about workplace management. Attractive mix of opinion and research.

Journal of Corporate Real Estate <https://www.emeraldinsight.com/journal/jcre>

Academic journal about the user-side of real estate. Often features workplace research.

Journal of Facilities Management - <https://www.emeraldinsight.com/loi/jfm>
Similar to above.

Facilities <https://www.emeraldinsight.com/loi/f>

Also similar to above.

OnOffice <https://www.onofficemagazine.com>

Commercial magazine on workplace design targeted at architecture and design community.

Office et Culture <http://www.office-et-culture.fr/>

Excellent magazine on workplace design (only available in French).

CONFERENCES / EVENTS

The transdisciplinary workplace research (TWR) network <http://www.twrnetwork.org/>

Academic conference aimed at both scientists and practitioners.

Workplace Trends <https://workplacetrends.com/>

Conference on workplace trends. Presentations often research-based.

Worktech <http://www.unwired.eu.com/>
Conference on workspace design and workplace technologies.

World Workplace <https://worldworkplace.ifma.org/>

Big commercial event on workplaces and facility management, organized by IFMA.

Neocon <https://www.neocon.com>

Yearly office furniture event in Chicago where manufacturers showcase their new products and their take on the latest trends.

Orgatec <https://www.orgatec.com>

The European equivalent of Neocon. Biennial office furniture event for the workplace industry in Cologne, Germany

BOOKS:

WORKPLACE HISTORY/ CONTEXT

Saval, N. (2014). *Cubed: A secret history of the workplace*. Anchor Books. A well written, well researched, often funny, history of the office and office work.

Haigh, G. (2012). *The office: a hardworking history*. Melbourne University Publishing.

A comprehensive history of the office filled with references to popular culture.

Van Meel, J. (2015). *Workplaces today*. Centre for Facilities Management.

A kaleidoscopic, highly visual survey of the contemporary work environment

WORKPLACE DESIGN

Becker, F. D., & Steele, F. (1995).

Workplace by design: Mapping the high-performance workscape. Jossey-Bass. A classic, still relevant. One of the first to explain the concept of activity-based working.

Clements-Croome, D. (ed.). (2006). *Creating the productive workplace*. Taylor & Francis.

458 pages of research writing on how workplace design affects people's performance.

Gillen, N. (2019). *Future Office: Next-generation workplace design*. RIBA Publishing.

A comprehensive review of what the future of the office may look like.

Myerson, J., & Richard, J. A. (2016). *New demographics new workspace: Office design for the changing workforce*. Routledge.

Addresses the impact of changing demographics on workplace design

Usher, N. (2018). *The Elemental Workplace*. LID Publishing.

Explains the essential qualities that each workplace should have. Well written, free of buzzwords

Van Meel, J., Martens, Y., & van Ree, H. J. (2010). *Planning office spaces*. Laurence King.

Practical overview of different workspace types and their requirements.

CHANGE MANAGEMENT

Kotter, J. P. (2012). *Leading change*.

Harvard business press. Probably the most cited book on change management.

Harvard Business Review (2011). *HBR's 10 Must Reads on Change Management*. Harvard Business Press

An easy introduction to change management literature.

Hiatt, J. (2006). *ADKAR: a model for change in business, government, and our community*. Prosci.

Popular change management book. Much used in North America.

FACILITY / REAL ESTATE MANAGEMENT

Jensen, P. A., & van der Voordt, T.

(Eds.) (2016). *Facilities Management and Corporate Real Estate Management as Value Drivers*. Routledge.

Comprehensive academic work that investigates the added value of FM and CRE.

BRIEFING / PROGRAMMING

Van Meel, J. and K. B. Stordal (2018),

Briefing for Buildings. ICOP Books. Practical guide on how to develop and formulate requirements for projects.

RESEARCH METHODS

Oseland, N., & Hayden, S. (2007). *How well does your office work? BCO Guide to Post-Occupancy Evaluation*. British Council for Offices.

This publication explains how you can evaluate your workplace concept in a systematic way.

Augustin, S., & Coleman, C. (2012). *The designer's guide to doing research: Applying knowledge to inform design*. John Wiley & Sons.

A comprehensive handbook about research methods for practitioners.

INTERVIEWEES

The following people have been interviewed for this publication.

- **Andrew Lisson** (Workplace Planner at British Columbia Public Service Agency)
- **Benedikte Møller** (CFO at LAIKA)
- **Bram van Wijk** (Contract manager at the Dutch Tax Office)
- **Emiel van Nielen** (Manager IT Delivery Professional Services, Robeco)
- **Ferdinand van Dam** (Partner at OTH Architects)
- **France Vigneault** (Change Manager at Public Services and Procurement Canada)
- **Heikki Hovi** (Ministerial Adviser and Head of Unit at the Finnish Prime Minister's office)
- **Jeremy Myerson** (Director WORKTECH Academy)
- **John Worthington** (Co-founder DEGW, Collaborative urbanist)
- **Kari Klemm** (Head of general administration at the Finnish Ministry of Economic Affairs and Employment)
- **Kate Guthrie** (Smarter Working Programme Director at the Government Property Agency, UK)
- **Kim Pivett** (Head of Building Services, Ofgem)
- **Kjersti Størdal Bjørkeng** (Chief consultant at Gottlieb Paludan Architects)
- **Laurens van Gilst** (Program manager at Rabobank)
- **Liette Brisebois** (Administrative Assistant at Public Services and Procurement Canada)
- **Lene Becker** (Director and founder at/of LAIKA)
- **Luc Luijben** (Associate Manager Spatial Planning department at the City of Hardenberg)
- **Michael DeKelver** (Workplace Strategist at Public Services and Procurement Canada)
- **Michelle Schlippe-Steffensen** (Executive Assistant at the Danish Building and Property Agency)
- **Mikko Kangaspunta** (Financial director at the Finnish State Treasury)
- **Nick van der Kloor** (HR Site manager Danone Place, at Danone)
- **Nicola Gillen** (Head of Total Workplace EMEA at Cushman & Wakefield)
- **Nicola Gray** (Business partner for HR at Ofgem)
- **Niek Janssen** (Consultant acoustics, stage technology & building physics at Royal HaskoningDHV)
- **Pertti Siekkinen** (Change Management Specialist at Senate Properties Finland)
- **Primo Orpilla** (Principal Studio O+A)
- **Reeta Cagnani** (Workplace Design Specialist at Senate Properties Finland)
- **Robert Macdonald** (Director of Workplace Strategies and Planning at British Columbia Public Service Agency)
- **Russell Treloar** (Team Leader Workplace Strategies and Planning at British Columbia Public Service Agency)
- **S. Corbett** (Project Co-ordinator at Ofgem)
- **Shona Adam** (Workplace Change Adviser at the Scottish Futures Trust)
- **Siri Blakstad** (Business Development Director at SINTEF)
- **Sjoerd Hoedemaekers** (Purchasing specialist at Robeco)
- **Stephen Aird** (Senior Associate Director at the Scottish Futures Trust)
- **Tania Lorich** (Manager at the Danish Building and Property Agency)
- **Vivi Markkanen** (Assistant at the Finnish Ministry of Economic Affairs and Employment)
- **Warren Bentley** (Site and Business Continuity Manager at Ofgem)
- **Wim Pullen** (Director of the Center for People and Buildings)

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COLOPHON

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ABOUT THE SPONSORS

PuRE-net

PuRE-net (The Public Real Estate Network) is a European organization for national real estate agencies and ministries responsible for public real estate across Europe. The network offers executives and specialists the chance to network and exchange knowledge and experience in relation to the management of public real estate and construction. The purpose of the association is to provide a frame of reference for its members and to promote and develop the good and responsible administration and use of public real estate. PuRE-net aims to provide the European public real estate community with effective and continuous leadership in matters of common interest. PuRE-net encourages discussions regarding issues impacting public real estate management both within and outside the network.

More information:
<https://www.pure-net.org>



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