

## TOOLS FOR IMPROVEMENTS IN WORKPLACE MANAGEMENT

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### ABSTRACT

This paper presents 2 development processes within the Facility Management organization of a large energy company. The aim is to improve workplace management by applying standardized work processes and by evaluating usability of existing facilities, in order to use this knowledge in the execution of refurbishments and construction of new offices.

The energy company has been working to improve its workplaces and workplace management for many years. As a part of the development of standardized work-processes for activities within the FM function of the company, a standardized set of processes for Workplace Management has been developed, and is successively being implemented in the company. The newly developed workplace management processes are presented in the first part of this paper.

The participation in a research and development project, aiming at developing tools for evaluation of usability, is another ongoing improvement process in the company. A new methodology was developed; the USEtool, aiming at a method that should be easy to use, as well as address the most important aspects for the workplaces' usability. The USEtool is intended for use by Workplace Managers in cooperation with the users, for assessing effectiveness of workplaces. In the second part of this paper, we present a model for implementing knowledge from the usability evaluations into the standardized workplace management processes in the energy company. We will not present results from empirical tests, but present a model for feedback from the evaluation into workplace management in order to continue to fuel the improvement processes.

### Keywords

Workplace Management, Usability, FM Work Processes, Facilities Management.

# 1 INTRODUCTION

A building’s true purpose is to support and shelter its users while they are performing their activities and living their lives. Buildings are means to an end. A knowledge-intensive organisation needs somewhere for its employees to work, in order to perform its activities and fulfill its purpose. Workplaces for knowledge workers have traditionally been located in office buildings. During the last 20 years, there has been a change in how work in the office is carried out. Personal computers, wireless networks, cell phones and videoconferences are now part of most office workers’ daily life, and have become necessary tools. At the same time as technology has created new opportunities, new ways of working and new ideas concerning knowledge work and management in general, have emerged. The result is that the workplace’s physical appearance has changed, and that work no longer is restricted to one work-desk, one office building or even to one location. This focus on workplaces and office design has provided us with more knowledge of both possibilities and constraints of different office solutions and their impact on work environment and on performance, as well as on each individual employee in the organization. But for the majority of offices, we see that the knowledge and experience which has been developed, is not taken advantage of.

This paper is based on a development project in Statoil, a large energy company present in 40 countries, and with headquarters in Norway. Even though most of their office buildings are of a high standard, the company identified the need to develop better processes for workplace management in order to create workplaces that both support the employees in their work, contribute to cost efficiency, and contribute to the company’s image and brand. The aim of the project has been to develop and standardize work processes that ensure that all activities related to planning and management of workplaces are performed equally well across organizational and national borders, and that practice is based on the best possible knowledge of workplace management. The process of interpretation and clarification of roles and responsibilities, cooperation, and performance of activities, also contributes to quality assurance of practice.

In order to improve, there must be a systematic review of existing practice and products. Statoil has established a way of thinking about innovation and improvements in the entire company, based on the following model:

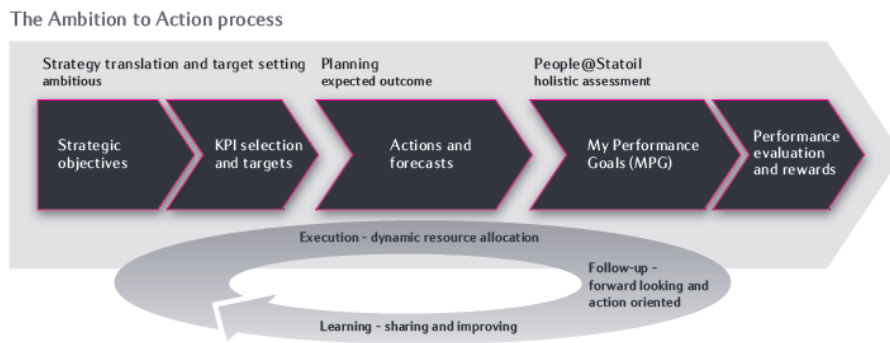


Figure 1. Statoil's Ambition to Action Process

When it comes to workplace management and workplace performance, it has been more difficult to employ this concept, due to the fact that there traditionally has been a lack of methods to assess performance of workplaces. Most offices are never really evaluated, and their effect on work and individuals are thus seldom a source of new insights into creation and improvement of workplaces. There has been a lack of knowledge, methods and tools to assess and evaluate performance related to the use of buildings.

### 1.1 Project description, objectives and research methods

Statoil is an international energy company with operations in 40 countries. The headquarters is in Norway with 30 000 employees worldwide, where 19 000 office workplaces are operated by the Facility Management department and its 240 employees.

Facility Management is organized as part of a larger business support unit (also containing support units like HR, IT, finance, project management, etc.). The daily FM operation is divided between one centralized, geographically independent operational department, a number of local delivery departments, and finally one department being responsible for developing work processes according to governing requirements.

To become predictable and competitive as a service supplier to the business units of the company with respect to content, quality, price and service level, the FM department realized the need for standardized work processes and defined requirements. Hence, 6 FM work processes were defined and modelled in 2006/2007, and as a pilot, 2 of the processes, *property* and *workplace*, were implemented the summer of 2007. The Workplace process was evaluated and revised during 2009. For the purpose of this paper, the leading advisor for workplace planning provided access to all information and procedures. The workplace processes are presented in the first part of this paper.

The second part describes the USEtool, a method for evaluation of usability, which is presented as a structured process, incorporating different methods and tools for assessment. The research and development project has been conducted during a two-year period from 2007 to 2009 on commission of 3 partners, all of them companies that develop and manage facilities on behalf of large user organizations. Statoil was one of these partners. The researchers and the project partners have been engaged in participatory workshops to develop the project's aims and approach to evaluation, the usability indicators, and an appropriate evaluation process, as well as to reflect on the results of various tests. Each project partner has provided a case that has been used for testing and developing the methods and tools. The cases were workplaces (offices), a high school and a university college. A handbook with active tools and guidelines was completed in January 2010, and will be printed after validation and a second set of tests during spring 2010.

The validation process is facilitated as a set of tests, where both practitioners and students apply the methodology and give feedback on both results and the process. The researchers will participate in one of the tests directly, while the others will be evaluated through interviews and written feedback forms. The results from the tests will be evaluated by a focus group, focusing on the validity and reliability of the results. The focus group will also suggest improvements to the methodology.

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The project was developed and commissioned as applied research. This positions the work as a “real world enquiry” with the limitations, challenges and focus on practice that this implies (Robson 2002).

The objective of the research and development projects at hand has been to improve workplace management by developing standardized workplace management processes and methods and tools to evaluate usability of workplaces. In this paper we take this one step further, by presenting a model for how to implement knowledge from the evaluations into the standardized processes. We will aim at answering the research question:

*How can knowledge from evaluations of usability be implemented into the standardized workplace management processes?*

## **2 THEORETICAL FRAMEWORK**

Space planning is an important part of facilities management. McGregor and Then (1991) describe space planning as the professional discipline that incorporates the planning and management of workspace features. Now, we often use the terms workplace management or space management for the activities in Facilities Management that are related to planning, provision, management and evaluation of workplaces. The main focus in space management is on how space may support the core businesses and their performance, and how the spatial resource can be used efficiently. Workplace management can be defined as (Nenonen et al 2009): “... *the management of the workplaces as quantitative recourses including processes in design, change and use of workplaces*”.

### **2.1 Defining workplace management processes**

Practice and knowledge of FM is still under development, and defining FM processes is one of the issues that are discussed in international standardisation. In FM literature, we can find different process models with a varying degree of detail (Atkin and Brooks 2009, Jensen 2009, Barret and Baldry 2009, Jensen 2008). A EuroFM publication (2008) provides an overview of the recent work aiming at defining FM processes, but except for Atkins and Bjørk’s article (2008), actual mapping of the FM processes, with stakeholders, responsibilities, and sequences of activities and decisions, is not provided.

Much of the literature on workplace management is concerned with changing user needs, workplace and office layouts and concepts, space standards, evaluation of effects of different workplace solutions and design examples (e. g. Duffy 1997, Laing et al 1998, Becker 2004, Vos et al 1997, Harrison et al 2004, Steiner 2005, Vischer 2005, Elsbach and Pratt 2007, Blakstad et al 2009). Many writers present examples, recommendations and normative “good advice” for workplace management and implementation of new workplace layouts (e.g. Becker 2004, Duffy 1997, van der Voordt and van Meel 2000, Vischer 2005, Stegmeier 2008), or use of balanced scorecard approaches, e.g. the development of strategy maps in order to link strategic issues in the core process with workplace management (Kampschroer and Heerwagen 2005, Rothe et al 2009). Harrison (2005) describes the process, goals, partners, tools and methods as well as outputs in a well-defined process description of creation of the workplace, but the actual activities and decision points for workplace management are not mapped. The reviewed literature fails to pinpoint the main objective in our project: to construct detailed process maps

for Workplace management defining processes, defining stakeholders, activities and the sequence of activities and decisions.

In Statoil, there is a strong focus on standardization of processes, to strengthen and improve HSE in practice. The work processes are supposed to create a safe, stable and predicible service to the customer. Defining work processes is often associated with an engineering approach to management of change, much like Business Process engineering, BPR (e.g. Hammer and Champy 1993). Recent works on organizational change have criticized BPR for only focusing on procedural aspects of change, failing to address cultural, political and structural issues (e.g. Cao et al 2001). Defining processes is not enough for changing practice; a more holistic perspective must be applied.

## 2.2 Usability of buildings

Depending on how well our buildings support their users' activities; our physical surroundings contribute to efficiency, effectiveness and satisfaction in the user organizations. This is what we call the usability of buildings. Usability is defined as "*the extent to which a system can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use*" (ISO 9241-11). The concept of usability was first developed in the 1950s, for ICT and software development (Leaman 2000). Usability of buildings is a much younger subject, but during the last 10 years, much effort has been put into development of theory, methods and tools for evaluation of usability of buildings (e.g. CIB 2005, Jensø 2004, Hansen et al 2005, Hansen et al 2006, Alexander 2008, Fenker 2008, Blakstad et al 2008, Nenonen et al 2008).

In the USEtool-project we set out to operationalize usability, in order to make it possible to understand and evaluate for end users (Blakstad et al 2010). The operationalization is communicated by the use of questions: for what (which objectives, activities and work processes should be supported), for whom (different user groups, types of users and user levels, hierarchies in the user organization), where (related to space and place), and why (understand the complex relation between activities, different user groups and the physical surroundings).

Usability depends on context, and can only be evaluated in the actual situation of use of the building. It depends on users' values in culture, context, time, and situation. Alexander (2008) argues that usability only partly has to do with the properties of the building, but more on the process of design and use. Fenker (2008) argues that the usability is a process that only can be understood as a social construct. According to Blakstad et al (2008), usability must be evaluated using multiple methods and by involving users in participatory processes. The focus in the USEtool project has thus been to develop a structured process with multiple, qualitative and participatory methods.

In the Statoil case, we have focused mainly on how to implement the gained knowledge from usability evaluation. This is, however, part of a much larger discussion, namely how users and their experience may be involved in briefing and design of new workplaces (e.g. Blyth and Worthington 2001, Horgen et al 1999, Kernohan et al 1992). User participation is not only concerned with developing the future workplace, but also with strategic issues, setting goals and developing the user organisation in parallel with design and construction of space (Gjersvik and Blakstad 2004a and b). The communication between end users, managers in the user

organisation, FM and consultants developing briefs and designs, is as such crucial for improvements in workplace design. In USEtool, this is facilitated by bringing different actors together to discuss and learn from each other, always focusing on the strategic issues (organisational objectives).

### 3 FM PROCESSES FOR WORKPLACE MANAGEMENT

In Statoil, some parts of the company developed and described their work processes as early as in the 1990s and laid the basis for the Management System structure shown in figure 2. In 2006, it was decided to develop the processes for FM, as part of a major development project for the support functions and FM in general. The European FM standardization work provided valuable support in the beginning, and was used as a starting point for the mapping. One discipline advisor per profession led the modelling work, and the process was rooted by inviting relevant operating personnel to participate in workshops. This was democratic, but resource consuming. It was, however, necessary to ensure that everyone contributed with their “best practice”, as well as to mature the organisation into a common mindset and way of working. Theoretical and practical examples were used to test if the processes became understandable and representative for the preferred quality level, and globally adaptable.

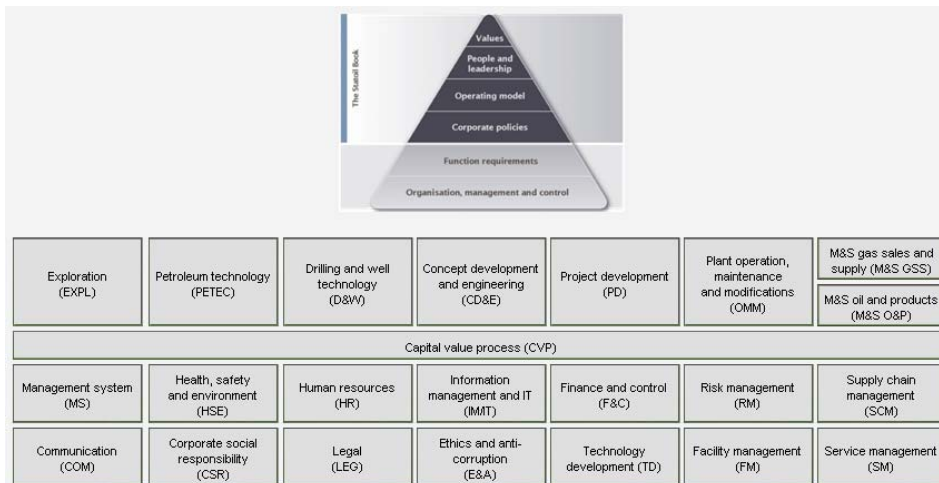


Figure 2: Statoil Management System Structure

One leading advisor is appointed for each of all processes, who is responsible for continuous process development and governing requirements to support the process.

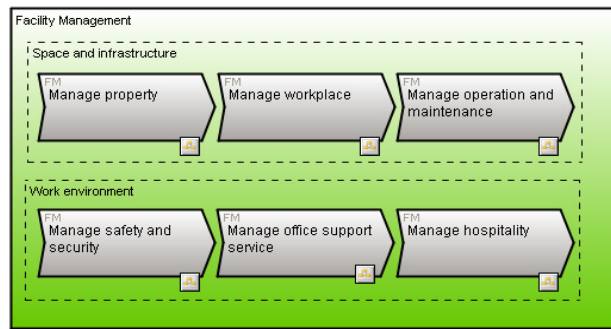


Figure 3: The 6 FM processes identified in 2006/2007

### 3.1. Roles in the FM processes

The defined roles are generic, and applicable for all FM processes. The main roles of the 2 first sub-processes of the Workplace process are:

*Task Planner* is responsible for planning, to ensure that relevant stakeholders are involved in the planning, clarify customers’ needs, and assure that developed plans are in accordance with work processes, governing documents, and agreed quality.

*Line manager - IT infrastructure* cooperate with FM Task Planner to coordinate the work.

*Line manager - customer* is the manager of the user organisation (FM’s customer). Line manager - customer is responsible for defining needs and to involve own personnel through a Human Factor Analysis (HF analysis). The last task may not be delegated to others.

*Subject matter consultant* is responsible for local advisory tasks, participates in networks and process development/implementation, ensures that issued advices are of high quality and according to communicated best practice, governing/governmental documents, standards and FM strategy.

*Service provider* is responsible for executing tasks in accordance to relevant work process and governing documents.

### 3.2 The Workplace processes

The workplace process consists of 6 sub-processes. One of the processes, *manage workplace portfolio*, runs in parallel to the others, who describe a linear process of finding, designing, constructing and equipping space.

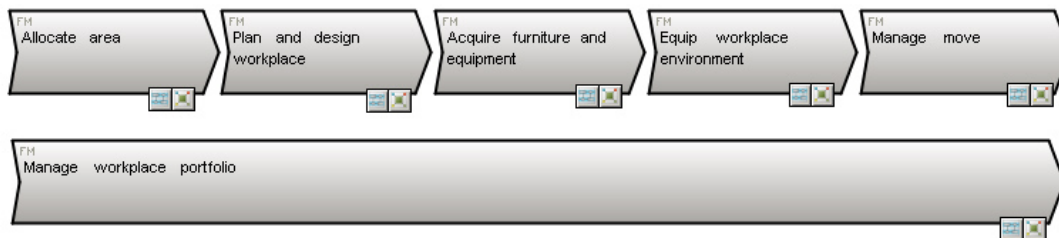


Figure 4: Workplace management, 6 work-processes

When it comes to implementing knowledge from usability evaluations, the 2 first processes are the most relevant; we will thus focus on these processes in this paper.

### 3.3 Workplace management process: Allocate area

The first sub-process starts with a formulation of a need from the customer. This may come directly from the customer, or may be an action point from the regularly held customer meetings. The documented need, demand or wish may be related to increased demands for space, surplus space, new functions, need for different workspace, e.g. This is often expressed as need for more specialized support functions like meeting rooms, project rooms, evaluation rooms, rooms for integrated operations, e.g.

The purpose of the *Allocate area* process is to determine what to offer the customer to meet their needs: relocate, redesign an office area, or execute “property portfolio change”? Included in this phase is also a trigger for the customer to start an HF analysis in their own department, to ensure that consequences for *people* are considered as well as work tasks. In the HF analysis, the necessary user processes and analyses are performed. This is the responsibility of the Line manager - customer.

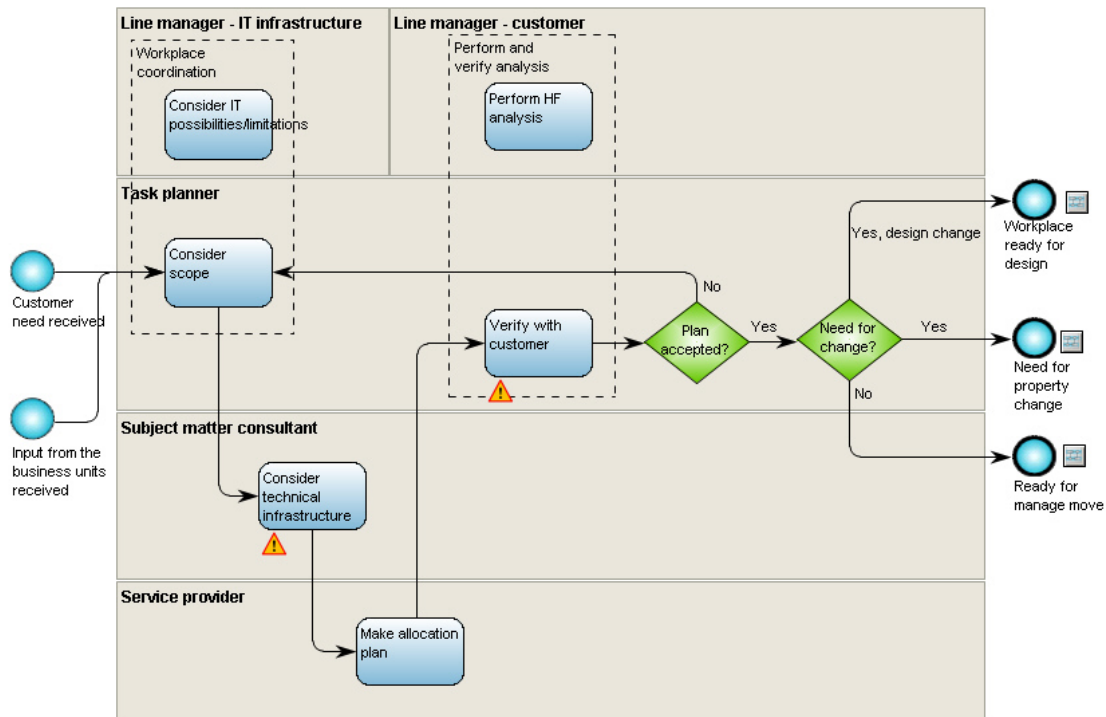


Figure 5: Workplace process: Allocate area

From a usability perspective, the activities inside the dotted cooperation boxes are the most relevant, particularly the activity *consider scope*. It is at this point that the task planner is



supposed to identify the customer’s needs. The demands should be checked against the possible supply of space available in the current real estate portfolio, and technical requirements should be compared with the properties of the technical infrastructure of the available options. If there is no suitable space available, a change to the property must be considered. This will be presented in an initial allocation plan. This will then be fed forward for verification with the customer. At the same time the Line manager - customer must ensure that an HF analysis is performed. It is very important for the FM task planner that the Line manager - customer has started the HF analysis, to make sure that not only the technical aspects, but also the social, organisational and functional aspects are considered.

### 3.4 Workplace management process: Plan and design workplace

This second sub-process is concerned with further and more detailed consideration of the customer’s needs. It is essential that the communication between Task planner and Line manager - customer is good. This will also provide a common foundation for the next activities, e.g. communication with the service provider while designing possible alternatives for office solutions. Task planner also has the responsibility of ensuring that all governing FM requirements and local authority requirements are followed.

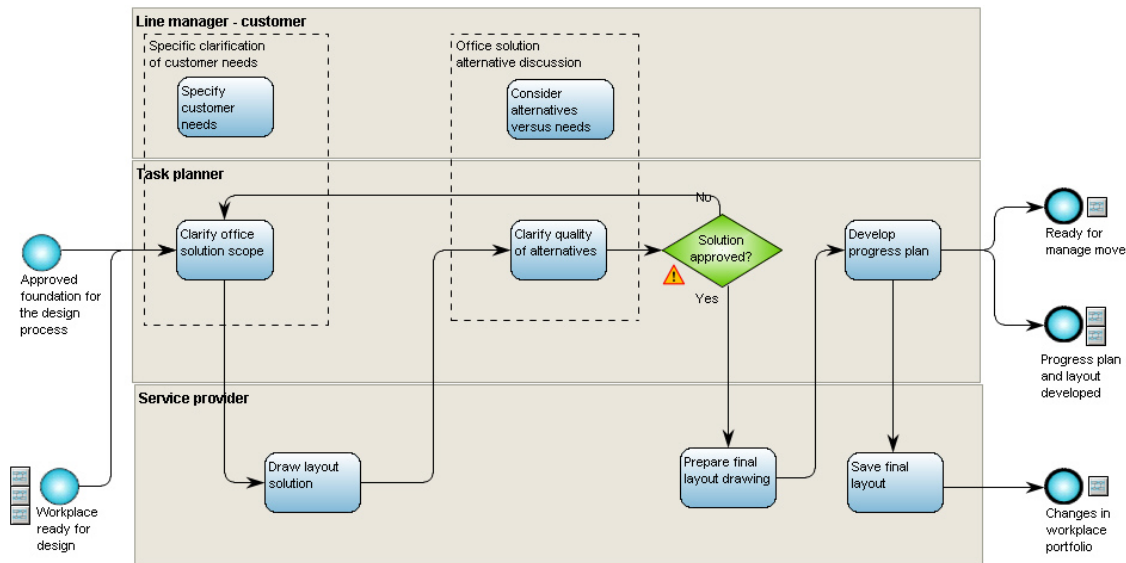


Figure 6: Workplace process: Plan and design workplace.

In *specific clarification of customer needs*, the Task planner requests the results of the HF analysis and detailed input regarding number of workplaces, special rooms, meeting rooms/workrooms, archive room, social/common area, focus rooms, etc. In the subsequent phase, the *office solution alternative discussion*, the Task planner must ensure that the customer understands the pros and cons of the different alternatives with respect to the customer’s work processes, and concludes on one alternative. The Task planner is involved in several projects,

and carries with her/him the knowledge of good practice with respect to workplace design in the company. The Line manager may not have been involved in similar projects. This means that the Task planner should be able to give advice and communicate best corporate practice.

The activities inside the dotted cooperation boxes *specific clarification of customer needs* and *office solution alternative discussion* require a common understanding of needs and sufficiently defined and detailed requirements. This may be stages in the process where knowledge from the USEtool is beneficial.

#### 4 USEtool – COLLECTING EXPERIENCES FROM USE

When developing the USEtool, we were faced with expectations from our business partners to develop a toolbox with methods and tools that they can use themselves, in order to assess the usability of their portfolio of buildings. The objective has been to develop a set of tools that are easy to use, but that yield both an overview and more in-depth knowledge, with an emphasis on aspects of usability related to effectiveness. This has governed the choice of methods and measurement parameters. This approach has also highlighted the need for a more operationalized perspective on usability, as the evaluations should be carried out by Facilities Managers and not by researchers. In the resulting toolbox called USEtool, we have included a combination of different methods needed for gathering information and evaluating usability.

The USEtool and the evaluation process is described in a handbook, which guides the evaluators through a series of stages (1-5), including an introductory identification stage (topic and scope of evaluation, investigation of organizational objectives and relevant user groups), a systematic general usability mapping (collection of project documentation and structured group interview) and a walkthrough with more in-depth qualitative studies of specific usability topics. The last stages of the process include comparing findings with objectives (in a workshop with end-users and managers), and developing recommendations for improvements in existing buildings or briefing of new facilities. The USEtool provides a rather open framework, inside which different topics and issues may be focused on, according to the need and possibilities in the studied situation. Within the framework, other methods may be added in the different phases, such as more quantitative surveys in stage 2 (mapping), observations or other qualitative methods instead of walkthroughs in stage 3, and different workshop techniques in stage 4. For a more extensive description of the methodology, see Blakstad et al 2010, and Hansen et al 2010)

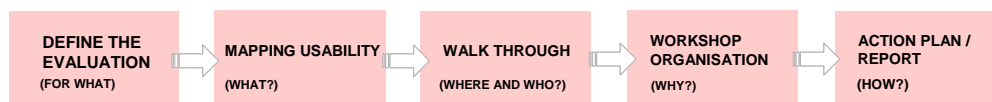


Figure 7: The evaluation process, USEtool

The handbook provides the evaluator with specific and practical guidelines and tools, as well as computerised tools made available as templates, and recommendations.

#### 5 IMPLEMENTING KNOWLEDGE FROM THE USABILITY EVALUATIONS IN THE WORKPLACE PROCESSES

Our aim has been to develop the methods for evaluation of usability as a means of improvement in workplace management. This means that the knowledge gained from the evaluation has to be fed forward to the standardized workplace processes.

For FM to perform the described sub-processes in a professional way towards their internal customers, it will sometimes be beneficial to do a more thorough investigation into the current customers' work processes, to understand their needs. Sufficient and good communication between customer and the FM representative is crucial at this stage. This lays the foundation for the customers' appreciation of that the work places delivered by FM suit their needs. But it can be challenging to be able to ask the customer the right questions, understand the answers, and to interpret this into possible alternative solutions. Usually, the FM representative is able to interpret the customer's needs sufficiently to develop appropriate solutions for the workplace layout. But in many cases it may be necessary to sort out the pieces of a bigger or more complex picture. In these cases, the USEtool may prove to be valuable. The evaluation may also develop more general knowledge for Task planners of the performance of different environments and office layouts. Applying the USEtool will, however, require time and resources. Therefore, it should be used only in specific projects and situations:

- Prior to large scale construction or renovation projects
- When new ways of working or new technology require development of new types of workplaces
- Innovative concepts that need evaluation for future development and adaptation
- Workplaces with undiagnosed problems

The Task Planner is responsible for applying the USEtool. As we have seen in the previous process description, the USEtool is needed in the beginning of the process, and should be used either before or during *allocate area*.

In the sub-process *allocate area* there are at least two ways to use input from the usability analysis:

- In *consider scope*: To understand where “the shoe pinches” – is it a spatial problem, is there a mismatch between use and space, what is the nature of the problem? At this stage this may result in a decision not to change space, but to implement other actions (HR, management, IT).
- In *perform and verify analysis*: To investigate if the proposed space is appropriate, and to choose between possible solutions and concepts that are considered within that space.

In the sub-process *plan and design workspace* it is again particularly in the communication between customer and task planner that USEtool may provide important input:

- In *specific clarification of customer needs*, USEtool may provide clarification of customer needs, and the properties of different office solutions and concepts to suit that demand.

- In *office solution alternative discussion*, knowledge from usability evaluations may aid clarifying quality of alternatives, and aid decision and selection of alternative solutions.

## 6 ACKNOWLEDGEMENT

The authors would like to thank all participants in the described research and development projects, especially everyone involved in development of the workplace processes in Statoil, as well as the partners in the USEtool-project: Statoil, Statsbygg, Sør-Trøndelag County and SINTEF Building and Infrastructure.

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