Aalto University
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User Centered Research for All: Workbooks for a Global Company-Wide User Study

Master's Thesis

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Aalto University School of Science Degree programme of Information Networks	ABSTRACT OF THE MASTER'S THESIS

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Abstract:

In order to apply user experience based strategy on employee level, KONE arranged a global single day event where employees were sent to customer buildings to do user centered research. The purpose was to increase the employees' understanding and gather data of user experience in KONE customer buildings, consisting of the use of elevators, escalators and automatic doors as well as the overall use experience in the building not directly related to current KONE products.

Workbooks were made to support the participants in doing the study. The workbooks were built on the theoretical foundation of definitions of user experience components, the methods to research them and the possibilities to represent those methods as tasks. The workbooks included tasks labeled DO, ASK and OBSERVE according to the user centered study methods applied in the different task types. The application of the study methods was limited by the scale of the event, as the tasks needed to be doable in various contexts. The employees reported the results in a web survey, which added a layer between the data and the observations.

The OBSERVE-task type was the most liked amongst the employees, and they also considered it to yield the best results. The ASK-tasks were the least liked, because the employees found interviewing people challenging. The quality of the data from DO-tasks divided opinions between employees with an R&D background and others.

The richness of the collected data was not comparable to studies performed by UX professionals, as the data included a lot of single-worded answers and answers that did not explain the findings thoroughly enough. However the event got positive feedback from the participants and the project managers, who both considered that the event substantially raised the employees' understanding of user experience. Thus most of the insight gathered was stored in the employees' knowledge. Because of the short duration and perceived effect of the event, the approach could be used as an effective way to apply a user experience based strategy in employee level by increasing the understanding of the concept inside the company.

Keywords: user experience, user centered research, user centered design, strategic usability

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Tiivistelmä:

Jalkauttaakseen käyttäjäkokemukseen perustuvaa strategiaa, KONE järjesti maailmanlaajuisen tapahtuman, jonka aikana työntekijöitä lähetettiin asiakkaiden rakennuksiin tekemään käyttäjäkeskeistä tutkimusta. Tarkoitus oli kasvattaa työntekijöiden ymmärrystä ja kerätä dataa hissien, liukuportaiden, automaattiovien ja koko rakennukseen käyttöön liittyvästä käyttäjäkokemuksesta KONEen asiakkaiden rakennuksissa.

Osallistujien tukemiseksi tehtiin työkirjat avustamaan tutkimuksen tekemisessä. Työkirjat perustuivat teoreettiselle pohjalle, joka koostui käyttäjäkokemuksen komponenttien määrittelyistä, niiden tutkimiseen soveltuvista metodeista ja mahdollisuuksista soveltaa metodeja tehtävämuodossa. Työkirjat sisälsivät tehtäviä jaoteltuna DO-, ASK ja OBSERVE-tyyppeihin riippuen niissä sovelletuista käyttäjäkeskeisen tuotekehityksen menetelmistä. Menetelmien soveltamista rajoitti tapahtuman koko, sillä tehtävien piti olla tehtävissä eri konteksteissa. Työntekijät raportoivat tulokset web-kyselyssä, joka lisäsi kerroksen tulosdatan ja havaintojen väliin.

OBSERVE-tehtävätyyppi oli pidetyin osallistujien keskuudessa ja sen katsottiin myös tuottaneen parhaita tuloksia. ASK-tehtävätyyppi oli vähiten pidetty, sillä työntekijät pitivät ihmisten haastattelua haastavana. DO-tehtävien tuottaman datan laatu jakoi mielipiteitä R&D-taustaisten työntekijöiden ja muiden kesken.

Kerätyn datan laatu ei ollut verrattavissa käytettävyysammattilaisten tekemien tutkimusten tuloksiin, koska data sisälsi monia yksisanaisia vastauksia ja vastauksia, joissa havaintoja ei oltu selitetty tarpeeksi perusteellisesti. Tapahtuma sai kuitenkin positiivista palautetta osallistujilta ja tapahtuman eri sijainneissa järjestäneiltä projektipäälliköiltä, joiden mielestä tapahtuma merkittävästi lisäsi osallistujien ymmärrystä käyttäjäkokemuksesta. Siten suuri osa kerätystä ymmärryksestä tallentui osallistujien tiedoksi. Tapahtuman lyhyen keston ja havaitun vaikutuksen vuoksi, tapahtumaa voidaan käyttää tehokkaana tapana jalkauttaa käyttäjäkokemukseen perustuvaa strategiaa työntekijätasolla lisäten käsitteen ymmärrystä yrityksen sisällä.

Asiasanat: käyttäjäkokemus, käyttäjäkeskeinen tutkimus, käyttäjäkeskeinen tuotesuunnittelu, strateginen käytettävyys

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Espoo, 13.3.2011

Otto Miettinen

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Appendix 1: Requirements for People Flow Day study from product design teams

Appendix 2: An example workbook (Retail)

Terminology

context of use	The environment where a product is used, consisting of the physical and non-physical environments. Parts of the context of use could be, for example, time constraints on using a system or the physical context of a moving car.
contextual inquiry	Contextual inquiry is a user centered design method that combines some of the basic methods used. It is a part of the contextual design methodology, defined in more detail in Beyer & Holtzblatt (1998).
customer	A company that buys KONE products and services. In this thesis a customer also refers to a representative of the customer, who might have different roles in the customer company's organization, such as a facility manager, an architect or a building owner
customer building	A building where a customer of KONE is a stakeholder related to the planning, building or maintenance phase of the building life cycle.
end user	A person who uses or works in any customer building. For example a person living in a residential building, a shopper in a retail center, a patient in a hospital or a cleaner in a metro station. The person may or may not use KONE products during the use of the building.
participant	A KONE employee participating in People Flow Day. An end user for the workbooks created to support in conducting the study during the event.
People Flow	The compound user experience in a KONE customer building that consists of the experience of different end users using the building and possibly using different KONE products. Includes also the customer's view on the effects of user experience in the building. The concept is discussed in more detail in chapter 2.2.
People Flow Day	A global event organized to celebrate the 100-year anniversary of KONE and to apply the user experience based strategy in practice. The event the workbooks were used in.
site visit	Visiting a customer building during People Flow Day or a pilot event and conducting user centered research by doing the tasks in a workbook by a team of participants.
workbook	The outcome of this thesis. A supporting tool for the participants in People Flow Day that applied user centered research methods in form of tasks for the participants to do during the event. There were six different workbooks to be used in different building types.

1. Introduction and Objectives

1.1. Introduction

User centered design has an increasingly important role in the modern corporate world. Until a few years back, technological progress has guided the development of new products. Nowadays it is not anymore enough to come up with technological innovations, if the innovations do not meet the needs and values of customers and end users of the products. Delivering an end user experience that other companies in the same business can not create might turn out to be the critical key to gaining a competitive edge, as can be seen for example in development of the mobile device industry.

User centered design creates a need for understanding the end users of the products better. This can be achieved for example by conducting different user studies. However, user studies are often conducted by a handful of employees with some kind of background in ethnography and the results are communicated with varying effects inside the company in different product development projects. Applying a company-wide user-centered strategy is more challenging, as employees in varying roles should embrace the user-centered mindset. Many projects also have time-pressure of tight schedules, which reduces the time available for extensive user research (Millen, 2000).

KONE has also shifted its vision and strategy from a product-centered to a more user experience driven approach. To support the change, KONE had a need to gather data about end users, contexts of use and end user experience from different customer segments and market areas in a quick and effective way. As a way to conduct this kind of user research, which would also help in applying the strategy on employee level, KONE arranged a single-day event referred to as the People Flow Day. During the People Flow Day members of KONE personnel around the world with varying professional backgrounds were sent to customer buildings in order to better understand the contexts, end users and activities in different building types. Using an approach like this is relatively new and undocumented, and raises a series of questions to answer. For example: What kind of methods can be used? What are the limitations? Could there be additional benefits?

Literature on user-centered design emphasizes the need for user data for all of the stakeholders involved in the product design, as product design is rarely an issue of a single team in the organization (e.g. Hyysalo, 2003). Communicating the user data between stakeholder teams is an issue, and a significant part of the knowledge gathered in user studies is usually left in the head of the researcher (Beyer & Holtzblatt, 1998). Therefore it could be beneficial to include employees in gathering user data in order to learn from the experience as an alternative to communicating the results between different teams.

Personal characteristics and experience of the researcher play a major role in the conduct of a qualitative study. Literature on qualitative studies emphasizes the role of the researcher's prior experiences, beliefs, purposes, values, and subjective qualities that shape how he conceptualizes the study and engages with it. For the validity of the gathered data, an educated researcher strives to have an objective viewpoint or to acknowledge his own subjectivity. (Maxwell, 2002) Using employees without any background in ethnographic studies therefore has issues regarding the quality of the results. The participants should also be motivated to conduct the study that might be totally different than the tasks in their average working day. There is not much research or direct instructions available on what kind of results can be achieved using the approach like in People Flow Day or how the participants should be instructed and supported to conduct a high quality user research. This thesis aims at finding answers to these questions.

1.2. Objectives

The subject of this thesis is creating a set of field workbooks that supported KONE personnel in conducting a user study in KONE customer buildings by giving them instructions on what to observe and how. The idea was to apply known user centered research methods in creating workbooks that tell their users what to do and what to pay attention to during a site visit to a customer building. The purpose of the workbooks was to maximize the gained understanding of user experience in KONE customer buildings for their users and also record that information for later use.

The thesis follows a constructive research method (Järvinen & Järvinen, 2004), where the workbooks are designed based on existing knowledge on user centered research methods and then tested in different events in order to evaluate them and the possible applicability of the approach in other study scenarios.

The resulting product of the thesis is a set of workbooks to support employees without former experience in user centered research in conducting the study. Along with creating the workbooks, the objective was also to find answers to questions about the different challenges and possibilities related to the approach. The following objectives and research questions were set for the thesis:

- Creating a set of workbooks to support employees without former experience from the field in conducting a single day user study
- Answering the following questions during the process:
    - What kind of methods can be used in studying user experience in different buildings?
    - How could the methods be presented for people with no former experience on related studies?
    - What kind of data and insight can be achieved?

The literature review consists of defining user experience and the factors influencing it in KONE customer buildings in relation to existing concepts of usability and user experience, followed with a study of how to apply existing user centered research methods in this kind of approach. The literature review is closely tied with the empirical part of applying the methods in creating the workbooks for customer site visits and testing the workbooks in practice in pilot events and during the People Flow Day itself. The approach is evaluated based on feedback from the employees using the workbooks, the initial raw result data and observations made during the use of the workbooks.

This thesis concentrates on creating and evaluating the workbooks and gathering information. Further use and detailed analysis of the collected data is left out of the scope of this thesis, except for the initial evaluation of the results in order to evaluate the success of using the approach in gathering data.

The concept of People Flow is first defined in chapter 2 through the concept of user experience in order to create a basis for the study by defining in more detail what was to be studied during the day. Existing methodology to study user experience is presented in chapter 3 in order to apply the methods in studying People Flow. The process of designing the workbooks is explained briefly in chapter 4. The context of use of the workbooks, including high-level objectives for the event is presented in chapter 5, followed with the requirements for the workbooks derived from the context. In chapter 6 the created workbooks are presented along with detailed explanations of how the existing methodology was applied in the form of workbook tasks. In chapter 7 the workbooks and the approach in general are evaluated based on the experience and results from using them in practice. The conclusions and discussion in chapter 8 sum up the thesis by evaluating how the created workbooks fulfill their objectives and for what reasons, and by providing answers to the research questions.

2. People Flow - Compound User Experience in Buildings

During previous years, KONE has changed its slogan from quite product-centered "The heart of your building" to a more comprehensive "Dedicated to People Flow". At the same time the focus has shifted from technology to a more user-centered view, still not forgetting about the technology solutions that lie beneath. (KONE, 2010)

KONE's current vision and objective is to "deliver the best People Flow experience by developing and delivering solutions that enable people to move smoothly, safely, comfortably and without waiting in and in between buildings in an increasingly urbanizing environment". KONE's strategy also states that "KONE delivers a performance edge to its customers by creating the best user experience with innovative People Flow solutions". Simultaneously, "KONE's people leadership and processes enable operational excellence and cost competitiveness". (KONE, 2010)

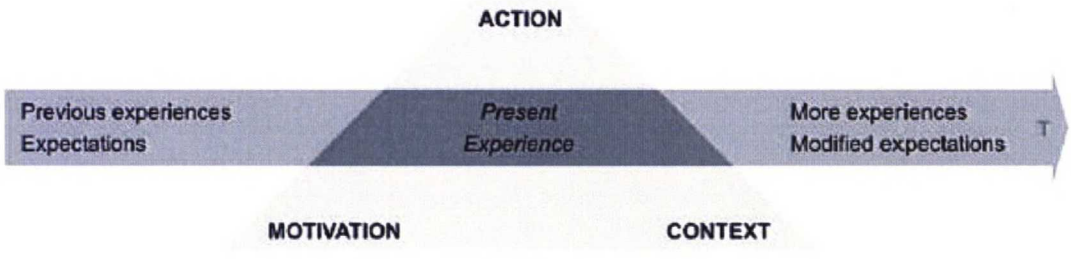
Thus user centered design has achieved a remarkable role in the company strategy. However, the terminology used in the internal communications encompasses complicated meanings that might need clarification from the employees' perspective. People Flow has a vague definition of "people moving smoothly, safely, comfortably and without waiting in and between buildings". In general the concept can be described as the user experience of moving in and between KONE customer buildings. Defining different factors that influence the user experience in general in KONE customer buildings is challenging, because there are many different kinds of customers, buildings, tasks, products and end users with different characteristics involved.

The main purpose of the event the workbooks created in this thesis is expected to support is to help to define these different factors both for the participating employees and in data level for further use in research and development. In order to grasp the concept of People Flow and to make it more concrete, the concept needed to be divided into different components and sub questions that could be studied by applying existing methodology. As the concept of People Flow is intuitively strongly linked with the concept of user experience, user experience is used as a basis for defining the elements that the People Flow consists of. There is also existing literature on the methods to study People Flow, which could be applied in creating the workbooks.

In this chapter different elements that have an influence on the user experience are first specified. The target of the study, People Flow, is then discussed in more detail in relation to the user experience. These definitions are discussed in the context of buildings and using elevators, escalators and automatic doors, with an objective to provide practical connections to the subjects with an eye to the practical application in the form of workbooks.

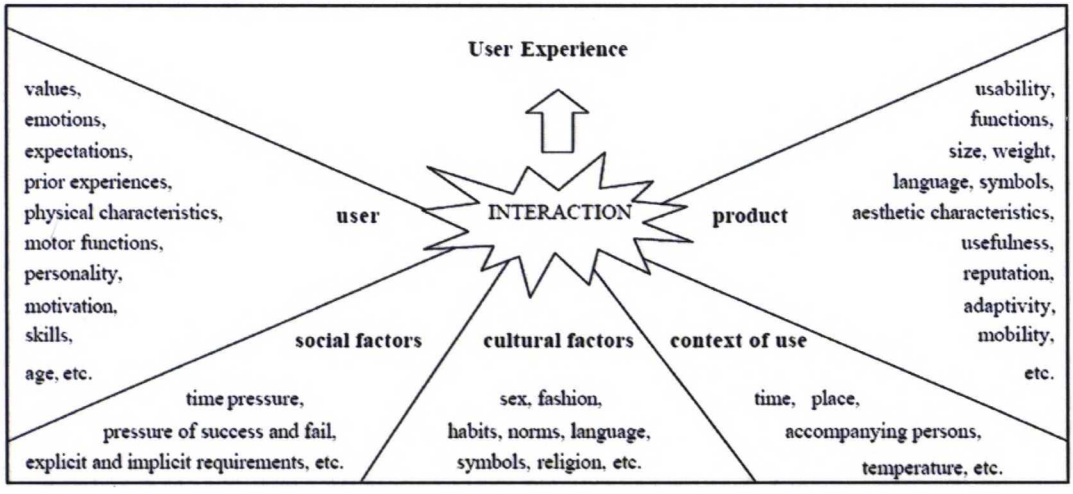
2.1. User Experience

There have been multiple definitions, frameworks and models that aim to define user experience on a detailed level. Virpi Roto (2006) analyzed different definitions by Mäkelä & Fulton-Suri (2001), Hiltunen et al (2002), Arhippainen & Tähti (2003) and Hassenzahl & Tractinsky (2006) in order to form an understanding of the building blocks of user experience on general level. These definitions discuss the concept user experience through quite general notions of the user's expectations and present experience, like Mäkelä & Fulton-Suri (in Roto, 2006). Mäkelä & Fulton-Suri's definition (Picture 1) discusses user experience as a product of the user's expectations, motivation, actions and context, which further influences the future experiences.



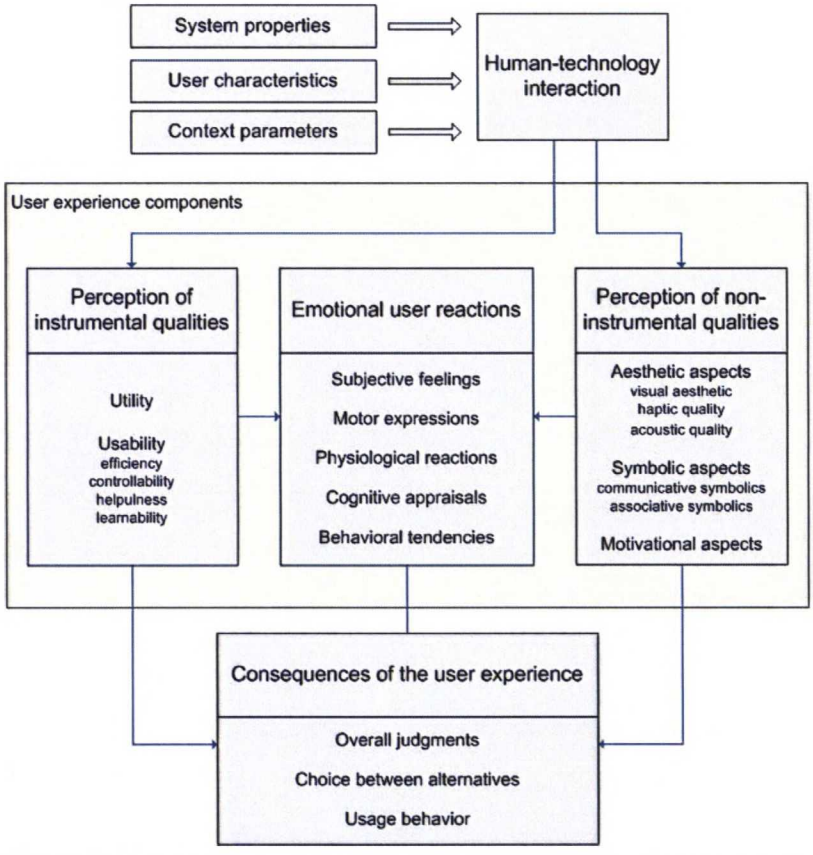
Picture 1: Mäkelä & Fulton-Suri's definition of User Experience (in Roto, 2006)

A more detailed, but unstructured definition is given by Arhippainen & Tähti (2003). Their framework (in picture 2) defines different factors that form the user experience as a result through interaction with the product. It lists multiple factors under headlines of user, social factors, cultural factors, context of use and product and does not present the factors in a particular order but rather lists the different factors involved.



Picture 2: User experience defined by Arhippainen & Tähti (2003)

More exact definitions, such as Roto's own work on web browsing on mobile phones specify more detailed building blocks of user experience in different domains. Roto also states that "understanding the user experience building blocks helps both in defining, designing, and evaluating user experience" (Roto, 2006). Mahlke (Mahlke, 2008) introduces a framework of user experience of interaction with technical systems. The framework incorporates existing research and concepts in order to integrate various components of user experience. Although the framework is for technical systems, it can also be applied in other domains. Mahlke addresses the difficulty of evaluating user experience by trying to find measurable components of user experience and describes different methods to use in measuring them. In this thesis these components are used as building blocks of user experience in defining what to study. The framework is presented in picture 3.



Picture 3: Mahlke's framework for user experience research with sub-models (Mahlke, 2008)

The advantage of Mahlke's framework is its comprehensiveness when thinking about just one end user at a time. The framework describes the user experience from the viewpoint of a single user and through a single user's perceptions of different qualities in the interaction. It combines multiple qualities of the studied system and covers different viewpoints for its use. In addition to specifying the influencing factors, the framework also divides the user experience into different, comprehensible components instead of stating that it is the consequence of the influencing factors. The framework includes the aspects of classic usability that are related to instrumental qualities of the system and also non-instrumental qualities of the system that are usually associated with the term user experience. Using the framework as a basis for things that need to be inspected when studying user experience is justified as it is possible to use the model to help in defining the different things that influence the user's subjective experiences in the use situation.

2.1.1. Influencing Factors

The framework begins with defining influencing factors that consist of system properties, user characteristics and context parameters. These are the contextual factors that influence the end user's experience during the interaction with the product.

Mahlke recognizes four different categories of system properties that influence the user experience in interaction with a product. The categories are functionality, presentation, dialogue and appearance. The functionality of the product defines what different functions the product has. Dialogue includes the whole internal logic of the interface and presentation how it the functions are presented to the end user. Additionally, when considering the user experience, appearance includes relevant elements not directly included in the functional presentation, such as colors and materials used. (Mahlke, 2008)

In KONE terms the functionality of different KONE equipment is usually to move people between different levels of the building, like in the case of elevators or escalators. The dialogue covers the hidden logic of the elevator moving in between different stories. Presentation includes all the visible and interactive elements for the end user, like elevator landing call buttons. Appearance can be affected by changes in elevator interior design or similar elements that do not directly affect the functional use of the device. The range of KONE products is not limited to only elevators and functionalities for different products such as automatic doors needed to be considered separately.

User characteristics consider all the attributes of the person that is using the product. This includes all the physical as well as psychological attributes of the user, such as mobility issues or sensitivity to aesthetics. Different people might rate an identical product in various ways according to their own needs and predispositions. (Mahlke, 2008)

There are various different end users in KONE customer buildings, and a user's personal attributes have a remarkable effect on how the user evaluates the experience using the product. The equipment must fit the needs and expectations of relevant end user groups. For example, a stereotypic businessperson would need elevators that take him fast from floor A to floor B, but an elderly person with mobility challenges would appreciate an elevator where he would not need to hurry in order to make it through the doors to the elevator car. In addition to different characteristics, there are also different needs for people in different roles in the buildings, for example people working in the building or people as customers in the building.

Context parameters include all the aspects of the situation which a product is used in, including the task or activity that is supported by the system in that situation (Mahlke, 2008). Those aspects include for example the degree of motivation to interact with the product or the social and physical context where the product is used.

KONE products are used in multiple different contexts. The most important contextual element defining the use of elevators and escalators is the building type. The type of building defines the building blocks of user experience such as the type of the end users, the tasks that the users do in the building and areas where activities in the building happen. Different building types also have different degrees of usage and the time of day. For example the physical and social contexts of use are remarkably different between a quiet residential building in midday and a busy subway station in morning in terms of how busy the end users are while moving, how public or private their equipment use is for other people or how much free space they have around them. Other contextual factors such as the cultural context, habits, regulations and law and climate have varying effect on equipment use in different countries.

2.1.2. User Experience Components

Human-technology interaction in Mahlke's model represents the actual situation where the end user interacts with the product. The user's perception of the interaction can be divided to instrumental and non-instrumental qualities regarding to which kind of attributes of the system evoke the response in the user.

The instrumental value of an interactive system is related to the tasks and goals the user wants to accomplish by using system. Concepts of usability and utility are two dimensions that define the perceived instrumental value. Utility answers the question if the functionality of the system can do what the user needs it to do. Usability answers the question if the users can easily use that functionality. (Mahlke, 2008)

Davis (1989) describes perceived usefulness as "... the degree to which an individual believes that using a particular system would enhance his or her job performance" (Mahlke, 2008). For utility for KONE end users the most important perception about utility would then be, if the users perceive that using KONE equipment would get them from place A to place B more fluently than using other ways of moving or not.

Based, amongst others, on the classic definitions of usability by Nielsen (1993) and empirical results (Kirakowski, 1996), Mahlke introduces the following dimensions of perceived usability (Mahlke, 2008):

- *efficiency* as a measure of the user's perception of temporal efficiency and mental workload caused by the interaction;
- *controllability* as the perceived responsiveness the product gives to the user's actions;
- *helpfulness* as the perceived quality of the messages the system provides;
- *learnability* as the perceived effort of learning, memorability, and quality of documentation

From KONE's perspective, based on these dimensions the usability would mean the end users perceiving the use of the equipment as an effortless and fast way to move in buildings, getting feedback about what the device is doing after pushing a button, getting comprehensible feedback messages and easy learning to use the equipment.

The non-instrumental qualities of an interactive system satisfy user needs that go beyond the functional value of the product, such as aesthetics or feeling of safety while using the system. The framework contains three different aspects of non-instrumental qualities that are aesthetics, symbolic aspects and motivational aspects. Mahlke's definition of non-instrumental qualities resembles the definition of hedonic aspects by Hassenzahl et al. (2000) as quality dimensions with no obvious relation to the task the user wants to accomplish with the system, such as originality, innovativeness or beauty. In addition to visual aesthetics the aesthetic aspects include different modalities in form of haptic and acoustic quality. Also other sensory attributes like taste or smell might have an effect on how the end user experiences the system, but are more rarely evaluated. (Mahlke, 2008)

Symbolic qualities are further divided into two dimensions: communicative and associative aspects. Communicative aspects are related to the messages the product communicates: A user might associate using the product with communicating his own personality to others or expression of group membership in a positive or negative way. Associative symbolic qualities are connected to the associations the product or a quality of the product evokes for the user, for example wood might evoke images of craftsmanship. The final part of non-instrumental qualities is motivational aspects. Motivational qualities can be defined as the perceived ability of a product to motivate the user in using it. (Mahlke, 2008)

Non-instrumental qualities from KONE's viewpoint include for example the interior design of the elevators, what kind of mental associations using escalators evoke in the users, how safe or comfortable the people feel using KONE equipment or what kind of group of people the user feels like belonging to when moving in the building. For KONE customers many of the non-instrumental qualities in the buildings they manage relate to how they want their buildings to be profiled by end users. For example, an owner of a luxury hotel would want the hotel interior to be associated with high class and elegance.

The user's perceptions of both instrumental and non-instrumental qualities form together the emotional user reaction. Mahlke proposes a multi-component approach that considers subjective feelings, physiological reactions, motor expressions, cognitive appraisals and behavioral tendencies as five aspects of emotions. The subjective feeling component monitors the internal feelings of the user. Physiological reactions represent physical changes in the user's brain and nervous system. Behavioral tendencies prepare reactions while motor expressions communicate behavioral tendencies. (Mahlke, 2008)

2.1.3. Consequences of User Experience

The user's perceptions of instrumental and non-instrumental qualities together with the emotional user reactions form the consequences of user experience. The consequences of user experience are the effect of good or bad user experience that shows in the user's opinions and behavior. By studying the consequences like choice between alternative products, conclusions about the overall user experience can be made. The consequences of user experience consist of overall judgments, choice between alternatives and usage behavior. (Mahlke, 2008)

Overall judgments could be given as a school grade for the whole system, which sums up the whole experience of using it. Overall judgments generalize the whole experience into one assessment, and one bad experience on some of the aspects might ruin the otherwise good overall judgment. Choice between alternatives shows if there are alternatives to choose from. For example, if the users' general experience is that using an elevator is slower compared to the use of stairs, the consequence would show as more people choosing the stairs if there were stairs next to the elevator. Usage behavior is derived from the technology acceptance model (TAM; Davis, 1989) and measures the frequency of use of the system. A well accepted product with high perception of utility and usability is probably used more often.

2.2. People Flow

The objective of the People Flow Day event was not to study user experience, but a wider concept of People Flow, even though there is a strong connection between the two concepts. The definition of KONE's People Flow concept is "people moving smoothly, safely, comfortably and without waiting in and between buildings". The concept includes multiple situations and contexts where the users would interact with technical systems, as well as the collective movement of crowds of people. Mahlke's framework helps in dividing the user experience of one end user into smaller factors that are easier to comprehend. Therefore the overall People Flow experience for a single person is a sum of different situations where Mahlke's framework could be applied in interaction with different equipment. For example, a person's visit to a retail building could consist of walking through an automatic door, going up with escalators and returning back down in an elevator. On the way the different factors in Mahlke's framework could change: when going up the person could move around easier, but on the way down it might be more crowded or he could be carrying something in his hands that changes the use situation and perceived experience. The overall People Flow in a building is a higher level concept that sums up all the experiences of different end users.

The context of the building also has an effect on a person's cumulative experience from using different KONE equipment in a building. The challenge is to influence the user experience of moving in the building with a limited number of system properties of KONE equipment to change. For example, a person's People Flow experience is not affected by KONE's elevator design at all, if there is not enough guidance in the building for him to find the elevators in the first place. Or if the elevator suits the needs of the person perfectly, and is accessible for him even though he is in a wheelchair, it does not help the overall experience if it takes him to a place from where he cannot continue further without external help. The building as the context of use also limits KONE's possibilities to affect the user experience of KONE products. For example the elevator lobby is an important factor for the user experience of the elevator, but the lobby outlook and design is usually controlled by the customer.

From the perspective of KONE customers the People Flow in the building needs to be smooth for all of the people that use the building. In Mahlke's framework the user experience consists of one end user's perceptions of the use of the system. In order to develop People Flow it is not enough only to measure and study the user's perception of his experience, but also to form a comprehensive image of the things that affect the experience for all the users. The experience is also a challenging subject to research and affect, especially the non-instrumental qualities of the experience. Researching concrete things with methodology like usability studies may be more easily applied in practice.

Broadening the scope of the user experience from the equipment-centered point of view to the whole building, and understanding the relationship between these two is an essential idea of People Flow. The decision between marketing overall People Flow consultancy for the customers and trying to fit KONE equipment to the People Flow in the customer's building is a bigger business issue to be thought of. However, user data from different levels ranging from a single user's point of view to the scope different building types is needed.

Hyysalo (2006) divides information about the users into three different categories shown in table 1, according to what it tells about the users themselves, the values of the users and the actions of the users. The categories are market data, customer data and end user data. Market data includes information about who might buy the products, where and how. It tells common characteristics and values of the customer base like "Typical users of the products are over 25 years old, athletic, play golf but do not compete in any sport." Customer data has information emerged from the real users' ways and desires, references to problem situations and good features and suggestions for improvement, for example "The device gets stuck after change of batteries". User data tells by whom, how, for what and why the product is used in the end. It has information on what the use of the product consists of, in what kinds of contexts it happens and what is most important about it for the end user. (Hyysalo, 2006)

Table 1: Different categories of information about the users (Hyysalo, 2006)

Category of information	**What does it tell about the users?**	**What does it tell about the values of users?**	**What does it tell about the actions of the users?**
Market data	Who might buy? Where and how?	Common styles and desires of the customers (25+ years old, athletic)	Common characteristics (plays golf, does not compete in any sport)
Customer data	Who has bought? Where? What has received positive and negative feedback?	What has emerged from the real users' styles and desires (athletes, middle-aged people)	References about problem situations and good attributes, proposals for improvement (Gets stuck after change of batteries)
User data	By who, how, when and why is the device used?	Where do the values of the users emerge from? What do their values relate to in the product as in its contexts of use?	What does the use consist of? What kinds of contexts does it happen in? What is most important for the users in it?

From KONE's perspective, Mahlke's framework covers the user data category of the table for a single user type. KONE customers are interested in improving the People Flow in their buildings, which are usually in a specific building segment. The customers get feedback from different users in the building whose experience in moving in the building is a combination from different experiences of the use of multiple products. The customers also make purchase decisions based on their own conceptions of how their end users experience different buildings. In the situation they are similarly affected by some of the factors in the framework, like what kind of associations the products evoke compared to what kind of associations the customers would like them to evoke in the end users.

On the market level, the situation is different than presented in the table, as KONE's customers are not the end users of the products. For KONE, market data tells about trends that affect KONE customer base and the future challenges in planning fluent People Flow for different customers, in different building segments and for different populations of end users. People Flow on the strategic level therefore can be described as the cumulative user experience of different end users using multiple KONE products in the context of different buildings.

The concept of People Flow is quite broad and vague, and has been challenging for the employees to grasp. There are differences in what People Flow means for different departments in the company, which makes it difficult to communicate and share a common understanding of the concept. Different customers also have varying challenges and opportunities regarding People Flow. In order to apply the concept of People Flow in business with the customers, it is crucial to understand what the concept means for different customers and what KONE could do to improve the cooperation with the customer in order to improve the People Flow. The concept also needs to be effectively communicated to the customers in order to include the People Flow - approach in the cooperation with them. (Korkiakoski, interview, 28.8.2010) A more thorough review of how People Flow could be studied with existing methodology is given in the next chapter.

3. Methods to Study People Flow

Although the concept of People Flow is more abstract and attempts to cover a wider system than the user experience for a single end user, Mahlke's framework for user experience was utilizable in specifying the different factors that affect the People Flow and finding out the methods to use in studying it.

Mahlke's framework is built around an end user's perceptions about the instrumental and non-instrumental qualities of the system he uses. In his dissertation Mahlke presents methods for researching user experience through the end users' perceptions. Most of these methods are based on quantitative analysis of questionnaires that make use of different applications of Likert scales or semantic differential scales by querying the users about their perceptions of system qualities. Measuring and evaluating the user experience with these methods would however be a too narrow-sighted approach for the purposes of studying People Flow, as it would only measure the user experience for selected individuals. The concept of People Flow combines the user experience from the point of view of multiple different users, the smooth flow of multiple people at the same time and the customer's view on different needs of the building users.

In studying People Flow the objective was to gather information about different end users, contexts and usage scenarios where the user experience is formed, as well as the user experience itself. In order to fulfill the objective, it was required to find out what different kinds of combinations of influencing factors presented in Mahlke's framework there are in the customer buildings, and what their effect for the user experience is in different scenarios.

In order to form an understanding about People Flow and all the factors influencing it, a wider selection of user centered research methods needed to be utilized, including methods for user studies, usability testing and contextual inquiry. The framework was used as a list of factors on the user level that should be studied when studying People Flow. In this chapter different methods of user centered research that could be applied in researching the different parts in the framework are presented one part of the framework at a time.

3.1. Influencing Factors

The influencing factors get less attention in Mahlke's model than their significance in defining People Flow is. In order to gather data about what different kinds of contexts, users and equipment are involved in the end users' experiences in different buildings, researching the influencing factors thoroughly was amongst the most important objectives in studying People Flow.

There are many sources to gather data about the influencing factors from. Kuniavsky (2003) lists asking internally from staff that is in contact with end users, marketing research and talking to the users as examples of ways to get to know the users. Common methods to research user characteristics are questionnaires, observation and interviews. Experience prototyping helps in getting an overall idea of what kind of physical and psychological context the product is used. Different methods can be used that gather different type of data.

The context parameters can be examined by observing or asking the end users by interviewing, surveys or questionnaires. Asking about the physical context yields indirect information as the results are based on the end users' interpretations. The non-physical aspects of the context of use like user motivation or social pressures are difficult to find out by observation. In addition to asking the end users, experience prototyping is used to gain understanding also of the non-physical aspects of the use situation.

Observation is one of the most important and commonly used user study methods. As a user study method it refers to following the actions of people in their own surroundings. A simple observation gives an overall feeling about the users, their actions and contexts of use. The goal is to create a conception of what kind of system of people, actions and artifacts the product will be used in. Simple observation yields basic knowledge to compare the findings from using other methods with. The emphasis of the observation sets the boundaries to what type of data is collected. (Hyysalo, 2006)

Literature on observation divides it into different subcategories according to how the observation is done in practice and how much the researcher is involved in the situation (degree of participation). At the other end of the spectrum is "insider" or "participant observer" and "outsider" or "passive observer" at the other. The more participatory the observation is the more user study methods, most importantly interviewing, are used simultaneously with the observation. The richness of the results usually grows in relation to the level of participation. The combinations of methods have different names, like contextual inquiry, participant observation or full scale ethnographic research. (Hyysalo, 2006) The less participatory types of observations suit researching influencing factors, such as the visible physical attributes of the end users.

Passive observation usually means that the observer acts as "a fly on the wall". It is a suitable method to be used in offices, healthcare centers, buses, cafés or other similar open spaces to get an overall idea of activities that are going on around one or multiple observation posts (Hyysalo, 2006). It can be challenging to act as a truly passive observer, because it is often difficult for the observer to avoid being a part of activities that are happening around him (Sharp et al, 2007). Observations about the context by the researcher are direct if the researcher personally makes them

Long-term ethnographic studies are the most extreme form of participating in observation. There the observer acts as a full-time member of the group he is studying for a long period of time. Long-term ethnographic studies yield a rich presentation of the end users and their contexts, but their time requirement may be even years and they are thus not discussed further in this thesis.

An essential part of observation is documenting the observations. The observations should be written down as soon as possible, because details concerning places and actions start to be forgotten in a couple of days. Normally user study observations are recorded on the field using pen and paper, which are supported by using photos and voice recordings. (Hyysalo, 2006)

Observation is usually done in live situations monitoring the situation as it happens. This is called direct observation. Video of activities is often used in observation where the degree of participation is low, or when there is a need to make and verify detailed observations afterwards. An observation where the subject is monitored through some medium, for example first videotaping the actions and then observing the actions later by watching the videotape, is called indirect observation.

Understanding of the context of use is often difficult to put in words or measurements. Therefore a significant part of the offering of observation as a user data gathering method is inevitably left as underlying understanding of the observer, which helps in making choices in product design and formulation of specifications and models (Hyysalo, 2006).

Observation has limitations in finding out the feelings of the end users. The context parameters do not only include the physical context where the equipment is used, but also things like social context and psychological attributes like the users' motivation to use the product in the first place. These kinds of things are better researched with methods that involve asking from the users, like interviewing, questionnaires and surveys.

Unstructured interviews resemble conversations around a particular topic. Questions by the interviewer are open, with no expectation about the format or content of answers. Unstructured interviews generate rich, interrelated and complex data. The interviewed people may mention issues that the interviewer has not considered. Unstructured interviews are well suited to studies where the researcher does not know yet what one is looking for, since the interviewer can adjust the questions according to the situation and previous answers (Nielsen, 1993). One of the skills necessary for conducting an unstructured interview is getting the balance right between making sure that answers to relevant questions are obtained, while at the same time being prepared to follow new lines of enquiry that were not anticipated (Sharp et al, 2007). Due to the richness and lack of structure of the resulting data it is usually very time consuming to analyze. The characteristics of the interviewer also influence the interview results strongly in the less structured interviews, as the structure of the interview sets less limits for the interview situation (Eskola & Suoranta, 1998).

In structured interviews the interviewer has prepared with a list of predetermined questions to be asked in the interview. Structured interviews are used when the goals are clearly understood and specific questions can be identified. They are also a good method to use when information is wanted from a large number of people. The questions are typically short and clearly worded and require an answer from a predetermined set of alternatives. The same questions should be asked in the same order from each person interviewed in order to have comparable interview results. The structured interviews work best when the range of answers is known and where people tend to be in a rush. (Sharp et al, 2007)

Semi-structured interviews are an intermediate alternative between open and structured interviews that uses both closed and open ended questions. The interviewer has a basic script for guidance to ensure the same topics are covered with each interviewee. The interviewer starts with a predefined question, but might continue asking detailing questions until the person interviewed does not deliver any new relevant information. The interviewer should be careful asking the detailing questions in order not to suggest that a particular answer is expected, but to probe for additional information regarding the question. Like the structured interviews, semi-structured interviews are intended to be broadly replicable and the probing questions should aim to help the interview along without introducing bias. (Sharp et al, 2007)

Questionnaires and surveys are a common way to gather quantitative information about the physical attributes such as demographics about the user population. Most usually questionnaires are sent by mail as surveys to a large number of users, but posted questionnaires are not discussed further in this thesis, as they were not used as a method due to time limitations and their lack of including the researcher in the situation. (Nielsen, 1993)

Despite all the testing and acquiring user data, most of the final design solutions are made fully or partially based on the designers' own preconceptions and presumptions (Hyysalo, 2006). It is often too demanding on resources to conduct user research or testing on every detail. The risk included in using preconceptions is obviously that unproven preconceptions can be misleading and lead to failing design solutions. Preconceptions and presumptions are nonetheless a valuable asset if they are properly made use of through systematic analyzing, processing and presenting to others.

Hyysalo specifies different ways on how preconceptions and presumptions are built. The most reliable is personal experience on end users' environment, their work or leisure time. In the case of using personal experience the risk of misleading preconceptions is high though, as the designer might not be included in the most important user groups of the application domain and make decisions that only work for a minuscule part of the whole user population. Therefore it is important to analyze which kind of a relation the designer has with the user population: Is he an active or occasional user? Does he have strong or biased views about the activity in question? A slightly different approach is using oneself as a model on how the end users act, though the designer himself is not a user of the product. In this scenario the designer usually generalizes his own features to the whole end user population, which includes a similar risk of false generalizations. Other sources of preconceptions include common sense, stereotypes and current presumptions in the business of what is essential in the products. These are as well usable sources of data, but dangerous as they might also include misleading information. (Hyysalo, 2006)

Experience prototyping is a form of prototyping that enables the researcher to gain first-hand appreciation of existing or future conditions through active engagement with prototypes or existing products. Experience prototyping can be used in understanding existing experiences, exploring design ideas and in communicating design concepts. (Buchenau & Fulton-Suri, 2000) In this thesis the focus is in understanding existing experiences.

In understanding existing experiences experience prototyping can be applied to demonstrate context and to identify issues and design opportunities. The basic idea is to relive the end user's experience in using the product by acting out the usual tasks the users do, preferably in the context where the product will be used. The purpose is to get an overall picture of all the aspects, like time pressures, social circumstances or environmental conditions that influence the user experience in addition to the physical qualities of the product under evaluation. (Buchenau & Fulton-Suri, 2000) Experience associated with a certain product can be actively acquired by trying out a job, hobby or way of being and using the products that are readily available. Things that are difficult to try out can be simulated, for example visual impairments may be simulated with special simulation glasses. Even though the activity under research would be a daily-life activity such as shopping, the gathering of insight is made remarkably more effective when done more consciously than just based on an overall feeling of past experiences (Hyysalo, 2006). The risk is drawing hasty conclusions according to the findings, if the target group differs a lot from the one the researcher belongs to.

One of the basic tenets of experience prototyping is that experience is subjective by nature and the best way to understand the experiential qualities of an interaction is to experience it subjectively (Buchenau & Fulton-Suri, 2000). Most of the data gathered with this method is thus transferred to the knowledge and understanding of the researchers/designers using the method. The insight is transferred to the end product via the design choices they will do in the future and helps in thinking about holistic experiences rather than artifacts separated from their context of use. Using cross-functional teams in experience prototyping helps in developing a common vision through a shared experience providing a foundation for a common point of view. (Buchenau & Fulton-Suri, 2000)

3.2. Instrumental Qualities

Instrumental qualities consist of factors that relate to the instrumental use of the product, and include the systems utility and usability and the users' perceptions about them. The commonly used usability study methods are most relevant in studying this part of user experience.

Many aspects of usability can best be studied by simply asking the end users. Interviews and questionnaires study the users' subjective reactions to the usability and use experience, which are challenging to measure objectively though there are some physiological measures available. In that sense they are indirect methods from the usability perspective as the information is subjective feedback from the users, but direct methods to measure user satisfaction. (Nielsen, 1993)

In researching how the end users do different activities, interviewing has some limitations. People do not necessarily answer according to the truth to questions about how they do certain tasks in an interview or questionnaires. When asked to describe how they do a task, they might describe how the task should be done instead of how they do it in reality. (Nielsen, 1993) The users themselves do not know how to articulate what they do, especially if they are familiar with the tasks they perform. Interviewed users leave out activities they do not even notice doing. They emphasize activities they find difficult, boring or exciting and exclude ordinary activities. (Hackos & Redish, 1998)

Interviews of the end users are often supported by observation. More participatory methods of observation than used in researching influencing factors give direct information of how the tasks are conducted in reality by the users, not filtered through the users' possibly misleading perceptions on how they conduct the tasks. As a limitation, everything can't be directly observed. Observation often needs interviews, artifact analysis and prototype testing to support it. The results are also often hard to put into words or measurements. Dangers in using observation without support from other methods includes making too fast or wrong generalizations and paying too much attention only in own products or proving own hypotheses. (Hyysalo, 2006)

Contextual inquiry is a field data gathering technique that combines observing and interviewing. It studies a few carefully selected individuals in depth to arrive at a fuller understanding of work practice. A typical contextual inquiry lasts two to three hours. During that time a person doing the work that is subject for the research is observed and interviewed in the context of work. Contextual inquiry has four main principles that are context, partnership, interpretation and focus. (Beyer & Holtzblatt, 1998) Contextual inquiry is originally intended to be used in the context of work, where different people usually have some predefined and clearly outlined tasks and activities, to accurately describe the different activities, contexts and participants in different actions. The approach can nevertheless also be used in studying other task-oriented activities and the included methods and principles are applicable in using the methods on their own outside the context of contextual inquiry.

Contextual inquiry can be considered as a highly participative method of observation. Other less participative methods can also be used if close interaction with the end users is not possible. In shadowing, a person's actions are followed instead of staying in one place observing different activities. It is a more suitable method to get an idea of mobile tasks and series of activities as a whole. For ethical reasons and to be able to verify the observations later on, the target of the shadowing should always know about being followed. In a smaller scale short observation phases like shadowing are also done in passive observation. Then one person's actions are observed in the space in question from start to finish. (Hyysalo, 2006)

If the observer acts as a "participant observer", he is fully included in the group of people he is studying. Using this approach is challenging, as the researcher has to keep the roles of participant and observer separated. Being a part of the group might also be challenging, if the researcher does not have the same skills as the other group members, or if the group is not prepared for the participant to take part in their activities. (Sharp et al, 2007)

A basic idea closely related to the contextual inquiry is the master/apprentice model. In the master/apprentice model the researcher acts as the apprentice who the end user explains how the work is done while doing the work in practice. Beyer and Holtzblatt (1998) found that people with no special background in ethnography learn how to conduct effective interviews much more quickly by acting like an apprentice than by memorizing a list of effective interviewing techniques.

In contextual inquiry the principle of context tells to get as close as possible to the ideal situation of being physically present at the actual place where all the action researched happens (Beyer & Holtzblatt, 1998). If people are asked questions about their activities in the context of the actions, they tend to tell more accurately about the actions they do instead of summarizing their perceptions about the activity. One of the great benefits of interviewing people in their own context for the researcher is to be able to formulate new and adjust the existing interview questions to the situation at hand.

The focus of interviewing defines the point of view an interviewer takes while studying the end user actions. The interviewer needs to guide the end user into talking about the actions relevant to the design. Focus is a way of keeping the conversation on topics that are useful without taking the control entirely from the end user and gives the interviewer a framework for making sense of the actions. (Beyer & Holtzblatt, 1998)

The interview questions should be phrased in an open and neutral way and encourage long full-sentence answers instead of "yes" or "no". It is fruitful to ask about any exceptionally good or bad experiences in the use of the system to highlight the worst problems and best possibilities. Questionnaires can be seen as user interfaces themselves, and should be tested with end users before use to ensure that all the questions are interpreted correctly. (Nielsen, 1993)

In both questionnaires and interviews rating scales can be used to let the users rate how well they liked various aspects of the product or how useful they find different features. There are different existing rating scales or even ready questionnaires to choose from for various purposes, ranging from simple number scales to complex systems with instructions on how to analyze the result data. Interviews have the advantage of personal contact between the interviewer and the end users, but on the other hand using questionnaires is a less time-consuming method for the researcher to use.

When using Likert scales the user is posed a statement, with a number scale usually ranging from one to five. The answer in the number scale tells, if the user agrees with the statement or not, usually with number one standing for "strongly disagree" and number five for "strongly agree", with number three as a neutral option and two and four as less strict opinions. (Nielsen, 1993)

System Usability Scale (Brooke, 1996) and The Software Usability Measurement Inventory (SUMI) (Kirakowski, 1996) are complete questionnaires that aim to measure the end user's perception of instrumental qualities of the system. System Usability Scale includes ten basic questions rating different aspects of usability, like learnability, on a Likert scale. SUMI has 50 questions for the users to answer with "Agree", "Don't know" or "Disagree" to evaluate the quality of use of a software system. The advantage of using ready questionnaires is that the results are convenient to analyze, but they might have limitations on their applicability in different scenarios. These kind of structured questionnaires also only tell how good the system is in some aspect of usability without pinpointing the reasons behind the ratings to exact usability problems.

When using rating scales, a baseline score is needed for using the results, because people tend to give more positive ratings, especially if they are asked face to face and they know the interviewer is associated with the product they are giving ratings of. If more than one system is evaluated, rating scales make comparison between systems possible without the baseline score. (Nielsen, 1993)

The focus of observation can be vague or more defined depending on what the objectives are. Even if the focus is vague, the observation yields more detailed results if observing focuses on different small areas of interest at a time. (Hyysalo, 2006) During an observation the events can also be complex and rapidly changing. Structuring the observation by setting goals and using frameworks helps the observer in paying attention to the right things when observations should be recorded in a fast pace. In the most simple scenarios the framework can consist of simply the questions of who, where and what is happening. On the other hand, it is also important to be able to respond to changing circumstances while observing. There is a careful balance between being guided by goals and being open to modifying, shaping, or refocusing the study while learning about the situation. Being able to keep this balance is a skill that develops with experience (Sharp et al, 2007).

There are more detailed frameworks for observation available that pay more attention to the context of the activity. Colin Robson's framework of focus areas listed below is one example (Robson, 2002):

- Space: What is the physical space and how it is laid out?
- Actors: What are the names and relevant details of people involved?
- Activities: What are the actors doing and why?
- Objects: What physical objects are present, such as furniture?
- Acts: What are specific individual actions?
- Events: Is what you observe part of a special event?
- Time: What is the sequence of events?
- Goals: What are the actors trying to accomplish?
- Feelings: What is the mood of the group and of individuals?

Hackos and Redish (1998) recommend getting the users to think aloud and answer questions while doing the tasks under observation in order not to lose any information. Thinking aloud helps in getting at users' inferences, intuitions and mental models as well as their reasons for the specific steps they take and decisions they make while doing the task. If it is impossible to talk with the users while they do the tasks, Hackos and Redish recommend asking questions right after the tasks in order not to lose details and using video of the task as a supporting tool for the user to remember what he was doing.

The interpretation principle of contextual inquiry means that the data gathered by observation should not be only raw data. The data that really matters in design is the interpretations based on the starting point of good facts. When observing a person doing something in a certain way, the raw data would be the description of the way that he does the task. The important data would be the interpretation of why the person did it that certain way. These interpretations made by the observer should be ensured to be correct, and the only good way to do that is by sharing the interpretations with the person observed. Sharing the interpretations also guides the attention of the person to things that matter. (Beyer & Holtzblatt, 1998) The principle of partnership in contextual inquiry tells to take a step further from the master/apprentice relationship and make the researcher and the end user collaborators in understanding the end user actions, as traditional interviewing is too strongly guided by the interviewer. (Beyer & Holtzblatt, 1998)

3.3. Non-Instrumental Qualities

The evaluation of non-instrumental qualities of the system by observing the users is difficult if not impossible. The perceptions of the end users about the non-instrumental qualities can be queried by questionnaires and interviewing. The researcher may also evaluate his personal perceptions about the non-instrumental qualities.

The end users' ratings of the aesthetic aspects can be researched by asking them to rate different qualities of the system on rating scales like Likert scales or semantic differential scales. For example, a statement to rate the haptic quality of elevator buttons on a Likert scale could be "the buttons feel good to touch'. (Mahlke, 2006)

Semantic differential scales offer the user two opposite terms and ask the user to place the system on the most appropriate place on a rating scale in between the terms (Nielsen, 1993). Aesthetic qualities may be rated with semantic differential scales with opposite terms concerning different qualities of the use, for example: "The colors look" with a rating scale ranging from "ugly" to "beautiful".

More qualitative data about symbolic aspects and motivational aspects can be gathered by interviews. The questions should be open-ended as it is difficult to anticipate which kinds of motivational and symbolic associations the end users connect with the use of the products.

Like in researching instrumental qualities of the use of a system, interviewing might not give completely reliable results. When asked for an opinion about something, people might adjust their answers according to who is asking. The interviewer should stay neutral during the interview and not agree or disagree with user statements to ensure unbiased responses. (Nielsen, 1993) The interviewer should also be careful not to lead the interviewed end user into any answers. (Hyysalo, 2006)

3.4. Emotional User Reactions

Emotional user reactions in the framework are a product of the user's perceptions of instrumental and non-instrumental qualities. Incorporating different components of emotions guarantees a consideration of more subjective (subjective feelings, cognitive appraisals) and more objective measures (physiological reactions, motor expressions, behavioral tendencies) of emotions. (Mahlke, 2006)

Methods to study subjective feelings assume that the individual is the best source of information on the emotions they experience (Mahlke, 2006). Subjective feelings can be studied by using similar rating scales than with other aspects of user experience, but with more overall questions than when studying perceptions about non-instrumental qualities. For example, a question utilizing semantic differential scales could be "On my opinion the system feels" and the scale could range from "safe" to "unsafe". This rating would then combine the ratings descending from the other factors into one higher-level rating. Different ready questionnaires exist to assess emotional states.

For cognitive appraisals a quantitative approach is to use a questionnaire that evaluates the use of a product retrospectively. A qualitative approach is to ask users to think aloud while interacting with a technical system and describe every emotional reaction they feel during the interaction. (Mahlke, 2006)

Behavioral tendencies, physical reactions and motor expressions can be studied by measuring physical changes in the user while he is using the product, for example by monitoring the user's heart rate, electrodermal activity of skin, changes in pupils, facial expressions, or changes in muscular activity in body or skeletal muscles (EMG). For example Mandryk et al. (2006) studied the physical reactions of persons playing a video game. (Mahlke, 2006) In the context of People Flow Day these measures would have been challenging to apply in practice, and are thus not discussed further in this thesis.

3.5. Consequences of the User Experience

Consequences of the user experience consist of overall ratings, choice between alternatives and usage behavior. Overall ratings of using the system can be asked from the users in interviews and questionnaires with methods described earlier in this chapter, as well as the users' choices between alternatives and usage behavior. Actual usage behavior is complex to study, because only long-term studies can give insights regarding this consequence of user experience (Mahlke, 2006).

Choice between alternatives is possible to study by observing and measuring the use of alternative systems, for example by counting persons who use an elevator versus persons who use the stairs. Asking the observed persons for the reasons for choosing an alternative gives more in-depth information for the reasons behind their choice, which may pinpoint to experiences caused by some of the system properties.

3.6. Applying the Methods in Short Time

In the context of this thesis, applying the methods in short time is relevant, as the methods are applied during a single-day event. There is a lot of literature and articles about applying contextual inquiry methods with limited time and resources (e.g. Rosenbaum, 2000; Millen, 2000; Holtzblatt & al, 2005) for example by having a tighter, more constrained focus on key issues and informal debriefings after site visits instead of structured group data-analysis sessions, like Rosenbaum (2000) describes.

A collection of field methods intended to provide a reasonable understanding of users and their activities given significant time pressures and limited time in the field called rapid ethnography has many characteristics in common with the site visits of the People Flow Day. The core elements of rapid ethnography include limiting or constraining the research focus and scope, using key informants, capturing rich field data by using multiple observers and interactive observation techniques, and collaborative qualitative data analysis. (Millen, 2000)

In rapid ethnography, limiting or constraining the research focus and scope from traditional, time consuming and wide-scoped ethnographic research, where almost anything observed in the field is considered to be potentially valuable, is the first step in applying ethnographic methods more rapidly. Reasons for narrowing the scope in applied ethnographic work include reducing time and energy invested in capturing the data, but also in mining valuable pieces of information in the result data as the amount and complexity of the data is reduced. (Millen, 2000)

In rapid ethnography limiting the focus is also applied in deciding who is included and excluded in the research sample. Millen introduces several sampling strategies to choose targets that help the researcher identify interesting patterns or exceptional behavior in a reasonably efficient manner. The first strategy is to identify one or more informants (users) to serve as a research "field guide". A field guide is a person who has access to a broad range of people and activities and should be able to discuss in advance where interesting behaviors are most likely to be found. Using these guides should help to reduce observation time by helping the researchers know where, and when to look. (Millen, 2000) This is similar to using market data to get an overall conception of the users before planning a user study to collect detailed user data in Hyysalo's classifications of different data about the users.

Another strategy Millen suggests is including corporate informants. Corporate informants are employees of the researchers' own organization. Field staff such as sales or service representatives often has a field of experience and insight about what in reality happens in the field and what really matters to the consumers. (Millen, 2000) Using key informants before doing observations is also suggested by Wood (1996) in order to understand the context of the activities before observing.

To make most of the field time, it is feasible to send multiple researchers to the field at the same time. Although having many people making observations might be disruptive, there are also advantages in having multiple researchers around. Multiple researchers may for example divide tasks and simultaneously observe different activities. Multiple views of same events can be turned into richer representation and understanding of the situation. To make use of the limited time in rapid ethnography, Millen suggests selecting the time of the study to be chosen intentionally to be such that there is a lot of activity to observe at the moment. As a final way to maximize the learning from a field experience, Millen mentions using participant observation in order to enrich the understanding of the observations with personal experience. (Millen, 2000)

3.7. Conclusion of Methods

As there are different aspects of user experience, there are also multiple different methods to research the user experience and the factors influencing it. The main methodology for each of the different factors is presented in table 2. Different methods can be applied on their own when studying the influencing factors or in order to rate the system compared to others. If detailed information of the usage situation or a richer representation of different end users is needed, combining multiple methods is recommended. The amount of participation rises when moving from the influencing factors in the framework to the factors involved during the use of the system. Overall perception of different end users in the building can be acquired by observing from distance. In order to get detailed data about system use, going close to the use situation is required. In order to know what is going on in the users minds before, during and after the interaction, interaction with the end users is required.

Observing yields objective data from physical things like the demographic structure of the end user population and physical actions while using a system. The observations are always subjective interpretations of the observer about the situation. Interviewing the end users or asking their opinions of the system using different rating scales and questionnaires provides more information on the end users' subjective feelings. Physical methods to measure emotional user responses exist, but are difficult to apply in the field. The objectiveness of the gathered data is however not the objective, but to gather a rich representation of the users and the use of the system.

Table 2: Methods to study different parts and consequences of user experience

User experience component	Measurable subcomponents	Methodology
Influencing factors	System properties	Interview, Observation, Document review, Experience prototyping
	User characteristics	Observation (overall impression), Interview & Questionnaires (exact details),
	Context parameters	Interview & Questionnaires (indirect observations) Observation (direct observations of physical context) Experience prototyping (direct observations)
Instrumental qualities	Utility	Interview & Questionnaires (indirect observations)
	Usability	Interview & Questionnaires (indirect observations) Observation Experience prototyping
Non-instrumental qualities	Aesthetic aspects	Interview & Questionnaires
	Symbolic aspects	Interview & Questionnaires
	Motivational aspects	Interview & Questionnaires
Emotional user reactions	Subjective feelings	Interview & Questionnaires
	Motor expressions	Psychophysical measurements
	Physiological reactions	
	Behavioral tendencies	
	Cognitive appraisals	Questionnaires, thinking aloud
Consequences of user experience	Overall judgments	Interview & Questionnaires
	Choice between alternatives	Observation, Interview & Questionnaires
	Usage behavior	Observation, Interview & Questionnaires

None of the basic methods can cover the whole field of user experience research by itself. The basic literature on qualitative research (like Eskola & Suoranta, 1998) recommends combining different methods in order to get a full picture of the researched activities and ensure validity of results by triangulation.

There is great alteration in the resulting data from each method depending on the situation where the method is applied. Some methods like questionnaires using rating scales gather quantitative data that is faster to utilize and analyze than qualitative answers from interviews with open ended questions. Experience prototyping and participatory types of observation give a richer presentation of the situation to the researcher, but most of the insight is left in the researcher's knowledge. The methods that emphasize building the researcher's own experience are hypothetically best in educational sense. For the purpose of gathering data, methods that gather well documented data about first hand observations are probably the most suitable.

Different methods have varying requirements for the skills of the researcher in order to yield useful and unbiased information. For example, closed questionnaires are an easy task to ask the users from, but asking additional questions in unstructured interviews without introducing a bias is challenging.

Different characteristics of the basic methods described in this chapter are summed up in table 3.

Table 3: Characteristics of basic methods

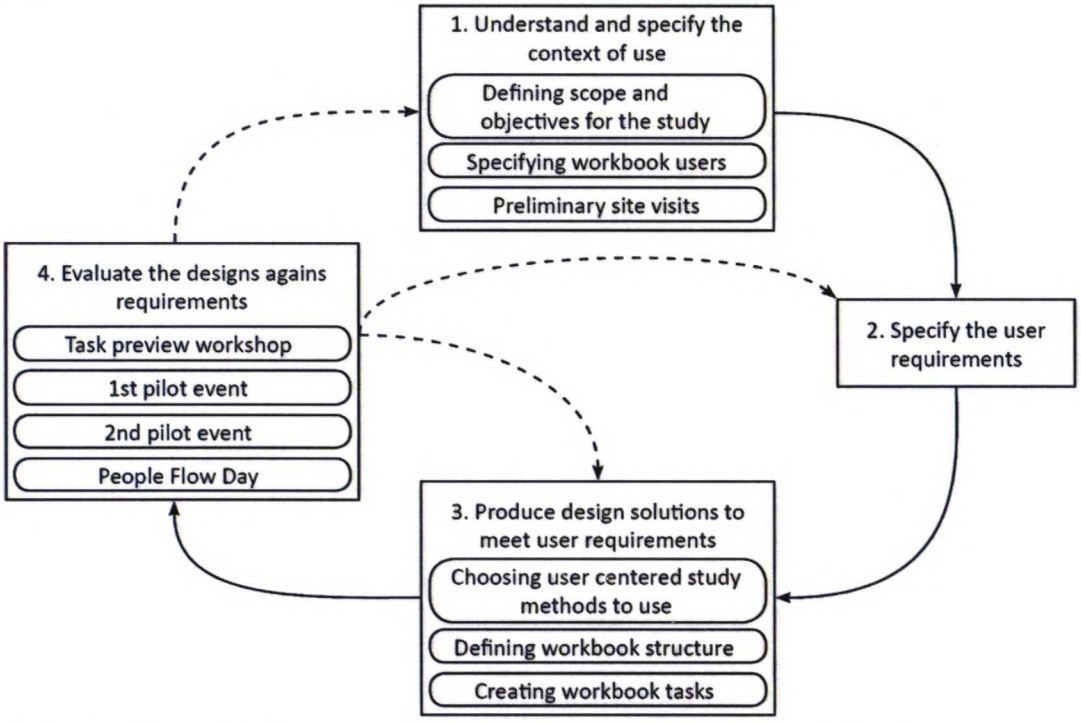
Method	**What part of user experience framework is examined?**	**Where is the emphasis of storing the data?**	**Skills needed from the researcher**
Observation	Influencing factors, Instrumental qualities (1st hand)	Notes, documents and researcher's own experience	Balancing between following goals and shaping the study for the situation; Keeping roles of participant/observer separated; Avoiding false generalizations
Interviews and questionnaires	User characteristics, Instrumental qualities (2nd hand), Emotional user response (1st hand), Consequences of user experience	Notes, documents and researcher's own experience	Avoiding influencing the answers, asking probing questions
Experience prototyping	Instrumental qualities, Non-instrumental qualities, Emotional user reactions	Researcher's own experience	Ability to empathize end user groups the researcher does not belong to

The basic methods of interviewing and observation and experience prototyping are combined in different methods like contextual inquiry which also include guidelines on how to interact with the end users and how to gather quality data despite of time and resource limitations. However, if physical measurements are set aside, the methods to study the different users and user experiences boil down to interviews, observation and experiencing by self, which are combined in different ways. The rationale for combining the methods is usually getting more reliable or richer data. Other reasons include for example time efficiency, when using multiple methods is expected to provide richer data in less time. Some of the combined methods were presented in this chapter, but they are not included in the table as they do not bring new requirements or characteristics to the table and are rather practical solutions on how to combine different basic methods.

In the context of studying People Flow during one day, none of the combined methods presented in this chapter however fit the situation out of the box. Thus the methods needed to be applied in a new way, combining suitable solutions from different methodologies. The applied combinations of methods that aim to reduce the time needed to gather more valuable user data in short time were helpful in planning the short study to be as effective both as a learning experience and a way to gather user data. The process of applying the study methods in the form of workbooks is presented in the next chapter.

4. The Process of Planning the Study and the Supporting Materials

The process of planning the study and creating the workbooks was a user-centered design process itself, following loosely the process specified in ISO 9241-210 (ISO, 2010). After the definition of the concept of People Flow to be studied, the process started with further definition of the objectives, constraints, users and the context of use of the workbook. The context of use and practical limitations caused by the People Flow Day approach were translated into user requirements for the workbooks. Then suitable methods to meet the requirements were chosen and finally applied in practice in workbook design. The workbooks produced based on the requirements were evaluated in two pilot events before the actual People Flow Day event. The process of designing the workbooks along with planning the study is illustrated in picture 4.



Picture 4: The process of planning the study and creating the supporting workbooks

4.1. Understanding and Specifying the Context of Use

The process of creating the workbooks and planning the study started with gathering requirements for the study and understanding what is included in the concept of People Flow. The requirements gathering included defining the scope and objectives for the study as well as the listing of practical requirements caused by the context of the People Flow Day event.

In order to create supporting materials for the employees attending the event and taking the part of researchers in the study, a detailed plan of what to study was created by defining the objectives and requirements for the user study. This included defining in greater detail which kind of elements the concept of People Flow included and how those could be studied.

Before defining the objectives and focus areas for the study based on the model of user experience and different components included, different stakeholders inside the company were asked for their input for the requirements they had regarding the study. Typically a product has multiple stakeholders in the company with different issues in mind that should be investigated in the research. These issues should be gathered by talking with each stakeholder and end users, and then prioritized as goals according to their importance and severity. After prioritization the goals should be written as research questions. (Kuniavsky, 2003) Now the workbooks and the study could be considered as a product.

In order to combine and prioritize all aspects influencing the user experience in KONE customer buildings, initial requirements for issues to be studied during People Flow Day were tracked down during a single day workshop. The workshop had attendees from different stakeholder teams with different focus areas that have an effect on the People Flow, such as concept development, market & customers, design and system integration teams. The purpose of involving teams with different focus areas was to gather and prioritize wishes from areas that influence each of components in the theoretical framework for the user experience, as studying all the influences in the whole framework would have been too complicated. For example, the members of the design team were more oriented to include wishes about the visual design or aesthetics that influence the non-instrumental aspects of the user experience, as members of other teams were more oriented to think about functional aspects like the logic behind elevator signalization. Resembling the building of an affinity diagram, the attendees were asked to write their expectations to Post-It notes and then put them up on a wall. Whenever someone put up a Post-It note, he was asked to also read it out loud for the other attendees to encourage them to think about other issues related to the one mentioned. This way the ideas from each attendee helped other attendees to come up with ideas that were related to the subject.

As a result from the requirement workshop there was a collection of initial requirements with varying level of detail, for data about different elements of user experience, targeting different levels of user data and different or multiple building segments. The objectives of the study needed to be further expanded and clarified by analyzing the collected expectations in relation to the elements that affect the user experience in general.

Broader themes based on the questions and themes from the requirement workshop were derived based on the initial requirements in a workshop attended by three usability specialists. In this workshop the purified requirements for the study conducted with the workbooks were formed and presented in form of research questions.

Understanding and specifying the context of use of the workbooks also included defining the characteristics and skills of the participating employees and defining in more detail the environment where the workbooks were used. It included visits to example sites from each of the building segments included in the scope of the day. Observations on the sites gave some insight of what kinds of activities were done in similar buildings and what kinds of situations the methods had to be applied in. For example, if the interviewed people were busy or willing to take time to answer questions. During these site visits also practical issues, such as access restrictions, on doing some of the tasks were identified. These site visits were done in Finland, which did not yield extensive information globally as there could be differences between countries on the use of different buildings. However these site visits in Finland were considered to yield enough insight in order to create the workbook tasks.

Gathering data about the end users was not the only objective of the workbooks. The workbooks functioned as a strong supporting element for the day, providing an agenda for the site visits and supporting a playful atmosphere for the participants. The context of the use of the workbooks, including overall objectives of the event, requirements set for the study and the definitions of users and environments of use of the workbooks is presented in the beginning part of chapter 5.

4.2. Specifying the User Requirements

After the context of use of the workbooks was defined, the requirements based on it were defined for the workbooks. User requirements for the workbooks, consisting of user requirements based on the user characteristics and the context of use, objectives of the study as well as organizational requirements for the day, are presented in the later part of chapter 5.

4.3. Producing Design Solutions to Meet User Requirements

After defining the scope and objectives for the study, the user centered research methods were chosen from the selection of existing methods. The choice of applied user study methods depended on the objectives of the study and practical issues related to the context of People Flow Day.

The first versions for the questions and tasks to be included in the workbooks were derived from the broader themes gathered during the definition of scope and objectives in multiple brainstorming sessions. In the sessions, every Post-It note with a requirement was accompanied with a Post-It note that included a question or a task, doing or answering which would intuitively give the participant the best impression of the underlying theme. At the same time the tasks and questions were chosen so that they allowed recording information into a database of results that could be used later. At this point the task ideas served mainly as instruments to illustrate the methods that could best be used in the task at hand, and did not include concrete or detailed questions for the participants to answer.

The study methods applied in the workbooks were presented in the beginning part of the thesis in chapter 3, which forms the literature study part of this thesis along with the definitions of user experience components and People Flow in chapter 2.

During the brainstorming for the initial tasks in the workbooks the structure of the workbooks begun to gradually form. In order to further develop the different tasks in the workbooks, the form of the tasks in the workbooks was clarified. The structure and appearance of the workbooks needed to support all of the workbook objectives. It became obvious, that the participants should conduct the study by doing short tasks that would include an initial instruction on how to proceed, followed by additional questions to be answered. The results were reported back by using a web survey system, where the data from the questions was input into a global database of results.

After the outline of the workbooks was decided on and the methods to be applied in them were chosen, the methods were applied as directions given to the participants by fitting them into the underlying structure of the workbooks. During the brainstorming of the initial questions and tasks, idea to label the tasks to three categories of DO, ASK and OBSERVE was introduced, according to the type of task at hand.

The detailed descriptions of the workbooks and different task types are presented in more detail in chapter 6, along with explanations of how the different user-centered research methods were applied in the tasks and how the People Flow Day approach supports using the methods in practice.

4.4. Evaluating the Designs Against Requirements

Developing the content of the workbooks was an iterative process. Evaluating the workbooks against requirements was done during the development of the first task versions and pilot events before the People Flow Day.

The stakeholders of the day had a chance to preview the tasks in a workshop before the first pilot event and during the development process after the pilot events. Some of the tasks had to be modified according to their wishes on how the participants would act in the customer sites and what should not be asked from the end users. The stakeholders also had good ideas for tasks and research themes after seeing some of the tasks during the process. These ideas complemented the initial requirements gathered before creating the first versions of the workbook tasks.

The first versions of the workbooks were tested in June in an R&D event. The three first building types (Residential, Retail and Public Transport) were included in the pilot event. The pilot event had the same agenda than the final day, complete with customer interviews and afternoon sharing sessions. The teams formed cases that consisted of a customer interview and a number of site visits from the same building segment. These cases were used in afternoon sharing sessions where the findings were shared in building type specific small groups.

After the first pilot event the workbooks were made for the three remaining building types (Medical, Hotel & Office). The tasks in the remaining workbooks were designed based on the feedback from the workbooks included in the first pilot event. Many of the tasks were reused from the previous workbooks with slight modifications to fit the different target buildings. These three new workbooks were tested in August in a smaller scale pilot event during a department day of a smaller R&D unit. This pilot event did not include any customer interviews and the main purpose was to test the remaining site visit workbooks in action.

After the second pilot changes were made to the workbooks and reporting according to the data quality gathered from the pilot events, feedback from the participants and observations made during the pilot events. In this phase the most radical changes to the workbooks were made, such as merging tasks from one focus area to single tasks in order to reduce overlapping questions and avoid repetition, but the overall structure was the same than before the first pilot.

During the global People Flow Day on October 27th over 800 employees around the world attended the event using the final versions of the workbooks. In addition to gathering feedback from the participants, Feedback was gathered after the event from the local project managers who organized the event in different location.

Combined feedback and excerpts from the reported results from the three events are presented in chapter 7, where the approach is evaluated based on the feedback from the participants, the project managers running the event in different locations and the initial findings from the collected data.

5. The Context of Use and Requirements for the Workbooks

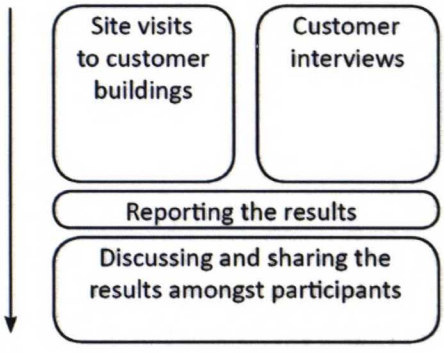
The context of use of the site visit workbooks consisted of the overall high-level objectives of the People Flow Day event, requirements for the study, the types of participants in the event using the workbooks and different practical issues in using such approach. The People Flow Day event as the overall context of use of the workbooks is first presented in the beginning of this chapter.

The overall high-level objectives of the event affected the requirements for the study, which further affected the requirements for the created workbooks. The more detailed context of use of the workbooks was defined according to these factors. After introducing the People Flow Day in general, the more detailed building blocks of the context of use of the workbooks are presented. User requirements for the workbooks, which are presented in the end of the chapter, were derived from these contextual factors.

5.1. People Flow Day

To address the issues emerging from the new People Flow -strategy in an innovative way, an event called People Flow Day was organized on the 100-year anniversary day of the company. The objectives of the event included educating and engaging employees on user centered thinking, gathering data for R&D purposes and marketing KONE's People Flow concept both internally and externally.

During the one day event, half of the participating employees were sent in teams to perform user centered research in customer buildings. The purpose of the site visits was for the participants to understand what the People Flow means for the end users and at the same time gather user data for later R&D purposes. Half of the participants interviewed customers during the site visits. The purpose of the customer interviews was to understand what the People Flow means from the customer point of view. In the end of the day the findings from different interviews and site visits were shared amongst the participants. A visualization of the day structure is presented in picture 5, and the different building types included in the study are listed in table 4. The workbooks created in this thesis were used during the site visits.



Picture 5: The overall structure of the People Flow Day event

Table 4: The different building types included in People Flow Day

Building type	What does it mean in detail?
Residential	Houses where people live
Retail	Retail centers such as shopping malls and large department stores
Public Transport	Public transport terminals. Only metro stations were included in the study, leaving out bus stations and airports.
Hotel	Multi-story hotels
Hospital	Hospitals
Office	Single- and multi-tenant office buildings.

5.2. People Flow Day Objectives

The People Flow Day had multiple high-level objectives. This thesis is focused on gathering segment and end user information with the workbooks and training the participating employees on user-centered thinking. However all of the following objectives affect each other and the workbooks and are therefore explained in more detail.

5.2.1. Employee Education and Engagement

The most important objective of the People Flow Day was to apply KONE strategy in action. Visiting the sites in practice and observing how the equipment is used was expected to give the employees first-hand user data and understanding of what the "People Flow experience" in the company vision means. Interviewing the customers was expected to yield customer data about the People Flow in different buildings and building segments and also knowledge about how the customers see KONE as a company and a partner in cooperation. (Korkiakoski, interview, 28.8.2010)

The objective of sharing findings from customer interviews and site visits was to give a comprehensive impression of what the People Flow is, how it affects the customers and how it is related to KONE's business. Understanding the concept of People Flow and how it affects KONE's business on different levels helps KONE's vision come to life. Previous experience of using similar approaches had shown that the stories that emerge during the day would live on afterwards in the talk of the employees and affect future actions in the company. (Korkiakoski, interview, 28.8.2010)

As the hundred-year-anniversary one of the objectives for the day was also to be an inspiring and fun event for the participants. Thus doing the different tasks needed to be a fun and interesting time and not feel like working a normal day at the office or filling in a survey.

5.2.2. Communication and Branding

Another purpose of the People Flow Day was also to celebrate the 100-year anniversary of KONE in a visible way. The objective was to effectively communicate the company as a People Flow expert both internally and externally. The day offered a great opportunity to create and collect materials and content such as stories about equipment use from the sites by the employees to support marketing communications and PR later on. (Korkiakoski, interview, 28.8.2010)

5.2.3. Customer and Segment Insight

The last objective of the People Flow Day was to strengthen customer insight and collaboration both on the company and employee level. Understanding different customer and building segments is essential for the success of KONE. The combined findings from the customer interviews and site visits were expected to deepen understanding of different building types and end users and to reveal new segment based opportunities. Approaching customers like this was also expected to engage customers in a different way of working together with KONE to find the best solutions for their needs. (Korkiakoski, interview, 28.8.2010)

For research and development the People Flow Day was a significant opportunity for information gathering. The day offered a rare chance to utilize the workforce of hundreds of employees in gathering user and segment data from multiple sites around the world. One of the objectives of the study done during the People Flow Day was to gather information about the building and user segments to support existing knowledge and also to bring in new information. When properly organized and planned, in addition to employee education and engagement value the information gathered during the day could have value in product design as a large repository of data about end users in different segments, which could be utilized in multiple different purposes after the results are thoroughly analyzed. There are already ongoing projects about the building and end user segmentation, where different qualities of each building segment that affect the People Flow and KONE's business are investigated in detail.

5.3. The Scope and Objectives for the Study

In order to set objectives for the study that defined the use of the workbooks, it was important to define what type of and in which level of detail data about the users and the contexts of use was about to be collected. In this chapter internal requirements from R&D teams for the site visit study and the purified requirements based on them are introduced.

5.3.1. Requirements from R&D Teams

The initial requirements from the different research and development teams for the study were asked for three different target segments according to the building segments where the first field study pilot was to be conducted. The segments included in the first pilot were retail, public transport and residential segment. Expectations differed according to the segments, as different segments have different characteristics and interesting focus areas when considering from the user experience and KONE products in the building.

The scope and form of the expectations presented in the workshop varied from broad areas of interest to detailed product specific questions to be asked in the study. There were direct questions to be asked from the end users such as "How do you know where to go?" and also specific but broader interest areas like "Access needs in the building".

Many of the requirements focused on the influencing factors of user experience, namely the system properties, user characteristics and context parameters. Thus they aimed to gather data about the background to the use situation rather than the instrumental or non-instrumental aspects of the use situation

There were also requirements for emotional user reactions, such as subjective feelings about the use of KONE equipment and questions that mapped the behavioral tendencies of the users. For instrumental qualities the questions were mostly about the problem situations the users run into when using KONE equipment and the perceptions of utility. Consequences of the user experience were required as judgments about their experiences.

In addition to requirements about user data there were also requirements that targeted data that would fall under customer- or even market data in Hyysalo's definition (Hyysalo, 2006) of different types of data about the users. Some of the expectations were directly targeted to be asked from the customer. These kinds of expectations and objectives were separated from the others that targeted user data because it was expected that questions addressing these issues should be addressed in a different way than those targeting user data.

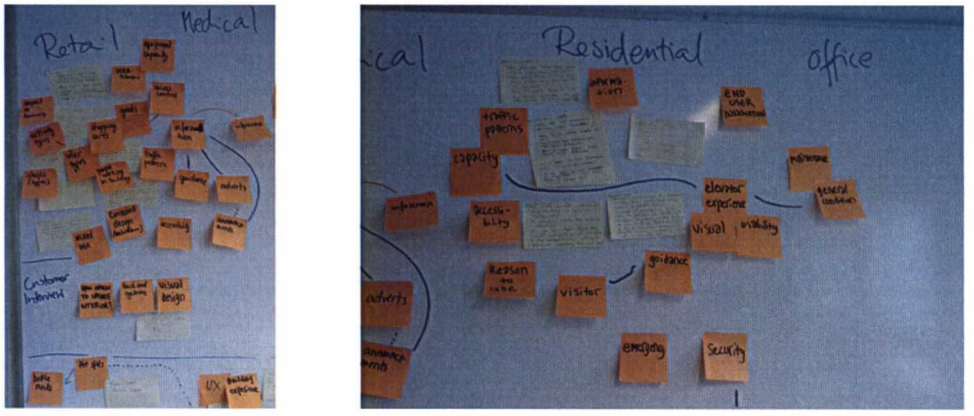
Some of the requirements were applicable to multiple building segments and some were related to activities that normally take place in a specific building type. However, the initial requirements gathered from the three segments were considered to be enough to generalize to requirements for other building segments, because the user activities and equipment-related issues combined from the first three building segments covered most of the issues in the remaining segments. Some of the questions and expectations from the workshop are listed in appendix 1.

In addition to the requirements from R&D teams, there were requirements from the market and customers -team, which was the team that participated in creating the workbooks and is responsible for market-, customer- and end user research. Overall defining data about end users and customers in different building segments was needed in order to help in market segmentation and detailed data about different end users in the buildings was requested in order to help in profiling different end users in each market segment.

5.3.2. Broadened Requirements for the Study

The initial requirements from R&D teams were not enough to form a range of questions and tasks to be applied in the workbooks. Their function was to verify the requirements that were originally thought for the study, and to make sure that all of the aspects of People Flow the different teams worked with were included in the study.

The broadened requirements were based on the requirements from the R&D workshop. They expanded the most detailed requirements to broader themes in order to come up with research questions that would address the underlying issues from different viewpoints in order to gather data from all the elements that affect the user experience in KONE customer buildings. Picture 6 is taken during the process of expanding the requirements.



Picture 6: Deriving general themes from the requirements mentioned by the stakeholders

The requirements presented in the first R&D workshop, themes derived from the workshop requirements and final research questions for the study are illustrated in table 5. Even though the requirements were generalized in the form of broad research questions, the detailed questions and issues in the original requirements helped later in forming some of the questions in the workbooks to address the themes in the research questions.

Table 5: Requirements presented by R&D teams for the study, themes derived from the requirements and research questions derived from the themes.

Requirements from the R&D workshop	Derived themes	Derived research questions for the study
"How many users are there? Is the device capacity enough for the number of users? How does the People Flow distribute during the day?"; "Equipment capacity" ...	Building segments and hot spots: traffic patterns, capacity, bottlenecks	• What kind of traffic patterns are there in the specific building segment? • What kind of bottlenecks there are for the People Flow? Why do these occur? • What are the physical and social contexts like for the activities taking place in different building segments?
"Are the people employees, service personnel, shoppers, delivery service, passers-by or something else? What kind of user groups are there?" "People working in building" "Why do people use elevators?"...	User types: visitor, people working in building	• What different user groups are there in the specific building segment? • Are there special needs for some of the end users? • What do the end users appreciate and expect in the specific building segment? • How is accessibility taken into account?
"Why do people use elevators?"; "What happens in the event of malfunction?"; "Is it easy to move around with shopping carts?"; "Where is access control needed and used? Does it affect the normal use of elevators?" ...	Activities and equipment use: activity types; access control; carried items; goods; usability; special situations; mixed use;	• In what kinds of situations people use KONE equipment? • What kind of usability problems there are in different use situations? How are they related to the context where the equipment is used? • How do special situations like emergencies or malfunctions affect the usage? • What other things in the buildings than KONE equipment have an effect on the overall People Flow experience for the end user? How are they connected to KONE equipment?
"Is there 'signage' in the building on how to find floors + services?"; "How do you know where to go?" ...	Information: guidance, adverts, announcements, infoscreen	• What kind of information is given to the users when they use the buildings? • Where and how is the information displayed? • What kind of information would the users need?
"Consistent design"; "Elevator experience"; "What is your favorite place in the building? Why?"; "What is the most disturbing place in the building? Why?"; "What is your biggest fear when using elevator?" ...	User experience: building experience; visual design; opinions	• How do the users see the current experience in using KONE products? • What is the effect of different elements to the user experience? • What kind of associations the users have related to the use of the buildings?

5.4. Users of the Workbooks

The most fundamental issue in applying the study methods in the workbooks during the day was the variety of different end users of the workbooks participating in the event during the day. The participants were deliberately chosen so that people from different parts of the organization with different backgrounds could attend the event.

In the pilot events the participants were from different and less diverse organizations than the participants in People Flow Day. The participant list of the first pilot event consisted of a mix of technology- and customer-oriented employees from two different locations in Finland and stakeholders from Europe, USA and Asia. The technology-oriented participants worked in different R&D duties on varying levels, such as project engineers, product specialists, R&D project managers and top-level managers. Their focus areas varied from new product development and testing to maintenance related issues.

The customer-oriented participants worked in different sales, marketing and communications duties on varying grades, such as account managers, area directors and high level communications personnel, with focus areas from direct interaction with the customers to background activities such as internal communications. These participants were more aware of the different customer needs and the market situation.

The participants in People Flow Day in different countries came from various organizations and had even more various professional backgrounds than in the pilot events. There were participants from 21 different countries including similar participants than in the pilot events, human resources personnel, people working with legal financial issues and customer service. The most remarkable difference compared to the pilot events in People Flow Day participants was that there were no R&D units involved and the participant population was significantly more culturally varied.

In order to understand the different types of participants, example profiles of workbook users were created to generalize the characteristics of different participants. Examples of different workbook user profiles are presented in table 6. The first two profiles were based on the pilot event participants, but they were also used in the planning of the final workbooks.

Table 6: Workbook user profiles

Participant profile	Understanding of technical issues	Understanding of user needs	Understanding of customer needs	Understanding of People Flow	Spoken languages
 Project Engineer	High	Low	Low	Technical perspective	Finnish, English
 Account manager	Low	Low	Medium	Customer perspective	Finnish, English
 Installation Engineer	High	Medium	Medium	User perspective	Hindi
 Sales Engineer	High	Medium	High	Customer/ Technical perspective	Spanish
 Financial supervisor	Low	Low	Medium	Financial perspective	English
 Human Resources Specialist	Low	Low	Low	Definition level	Italian

Because of the participants' differing professional backgrounds it could be expected that the participants had different conceptions of what People Flow means based on their own day-to-day working experience. The participants' background was also expected to show as different views on the observations they made during the site visits and different approaches e.g. to solving issues emerging from the findings.

The participants working in technological development tasks had a good understanding of technical issues, but lacked in knowledge of customer needs outside of the immediate requirements for technology. The participants working closely with the customers in sales and marketing were more aware of the customers' needs and wishes. Some of the participants were something in between, like installation engineers who had technology knowledge and also knew the context of customer buildings. Some of the participants did not have direct customer, technology or end user contacts at all, such as the people in human resources.

The participants in the pilot events had some experience on user research related issues because of their R&D background. The same did not apply for the participants in People Flow Day, as there were no members of R&D organizations participating in the actual event (or if there were their number was very small). It could not be expected that the participants were familiar with the basic principles of user studies. All of the participants could be considered end users of KONE products themselves, but probably did not have a detailed conception of different types of end users using the products and of different contexts and user needs related to them.

The participants attending the event were also from different continents and cultures. Many of the participants did not speak English as their native language and at least would prefer using some other language. The participants could consider different activities remarkable and interesting when making the observations.

5.4.1. Goals and Tasks of the Workbook Users

The primary goal for the participants was to learn as much as possible from the experience and to come up with new ideas related to improving People Flow. To support the learning the participants were also to share their findings with participants who visited a different building segments.

A secondary goal for the participants was to collect as high quality data as possible during a two-hour site visit by following the instructions in the workbook. Collecting data consisted of the task of making observations by following instructions in the workbooks and recording the observations using some medium.

Making observations meant applying the known user study methods of interviewing and observing the end users and participating in the activities the end users do in the buildings. The objective of the participants was to apply the methods in the right way, to make objective observations where appropriate, and clearly distinguish subjective perceptions.

In order to use the findings from the site visits later on, the participants needed to document their findings in some format. To support the findings the participants were to record their observations using some medium, such as text, photos or videos.

5.5. The Environment(s) of Using the Workbooks

The workbooks were used in six different building types: retail, residential, hotel, office, hospital and public transport buildings. The building types give rough estimations on the physical and social contexts of the use of the workbook. The workbooks were however used in different continents where the contexts of buildings for a specific purpose might have significant differences between each other, such as the amounts of people visiting the buildings. The preliminary site visits helped to form an idea about the different environments where the workbooks would be used.

The moment of time the two-hour site visits took place depended on the location of arranging the People Flow Day and the target building. The use of the target buildings could change during the day. For example, it could be very crowded or empty in the buildings during the site visits depending on the time of visit and the activities observed during that time could differ greatly from the activities in different times of day. Most of the site visits took place during the morning, because of the event schedule where the sharing sessions took place in the afternoon. The preliminary site visits showed that there could be only few people in some of the building types, such as residential buildings.

Many of the user centered research methods include moving around in the target buildings. Thus it was expected that the workbooks would be used and filled while moving around or standing. Recording the findings could include taking notes while walking or in a hurry. The workbooks were expected to be carried with the participants at all times.

Some of the target buildings like hospitals were sensitive environments to talk to people. For example, people do not usually like to be seen in hospital outfits or being asked questions about why they are there. Moving around in some of the target buildings was limited by access restrictions, such as hotel or office elevators and floor access opening only through access control. The preliminary site visits showed that for moving in the target buildings the participants would also need some access rights or keys in addition to the permissions to be in the site.

5.6. User Requirements for the Workbooks

After the context of use of the workbooks was defined, the requirements based on it were defined for the workbooks. The user requirements for the workbooks based on the objectives for the study and the context are presented in this chapter. The definition of user requirements in ISO-9241-210 includes requirements derived from user needs and the context of use and requirements derived from organizational requirements that directly affect the user. (ISO, 2010)

Some of the detailed user requirements are presented in table 7. The requirements presented in this chapter sum up these requirements in order to give a general idea of the requirements that needed to be taken into account when designing the workbooks. However, going through the detailed requirements and measuring the success of the workbooks based on them would be excessive in this thesis. The requirements are presented and used in general level.

Table 7: User requirements for the workbooks

Examples of detailed requirements	**High level requirement**	**Way to measure**
Easy reproduction of materials, Tasks not specific to People Flow Day, ...	Reusability	Net Promoter index by the participants for the day; Grades (and their diversity) from project managers for the material
Providing meaningful tasks for the participants, Restricting the time spent in target buildings, ...	Providing an agenda for the site visits	No mentions about the time being too long or short for the time visits; Low amount of partial results reported
Gathering observations of meaningful topics, Distinction between observations and interpretations, ...	Gathering relevant data	The participants' view on the data quality; First impression of the data
Approaching the topic from multiple viewpoints, Easy sharing of results, Applying multiple methods ...	Supporting employee education and engagement	The participants' view on their own learning about People Flow; The project managers' view on participant learning.
Discretion in interviewing people in sensitive contexts, Ability to do tasks without end users around, Tasks not depending on access in buildings, Strong paper and small size to improve portability, Easy-to-turn pages ...	Suitability to different contexts	Comparing results and feedback from each country
Tasks not depending on participants skills, Tasks suitable for persons from different cultures, ...	Suitability for different participants	Finding differences between different participants in task preference; Net Promoter index by the participants for the day
Easy to fill observations, Allowing recording findings outside the scope of pre-made questions, Easy to browse between tasks, ...	Supporting in recording observations	Quality of results compared to the perceived learning
High difference to office forms, Inspiring and playful tasks, Playful visual appearance, ...	Having fun while doing the study	Overall grades for People Flow Day and the materials

5.7. High-Level Requirements

Gathering data was not the only and not the most important objective of the People Flow Day. Below other high-level requirements for the workbooks are presented that affected the design of the workbooks.

5.7.1. Reusability

One of the carrying ideas of the People Flow Day was to create a package of supporting materials that could be copied to different locations and reused later on with minimal amount of additional work. This package could be applied by the different country units to be used during the day, or afterwards in different scenarios if the approach was found successful during the event. The objective was that organizing the event in the country units would be as straightforward as possible. Most of the arrangements for the event left for the country units were practical arrangements, like agreeing on suitable and interesting customer buildings for the site visits beforehand with the customers or booking premises for the workshops involved. To be easily taken into use in different locations, the workbooks needed to include universal activities that could be done regardless of the varying contexts.

5.7.2. Providing an Agenda for the Site Visits

Because the duration of the site visits where the workbooks were used was limited to two hours, the participants had to get as rich conception of the People Flow in the target site as possible during that limited time. The most basic requirement for the workbooks was to provide an agenda for the site visits. The workbooks needed to tell the participants in step-by-step detail what to do at the customer site instead of wondering around without a plan observing how people moved around in the building. In addition to controlling what the participants did on the sites, using one of the six different workbooks in each location gave some control of time used in the field by the participating teams.

5.7.3. Gathering Relevant Data

By providing detailed step-by-step instructions on what to do and what to pay attention to, another objective of the workbooks was to help the participants to conduct user research in a more organized and professional way and to make relevant observations about the People Flow. The tasks in the workbooks were required to be such that they direct the participants' attention to relevant pre-selected focus areas in the building segment. In order to yield rich presentations of People Flow in different buildings in the resulting data the workbooks needed to include activities that take diverse viewpoints to the subject and make use of different research methods.

5.7.4. Supporting the Employee Education and Engagement

In addition to supporting the practicalities of the event and functioning as a tool for collecting data, the workbooks were also required to support the employee education and engagement objective of the People Flow Day. The use of the workbooks had to be fun and differ from the normal tasks included in the participants' working days. The educational aspect of the event required the workbook activities to aim at giving a holistic conception of different end users, contexts and purposes of use in the target buildings also for the participants in addition to gathering data in the database of results. In order to achieve this, multiple different methods were to be used during the study.

5.8. Requirements for the Use of the Workbooks

In addition to the high-level requirements, more specific requirements for the use of the workbooks were defined. These requirements were more directly based on the workbook users and the context of use.

5.8.1. Suitability to Different Contexts

The activities included in the workbooks needed to take in account the different contexts the workbooks were used in. For example, they could not include activities which would have required the participants to put themselves in difficult situations, such as observing in places where it was not considered appropriate or asking questions from people who were busy or reluctant to answer questions. The activities could not include instructions to go to areas in the buildings where the participants did not have access to. In order to make the workbooks easy to use in possibly busy situations, they needed to be compact and easy to write to even when standing or walking.

5.8.2. Suitability for Different Participants

The activities in the workbooks also had to take into account the different types of users of the workbooks. The activities needed to be such that all the different participants were comfortable doing them regardless of their professional or cultural background. At the same time they needed to be presented in such a way that they were simple and easy to understand, and could easily be done without former experience of using similar methods. No existing knowledge of technical details was required in order to understand the different tasks.

5.8.3. Supporting in Recording Observations

The workbooks needed to support the participants in recording their observations based on the workbook activities, and also in making observations made outside of the scope of the workbook activities. The workbooks required to be such that the results from the study could be as easy to analyze as possible, without losing too much of the gathered information by limiting possibilities to record unexpected observations. In order to support the participants in being innovative, the workbooks needed to involve elements that encourage and engage the participants in thinking about the People Flow in order to come up with new ideas.

5.8.4. Having Fun While Doing the Study

As the event was also a way to celebrate the KONE 100-year-anniversary by offering the employees a chance to spend an unordinary working day in the field amongst the end users of the company's products, the workbooks needed to be playful, fun to use and resemble as little as possible the ordinary day-to-day forms to fill in the office.

6. The Workbooks

From the requirements for the workbooks represented in the previous chapter, an implementation of the workbooks was iteratively produced. In this chapter the final versions of the produced workbooks are presented, and decisions made on the form of the workbooks and tasks are justified according to the underlying theory and practical limitations related to the context of use of the workbooks.

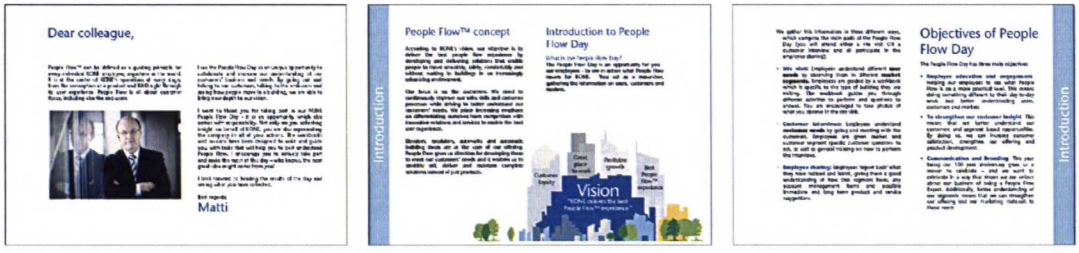
6.1. Overall Structure

During the creation of the first tasks in the workbooks the overall structure for the workbooks and a general idea of how to present the concept and all the tasks for the participants begun to form. The overall structure of the workbooks and the most important elements are represented in this chapter. The workbook for retail buildings is wholly presented as an appendix in the end of this thesis.

6.1.1. The Introductory Part

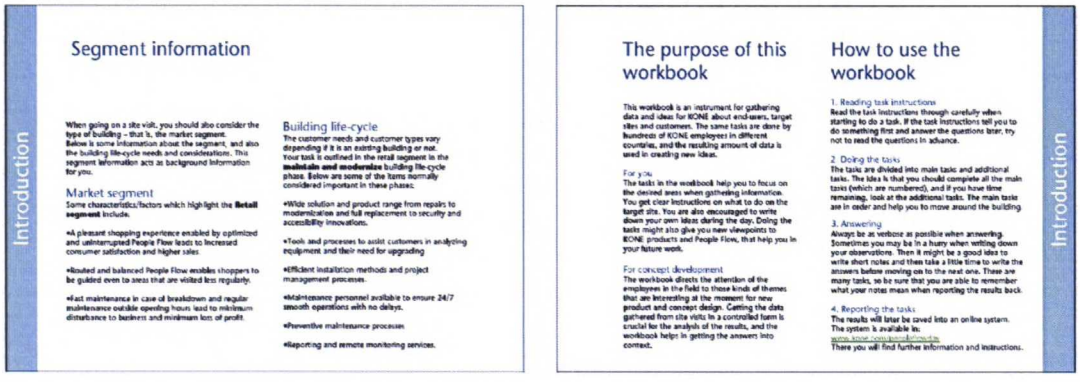
The introductory part that was common for all of the workbooks included a motivational letter from the CEO, introduction to the concept of People Flow, introduction to the People Flow Day along with the objectives of the day, segment information about the target segment of the workbook, instructions on how to use the workbooks and general guidelines for the day.

The purpose of the motivational letter from the CEO (Picture 7) was to motivate the participants in actively taking part in conducting the study and to ensure the participants that their research work is appreciated. The pages about the concept of People Flow and the People Flow Day were included to support the separate preparation of participants and to act as brief support for the participants if they for some reason were not familiar with the concepts before attending the site visits.

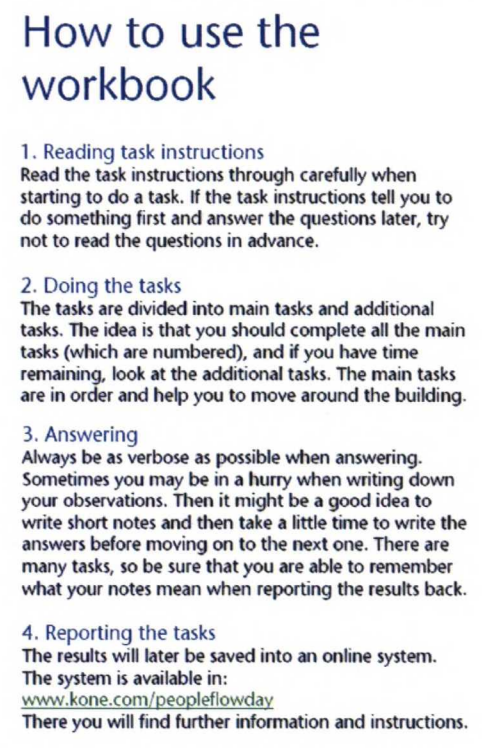


Picture 7: The motivational letter and the pages explaining the People Flow concept and event

The information about the target segment (Picture 8) included details on what were seen as important aspects for the customers and KONE's business in the target segment at hand to help the participants in thinking about the building from those viewpoints in addition to the tasks in the workbooks. The instructions on how to use the workbook included a brief step by step tutorial on how the workbook should be used, a description of the different task types in the workbook and a list of symbols in the workbook. The step-by-step tutorial on how to use the workbook is presented in picture 9. The participants were instructed to first read the task instruction, then do the tasks and after that answer the follow-up questions related to the task. The purpose was to highlight the most important things in each of the phases in using the workbook. Finally there was an instruction on reporting the results.

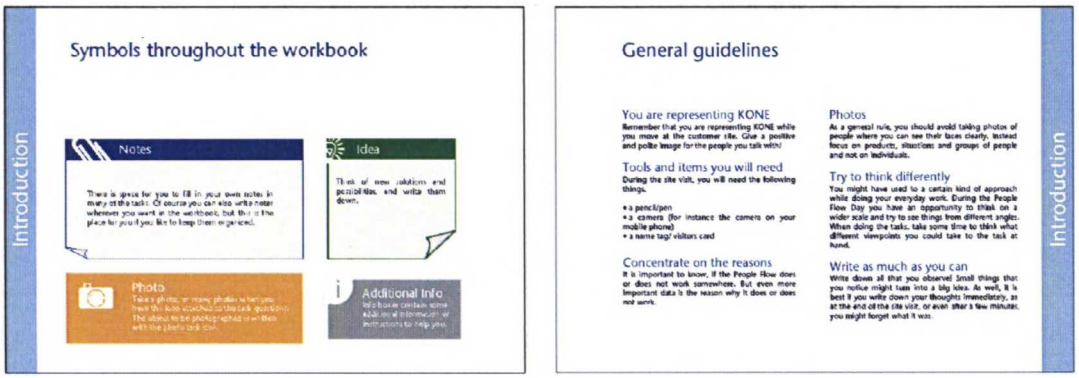


Picture 8: Segment information and workbook purpose and instructions



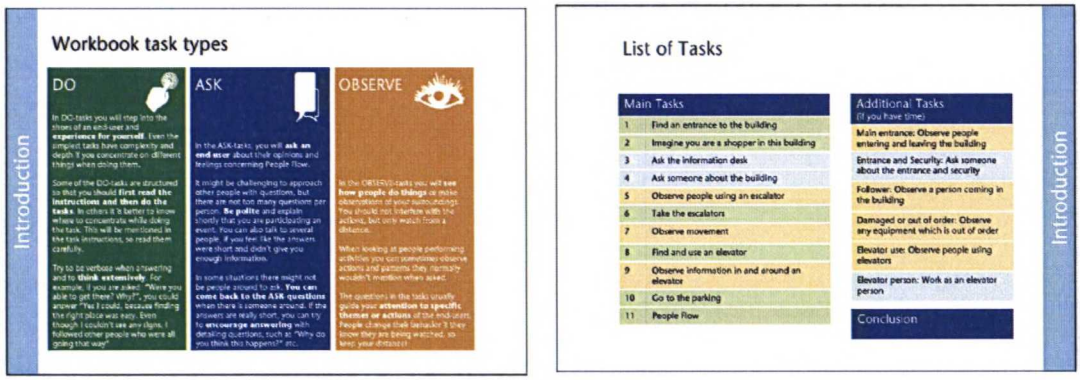
Picture 9: Instructions on how to use the workbook

The pages with explanations for symbols throughout the workbook and general guidelines are presented in picture 10. The symbols requiring the participant's attention while doing the tasks included symbols for extra information, taking photos, making additional notes and cues to come up with ideas. General guidelines included basic instructions like a list of items the participants would need and a reminder that they are presenting the company while in customer premises.



Picture 10: Explanations for symbols throughout the workbook and general guidelines

The description of the different task types in the workbook (picture 11) included the basic idea of each of the different task types in a nutshell in addition to instructions that applied for a specific task type. The different task types are presented in detail in the next chapter along with explanations on how the existing study methods were applied in them. The final page in the introduction was a list of tasks in the workbook to give an idea of how long the site visit study is and to work as an index for the pages. In order to have flexibility in the time spent doing the tasks, part of the tasks were left as extra tasks that the participants could do if they had time left of the two-hour site visit after they had done the other tasks. The participants did the tasks at different paces, and having the extra task buffer in the end helped in reducing the haste of slow task doers and kept the most quick participants busy for the whole time. Extra tasks also allowed including less important tasks in the workbooks in case some participants had extra time to do them all.



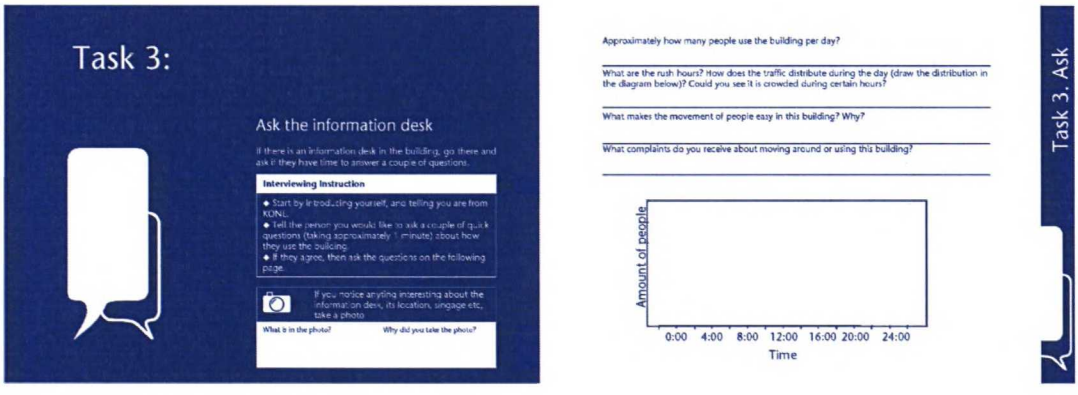
Picture 11: The pages with task type explanations and the list of tasks

6.1.2. A Task in a Workbook

The objective of the People Flow Day was to observe the People Flow in different building segments. In order to help the participants to grasp the vague subject, the workbooks were divided into separate small tasks in order to focus the activities done on the sites more clearly. Each task focused on a separate subject such as interviewing a person about a clearly defined theme, observing activity in a certain hot spot in the building or acting out a single task typical to the building segment. The methods presented in chapter 3 that are adjusted to user research in limited time and resources mention constraining the research focus as one of the key elements in reducing the time needed to be spent doing the fieldwork.

Because of the defining nature of the building segment considering the People Flow in a building, a different workbook was created for each of the different building types. In each building type the workbooks had similar introductory pages, but consisted of different tasks to do in the buildings. Some of the tasks were similar in different workbooks, but were adjusted to fit the building type at hand.

A single task took at least two pages in a workbook. A sample task spread is presented in picture 12. The task type was illustrated by the coloring of the task pages and a large task type icon so the participants could easily perceive which kind of activity the task included. The purpose of the colored vertical bar on the question page was to help searching in the pages of the workbooks by browsing the task numbers and types. The different task types (DO, ASK and OBSERVE) are presented in detail in chapter 6.2.



Picture 12: A task in a workbook

In each task the first page was reserved for task title and instructions. It included the title of the task, which was the activity done during the task in a nutshell, like in the example "Ask the information desk". After the title the task was explained in more detail, and additional instructions related to the task were given, such as a short instruction list on how to approach the interviewed people. The instructions also included an instruction if the following questions should be answered either during or after the activity done in the task.

The second page included the actual questions that were reported back into the reporting system after the site visits. These could be for example questions to be asked or the end users or observations on certain focus areas. In order to reduce biased answers based on false preconceptions, it was stressed in the briefing sessions and instructions for the participants to answer the questions according to their observations during the site visits and not according to their previous experience.

6.1.3. Workbook Conclusion

After the tasks section, the workbooks had a conclusion section that summed up the observations done during the site visit. The questions were such that they did not require physically being at the site and could be answered during the taxi trip back from the site. The purpose was to have the participants reflect on their findings already when coming back from the site visits and to collect findings that generalize the characteristics of each building.

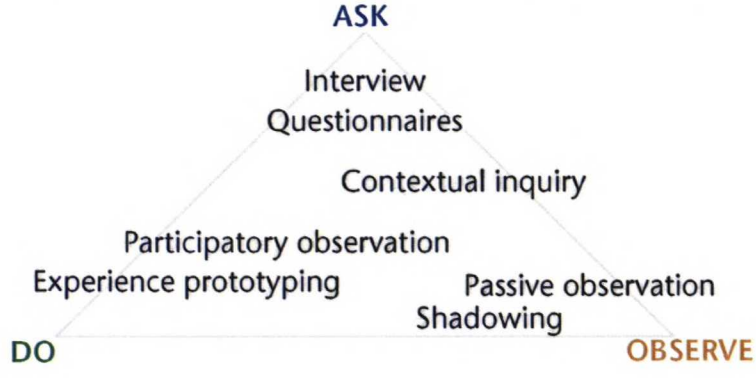
6.1.4. Collecting Results

In order to collect the data for later use, the findings from the workbooks were collected after the site visits in a web-based reporting system. The reporting system collected the results from all of the countries that participated in the event in a common database. The reporting of the results is described in more detail in chapter 6.2.6.

The afternoon sharing sessions where the results of the site visits and customer interviews were shared and discussed with other participants were also an important part of the day. The sharing sessions in each pilot event and the actual day are described along the use of the workbooks in chapter 7.

6.2. Workbook Task Types: DO, ASK, OBSERVE

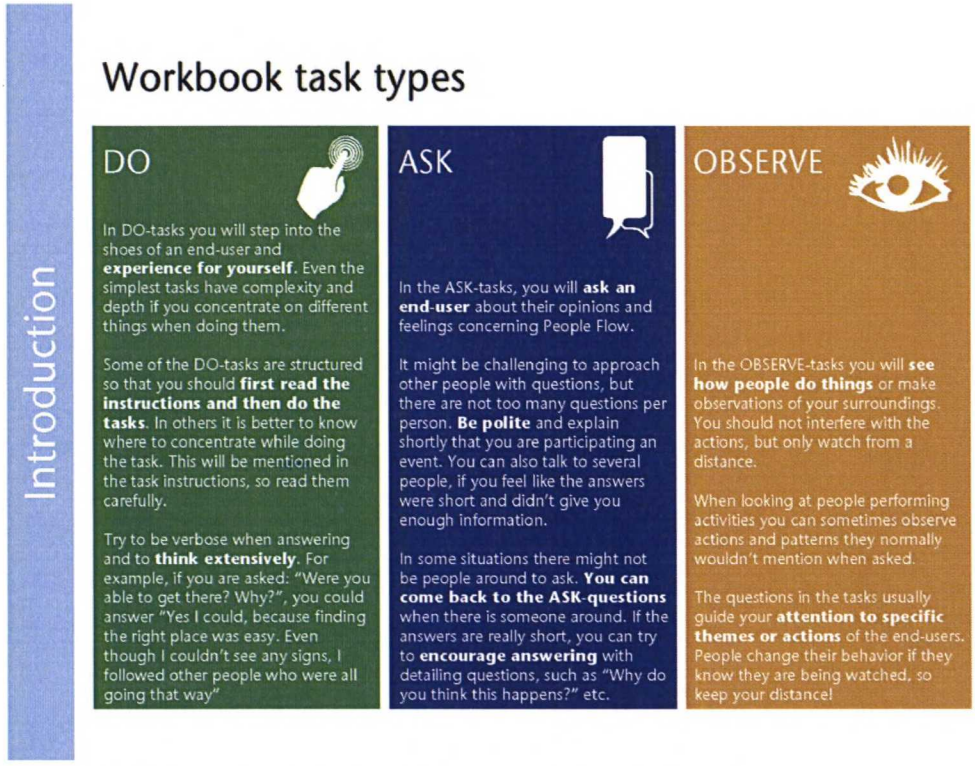
During the task ideation it was decided to divide the tasks into three different task types to simplify the basic essence of each task for the participants. The three different task types were DO, ASK and OBSERVE, according to the main activity of the researcher in the methods combined in each task. In this chapter applying the different study methods in different task types is explained in detail and the task types are discussed on the basis of the theoretical background. The applicability of different study methods in different task types is illustrated in picture 13. The division of different methods to different task types is not absolute, and the distances in the picture illustrate the relations between the applied methods.



Picture 13: Different methods related to the three task types

Writing the notes of the tasks in the workbooks can also be regarded as a long questionnaire for the participants to fill. The phrasing of the questions to answer depended on the task type and wished result data. Different reasons for how to the questions were phrased are presented later on with justifications specific to each task type.

Dividing the tasks into three different types helped in instructing the participants in performing the tasks in the right way. Rather than explaining different user study methods in detail to the participants, the task types allowed giving general and simple instructions on how to approach different tasks. It also allowed communicating the type of each task with distinctive coloring so that the participants would immediately perceive the type of task they have to do when they turn a page in the workbook. In picture 14 is the workbook page with explanations and general instructions for each task type. In this chapter the different task types and the ways of applying the different methods in them are explained in detail.



Picture 14: The workbook page with different task type explanations

6.2.1. DO

In the DO-tasks the participants were asked to take the role of an end user in the building and do a task that requires physical involvement. After doing the task the participants were asked to answer questions about different things relating to their experience while doing the task. The DO-tasks have similarities with experience prototyping, where the researcher acts out the experience of the user on his own and participant observation, where the researcher makes observations as a member of the group he is studying. An example of a DO-task spread is presented in picture 15.

Task 2:

Imagine you are a shopper in this building

Pick one of the items below, and try to find where you could purchase it in this building.

Sofa	Cat food
Umbrella	Chair
Suitcase	Baby shoes
Ice cream	Tie

Once you are in front of the shop or department that would sell your item, answer the questions on the following page.

If you are **unable** to locate that item in the building, then please pick another item.

Task 2. Do

What item did you choose? Did you find the item you originally chose?

Was it easy or difficult to find? Why?

How did you find your way there? Describe the flow needed on the way to get the item (e.g. lobby → elevator → 5th floor → walking → store)?

Did you use any equipment to get you to the right place (Elevators, escalators, automatic doors...)? What equipment? How did using the equipment help you?

Could the use of the equipment have been easier? Could the equipment have helped you more in finding the right place? Please explain how

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Picture 15: A DO-task in the retail segment workbook

The first task in all of the workbooks was a DO-task to find the main entrance of the building and enter the building. Its purpose was to act as an easy task to help the participants in beginning the site visit, similar to usability tests and interviews including a simple first task to help the participants adjust to the situation.

The following DO-tasks in the workbook included basic activities that are often done in the observed buildings. The selection of these activities was based on the pre-observations done when thinking about the tasks and limitations set by the situation on which kind of activities were possible to do in the buildings. For example, the tasks concentrated on activities that visitors do in the building and neglected the staff and goods flow, as organizing the needed permissions and access to the staff premises would have included too many practical obstacles. In retail buildings the task was to find an item from the stores, in hotel and office to find a specific department, in hospitals to find a specific ward and in residential buildings to find a specific apartment. Public transport workbooks included DO-tasks of buying a ticket and going to platforms.

The short-term nature of the tasks in the workbooks did not allow a long-term involvement in the studied user groups, which limited the possibilities to engage in a long-term participant observation. On the other hand, the building types included in the study were such that most of the participants most likely were included their user groups at some point in their lives for example as shoppers, office workers or commuters and could relate to the users.

One of the main objectives of experience prototyping is to reduce the risk of misleading preconceptions the designers might have because they are included in a minuscule part of the user population. In order to reduce the risk of these kinds of preconceptions, the participants were also put into other user roles than their original role in the user population. For example, each of the workbooks included a task where the participants were asked to take the role of an end user in a wheelchair to get an idea of what kind of solutions help and prevent the wheelchair users to move around fluently in the buildings. The original intent was to provide some of the participants with actual wheelchairs and some with visual impairment simulation glasses to do this task, but it unfortunately turned out to be too difficult to organize.

In most of the DO-tasks the questions to answer in the workbooks were open-ended in order not to set restrictions on the answers. The questions were focused around the themes that were gathered in the requirements for the study, for example signage, smooth points and problem areas in moving in the building and considered mainly the instrumental factors affecting the user experience.

The non-instrumental qualities were studied by DO-tasks with tasks that included taking an elevator or escalators to a different floor in the building. In order to gather qualitative and comparable data, the participants were asked to rate their experience using semantic differential scales with different adjective pairs and on a Likert scale. An example of rating the elevator experience is presented in picture 16.

In my opinion, the elevator:						
Is dirty	1	2	3	4	5	Is clean
Is damaged	1	2	3	4	5	Is intact
Is noisy	1	2	3	4	5	Is silent
Is dark	1	2	3	4	5	Is well lit
Is cold	1	2	3	4	5	Is hot
Doesn't fit the building	1	2	3	4	5	Fits the building
Feels scary	1	2	3	4	5	Feels safe
Is smelly	1	2	3	4	5	Is fresh
Is low-end	1	2	3	4	5	Is high-end
Has buttons in confusing order	1	2	3	4	5	Has logical order of buttons

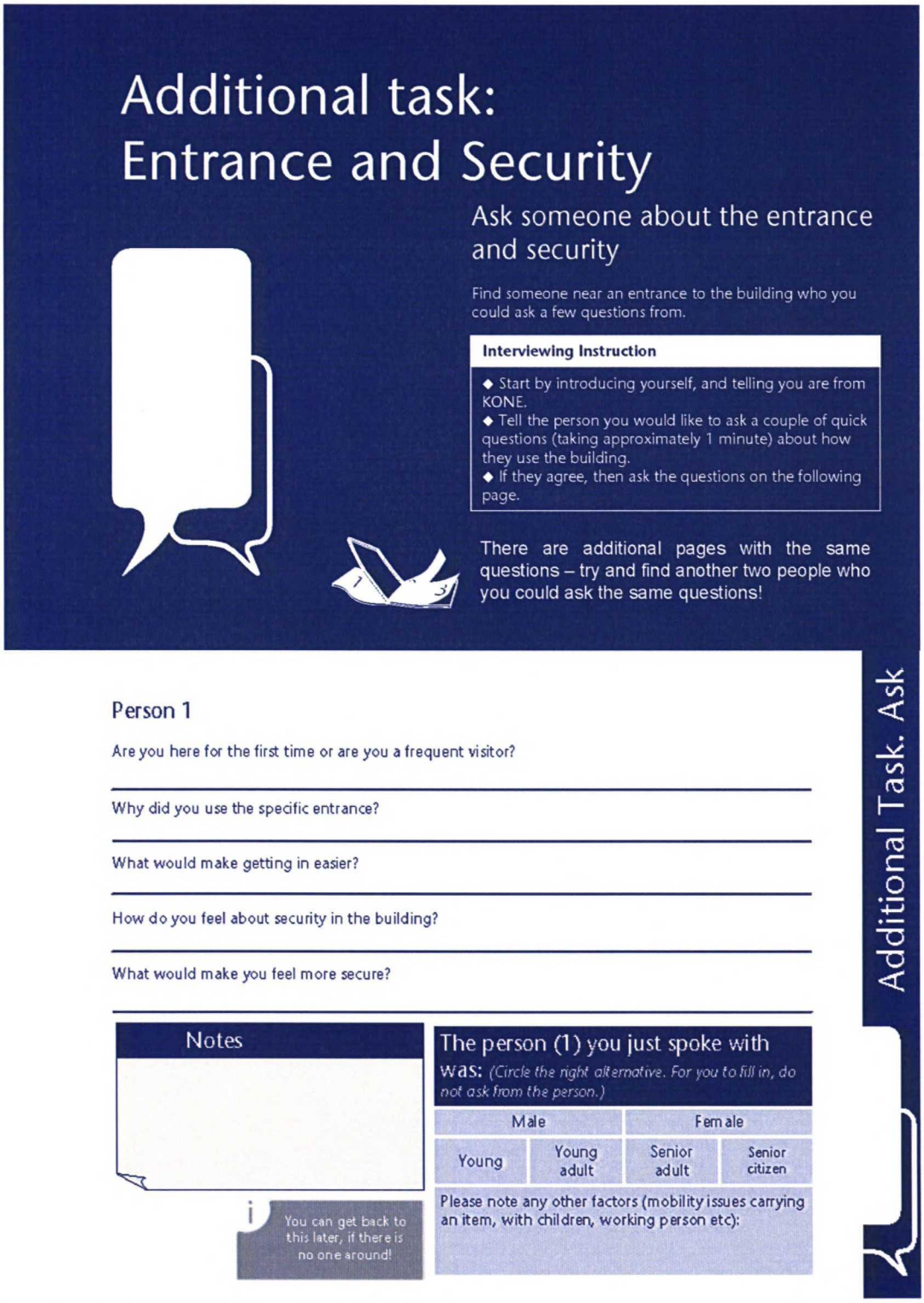
On a scale from 1 to 5 I do not like or like:							
The interior:	I do not like	1	2	3	4	5	I like
The atmosphere:	I do not like	1	2	3	4	5	I like
What would make this elevator better?							

Picture 16: Using semantic differential and Likert scales in rating the elevator ride

As a final actual task in the workbooks the participants were asked to describe the most impressive thing in the building concerning the People Flow, as well as a thing that limits the People Flow. The purpose was to gather elements that have significant positive and negative effects on the overall experience when using the buildings based on the two-hour visits.

6.2.2. ASK

The ASK-tasks are tasks that involve interviews with the end users or other persons in the target buildings. The participants were asked to find different people from the buildings and ask them a set of predefined questions, or ask them to fill in a small questionnaire. Per one ASK-task, there were three identical questions pages so that the questions could be asked from three different people. The ASK-tasks were similar to short contextual interviews and similar methods where the end users are asked questions on site. An example of an ASK-task is presented in picture 17.



Picture 17: An ASK-task in the retail workbook

In the People Flow Day, having an end user to be constantly present for the participants at each target site, or even at some of them, would have required too extensive arrangements. When developing the ASK-tasks, the principle of partnership of contextual inquiry could therefore not be taken into account as such. Willingness of the end users to answer questions on the target sites was expected to depend on the building segment. In most of the cases the expectation was that the end users were busy, and acting upon the partnership principle would have taken too much of their time. Also it was considered to be intimidating for the participants to have to ask the end users spend too much time answering questions. Therefore the ASK-tasks consist of questions that can be asked from the end users in a reasonably short time.

In rapid ethnography a "field guide" - a person, who knows the context of use well, is used in order to reduce observation time by helping the researcher to know where, and when to look. In the original idea of the site visits, the participant teams would have had a contact person on the site who knew about the building to show them around during the first part of the site visit. The contact person would then have pointed areas of interest to the participants and answered both predefined and spontaneous questions concerning the use of the building. However, when organizing the pilot day, it turned out that prearranging a person to be present during the site visit required such demanding practical arrangements that other means of using a field guide needed to be thought of.

A person was selected in each building segment that would have personal experience of the common problems and characteristics of the People Flow in the building. The workbooks included an ASK task amongst the first tasks in the workbook to ask this person about the users, the traffic patterns and problems in using the building. For example, in the hotel and office segments the task was to ask the receptionists in the lobby, who would every day see the people coming in and out, and receive comments about the use of the building. The questions included background data of the building use, like typical rush hours and amount of people who use the building daily. Typical complaints and good experiences concerning the smooth movement of people were also enquired.

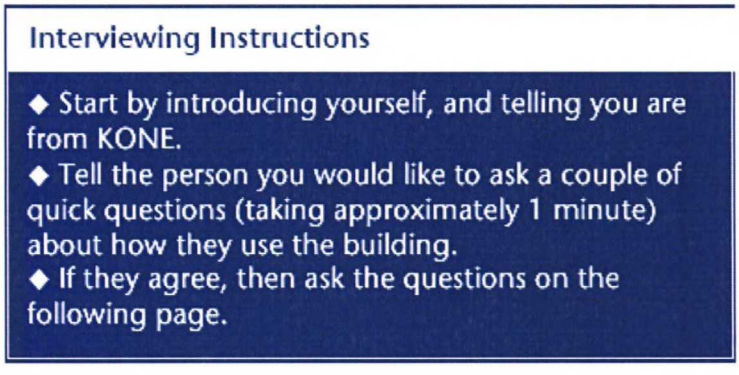
The questions asked from the end users were predefined in order to gather coherent data from different sites. It was up to the participants if they made additional questions or modified the questions to suit the situation or not. There was some existing knowledge about the expected answers to the questions, but the objective was also to find out what was missing in that knowledge, so the questions were left open-ended in order not to leave any possible answers out.

The questions in the ASK-tasks were left open-ended so that the users were not asked for exact predefined things relating to their People Flow experience, but rather open questions about what they like and do not like about moving in the building. This allowed more adjusting to the situation and asking detailed questions according to the initial answer. This way the ASK-tasks with open questions were semi-structured interviews. In order to support the users in writing notes and observations that emerged from the situation, there was space for additional remarks and ideas on the task pages. However it is realistic to expect that the extent of the additional questions is not the same as when a professional user researcher would have done the interview. It was expected that many of the participants do not ask additional questions at all, and the extent of additional questions was not as wide as when a professional would have asked them.

Each of the ASK-tasks concentrated around a single focus area, such as entering the building, security or rating elevator appearance. This complies with the principle of focus in contextual inquiry. It is easier for both the interviewed persons and interviewers if the questions in the ASK-tasks are focused on one clear area of interest. Changing the focus in different tasks also allowed getting closer to the more defined context of use. For example, the questions concerning entering and leaving the building were instructed to be asked from the persons near an entrance to the building. When people are asked questions in the context, they tend to tell more accurately about the actions they do.

Each of the workbooks included an ASK-task which had an identical rating scale to the DO-task where the participants were asked to rate their experience taking an elevator. The purpose of having the similar ratings in different task types was to make it possible to compare ratings from KONE employees and end users with each other. It was up to the participants if they wanted to give their workbook for the end user to fill as a questionnaire, or if they asked the ratings from the user.

In the instructions and briefings for the participants they were instructed not to try and sell anything and listen to the end users' answers. There was not an extensive training on how to approach the end users except for participants going to hospitals, where the context required more discretion. For example the patients were not asked any questions in order to avoid difficult situations. Each of the ASK-task included a short bullet list of instructions on how to ask the questions, which is presented in picture 18.

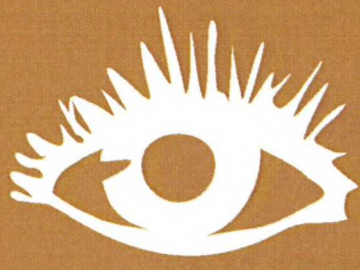


Picture 18: Interviewing instructions in the workbooks

6.2.3. OBSERVE

In the OBSERVE-tasks the participants were asked to observe the surroundings and actions of different people using the target building and draw conclusions and make interpretations about the things they observed. The OBSERVE-tasks resemble the less participatory observation methods. An example of an OBSERVE-task is presented in picture 19.

Task 7:



Observe movement

Go to a place in the building where you can see as many people and types of equipment as possible.

Observe for at least **10 minutes** the movement and actions of people in and around that area.

Answer the following questions while making observations

Where did you observe? (i.e. the main entrance)

How do the people divide between different types of equipment (approximately)? What are the typical users of each type of equipment? Fill in the table below

	Stairs	Elevators	Escalators	Autowalks
% of use				
Typical user				

Is some equipment used more than others? What do you think is the reason?

Do you see people running or trying to move quickly? How does it affect the movement of them or others?

Do people seem to know where they are going?

Are there any people sitting down? What type of people are sitting? Is there enough seating?

Do you notice any places where people seem to bump into each other? What do you think causes them to bump into each other (i.e. are they coming off certain equipment)?

Task 7. Observe

Picture 19: An example of an OBSERVE-task in the retail workbook

As the questions in the ASK-tasks the questions in OBSERVE-tasks guided the participants to focus on certain areas of interest at a time in order to make it easier for the participants to adjust to the situation. The focus areas ranged from overall observations about different users and the overall appearance of the building to detailed observations of the use of different equipment. The OBSERVE-tasks concentrated mostly on the influencing factors and the instrumental qualities of using the system, as non-instrumental qualities were best studied with the other task types.

Quantitative information about the users was collected by questions where the participants made rough estimates of the users. For example, the division of people between stairs, escalators, autowalks and elevators was measured with a chart the participants had to fill the approximate percentage of users in. They were also asked to describe the typical user of each way of moving between floors as an open ended question.

Passive observation was applied in general OBSERVE-tasks in order to find out different user types, most usual activities and common problems in People Flow. The location of observation was changed in different tasks in order to gather information from different important locations in the buildings concerning the movement of people, such as the entrances and building lobbies. Some observation tasks also centered on some general theme in the building which was mentioned in the requirements for the study, such as different types of information that is presented for the end users in the building.

Many OBSERVE-tasks were used in gathering information of different equipment use situations like using automatic doors, escalators or elevators. These observation tasks included detailed questions about the equipment such as the amount of elevators in an elevator group, about the user actions such as the sequence of actions needed to get in the building and different problem situations. The questions were left open-ended in order not to leave out any possible problems that were not thought of in advance.

Some of the workbooks included a shadowing task as an OBSERVE-task. In those tasks an end user was selected from the building and shadowed for a while to see how they orientate in the building and if they had any trouble moving around.

In the People Flow Day, the teams consisted of three to four participants, and were carefully formed to include people from different departments varying from sales units to human resources. This complied with the idea from rapid ethnography about the feasibility to have multiple researchers in the field at the same time to make best use of the time. In addition to asking the "field guides" in ASK-tasks, the participants themselves acted as corporate informants, as the participants from different positions in the company had different views based on their differing professional backgrounds. For example, engineers were more focused on technical details of equipment use as the participants with closer relations to the customers were more aware of what kind of issues the customers have.

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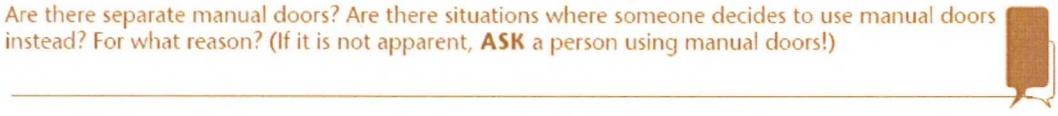
Unlike in contextual inquiry, where the interaction between the end users and the researcher is ongoing, during the People Flow Day the communication between the participants and end users was limited to the questions in the ASK-tasks, which made ensuring the correctness of the interpretations from observations complicated. Thus most of the findings from observations that contain interpretation should be taken as unconfirmed interpretations of the participants, possibly supported by other end users' interviews in the ASK-tasks. For this reason some of the OBSERVE-tasks included asking the end user for confirmation for interpretations on why the end user acted like observed. An example of including asking in an OBSERVE-task is presented in picture 20. However, most of the OBSERVE-tasks required interpretation of the observed situation by the participants and the results should be regarded as interpretations.



Picture 20: An example of asking an end user in OBSERVE-task to confirm interpretations

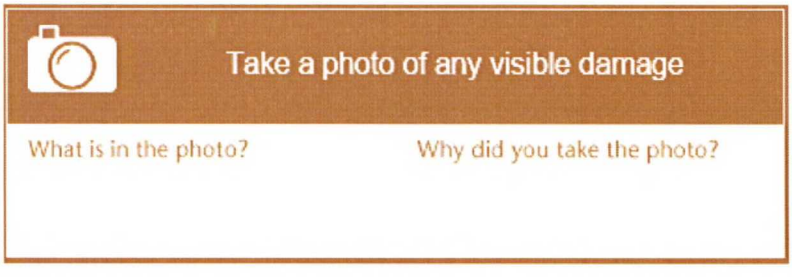
6.2.4. Additional elements

In the tasks of the workbooks, there were additional elements that were a sign for the participants to try and think of new solutions, write their own additional notes, notice some additional information or instructions or to take photos to support in communicating the made observations. These elements were illustrated in the introductory pages in the workbooks.

Taking photos

The observations were supported by photos, because it was rather simple to ask the participants to bring their own cameras or mobile phones with cameras with them to the event. Collecting the images back after the site visits was also easier than collecting video or other media. The photo tasks were included in all of the different task types.

An excessive library of random images from the sites visited was not wished for. In order to reduce the amount of taken photos and to keep the photos focused on the right topics, a camera symbol was shown in some tasks with an instruction on what to take photos of, and the participants were instructed not to take other photos. An example of a photo task included in a task is presented in picture 21.



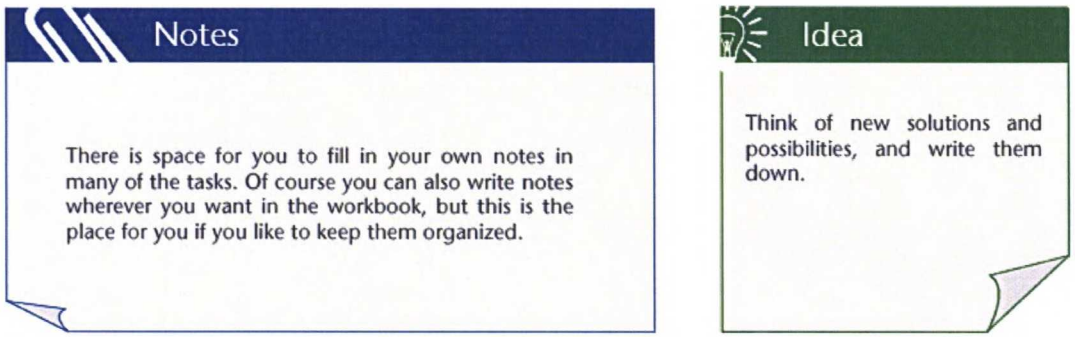
Picture 21: A photo task in a task of observing any damaged or broken equipment

The questions "What is in the photo?" and "Why did you take the photo?" were asked as metadata for the picture to ease up the analysis of the data. Their purpose was also to reduce the amount of images with no actual meaning, as the participants had to reason taking the photo and write the reason down.

Ideas and additional notes

Because the possibilities to adjust the questions according to the situation compared to a normal situation in user centered research were limited in the People Flow Day context, additional blank text boxes were put on each page in order to allow the participants to write their own additional notes. It could have otherwise been frustrating for the participants to make observations that do not fit the questions that were asked in the different tasks.

An idea box was used to encourage the participants to think of new solutions to the problems they perceived or inspired by some of the good design solutions they saw during the site visits. It was also feasible to gather the participants' ideas from the gathered data into one place in order to go them through more easily. The notes and idea boxes are illustrated in picture 22, taken from the introductory part of the workbooks.



Picture 22: Additional space for notes and ideas by the participants

6.2.5. Workbook conclusion

In the end of the workbooks there was a conclusion part that summed up the site visit results. It included questions that generalized the findings from user groups, items and equipment in the building, but did not go into the details of activities.

The favorite and least favorite place of the participants in the building was asked with reasoning or improvement suggestions. The purpose was to gather information about places that give good and bad experiences for the visitors in different buildings and reasons behind these experiences.

There was also a similar semantic differential rating of the building that was used earlier in the tasks in rating an elevator experience. The purpose was to sum up the overall building experience from the eyes of the participant after doing all the tasks.

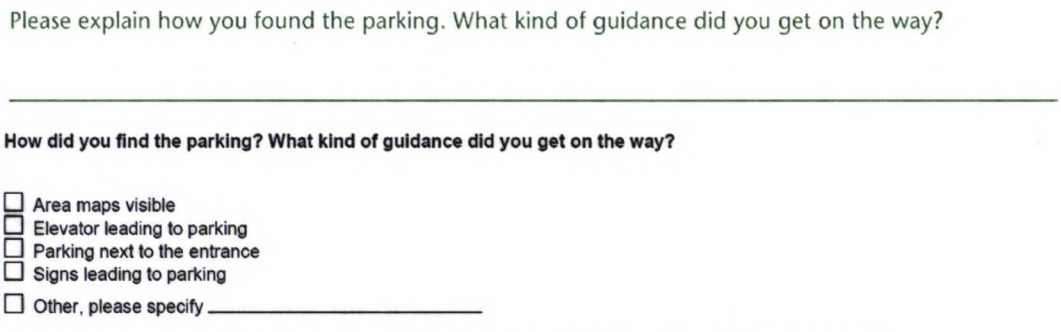
In the end of the conclusion an overall grade for the People Flow in the building was given, and the participants had a chance to openly write their suggestions for improving it as the last exercise in the workbook.

6.2.6. Collecting the workbook data (Reporting)

Because the answers written in the printed workbooks would have been a difficult material to analyze, the participants had to report their findings after the site visits into a web-based questionnaire system. The reporting consisted of open-ended questions, multiple choice questions and different rating scales. The questions in the reporting were not identical to the questions included in the workbook tasks, because answering the same questions again would have been frustrating for the participants. This was also verified in the feedback from the pilot events, where the reporting questions were more similar to the questions in the workbooks. The purpose of asking different questions was also to make the participants pre-analyze their findings instead of just mechanically copying their answers into the reporting system.

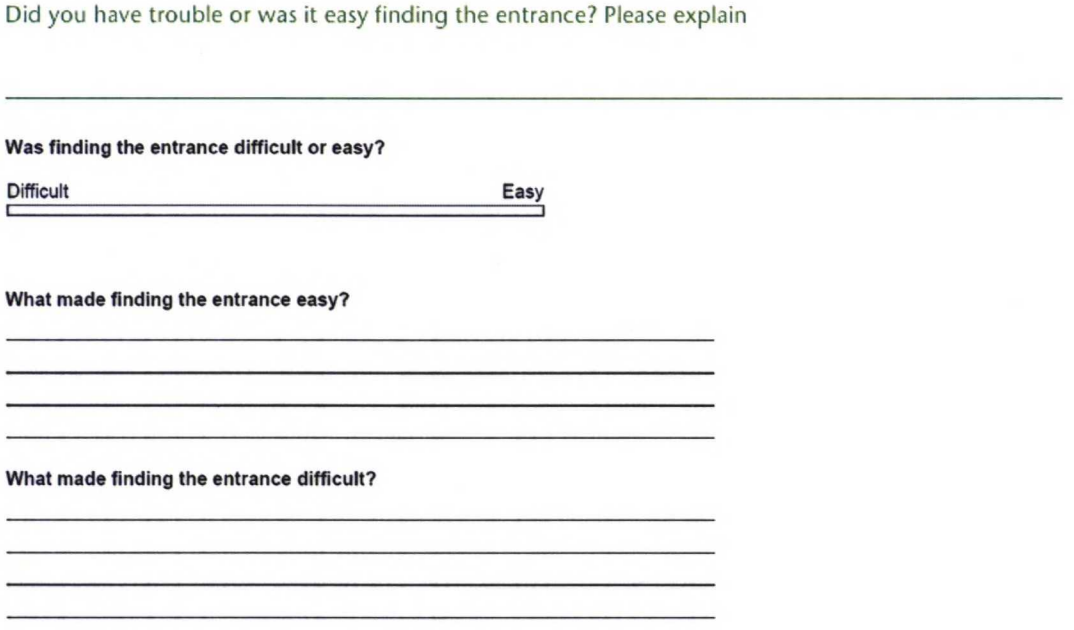
As background information the reporting included the country of the participating group and the name of the target site they visited, as well as the names of the participants in the group in order to ask additional questions if necessary. Because of limitations in the reporting system there were different reporting questionnaires for each different building segment, even though the workbooks included several identical questions that could be compared. The results were later combined into a separate system where the use of the results was more convenient and results between different building segments could more easily be compared.

The open-ended questions in the workbooks ensured that observations not earlier thought of during workbook design could be recorded, but answers to open-ended questions are time consuming to analyze. In order to further ease up the analysis of the collected material and make the reporting easier and faster for the participants, the reporting included many multiple choice questions that replaced the open-ended questions in the workbooks. The alternatives in the multiple choice questions were pre-thought according to the existing knowledge of the different building segments. In order to allow answers not included in the scope of original alternatives, the questions included multiple open-ended alternatives where the participants could specify their own answers. The alternatives were completed with the answers in the open-ended alternatives after the pilot events, when actual data from field observations was available. An example of a question in the retail workbook specifying the parking was found and the corresponding question in the reporting is presented in picture 23. Defining the type of the door in reporting allowed later filtering of the results according to the door type. The number of selections was limited according to the questions. In some of the questions it was possible to only select one option and in some questions the number of selections was not limited at all. The questions that were reported on rating scales in the workbooks, like the tasks rating the elevator experience, were copied exactly in the same form in the reporting.



Picture 23: An example of how multiple choice questions were used in reporting

Subjective ratings were reported on rating scales resembling semantic differential scales. Depending on the question the reasons for the ratings were then probed with open-ended or multiple choice questions. This made it possible to filter between good and bad solutions and evaluate how strong effect different problems or solutions had on the overall experience. An example of using a rating scale in reporting is presented in picture 24.



Picture 24: An example of using a rating scale in reporting

There were some limitations in the system used in the reporting that prevented adjusting the questionnaire to be more user-friendly. For example it was not possible to show questions conditionally according to previous answers for the questions under the same task and thus all the questions were shown to the participants, regardless if they needed to answer them or not.

The photos were reported in a separate system because the reporting system used did not support adding large images from multiple locations at the same time. The photos were linked to the tasks they were included in the workbooks by asking the task number as metadata from the participants. In reporting the photos the original textual descriptions of what was in the photo, and why the participant took the photo were asked. The photos were not directly associated with the related observation results this way, which limits the effective use of the photos.

7. Results from using the workbooks

The workbooks were used in three different occasions referred in chapter 3.4., of which two first ones were pilot events held in Finland for the People Flow Day event and the last the actual global People Flow Day event. During the first events the use of the workbooks was observed and the reported data was evaluated in order to improve the workbooks, organizing the event and the reporting questionnaire used in collecting the site visit data.

After the events feedback from the participants was collected with questionnaires. The participants were asked to pick the task types and specific tasks they liked the most and the least, and the task type that on their opinion yielded the most valuable results. Feedback of the success of People Flow Day was measured with a questionnaire for the project managers who organized the day in different locations. The feedback results are presented in this chapter.

From the first pilot event 31 feedback answers were collected using both paper and web forms. Five feedback answers were collected from the second event. The feedback survey for the People Flow Day was sent to a selection of English speaking countries, and a total of 45 responses were received from Canada (N = 6), Finland (N = 17), Hong Kong (N = 13) and South Africa (N = 9). In total there were 81 filled feedback forms from the three events. In addition to overall feedback, the participants were asked to pick the task types and specific tasks they liked the most and the least, and the task type that on their opinion yielded the most valuable results. The success of the People Flow Day was measured with a questionnaire for the project managers who organized the day in different locations. Table 8 illustrates the number of participants in different events. The number of participating teams is based on the amount of workbook results reported in each event. There were only a few results where the participants had not done all the normal tasks included in the workbooks, which indicates success in providing an agenda for the site visits by the workbooks.

Table 8: The number of participants in each event

Event	Participants	Participant teams	Site visit teams	Customer interview teams	Site visit participants	Customer interview participants	Feedback answers
First pilot event	69	23	16	7	48	21	31
Second pilot event	17	5	5	0	17	0	5
People Flow Day	864	225	128	98	546	318	45
Total	950	253	149	105	611	339	81

7.1. Lessons learned from the pilot events

The workbooks and the reporting were modified after both of the pilot events according to observations made during their use and the resulting data. Many of the details in the workbooks were modified according to feedback, such as the weight of the paper to make it easier to write on. In this chapter some of the greatest lessons learned from the pilot events are explained, but they do not nearly include all of the modifications made during the process.

In the first pilot event a notable difference between the participants' speed to perform the tasks was observed. Some of the participants were able to do all of the tasks in the workbook in two hours, including also the extra tasks in the end of the workbooks. Some of the participants barely made it to finish all the regular tasks in the given time. In the following events, the amount of extra tasks was increased, which reduced the feedback of having to hurry. It was also emphasized that filling the workbook was not a race in order to reduce the hastiest answers.

From the first pilot event some negative feedback was received of the tasks repeating themselves. The repetition occurred in different tasks in the workbook built on similar topics, for example a DO-task and an OBSERVE-task of elevator use in different phases of the site visit. The participants also thought they had to walk around too much. The workbooks were modified for the second pilot by reducing repeating questions inside the tasks and trying to arrange the tasks in such order that they did not require walking back and forth in the building. After the second pilot the tasks were further reordered. Before it a single task always took two pages in the workbooks. Afterwards the tasks were merged so that two tasks of the same location were connected and previously multiple tasks could be done as one task. For example, earlier there was a separate task of observing movement near the doors and a separate task of automatic doors. Now the automatic door task was included in the other task. This drastically reduced the complaints about repetition in the final event.

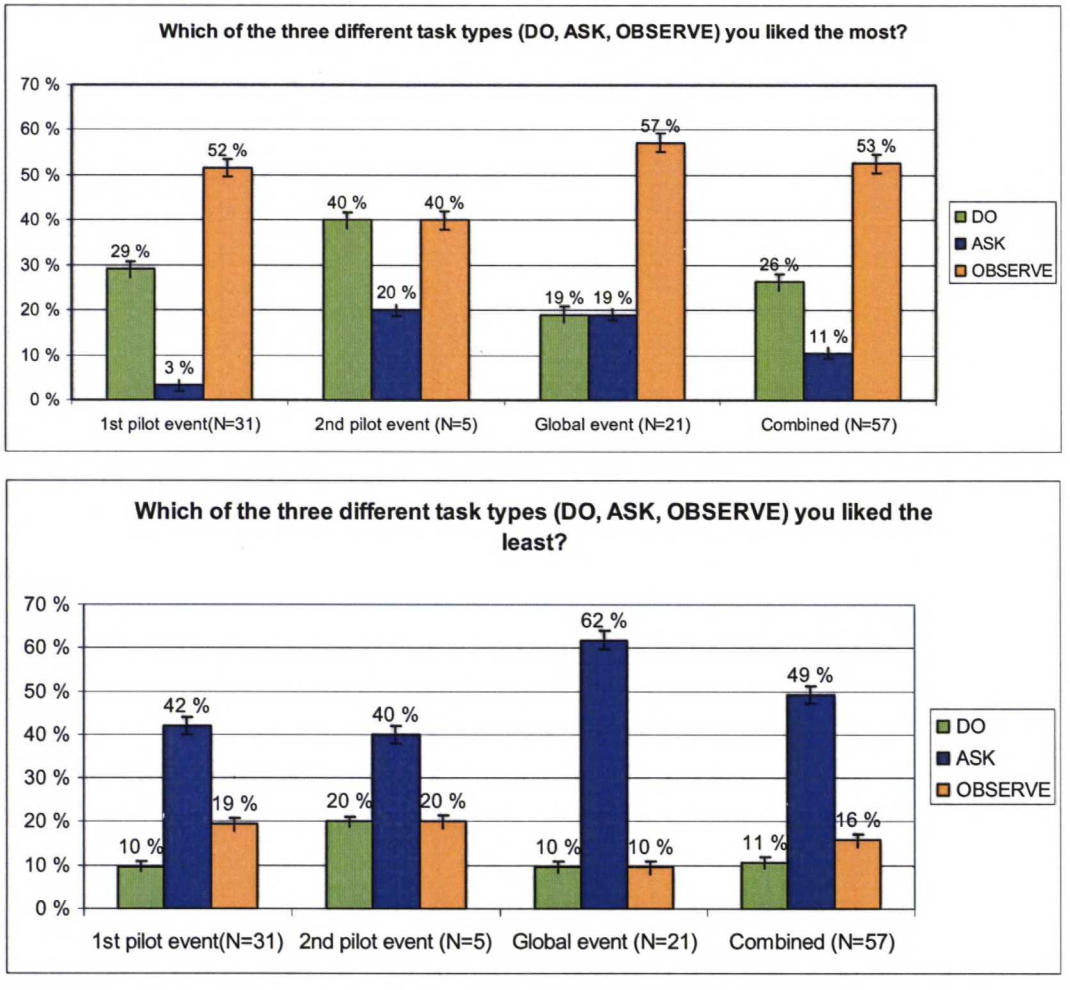
In the pilot events it was also noted, that questions were answered with single-word answers like "yes" or "no" if the questions were phrased to allow it, even though it was instructed to answer as thoroughly as possible. The amount of single-worded answers was reduced in the final event by carefully re-wording the questions to answer.

The reporting of findings received negative feedback in every event. In the first event the questions in the reporting were similar to the questions in the workbooks, which showed in frustration of having to write the same answers again. Changing the questions in the reporting to differ from the workbook questions reduced frustration because it allowed processing the findings during the reporting. However, the reporting was still considered time consuming and the least interesting part of the event, although it was necessary in order to gather the data from the workbooks.

Even though the tasks and questions were modified between the events, the task types remained the same. Thus the results from the feedback from different events presented later in this chapter should be comparable.

7.2. Comparison between different task types

In order to gather data of the participants' preferences about the tasks, they were asked for their favorite and least favorite task types in the workbooks. The same questions about the task types were included in the feedback questionnaire for the total of 611 site visit participants in all of the events. The task type ratings after each event, and combined from all of the events, are presented in picture 25.



Picture 25: The participants' preference about the different task types

The answers between the different events did not differ significantly (*Fisher's exact test, p = 0.29 'liked most and p = 0.57 'liked least'*). (Freeman & Halton, 1951) The OBSERVE task type was the most often chosen as the favorite task type of the participants in each of the events (*95% CI 49-57% 'combined'*), though all of the different task types had some popularity. The DO-tasks were the second (*95% CI 23-30%*) and ASK-tasks the least popular (*95% CI 8-13%*).

The ASK-tasks were the most often chosen as the least favorite task type (*95% CI 45-53% 'combined'*) and no large difference between the dislike of the DO (*95% CI 8-13%*) and OBSERVE-tasks (*95% CI 13-19%*) was noticed. These ratings suggest that the participants in general preferred doing passive observatory type of tasks over actively asking the end users. Because the questions asked for the most and least liked tasks, the results only tell about the preference between the task types, not the pleasantness of certain task types in overall.

Reasons for the participants liking or disliking the different task types were sought for with open-ended questions. The participants were also asked for specific individual tasks they liked or disliked, and to explain why they liked or did not like them. There was no clear indication of certain specific tasks being significantly more or less popular than the other tasks, but reasons for the popularity differences between the task types were sought from the answers to these questions in addition to the open-ended answers explaining the answers for task type preference.

The OBSERVE-tasks were the most preferred because the participants considered them as the easiest to do, and also as the best way to gather objective information about the end users. These results support the statements in the methodology literature about the requirements for the researcher and objectivity of the findings. Some descriptive quotations from the results are presented in the table below:

Table 9: Reasons for preferring OBSERVE tasks

Positive feedback on OBSERVE-tasks
"Observing gave us a lot of information and food for thinking! We should more stop and observe and not always run to the 'fire-fighting' activities..."
"Observing is most easy."
"Observation can explore more about people's behavior"
"Direct observation gave more insight into People Flow than answers to our questions."
"I feel you get more info on observing than actually asking the questions. People feel like they have to please you and the answers you receive reflect this."
"It's interesting to take another point of view from daily routines and really think why people behave the way they do etc."
"I liked observing how people interact with our equipment. Seems simple, but, it was interesting to watch different people interact with the equipment in a different way."
"Because usually, as user, I don't observe, I just "use"
"It was very interesting to watch people flow and how everything in the building made it possible"

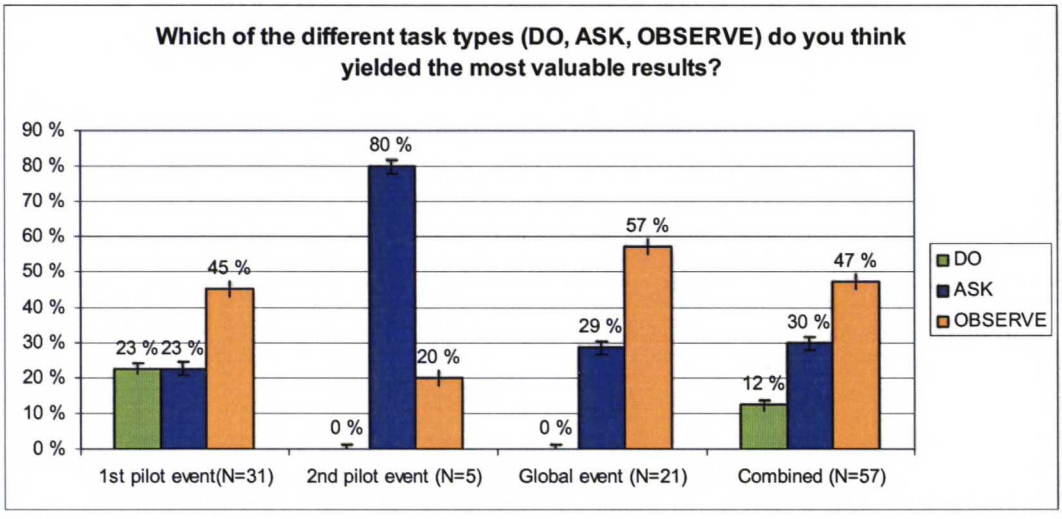
The ASK-tasks were the least popular because the participants found it difficult to approach people with questions, and found some of the questions in the workbooks too difficult for the end users to answer. Reasons for picking the ASK-tasks as the least pleasant are presented in the table below.

Table 10: Reasons for not liking ASK tasks

Negative feedback on ASK-tasks
"Difficult to stop people and explain the meaning of People Flow in few seconds and get them interested to spend few minutes with us and our questions."
"Because we had to approach people, I'm not much of a people person."
"Travelers are not nice and unwilling to answer the question"
"People don't like and don't know how to answer the questions; it makes the data collected not useful."
"They are not friendly."
"Sometimes speaking to people is a bit daunting."

The positive comments for DO-tasks were related to the tasks being seen as fun and active and a welcome change between doing the other task types. DO-tasks were also mentioned as the least favorite task type by some of the participants, but unfortunately they did not explain in detail why they disliked those tasks. All the tasks getting some popularity and no large difference between the countries or building types in task appreciation indicates that the workbooks were suitable to use in different contexts.

The participants were also asked for their perception of which task type yielded the most valuable results. The popular OBSERVE-tasks were perceived also as the best way to collect valuable results (*95% CI 43-47%*), but the unpopular ASK-tasks (*95% CI 26-30%*) were also perceived to yield valuable data even though interviewing the end users was not considered a pleasant activity. The DO-tasks were considered as the least effective way to collect valuable result data (*95% CI 10-12%*). The explanations for choosing the ASK-tasks involved many answers that referred to validating the observations made using other task types by asking the users. OBSERVE-tasks were chosen because the participants felt that they gave the best overall impression of the People Flow in the target buildings. The division of answers from all of the events is presented in picture 26.



Picture 26: The participants' view on which task types yielded most valuable results

The ratings of value of the task types varied significantly between the different events (*FET, p = 0.03*). The participants in the first pilot event seemed to appreciate the DO-tasks more than the participants in People Flow Day. The participants in the pilot events were R&D oriented and there were no such participants in People Flow Day. There was significant difference in the appreciation of the DO-tasks compared to the other tasks together between the first pilot event and People Flow Day (*FET, p = 0.04*).

7.3. Collected data

The participants' perceptions of the resulting data's usefulness and relevancy for KONE were measured with questions "Do you consider the information collected useful?" and "Do you consider the information collected relevant for KONE?" The scales ranged from 0 (not useful or relevant at all) to 100 (very useful or very relevant). Average for usefulness was 76.22 and relevancy 77.44 (picture 27). The question was only asked from the participants of People Flow Day.

Picture 27: The People Flow Day participants' perceptions of the usefulness (Avg 76.22 0="Not useful at all", 100="Very useful") and relevance of collected information (Avg 77.44 0="Not relevant at all", 100="Very relevant")

The quality of the answers to the open-ended questions in the workbooks was varied. The number of single-worded answers in the resulting data was large, but there were also more extensive answers that included explanations for the observations and also suggestions for improvement. Many of the answers were not formed so, that they would be easy to understand if the person reading the answers was not present at the site visit. The summing up questions in the end of the workbooks asking about the overall People Flow in the building yielded more thorough answers, possibly because they merged information from all of the observations. This leaves some room for improvement considering the requirement for the workbooks to support reporting the observations.

The collected answers for multiple choice questions should help in further analysis of the data by providing means to filter out open-ended question answers related to some certain area of interest. They also provide general information about the different users of the building segments and the most common problem areas in the buildings.

The overall summarized site visit findings collected from different locations the event was organized in are summarized in table 11. The findings are based on the resulting summaries from the result sharing workshops, and not directly on the collected data from the workbooks. However they sum up the site visit findings quite well and the collected data includes same findings. The collected data however turned out to be challenging to analyze, and the workshop findings were used in order to summarize the overall findings more quickly.

Table 11: Overall findings from People Flow Day

Residential buildings
Residents are primarily concerned with safety, security and comfort. Security is highly related to access control and comfort is heavily influenced by good lighting, spacious surrounds and design
Users value accessibility solutions suitable for usage/ building layout
Users highly value up-to-date signs with tenant, fire escape and similar information
Office buildings
Signage is highly valued by users – especially in multiple languages with accurate tenant information, indicating accessibility and emergency routes
Users value thought out accessibility options which are integrated with the whole building look and feel
Hotel buildings
For Hotel buildings the user experience is paramount (according to customers interviewed)
An increase in international clientele, means there is an increase needs for English/multi language signs, symbols and information and this is highly valued by users

Retail buildings
For a seamless user experience, comprehensive signage (including facilities, entry and exit, emergency routes, symbols and lifts) is essential
Users value when the premises have been thought through from how to find and enter the building, navigate and exit
Medical buildings
Users value clear signage, instructions/guidance so they know where to go without having to ask (this includes equipment available)
Public Transport
Users value barrier free exits which ensure quick exits
Users value clear signage with directs them and keeps the building moving
International users value the use of symbols for guidance
Users value lighting and cleanliness of the station as it strongly links to the feeling of safety

These findings did not include completely new ideas or problem areas to be fixed in the overall People Flow in buildings. Signage was a theme that was raised in every building segment. It is unclear if the questions in the workbooks emphasized guidance or not.

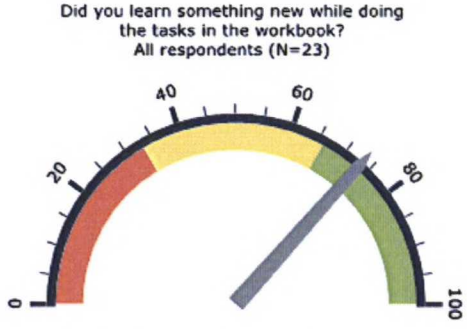
Reporting the results also received some negative feedback, because it was time taking and caused frustration because the same results that were written in the workbooks had to be reported into the web-based system. There was less negative feedback from People Flow Day event compared to the first events, as the time to report the results was extended and the survey questions modified to be more analytic and less copying the results directly from the workbooks.

7.4. Overall feedback

Overall feedback of the event was also gathered in the feedback questionnaires after the events. The questionnaire included questions that measured Net Promoter Index for the whole event, the workbooks and the participants' perception of their own learning.

The Net Promoter Index (Reichheld, 2003) measures how likely the participants are to recommend the event to a colleague or a friend on a scale from zero to ten, zero standing for "Not at all likely" and ten for "Extremely likely". Answers ranging from zero to six are considered detractors, as answers from nine to ten are considered promoters. Answers from seven to eight are considered as passive, and not having an effect on the probability to recommend the event. From these answers a Net Promoter Score (NPS) can be counted by reducing the percentage of detractors from the percentage of promoters. NPS for the People Flow Day was 35% (N=43), which indicates that the participants are likely to share their good experiences with their colleagues.

The participants' who attended a site visit perception of their own learning was measured with a direct question of "Did you learn something new while doing the tasks in the workbook?" with a scale from 0 (I learnt nothing) to 100 (I learnt a lot). The question was accompanied with an open-ended detailing question "Please elaborate what you learnt while doing the tasks". The results are presented in picture 28 and table 12 below.



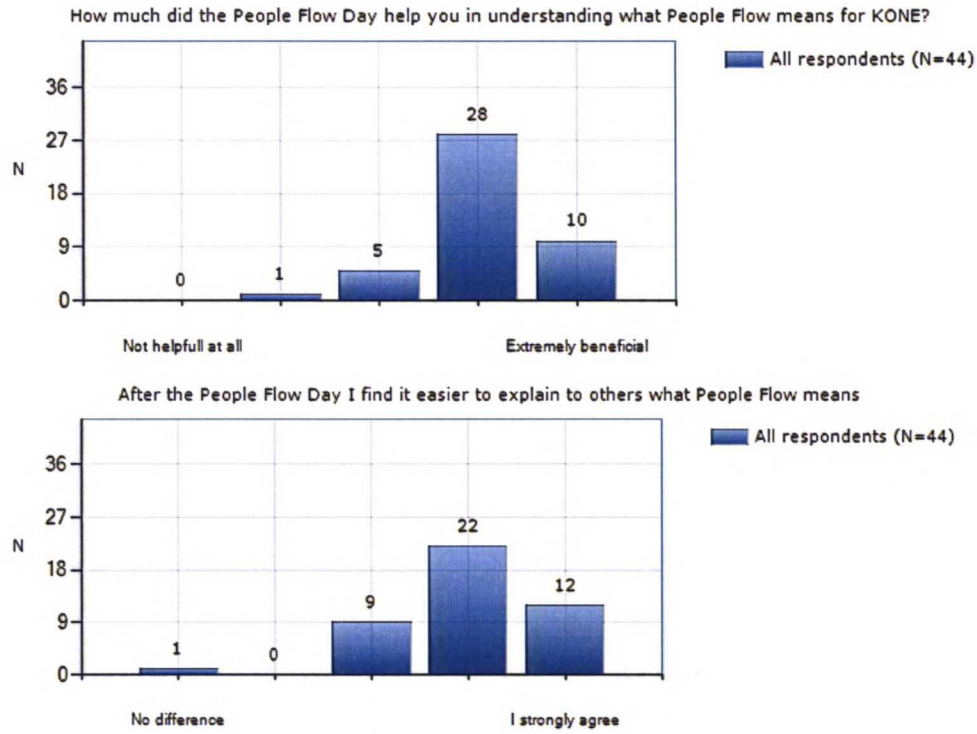
Picture 28: The participants' perception of learning while doing the tasks (Avg 73,30, 0="I learnt nothing", 100="I learnt a lot")

Table 12: An excerpt of what the participants learned by doing the workbook tasks

Please elaborate what you learnt while doing the tasks
Importance of the guidance
Equipment availability is very important for people flow
How environment and planning can affect to the people flow
Needs of different buildings and how design affects people flow
I learned that there are so many things which deserve our attention in the building. Expanding our view from the elevator makes it possible for us to really understand how the end user sees the building and which items are of importance to him/her. And this offers remarkable business opportunities for us.
Details are important. We sometimes forget that small things can mean a lot. i.e. floor leveling of the elevator or disparities in floor coverings can be a serious tripping danger to a person with walking limitations. We also need to have empathy to envision special needs, situations or limitations that would disrupt People Flow.
People flow is not something that residents take note of it. It is a routine. It is noted and voiced when the flow is obstructed or restricted
Seeing a disabled man, using a walker & being barely able to lift his feet, gave me a real sense of what users might encounter when moving around in their environment.
I learned to pay attention to many new things while moving around in a residential building.
I learnt to keep a eye for opportunities for KONE to make things better for People Flow especially for disabled people

The answers for the detailing questions included some specific details, but most of the feedback showed an overall understanding of the broadness of People Flow concept and learning about the meaning of different contexts and end users in the product usage.

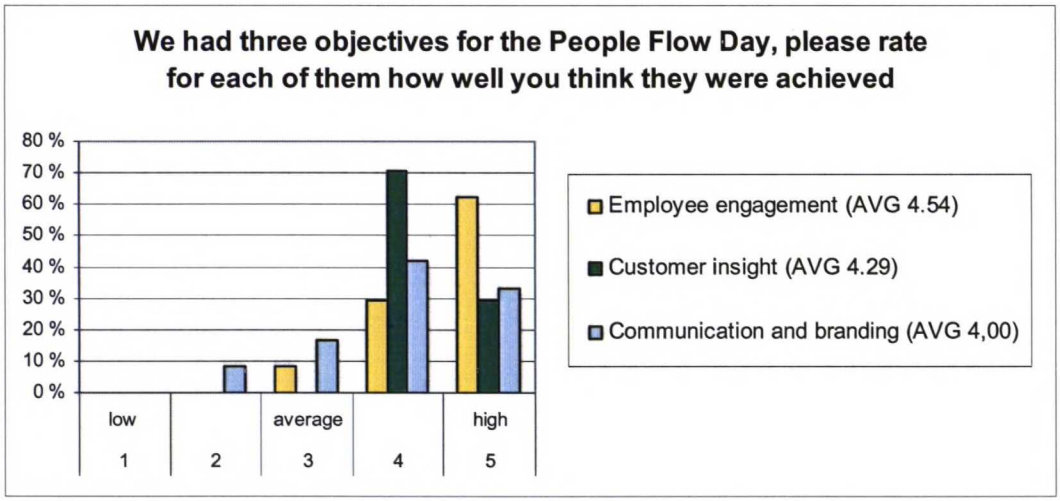
Understanding the concept of People Flow was also measured with questions "How much did the People Flow Day help you in understanding what People Flow means for KONE?" and "After the People Flow Day I find it easier to explain to others what People Flow means". In overall, the responded participants considered that the event was successful in helping to understand the concept of People Flow and improved the readiness to explain the concept to other people. The results are presented in picture 29.



Picture 29: The questions measuring the participants' perception of their own learning

The event received positive feedback also from the 24 project managers responsible for organizing the event in different locations, who were also asked for their overall feedback of the event. The overall success was rated high, with an average of 4.25 out of 5 with a scale from 1 (the worst) to 5 (the best). Their perception was also, that the participants were clearly more capable of explaining the concept of People Flow after the event, with an average of 4.33 out of 5. The project managers also gave high ratings for the material, with an average of 4.26 out of 5, which indicates that the material was easy to reuse in different locations.

The achievement of the high-level objectives of People Flow Day was also measured in the questionnaire for project managers. The objectives were met according to their original prioritization (picture 30), with "Employee engagement and education" and "Customer insight" getting higher ratings than "Communication and branding".



Picture 30: Fulfillment of objectives of People Flow Day according to the project managers

8. Conclusions and Discussion

The People Flow is a complicated concept that was difficult to define even for a student focused in user centered design. Defining the concept in more detail by making use of existing frameworks dividing the concept to smaller components helped in defining the different things that have an effect on the People Flow. Studying the methodology to research these factors, aimed to make the concept more concrete in order to create workbooks that would make the concept more concrete for the People Flow Day participants and support them in collecting useful data about it. The success of the workbooks and the event in overall is discussed in this chapter through the results from the feedback surveys, and possible future applications of the approach and research topics are presented.

8.1. The workbooks

According to the participants' feedback of the event the workbook tasks were a good way to present user centered research methods for the participants, because the participants enjoyed themselves during the site visits and considered to have learned about People Flow and collected reasonably relevant and usable data during their stay. The feedback from project managers running the day supported these findings.

The amount of interaction with the end users seemed to be the most influencing factor in the participants' preference between different task types. The participants' reluctance to interact with them was shown in the low popularity of the ASK-tasks and greater popularity of the OBSERVE-tasks. The ASK-tasks were found difficult by the participants because they had trouble finding people to interview, and found the predefined questions difficult to answer by the participants. The reasons for liking the OBSERVE-tasks most included the easiness to perform observation and observations about the task type's importance in gathering user data. It could be argued, that the presentation of the ASK-tasks was of lowest quality because of the task type ratings, but the results in the open-ended explanations for the questions indicated that the biggest issue was the interaction with the end-users.

It was interesting to notice that the ASK-tasks were considered important in collecting results, even though they were not perceived pleasant to do. This along with the explanations of why the ASK-tasks were important suggests that the participants understood the importance of using different methods that support each other in gathering data, and performed the tasks according to instructions, without too much interpretation where not appropriate. The question comparing the value in gathering data between each task type could also be considered to measure the suitability of the methods in studying user experience in different buildings. The result suggests that observation and methods involving asking the end users themselves about their preferences about the building use would be the most suitable. Every task type getting some appreciation in gathering data encourages the use of multiple methods as a combination.

Applying the methods in the form of ready made tasks was challenging, because the workbook reporting was a questionnaire for the participants by itself. Even though what was possible to do to minimize the effect, some findings about the end users were inevitably left out because there were no suitable questions for the participants to answer in the workbooks. In addition to this limitation, the amount of doable workbook tasks in this large scale was challenging, because the tasks needed to take into account the different context limitations such as access control, the time of day and different behavior norms.

Reporting the results into a database after site visits was considered as the weakest point of the workbooks. In the future technology is expected to help in reporting the findings without the need of separate reporting of the workbook results, which should make the approach lighter. However, the portable workbooks in playful paper format got very positive feedback and the solution should also include these properties and find a balance between portability and reporting the results.

8.2. The process

Following the user centered design process proved to help in adjusting the workbooks to be more pleasant for the participants and also more successful in gathering data. The feedback and results from the pilot events were successfully used to improve both the resulting data and the participants' experience of the event. Defining the users and requirements was in this case less helpful, as the users of the workbooks had such varying backgrounds.

During the process the close relationship between the planning the workbooks and planning the event became evident. Presenting the applied methods for the participants necessarily included also planning the event. The workbooks were considered high-quality material, but their main objectives depended on if the viewpoint was arranging a successful event or gathering high quality data. The event generated additional requirements and limitations for the workbooks, and the workbook questions balanced between data gathering and educational objectives. For example, the workbooks consisted of tasks covering the whole field of People Flow, which was good from the educational point of view, but yielded a less focused set of results from the data point of view. Finding the balance between these objectives would be an interesting topic for further study.

There were so many different participants attending the event that designing the workbooks to please them all was difficult. Designing the workbooks therefore aimed at universal ease of use and did not aim at a specific user group. The results suggest that people with different professional backgrounds appreciated different types of tasks. Designing different workbooks for specific user types would be one option for improving the event. On the other hand, different participants make different observations and the purpose of different task types was to force them to take different views on the topics than they normally would. This served the educational objective of the event. There is also a limit to the feasibility of adjusting the workbooks in order to get better data.

8.3. Further use

The approach is not expected to substitute the work of UX professionals in gathering insight about end users. The first impression of the gathered data was that the findings from the open-ended questions were difficult to analyze and make use of in product development. There was great variation in the quality of the data reported back by the participants, which was likely a combined consequence of the wide focus of the research, the lack of experience on user centered research methods of the participants, the limitations on applying the methods in the form of tasks and the way of reporting the results. The quantitative results could more easily be used in forming overall conceptions of People Flow in different locations, but they do not offer detailed enough information to be directly useful in product development.

Further profit from the approach could be taken in future, if the objectives for the study were defined more clearly in order to create more detailed tasks and questions in the workbooks, which would evolve around the specific areas of interest. The difference between the different participants' ratings on the usefulness of different task types suggests people in different professional roles appreciate different ways to gather data. In future applications the included task types could be chosen according to the participants. Further research on how the findings are actually affected by the participants' background is needed in order to take full advantage of the approach.

In the sense of employee education and engagement the concretization of the subject was very successful. The participants' reaction to the workbooks and the event was in general very positive. Using the workbooks to support the site visits was considered a fun and useful way of getting to know the end user viewpoint better. The observation was also supported by the positive feedback from the participants about their increased understanding about the People Flow and preparedness to explain the concept to other people. The project managers organizing the day in different locations also rated the employee education and engagement as the most successful objective of the event. Comparing the participants' perception of their own learning and the gathered data supports the idea in literature that most of the information gathered from user studies is recorded in the researcher's own understanding of the users, context and actions. The fact that the participants considered the reported data rather useful despite the contradicting first impression of the data quality also suggests that the event produced more insight for the participants than in the resulting data storage. The resulting data alone would not justify spending a day from the participants' working time, but the advantage of the approach is that it involves different stakeholders in the company in making the findings, which should help in communicating the results inside the company. Because of the high net promoter index for the event, the participants could be seen as potential evangelists for using more user- and customer-centered approaches in their daily activities, and thus applying the corporate strategy in action. It has been decided to run the People Flow Day in the future as an annual event with a yearly changing general theme, such as accessibility or design. Because of the learning aspect the approach could be incorporated into training programs for sales people and induction of new people.

8.4. Evaluation

Even though the number of the participants in the People Flow Day event was large, the amount of feedback answers was not that big. Nonetheless, the basic findings regarding the task type preferences and the quality of results apply seem reasonably reliable, although the questions comparing the different task types could have been worded differently, in less exclusive way. The qualitative data collected was really useful in elaborating the reasons behind the quantitative data comparing the task types and provided additional support for the suspicions for the reasons behind quantitative results.

The evidence for success of the event in applying the company strategy was quite extensive, and it was also supported by enthusiastic comments outside the written feedback from the event. One could argue that if the participants got a wrong idea of user centered research during the event, the effect could even be harmful. As the comments evaluating the task types show that at least some of the participants thought of issues like triangulation, and most comments highlight the raised understanding the importance of user centeredness instead of learning methodology, I do not consider this as a remarkable risk.

Many of the findings discussed earlier in this chapter are related to the experience from the process of creating the workbooks, as is normal for practice-oriented studies. I believe the findings raised from the practicalities involved in organizing such an event apply also in other similar scenarios as they do not depend on the company context of the experiment. As a conclusion, the following first impressions that seemed to emerge from this thesis should be further investigated in order to simplify and make arranging such events more effective in future:

- The balance between the objectives of gathering useful data and employee education is related to the scope of the study. The wider the scope, the better conception the participants will form of the studied subject. A more narrow scope will yield more detailed results.
- In order to collect as usable data as possible, the workbooks should be designed for a narrower group of end users so that the questions included could be modified to better suit their professional backgrounds.

References

Beyer, H. & Holtzblatt, K. (1998). Contextual design: Defining Customer-Centered systems. 13th ed. San Francisco (CA): Morgan Kaufmann. ISBN 1-55860-411-1

Brooke, J. (1996). SUS: A "quick and dirty" usability scale. In Jordan, P. W., Thomas, B., Weerdmeester, B. A. & McClelland, I. L. (eds.) Usability Evaluation in Industry, pp. 189–194.London: Taylor & Francis.

Buchenau, M. & Fulton Suri, J. (2000) Experience prototyping. In Proceedings of DIS: ACM Conference on Designing interactive systems. pp. 424–433. New York City: ACM Press

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly. Vol. 13:3. pp. 319–339.

Eskola, J. and Suoranta, J. (1998). Johdatus laadulliseen tutkimukseen. 3rd ed. Tampere: Vastapaino. ISBN 951-768-035-X

Freeman, G. H & Halton J. H. (1951). Note on an exact treatment of contingency. Goodness of fit and other problems of significance. Biometrika. 38. pp. 141–149

Hackos, J. T. & Redish, J. C. (1998). User and task analysis for interface design. New York: John Wiley & Sons. ISBN 978-0-471-17831-6

Hassenzahl, M., Platz, A., Burmester, M., Lehner, K. (2000). Hedonic and ergonomic quality aspects determine a software's appeal. In: Proceedings of ACM Conference on Human Factors in Computing Systems. New York: ACM Press. pp. 201–208

Hassenzahl, M. & Tractinsky, N. (2006). User Experience – a Research Agenda. Behaviour and Information Technology. Vol. 25:2, March-April 2006, pp. 91–97.

Holtzblatt, K., Wendell, J.B. and Wood, S (2005) Rapid Contextual Design: A How-to Guide to Key Techniques for User-Centered Design, Morgan Kauffman. ISBN 978-0-123-54051-5

Hyysalo, S. (2006). Käyttäjätieto ja käyttäjätutkimuksen menetelmät. Helsinki: Edita. ISBN 951-37464-0-2

ISO DIS 9241-210:2008. (2010). Ergonomics of human system interaction - Part 210: Human-centred design for interactive systems (formerly known as 13407). Geneva: International Organization for Standardization (ISO).

Järvinen, P & Järvinen, A. (2004). Tutkimustyön metodeista. Tampere: Opinpajan kirja. ISBN 952-99233-2-5

Kirakowski, J. (1996). The software usability measurement inventory: Background and usage. In: Jordan P. W., Thomas B., Weerdmeester B. A. & McClelland I. L. (eds.) Usability Evaluation in Industry. London: Taylor & Francis. pp. 169–178

KONE (2010). KONE Intranet: Vision & Strategy. Cited 13.9.2010

Kuniavsky, M. (2003). Observing the User Experience: A Practitioner's Guide to User Research. San Francisco: Morgan Kaufmann

Mahlke, S. (2008). User Experience of Interaction with Technical Systems. Doctoral Dissertation. Technische Universität Berlin. VDM-Verlag. ISBN 363-90297-0-4

Mandryk, R., Atkins, M. S. & Inkpen, K. (2006). A Continuous and Objective Evaluation of Emotional Experience with Interactive Play Environments. In: Proceedings of the Conference on Human Factors in Computing Systems. ACM Press. (CHI). pp. 1027–1036.

Maxwell, J. A. (1998). Designing a qualitative study. In: Bickman, L. & Rog, D. J. (Eds.) Handbook of applied social research methods. Thousand Oaks: Sage. pp. 69–100

Maxwell, J. A. (2002). Realism and the role of the researcher in qualitative psychology. In: Kiegelmann, M. (Ed) The Role of the Researcher in Qualitative Psychology. Tuebingen: Verlag Ingeborg Huber. pp. 11–30.

Millen, D. R. (2000). Rapid Ethnography: Time Deepening Strategies for HCI Field Research. In: Conference proceedings on Designing interactive systems DIS '00: processes, practices, methods, and techniques. August 17-19, Brooklyn, NY. ACM Press. pp. 280–286.

Mäkelä, A. & Fulton-Suri, J. (2001). Supporting Users' Creativity: Design to Induce Pleasurable Experiences. In: Helander, M.G., Khalid, H.M. & Ming Po, T. (Eds.) Proceedings of the International Conference on Affective Human Factors Design. Singapore 2001. ASEAN Academic Press. pp. 387–394.

Nielsen, J. (1993). Usability Engineering. San Diego: Academic Press. ISBN 0-12-518406-9

Reichheld, F. (2003). The one number you need to grow. In: Harvard Business Review. Vol. 81:12. December 2003. pp. 46–54.

Robson, C. (2002). Real world research: A resource for social scientists and practitioner-researchers. 2nd ed. Oxford: Blackwell.

Rosenbaum, S. (2000). Not Just a Hammer: When and How to Employ Multiple Methods in Usability Programs. In: Proceedings of UPA 2000 (Ashville North Carolina, August 2000), tab 19.

Roto, V. (2006). Web Browsing on Mobile Phones - Characteristics of User Experience. Doctoral dissertation, Department of Computer Science and Engineering, Helsinki University of Technology, Finland.

Sharp H., Rogers Y. & Preece J. (2007). Interaction Design: Beyond Human Computer Interaction. Chichester: John Wiley and Sons.

Wood, L. E. (1996). The ethnographic interview in user-centered work/task analysis. In: Wixon, D. & Ramey, J. (Eds) Field Methods Casebook for Software Design, New York: John Wiley & Sons

Interviews

Korkiakoski, Anne. Executive Vice President in Marketing & Communications at KONE. 12.8.2010

Appendix 1: Requirements for People Flow Day study from product design teams

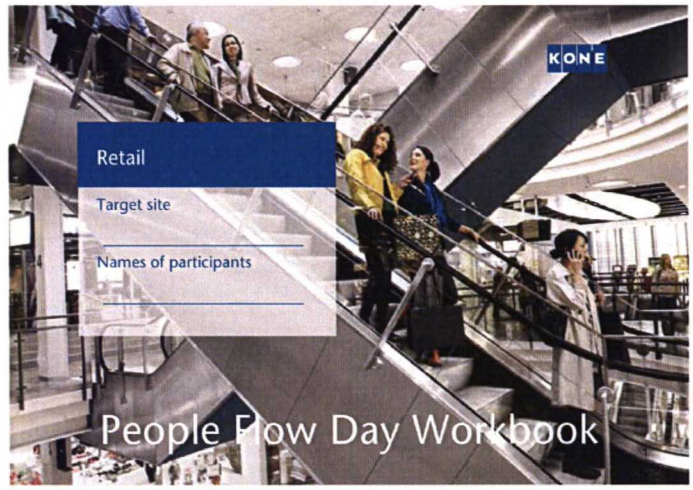
Residential
Are elevators easy to find?
Are there obstacles to reach the elevator for a handicapped person?
Why do you use elevator?
Do you need elevator?
How do you know where to go?
What are your expectations when using elevator?
What is your biggest fear when using elevator?
Is it easy to use elevator? How could it be easier?
Do you need to wait elevator in some moment - how long? Does it bother you?
Access needs in building
What features could help your daily life?
How often to update interior?
How is the general condition? (e.g. Scratch marks on the wall, mirror broken etc)
Do elevators match the architectural style?
How do the users feel about the visual? Satisfied or not satisfied?
Is the manager/owner willing to spend on 'upgrading' the visual department?
Do users communicate to managers/owners their wants and needs regarding people flow?
In case of emergency, is it easy to get out of the building?
Is there 'signage' in the building on how to find floors + services?
Is there security system? E.g. key for elevator, camera on entrance, locks in main door etc.
Are elevators easy to find?
Plan/build phase information
What other buildings/sites does this customer have?
Is the building designed for or used by special user groups? (elderly, disabled..)
There should be forward-looking questions: "What would improve PF?"
Parking garage or outside parking place or nothing?
How can error response be improved?
Do you know who built/who maintains your elevator?
Is the waiting time for the elevator too long?
How would you improve People Flow in this building? List at least 2-3 concrete proposals
Retail
Goods flow - What is meaning of working equipment to your business?
People flow - What is meaning of working equipment to your business?
How often to update interior?
Access needs in the building
Is it easy to find different places?
What are the busy times? Is there enough elevators/escalators/ramps available?
Are there any advertisements/announcements in the elevator or escalators?
Does the visual design of the elevator fit the interior of the building?
What kind of activities do the users do? Are they shopping or entertaining or working etc? What is the "speed" of activity they are doing?
Goods flow - What is meaning of working equipment to your business?

People flow - What is meaning of working equipment to your business?
How often to update interior?
Access needs in the building
Is it easy to find different places?
What are the busy times? Is there enough elevators/escalators/ramps available?
Are there any advertisements/announcements in the elevator or escalators?
Does the visual design of the elevator fit the interior of the building?
What kind of activities do the users do? Are they shopping or entertaining or working etc? What is the "speed" of activity they are doing?
Goods flow - What is meaning of working equipment to your business?
People flow - What is meaning of working equipment to your business?
How often to update interior?
Industrial doors, loading docks/dock levelers
Equipment for People Flow / Equipment for goods flow
Accessibility for trucks/delivery of goods
Type of doors at the entrance: revolving/swing control (manual)/sliding - Enough capacity?
How many shops?
What is the m^2 of shopping area?
How many parking spaces?
Is there separate contract for maintenance of building doors?
What was the capacity of traffic during design of the building and now?
Public transport (bus, metro, train etc.)
Challenges in the design of the building related to People Flow
People Flow in case of evacuation? Visualize -> Enough clear/signs/etc. Escape route
Are there locations where excessive waiting times may occur? What time/which days normally?
Is there a main entrance?
How did you come to the retail center?
If not using main entrance, is it easy to find transportation?
Any entrance can be used -> How do you get into the building?
PHOTOS
Why are people using the most commonly used entrance?
Incorporate accessibility to all!
Test different elevator groups if in place?
Is there guidance to which floors you can get?
Interviews: lighting, atmosphere, clean, noise/noisy, smelly?
Draw a map of points where crowded/queues
Room for proposals
Was there a specific user group? At what time of the day?
Industrial doors, loading docks/dock levelers
Public Transport
Focus more on finding out additional info, not validating
Station information
Asking about any confirmed People Flow issues
Smell, cleanliness, dust, wind
How do you get to the platform (i.e. Equipment)
Any access problems?
Accessibility issues? --> fast moving
Signs
What kind of persons are there?

Type of people in escalators and elevators
Need room for proposals!
Security?
End user questions
Multiple building types
What is the most important user of this office/retail/residential/hotel building?
Interfaces to back-end systems
Flows between stairs/escalators/elevators
Is there queue in the building? Where? Why?
What are the biggest People Flow challenges/problems in this building? How could that be solved?
How is the access control arranged? Is it visible?
Branding
Differentiation: high - low
What kind of third-party interfaces there are?
Car park
Country-differentiation
Tenant park
What is your favorite place in the building? Why?
What is the most disturbing place in the building? Why?
What kind of information would be beneficial for the user while moving in building?

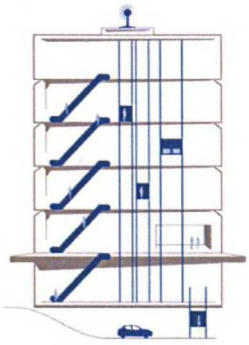
Appendix 2:

An example workbook (Retail)



People Flow Day Workbook

Retail



Dear colleague,

People Flow™ can be defined as a guiding principle for every individual KONE employee, anywhere in the world. It is at the center of KONE's operations at every stage, from the conception of a product and R&D right through to user experience. People Flow is all about customer focus, including also the end-users.

I see the People Flow Day as an unique opportunity to collaborate and increase our understanding of our customers' business and needs. By going out and talking to our customers, talking to the end-users and seeing how people move in a building, we are able to bring new depth to our vision.

I want to thank you for taking part in our KONE People Flow Day - it is an opportunity which also comes with responsibility. Not only are you collecting insight on behalf of KONE, you are also representing the company in all of your actions. The workbooks and sessions have been designed to assist and guide you, with tasks that will help you to best understand People Flow. I encourage you to actively take part and make the most of this day – who knows, the next great idea might come from you!

I look forward to hearing the results of the day and seeing what you have collected.

Best regards,

Matti

Introduction

People Flow™ concept

According to KONE's vision, our objective is to deliver the best people flow experience by developing and delivering solutions that enable people to move smoothly, safely, comfortably and without waiting in buildings in an increasingly urbanizing environment.

Our focus is on the customers. We need to continuously improve our sales skills and customer processes while striving to better understand our customers' needs. We place increasing emphasis on differentiating ourselves from competitors with innovative solutions and services to enable the best user experience.

Elevators, escalators, autowalks and automatic building doors are at the core of our offering. People Flow gives us direction for developing these to meet our customers' needs and it enables us to credibly sell, deliver and maintain complete solutions instead of just products.

Introduction to People Flow Day

What is the People Flow Day?

The People Flow Day is an opportunity for you - our employees - to see in action what People Flow means for KONE. You act as a researcher, gathering the information on users, customers and markets.

We gather this information in three different ways, which comprise the main parts of the People Flow Day (you will attend either a site visit OR a customer interview and all participate in the employee sharing):

- **Site visit**: Employees understand different **user needs** by observing them in different **market segments.** Employees are guided by a workbook which is specific to the type of building they are visiting. The workbook guides you through different activities to perform and questions to answer. You are encouraged to take photos of what you observe in the site visit.
- **Customer interviews:** Employees understand **customer needs** by going and meeting with the customers. Employees are given market and customer segment specific customer questions to ask, as well as general training on how to perform the interviews.
- **Employee sharing:** Employees 'report back' what they have noticed and learnt, giving them a good understanding of how that segment looks, any account management items and possible immediate and long term product and service suggestions.

Objectives of People Flow Day

The People Flow Day has three main objectives:

- **Employee education and engagement**: Helping our employees to see what People Flow is on a more practical level. This means doing something different to their day-to-day work and better understanding users, customers and markets.
- **To strengthen our customer insight**. This means that we better understand our customers and segment based opportunities. By doing so, we can increase customer satisfaction, strengthen our offering and product development.
- **Communication and Branding**: This year being our 100 year anniversary gives us a reason to celebrate – and we want to celebrate in a way that shows we are serious about our business of being a People Flow Expert. Additionally, better understanding of our segments means that we can strengthen our offering and our marketing materials to those needs

Introduction

Segment information

When going on a site visit, you should also consider the type of building – that is, the market segment. Below is some information about the segment, and also the building life-cycle needs and considerations. This segment information acts as background information for you.

Market segment

Some characteristics/factors which highlight the **Retail segment** include:

•A pleasant shopping experience enabled by optimized and uninterrupted People Flow leads to increased consumer satisfaction and higher sales.

•Routed and balanced People Flow enables shoppers to be guided even to areas that are visited less regularly.

•Fast maintenance in case of breakdown and regular maintenance outside opening hours lead to minimum disturbance to business and minimum loss of profit.

Building life-cycle

The customer needs and customer types vary depending if it is an existing building or not. Your task is outlined in the retail segment in the **maintain and modernize** building life-cycle phase. Below are some of the items normally considered important in these phases:

•Wide solution and product range from repairs to modernization and full replacement to security and accessibility innovations.

•Tools and processes to assist customers in analyzing equipment and their need for upgrading

•Efficient installation methods and project management processes.

•Maintenance personnel available to ensure 24/7 smooth operations with no delays.

•Preventive maintenance processes

•Reporting and remote monitoring services.

The purpose of this workbook

This workbook is an instrument for gathering data and ideas for KONE about end-users, target sites and customers. The same tasks are done by hundreds of KONE employees in different countries, and the resulting amount of data is used in creating new ideas.

For you

The tasks in the workbook help you to focus on the desired areas when gathering information. You get clear instructions on what to do on the target site. You are also encouraged to write down your own ideas during the day. Doing the tasks might also give you new viewpoints to KONE products and People Flow, that help you in your future work.

For concept development

The workbook directs the attention of the employees in the field to those kinds of themes that are interesting at the moment for new product and concept design. Getting the data gathered from site visits in a controlled form is crucial for the analysis of the results, and the workbook helps in getting the answers into context.

How to use the workbook

1. Reading task instructions

Read the task instructions through carefully when starting to do a task. If the task instructions tell you to do something first and answer the questions later, try not to read the questions in advance.

2. Doing the tasks

The tasks are divided into main tasks and additional tasks. The idea is that you should complete all the main tasks (which are numbered), and if you have time remaining, look at the additional tasks. The main tasks are in order and help you to move around the building.

3. Answering

Always be as verbose as possible when answering. Sometimes you may be in a hurry when writing down your observations. Then it might be a good idea to write short notes and then take a little time to write the answers before moving on to the next one. There are many tasks, so be sure that you are able to remember what your notes mean when reporting the results back.

4. Reporting the tasks

The results will later be saved into an online system. The system is available in:
www.kone.com/peopleflowday
There you will find further information and instructions.

Symbols throughout the workbook

Notes

There is space for you to fill in your own notes in many of the tasks. Of course you can also write notes wherever you want in the workbook, but this is the place for you if you like to keep them organized.

Idea

Think of new solutions and possibilities, and write them down.

Photo

Take a photo, or many photos when you have this icon attached to the task questions. The object to be photographed is written with the photo task icon.

Additional Info

Info boxes contain some additional information or instructions to help you.

General guidelines

You are representing KONE

Remember that you are representing KONE while you move at the customer site. Give a positive and polite image for the people you talk with!

Tools and items you will need

During the site visit, you will need the following things.

- a pencil/pen
- a camera (for instance the camera on your mobile phone)
- a name tag/ visitors card

Concentrate on the reasons

It is important to know, if the People Flow does or does not work somewhere. But even more important data is the reason why it does or does not work.

Photos

As a general rule, you should avoid taking photos of people where you can see their faces clearly. Instead focus on products, situations and groups of people and not on individuals.

Try to think differently

You might have used to a certain kind of approach while doing your everyday work. During the People Flow Day you have an opportunity to think on a wider scale and try to see things from different angles. When doing the tasks, take some time to think what different viewpoints you could take to the task at hand.

Write as much as you can

Write down all that you observe! Small things that you notice might turn into a big idea. As well, it is best if you write down your thoughts immediately, as at the end of the site visit, or even after a few minutes, you might forget what it was.

Introduction

Workbook task types

DO

In DO-tasks you will step into the shoes of an end-user and **experience for yourself**. Even the simplest tasks have complexity and depth if you concentrate on different things when doing them.

Some of the DO-tasks are structured so that you should **first read the instructions and then do the tasks**. In others it is better to know where to concentrate while doing the task. This will be mentioned in the task instructions, so read them carefully.

Try to be verbose when answering and to **think extensively**. For example, if you are asked: "Were you able to get there? Why?", you could answer "Yes I could, because finding the right place was easy. Even though I couldn't see any signs, I followed other people who were all going that way."

ASK

In the ASK-tasks, you will **ask an end-user** about their opinions and feelings concerning People Flow.

It might be challenging to approach other people with questions, but there are not too many questions per person. **Be polite** and explain shortly that you are participating an event. You can also talk to several people, if you feel like the answers were short and didn't give you enough information.

In some situations there might not be people around to ask. **You can come back to the ASK-questions** when there is someone around. If the answers are really short, you can try to **encourage answering** with detailing questions, such as "Why do you think this happens?" etc.

OBSERVE

In the OBSERVE-tasks you will **see how people do things** or make observations of your surroundings. You should not interfere with the actions, but only watch from a distance.

When looking at people performing activities you can sometimes observe actions and patterns they normally wouldn't mention when asked.

The questions in the tasks usually guide your **attention to specific themes or actions** of the end-users. People change their behavior if they know they are being watched, so keep your distance!

Introduction

List of Tasks

Main Tasks	
1	Find an entrance to the building
2	Imagine you are a shopper in this building
3	Ask the information desk
4	Ask someone about the building
5	Observe people using an escalator
6	Take the escalators
7	Observe movement
8	Find and use an elevator
9	Observe information in and around an elevator
10	Go to the parking
11	People Flow

Additional Tasks (if you have time)

- Main entrance: Observe people entering and leaving the building
- Entrance and Security: Ask someone about the entrance and security
- Follower: Observe a person coming in the building
- Damaged or out of order: Observe any equipment which is out of order
- Elevator use: Observe people using elevators
- Elevator person: Work as an elevator person

Conclusion

Site Visit

What is the time now? (time you started the site visit)

Task 1:

Find an entrance to the building

Before entering the building, observe the entrance and its surroundings.

Take a photo of the entrance

What is in the photo?

Why did you take the photo?

Enter the building and then answer the following questions.

How did you know that this was the right building? What kind of signs were there?

What other things in addition to the signs guided you to the entrance? (e.g. the architecture or People Flow)

Did you have trouble or was it easy finding the entrance? Please explain

Could the signage be understood by people from different cultures? Could people with visual impairments perceive the signs?

Notes

Idea

Notes

Idea

Task 1. Do

Task 2:

Imagine you are a shopper in this building

Pick one of the items below, and try to find where you could purchase it in this building.

Sofa	Cat food
Umbrella	Chair
Suitcase	Baby shoes
Ice cream	Tie

Once you are in front of the shop or department that would sell your item, answer the questions on the following page.

If you are **unable** to locate that item in the building, then please pick another item.

Task 2. Do

What item did you choose? Did you find the item you originally chose?

Was it easy or difficult to find? Why?

How did you find your way there? Describe the flow needed on the way to get the item (e.g. lobby → elevator → 5th floor → walking → store)?

Did you use any equipment to get you to the right place (Elevators, escalators, automatic doors...)? What equipment? How did using the equipment help you?

Could the use of the equipment have been easier? Could the equipment have helped you more in finding the right place? Please explain how

Task 2. Do

Wheelchair accessibility

Now travel back to the main entrance of the building, but imagine yourself in a wheelchair. Also use the main entrance to get outside of the building. Keep in mind the limitations caused by the wheelchair on your movement:

A wheelchair is approximately 0.8m wide and it takes a diameter of 1.5m to turn.

- In a wheelchair you cannot reach high places
- Steep gradients are difficult
- Pieces of raised floor such as a sill or ledge make movement very difficult

Take photos of things that helped you on your way or prevented you from getting where you wanted

What is in the photo?	Why did you take the photo?

Look for issues concerning wheelchair accessibility in both directions.

Could you find an accessible route? If not, please explain why

Did you have to choose a different path than if moving without a wheelchair? If yes, how did you get where you wanted?

Task 2. Do

What did you find helpful on the way?

What caused you problems on the way?

Notes

Idea

Task 3:

Ask the information desk

If there is an information desk in the building, go there and ask if they have time to answer a couple of questions.

Interviewing Instruction

- Start by introducing yourself, and telling you are from KONE.
- Tell the person you would like to ask a couple of quick questions (taking approximately 1 minute) about how they use the building.
- If they agree, then ask the questions on the following page.

If you notice anyting interesting about the information desk, its location, singage etc, take a photo

What is in the photo?	Why did you take the photo?

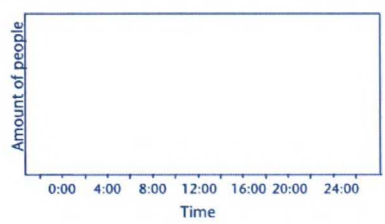
Task 3. Ask

Approximately how many people use the building per day?

What are the rush hours? How does the traffic distribute during the day (draw the distribution in the diagram below)? Could you see it is crowded during certain hours?

What makes the movement of people easy in this building? Why?

What complaints do you receive about moving around or using this building?



Task 4:

Ask someone about the building

Find someone in the building who you could ask a few questions from.

Interviewing Instruction

- Start by introducing yourself, and telling you are from KONE.
- Tell the person you would like to ask a couple of quick questions (taking approximately 1 minute) about how they use the building.
- If they agree, then ask the questions on the following page.

There are additional pages with the same questions – try and find another two people who you could ask the same questions!

Task 4. Ask

Person 1

Are you here for the first time or are you a frequent visitor?

Do you find it easy to move within the building?

What makes it easy or difficult for you to move within the building?

Outside the shops, what is your favorite place in the building? Why?

Outside the shops, what is your least favorite place in the building? Why?

Notes

You can get back to this later, if there is no one around!

The person (1) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Task 4. Ask

Person 2

Are you here for the first time or are you a frequent visitor?

Do you find it easy to move within the building?

What makes it easy or difficult for you to move within the building?

Outside the shops, what is your favorite place in the building? Why?

Outside the shops, what is your least favorite place in the building? Why?

Notes

You can get back to this later, if there is no one around!

The person (2) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Person 3

Are you here for the first time or are you a frequent visitor?

Do you find it easy to move within the building?

What makes it easy or difficult for you to move within the building?

Outside the shops, what is your favorite place in the building? Why?

Outside the shops, what is your least favorite place in the building? Why?

Notes

You can get back to this later, if there is no one around!

The person (3) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Task 4. Ask

Task 5. Observe

Task 5:

Observe people using an escalator

If there are escalators in the building, go to the busiest escalator and observe people. If possible, find an area that has escalators in both directions.

If you notice anything interesting about the escalator or the way it is used, take a photo

What is in the photo? Why did you take the photo?

After observing for a minute or two, answer the questions on the follow page.

What would make this escalator better?

How do the surroundings (i.e. handrails, poles, layout...) of the escalator support entering and leaving?

During crowded moments, how many empty steps are (on average) there between people in the escalator?

Task 6. Do

Task 6:

Take the escalators

From the bottom floor, go as high as you can using the escalators. Whilst traveling, observe how using the escalator feels for you as a user.

After making it as far as you can using the escalators, answer the questions on the following page.

In my opinion, the escalator:						
Is dirty	1	2	3	4	5	Is clean
Is damaged	1	2	3	4	5	Is intact
Is noisy	1	2	3	4	5	Is silent
Doesn't fit the building	1	2	3	4	5	Fits the building
Feels scary	1	2	3	4	5	Feels safe
Is low-end	1	2	3	4	5	Is high-end

Could you get to the top floor?

Are the escalators positioned in a logical order? Did you have to walk around a lot? Please explain

Was using the escalators a convenient way of moving? Please explain

Notes

Idea

Task 7. Observe

Task 7:

Observe movement

Go to a place in the building where you can see as many people and types of equipment as possible.

Observe for at least **10 minutes** the movement and actions of people in and around that area.

Answer the following questions while making observations

Where did you observe? (i.e. the main entrance)

How do the people divide between different types of equipment (approximately)? What are the typical users of each type of equipment? Fill in the table below

	Stairs	Elevators	Escalators	Autowalks
% of use				
Typical user				

Is some equipment used more than others? What do you think is the reason?

Do you see people running or trying to move quickly? How does it affect the movement of them or others?

Do people seem to know where they are going?

Are there any people sitting down? What type of people are sitting? Is there enough seating?

Do you notice any places where people seem to bump into each other? What do you think causes them to bump into each other (i.e. are they coming off certain equipment)?

Task 8:

Find and use an elevator

Take an elevator to another floor. Observe how the elevator feels to you as a user.

If you notice anything interesting about the elevator interior, take a photo.

What is in the photo? | Why did you take the photo?

After getting out of the elevator, answer the questions on the follow page.

Task 8. Do

In my opinion, the elevator:						
Is dirty	1	2	3	4	5	Is clean
Is damaged	1	2	3	4	5	Is intact
Is noisy	1	2	3	4	5	Is silent
Is dark	1	2	3	4	5	Is well lit
Is cold	1	2	3	4	5	Is hot
Doesn't fit the building	1	2	3	4	5	Fits the building
Feels scary	1	2	3	4	5	Feels safe
Is smelly	1	2	3	4	5	Is fresh
Is low-end	1	2	3	4	5	Is high-end
Has buttons in confusing order	1	2	3	4	5	Has logical order of buttons

On a scale from 1 to 5 I do not like or like:							
The interior:	I do not like	1	2	3	4	5	I like
The atmosphere:	I do not like	1	2	3	4	5	I like

What would make this elevator better?

Task 9:

Observe information in and around an elevator

Go to an elevator in the building, and observe the types of announcements there are and how they are displayed. Observe the following and take a photo of anything interesting you observe.

Floor information i.e. how the access control is integrated in the elevator (if at all)

What is in the photo? | Why did you take the photo?

Any other announcements i.e. what they are and how they are displayed

What is in the photo? | Why did you take the photo?

Answer the following questions while making observations

Task 9. Observe

Floor information

How are the floors named? Is the naming of the floors logical?

Do you know which floors you have access to? How do you know that?

Is the access control integrated into the elevator (e.g. do you need a key or access card to activate floor buttons or to make a landing call)? What does an elevator user need to do when going to a floor? (i.e. swipe a card in a reader and then choose a floor). Are there any problems related to this?

What is there indicating what is on each floor (i.e. shops you can access)? Is the information available in multiple languages?

How do you know which floor you are on **inside** the elevator?

How do you know which floor you are on **outside** the elevator?

Task 9. Observe

Other information and messages

What type of messages are there? Can the information be easily read and understood?

How are the messages displayed (e.g. are they on papers, infoscreens or something else)?

Is there some other informative content in addition to those announcements (e.g. television running in background etc.)? What kind of content?

What other places are there with information in the building? What kinds of messages can be found?

Task 9. Observe

Infoscreen

If there is an infoscreen in the elevator, observe how it is visible

Does the infoscreen fit the elevator interior? Why, or why not?

Is the infoscreen content readable? Does something prevent you from seeing what is on the screen? Please explain.

How could the infoscreen be improved?

Take a photo if there is something interesting about the infoscreen i.e. is the information clearly visible

What is in the photo? | Why did you take the photo?

Idea

Task 10:

Go to the parking

Find the parking and go there. If there are many parking areas, pick one randomly.

If you notice anything interesting about the parking, take a photo

What is in the photo? | Why did you take the photo?

Answer the following questions afterwards

Task 10. Do

Was it easy or difficult to get to the parking?

What made getting to the parking easy?

What made getting to the parking difficult?

Please explain how you found the parking. What kind of guidance did you get on the way?

What equipment did you use to get to the parking area?

Was it clearly visible that the path was leading to the parking area? How?

Notes

Idea

Task 11:

People Flow

Think about the People Flow you have seen in this building. What impressed you the most in this building, and what limited the People Flow?

Take a photo, if there was something impressive and/or something limiting the flow of people

What is in the photo? | Why did you take the photo?

Answer the questions on the next page

Impressive People Flow

Describe what impressed you in the building or its use and why

Was it really impressive? What made it really impressive?

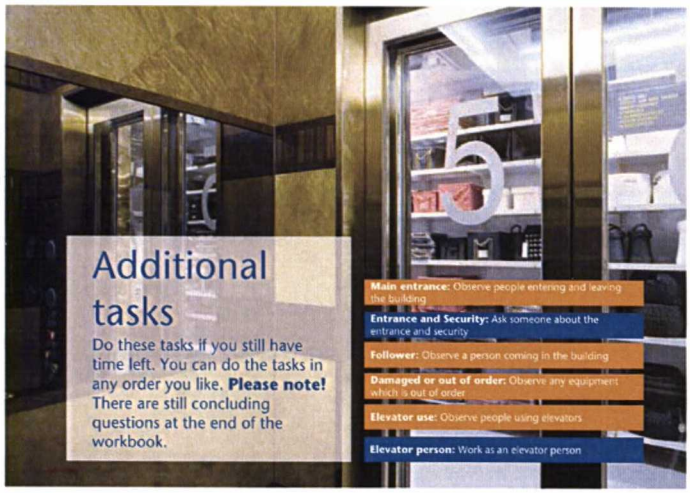
Could there be something added for it to be more impressive?

Limiting People Flow

Describe the causes that limited the use of the building. Why did they limit the use?

Is there a way to solve the problems now or in the future? How?

Task 11. Do



Additional tasks

Do these tasks if you still have time left. You can do the tasks in any order you like. **Please note!** There are still concluding questions at the end of the workbook.

Main entrance: Observe people entering and leaving the building

Entrance and Security: Ask someone about the entrance and security

Follower: Observe a person coming in the building

Damaged or out of order: Observe any equipment which is out of order

Elevator use: Observe people using elevators

Elevator person: Work as an elevator person

Additional task: Main entrance

Observe people entering and leaving the building

Go to the main entrance of the building and observe how people enter and exit the building.

Answer the following questions while making observations.

Take a photo to illustrate the problems or solutions related to moving in and out of building

What is in the photo? | Why did you take the photo?

Additional Task. Observe

What kind of doors are there at the entrance? (manual doors, automatic doors, revolving doors..)

Are the people going in and out carrying items (i.e. luggage, computer bags...) or do they use any kind of moving aids? Please explain

What is helping people to move into and out of the building easily?

What is preventing people from moving into and out of the building easily?

Notes

Idea

Automatic doors

If there are automatic doors at the entrance, observe in more detail how they are used

How are the automatic doors opened (e.g. do people push a button, pull a cord or do the doors open automatically)? Is it clear for a person using the door how the doors open?

What kind of opening mechanism do the doors have (e.g. are they sliding, swinging, revolving or some other type)? Is it possible to open them manually as well?

Are there any additional instruction notes, or other information attached to the doors or near the doors? What do they say?

Do people have any problems using the automatic doors (e.g. are the doors too fast or slow)? Please explain

Are there separate manual doors? Are there situations where someone decides to use manual doors instead? For what reason? (If it is not apparent, **ASK** a person using manual doors!)

Does something about these doors make them really easy or simple to use? Please explain

Additional Task. Observe

Additional task: Entrance and Security

Ask someone about the entrance and security

Find someone near an entrance to the building who you could ask a few questions from.

Interviewing Instruction

- Start by introducing yourself, and telling you are from KONE.
- Tell the person you would like to ask a couple of quick questions (taking approximately 1 minute) about how they use the building.
- If they agree, then ask the questions on the following page.

There are additional pages with the same questions – try and find another two people who you could ask the same questions!

Additional Task. Ask

Person 1

Are you here for the first time or are you a frequent visitor?

Why did you use the specific entrance?

What would make getting in easier?

How do you feel about security in the building?

What would make you feel more secure?

Notes

You can get back to this later, if there is no one around!

The person (1) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Additional Task. Ask

Person 2

Are you here for the first time or are you a frequent visitor?

Why did you use the specific entrance?

What would make getting in easier?

How do you feel about security in the building?

What would make you feel more secure?

Notes

i You can get back to this later, if there is no one around!

The person (2) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Additional task: Follower

Observe a person coming in to the building.

Go to the main entrance, and follow a person coming in to the building from a distance. Observe where the person goes and how he/she interacts with the various equipment available. Follow the person to their end destination in the building, or until they stop walking for a while.

Once you have completed the task, answer the questions on the following page.

Additional task: Damage or out of order

Observe any equipment which is out of order

Is there any equipment damaged, out of order or under maintenance? Go there and observe

Take a photo of any visible damage

What is in the photo? | Why did you take the photo?

Answer the following questions while making observations

Additional task: Elevator use

Observe people using elevators

Go to an elevator or a group of elevators, and observe how they are used.

Take a photo of anything interesting you observe about the elevator(s)

What is in the photo? | Why did you take the photo?

If there is a Destination Control System, take a photo of the Destination Operating Panel

What is in the photo? | Why did you take the photo?

Answer the questions on the following page while making observations

Additional Task. Ask

Person 3

Are you here for the first time or are you a frequent visitor?

Why did you use the specific entrance?

What would make getting in easier?

How do you feel about security in the building?

What would make you feel more secure?

Notes

i You can get back to this later, if there is no one around!

The person (3) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Additional Task. Observe

What kind of person did you follow (brief explanation: estimated age, gender, noting their appearance i.e. mother with children, elderly, if they are carrying anything etc)?

Did the person use a certain type of equipment? Why do you think that equipment was chosen?

Did the person seem to know where to go? What gave you that impression?

How did the person use the equipment (i.e. was moving quickly, bumped into the door of the elevator with a pram...)?

Is there an apparent reason why he/she used the specific route? What?

From what you have seen in the building, do you think there was a better/more efficient route available for that person?

Additional Task. Observe

Is there any damage to the equipment that seems to be caused by something external (e.g. scratch marks on walls from trolleys). Please explain

If there is equipment out of use, please explain the situation and what seems to be happening

How are people informed that the equipment is out of use?

Has someone tried to fix the equipment with their own methods (e.g. using duct tape or cardboard to hide the damage)? Please explain.

How does the equipment being out of use impact the behavior of people?

Notes

i Come back to this task later if you see any equipment out of use or damaged when doing the other tasks!

Additional Task. Observe

Waiting and going in and out of the elevator

Does the waiting time appear to be too long? How do people spend their time while waiting for the elevator?

How do they know how long they will have to wait for the elevator?

How many people enter at a time? Is the elevator under- or overloaded?

Are there situations where someone decides to use another type of equipment? What equipment and for what reason? (ASK if not apparent)

Are there any problems with people getting in or out the elevator? Please explain

Additional Task. Observe

Elevator groups

Is there more than one elevator somewhere in the building? Observe how a group of elevators works and how people use elevators when there are many elevators next to each other.

How many elevators are there next to each other?

Are there different elevators for different purposes in the group? What purposes (i.e. elevators to certain floors)? Are the elevators used according to their purpose, or do people just take any elevator? Why?

How is it indicated when an elevator is arriving? Do the people have any problems noticing this? Please explain

How are the users guided to the right elevator? Take note of any sounds and visual cues.

How do the buttons work (e.g. is there a single elevator call button for the whole group, or are there separate buttons for some of the elevators)? Do the users of the elevator understand the logic?

A Group of elevators:

An average elevator user perceives a group of elevators as "many elevators next to each other". While doing this task, a group of elevators refers to that definition even though the elevators would technically be in separate operational groups.

Notes

Idea

Additional Task. Observe

Additional task: Elevator person

Work as an elevator person

Wait in the elevator, politely ask people who enter the elevator which floor they are going, and push the button for them.
While you have the passengers attention, ask them to fill in the ratings on the following page

Interviewing Instruction

- Start by introducing yourself, and telling you are from KONE.
- Tell the person you would like them to fill in a quick elevator rating
- If they agree, then ask the questions on the following page.

There are additional pages with the same questions – try and find another two people who you could ask the same questions!

Additional Task. Ask

Person 1. In my opinion, the elevator:						
Is dirty	1	2	3	4	5	Is clean
Is damaged	1	2	3	4	5	Is intact
Is noisy	1	2	3	4	5	Is silent
Is dark	1	2	3	4	5	Is well lit
Is cold	1	2	3	4	5	Is hot
Doesn't fit the building	1	2	3	4	5	Fits the building
Feels scary	1	2	3	4	5	Feels safe
Is smelly	1	2	3	4	5	Is fresh
Is low-end	1	2	3	4	5	Is high-end
Has buttons in confusing order	1	2	3	4	5	Has logical order of buttons

On a scale from 1 to 5 I do not like or like:						
The interior:	I do not like	1	2	3	4	5 I like
The atmosphere:	I do not like	1	2	3	4	5 I like
What would make this elevator better?						

Additional Task. Ask

Person 2. In my opinion, the elevator:						
Is dirty	1	2	3	4	5	Is clean
Is damaged	1	2	3	4	5	Is intact
Is noisy	1	2	3	4	5	Is silent
Is dark	1	2	3	4	5	Is well lit
Is cold	1	2	3	4	5	Is hot
Doesn't fit the building	1	2	3	4	5	Fits the building
Feels scary	1	2	3	4	5	Feels safe
Is smelly	1	2	3	4	5	Is fresh
Is low-end	1	2	3	4	5	Is high-end
Has buttons in confusing order	1	2	3	4	5	Has logical order of buttons

On a scale from 1 to 5 I do not like or like:						
The interior:	I do not like	1	2	3	4	5 I like
The atmosphere:	I do not like	1	2	3	4	5 I like
What would make this elevator better?						

Additional Task. Ask

Person 3. In my opinion, the elevator:						
Is dirty	1	2	3	4	5	Is clean
Is damaged	1	2	3	4	5	Is intact
Is noisy	1	2	3	4	5	Is silent
Is dark	1	2	3	4	5	Is well lit
Is cold	1	2	3	4	5	Is hot
Doesn't fit the building	1	2	3	4	5	Fits the building
Feels scary	1	2	3	4	5	Feels safe
Is smelly	1	2	3	4	5	Is fresh
Is low-end	1	2	3	4	5	Is high-end
Has buttons in confusing order	1	2	3	4	5	Has logical order of buttons

On a scale from 1 to 5 I do not like or like:						
The interior:	I do not like	1	2	3	4	5 I like
The atmosphere:	I do not like	1	2	3	4	5 I like
What would make this elevator better?						

Additional Task. Ask

Fill in the background details of the persons who rated the elevator (Do not ask from the persons!):

Person 1			
Male		Female	
Young	Young adult	Senior adult	Senior citizen
Visitor		Staff	
Other remarks (e.g. Was the person carrying anything?):			

Person 3			
Male		Female	
Young	Young adult	Senior adult	Senior citizen
Visitor		Staff	
Other remarks (e.g. Was the person carrying anything?):			

Person 2			
Male		Female	
Young	Young adult	Senior adult	Senior citizen
Visitor		Staff	
Other remarks (e.g. Was the person carrying anything?):			

Notes

Idea

Additional task: Entrance & Security

Ask someone about the entrance and security

Find someone near an entrance to the building who you could ask a few questions from.

Interviewing Instruction

- Start by introducing yourself, and telling you are from KONE.
- Tell the person you would like to ask a couple of quick questions (taking approximately 1 minute) about how they use the building.
- If they agree, then ask the questions on the following page.

There are additional pages with the same questions – try and find another two people who you could ask the same questions!

Person 1

Why did you use the specific entrance?

What would make getting in easier?

How do you feel about security in the building?

What would make you feel more secure?

Notes

You can get back to this later, if there is no one around!

The person (1) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Person 2

Why did you use the specific entrance?

What would make getting in easier?

How do you feel about security in the building?

What would make you feel more secure?

Notes

You can get back to this later, if there is no one around!

The person (2) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Person 3

Why did you use the specific entrance?

What would make getting in easier?

How do you feel about security in the building?

What would make you feel more secure?

Notes

You can get back to this later, if there is no one around!

The person (3) you just spoke with was: *(Circle the right alternative. For you to fill in, do not ask from the person.)*

Male		Female	
Young	Young adult	Senior adult	Senior citizen

Please note any other factors (mobility issues carrying an item, with children, working person etc):

Conclusion

Think back to the things you have seen during the day, and fill in the following questions.

People

Were there specific user groups (e.g. The elderly, families, people going to work...) that were the most visible at this site? Please explain what those groups were and why you think they were most visible?

Do you remember seeing people with disabilities?

Do you have any other remarks about the people?

Items Carried

Were people carrying items? What kinds of items (e.g. shopping bags, briefcases, suitcases, prams...)?

Did carrying items alter the way people behaved and moved around in the building? How?

Do you have any other remarks about the items? What?

Equipment

What was the condition of the equipment?

In your opinion, was there enough capacity (even for the rush hour/peak times)?

Do you have any other remarks about the equipment?

Think about your favorite place in the building

What was the place?

What makes it your favorite place?

Think about your least favorite place in the building

What is the place? Why is it not pleasant?

How could that place be improved?

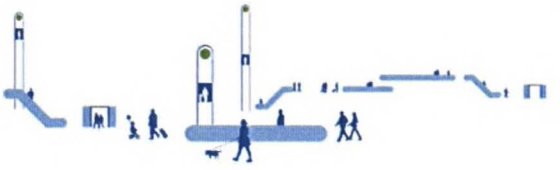
In my opinion, the building was:						
Dirty	1	2	3	4	5	Clean
Crowded	1	2	3	4	5	Empty
Dark	1	2	3	4	5	Well lit
Narrow	1	2	3	4	5	Open
Inaccessible	1	2	3	4	5	Accessible
Difficult to find	1	2	3	4	5	Easy to find
Difficult to navigate	1	2	3	4	5	Easy to navigate
Noisy	1	2	3	4	5	Silent
Not suitable for elderly	1	2	3	4	5	Suitable for elderly
Not safe	1	2	3	4	5	Safe
Dull	1	2	3	4	5	Impressive

Overall grade for the People Flow in this building
What overall grade from 0 (the worst) to 10 (the best) would you give this building for its People Flow?

In your opinion, what could be done in this building to improve the people flow?

Thank you

for filling in the workbook – this is only part of the People Flow Day: Remember to follow the instructions given for reporting your results.



Conclusion