Enhancing the usability of safety and quality standards in product creation processes

Adidas AG

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Kuvailulehti

Tiivistelmä

Turvallisuus- ja laatustandardit ovat osa adidas Groupin tuotantoprosessia, ja kuuluvat tuotannon riskienhallintaan. Tuotekehitystiimi on vastuussa standardien toteutumisesta tuotannossa, mutta käytännössä standardeja käytetään tuotantolaitoksissa. Tuoteturvallistiimi havaitsi, että standardien käyttö on hankalaa ja niiden olemassa olosta ei olla tietoisia. Sekä tuotekehitystiimin että valmistajan tiedoissa havaittiin puutteita.

Opinnäytetyön tavoitteena oli selvittää kuinka turvallisuus- ja laatustandardien käytettävyyttä voidaan parantaa tuotekehitystiimien tarpeiden mukaan.

Tutkimusotteeksi valittiin toimintatutkimus. Aineisto kerättiin teemahaastatteluina ja tutkijan havaintoina standardien käytöstä työtehtävissä. Tavoitteena oli ehdotus, joka täyttää käyttäjien vaatimukset sekä käytettävyyden kriteerit. Kahdeksaa työntekijää haastateltiin kuinka standardit vastaavat tarpeeseen työtehtävien tukena. Haastatelluilta pyydettiin esimerkkejä hyvin toimivista sovelluksista ja kuinka he parantaisivat standardeja käytettävimmiksi.

Ehdotukset suunniteltiin ISO 9241-standardin käyttäjäkeskeisen suunnitteluprosessin mukaan. Työn tuloksena on luonnoksia interaktiivisesta sovelluksesta, joka voidaan sijoittaa adidas Groupin intranettiin. Suunnitteluprosessia ei saatu täysin valmiiksi opinnäytetyön aikana. Käytettävyyden arviointia ei ehditty toteuttaa suunnitellussa aikataulussa. Tuotekehityksen seuraava vaihe edellyttää adidas Groupin käytettävyysinsinöörien osallistamista ehdotusten arviointiin ja jatkokehittelyyn.

Avainsanat (asiasanat)
Käyttäjäkeskeinen suunnittelu, käytettävyys, asiakirjahallinto, uusmedia, tuoteturvallisuus, tuotekehitys, toimintatutkimus, teemahaastattelu

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Abstract

Safety and quality standards are part of the production process of adidas Group, and are part of product risk management. The responsibility of applying the standards in the production lies on the hands of product creation teams, within the company. In practice, the standards are used in the factories. The product safety and quality management team noticed that the standards were not familiar for the users and their existence was ignored. Deficiencies were found in the information of both the product development teams and the manufacturers.

The objective of the thesis was to find out how the usability of the safety and quality standards can be improved according to the needs of product creation teams. The study was carried out as an action research. The data was gathered by theme interviews and the author's observations on the topic. Eight employees were interviewed to find out how the standards were used currently, well-working examples on functioning applications and how they would improve the standards to be more user-friendly.

The proposals were planned according to the human-centered design process following ISO 9241-standard. The results of the thesis were the scenarios of an interactive tool that can be placed in the intranet of adidas Group. The design process was not fully completed while the thesis was being conducted. There was no time to carry out the usability evaluation. The next step of the product development requires that adidas Group usability engineers participate in the evaluation on further development of the proposals.

Keywords/tags (subjects) Human-centred design, usability, new media, document management, product safety, product development, action research, theme interview

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1   Introduction

"Trust is good, quality control is better."
– Adi Dassler standard 31

Clothing industry is criticized for the usage of hazardous chemicals in textiles (Greenpeace 2014; Torkkeli 2013). The EU and other local and regional organizations started to create standards in order to prevent the risk on human health from the early 2000s (ECHA n.d.; Alanko 2011). Not only chemicals are in the focus, but the technical features of goods have been regulated (Alanko 2011; Tukes 2014). Therefore companies are driven to either follow existing standards or create their own policies to prevent the risk of selling dangerous goods to the consumer.

The partner in co-operation for the thesis, adidas AG has created a wide range of policies and manuals to produce safe goods. They even published their policy on testing hazardous chemicals, A-01 (Adidas Group 2013a). However, the problem lies in the information being too complex to understand. The product safety and quality teams are concerned for a reason; the risk of the product safety and quality may rise because of the employees do not seem to understand the available data or the access is made too difficult. A change is needed. To start preventing the risk the focus is on the creation teams of the goods by finding out what are the barriers using the policies (Dallas 2006, 37), thus, having a goal to make employees more aware and capable using the policies. The situation has its own challenges, like in the global companies with plenty of employees around the world. To name a few; internal communication flow; roles of responsibility on product safety and quality testing; and external parties of the testing processes. In addition, the frequent change of employees is an upcoming trend, combining with soon to be retirement boom, which may affect keeping the practical knowledge within the company.

The thesis was carried out as an *action research*. That is classified in qualitative methods, yet it allows using other research methods as well. The characteristics of an action research are to change an occurrence, which in the case of the thesis was the usability of the safety and quality policies. The role of the researcher is to be part of the entire process. (Kananen 2009.) The context of the thesis is the product creation

process, where the core of the issue is assumed to be. The author's job in a product creation team is therefore valid for being able to work for the tasks on the GOPS-policies.

The theoretical framework was constructed of the topics on *usability* and *human-centered-design process* to create a highly usable tool, *personal information management* for understanding how people generally store and search data. The guide for the human-centered design process is *Part 210: Human-centered design for interactive systems of ISO 9241-standard: Ergonomics of human-system interaction*. The study aims to find out the current level of usability of the policies, and the possibilities to improve that the users have faced. There are two points of view, one from the product creation team side to find out the need for the tool, and the other from the administrative side to manage the data. The user point of view is included, because it is part of human-centered design and eases adapting the tool later on.

The methodologies used are theme interviews and the author's observation in practice to get in depth to the topic. The theme interviews are typical for such topics, which do not have much data, to understand the phenomena. It supports the human-centered design by taking the users into the process of developing a tool. Observing and learning the phenomena at daily-work creates the base for understanding the reasons why the policies are not in use or understood. In addition, it makes the author able to understand the users who are interviewed.

The thesis aims to find a long-lasting solution for setting a tool in a new media channel, where the policies can be efficiently accessed and used in the internal processes, by product creation teams. It is possible when the context of use, GOPS-policies usage by the product creation teams, is understood and the users are involved in the process. The solution may have other effects in the long term on reducing the risk of the goods or saving money in supportive functions for instance (ISO 9241). The target behind the study is to keep adidas Group performing as the leader of the industry by producing the safest and high quality products.

1.1   Partner in co-operation: adidas AG

Adidas AG (later on adidas) is one of the leading sporting goods companies in the world. Diverse kind of sport, free-time and fashion wear, shoes and accessories are produced by four brands within the corporate; adidas, Reebok, TaylorMade- Adidas golf and Rockport. Every year adidas produces more than 650 million product units and generate the sales of 14.5 billion Euros relating to the figures of 2013. Adidas has more than 50.000 employees in over 160 countries all over the world. Its headquarters (HQ) are located in Herzogenaurach, in Germany. (Adidas Group 2013b.)

Adidas was founded in 1949 by Adolf *Adi* Dassler, but its roots take it back to 1924 to a company called *Gebrüder Dassler Schuhfabrik*. From the early years adidas was involved with remarkable moments of the history of professional sports. Since the very beginning the mission of the company has been to provide athletes with the best possible equipment. Adi knew the needs and could observe different athletes by being one himself. That became one of the key success factors of adidas, and has been a in remarkable role through the history. Adidas is known for its trademark, *the three stripes* which are recognized all over the world. (Op. Cit.)

Adidas aims to be the global leader of the sporting goods industry. One of the strategic pillars is to become a sustainable company, having a positive impact on society and environment. Such goals need a well-controlled governance and risk management, which are a base for managing sustainability matters through all the product lifecycle. They reflect on the products by being safe for the consumer to use. There are various policies at adidas to ensure the goods are safe to use, and the quality requirements are filled. For instance A-01: adidas Group Policy for the Control and Monitoring of Hazardous Substances (adidas Group 2014a) is a standard for controlling the usage of hazardous chemicals in the produced goods. The policies are created by combining the strictest standards around the world. They are reviewed regularly by the Product Safety and Quality teams to make sure having the latest information updated in the policies. All of the factories, both manufacturing goods and materials, are monitored on following the policies. (Adidas Group 2014a.)

1.2   The setting of the topic

The policies belong to *Global Operations (GOPS) Policies and Procedures*, and are part of the risk management of product safety and quality of adidas. The purpose of the risk management in product-level is to manufacture goods, which are safe for consumers' health in regards of chemicals and workmanships, and fill the quality requirements of adidas. Adidas produces a wide range of products within all its brands and target groups, thus a wide range of policies are created to cover the entire production process and its variations. A horizontal company structure of adidas affects the product safety and quality matters. The knowledge of the product quality and safety is needed in practice in the manufacturing locations around the world. Yet, the employees internally are responsible for keeping on the guidelines. The internal operations affected are product creation teams; product development, marketing, design for example. The amount of information and its storing has led to an issue for finding the information easily and in a consolidated location. In addition fast processes, frequent change of employees and constantly updating of information set the goals for an accessible and usable system.

There are product creation teams for different categories in apparel, footwear, and accessories and gears (A&G). Each can be divided into kids' and adults' goods. Additionally, there are some differences in regulations within sport performance and fashion goods. For example multiple strict policies can be found for kids' goods due to legislation, and A&G or technological devices do not have that many regulations yet and then need special attention. Therefore, the above mentioned categories are the most vulnerable ones. The product creation teams, especially product developers, are responsible for fulfilling the requirements of the policies. In addition, there are specific teams in material and trim development and in the internal testing laboratory supporting the product creation.

GOPS policies include the **Standard Operating Procedures** (SOP), which are the guidelines for the processes. Most of the data is technical data and the guidelines to be followed, but it is not supporting the action steps. Furthermore, there are manuals which include the practical data supporting and guiding the development in generalizing the style and outlook of the goods through all the brands. The updates for the policies and manuals are done by separate teams formed by specialists on the topic, or key

users from different departments. Their task is to keep the colleagues updated on the changes. The main issue observed by the Product Safety and Quality team is the difficulties in finding the latest information in the storing system, or not being aware of which policies are required to be followed. That would set the main issue in the document management and communication. In addition self-imposed training may offer one solution to reduce the risk of mistakes in the process, by having more knowledge on the topic.

1.3   Research approach

The Product Safety –team started acting in order to make the policies more usable and employees more aware of the contents. In addition, responding to the future challenges of technology used in daily businesses; fast processes which need quick reactions to keep the business one step forward from its competitors. It was realized the policies are not as efficient as they could be. It is needed to find out the weak points of actual communication channels for the policies and employees' preferences on using them. Then a tool for the efficient usage of the policies can be developed.

Before the thesis topic was set, Product Safety –team had already started searching different options to reform the policies more usable. Similar mobile-apps for chemicals and hazardous materials used in textiles were reviewed at external test-houses, co-operation partners of adidas. A-01 (adidas Group 2013a) was transformed into a one by one mobile-application to observe if it would work. It did not seem suitable, because it had more than 150 screens.

The mentor of the thesis is Marcus Kürner, Senior Manager in Product Safety. He asked some employees to get the project forward. In the beginning of the research a small workshop was organized for the employees, where the connection of the policies and new media channels was discussed. The intention was to present the idea to the employees, and gather feedback and attitude towards the topic. A living document or a wiki-page was a conclusion of the most usable tool; a technology driven aspect can be seen from the head start of the research.

The objective of the research is enhancing the usability of the product safety and quality policies, and improving the work efficiency in the product creation process of the tasks on the policies. With those requirements the research question was set to be,

> How to improve the usability of GOPS-policies in the usage of product creation teams?

Product and production competence are a part of studies in the degree programme in Fashion and Clothing. Therefore the thesis focuses on the internal part, product creation team's point of view. The context of the thesis is the product creation process, where the results and theoretical framework are applied. The alignment keeps the topic in a realistic scope for the thesis as well. In the thesis it is aimed to improve the document management of the production process to be able to manage the tasks more efficiently. A cultural aspect can be seen; communication and new media are closely connected to the current work environment due to improved technology. Since new media is not only communication, but also a cultural phenomenon (Dewdney & Ride 2006), it should be discussed in the context of work environment. The author's role in a product creation team allows diving into the practical issues, and to share the understanding of the issues with the Product Safety team.

During the thesis the basis for the development was done, and its results provided the basis for continuing to develop the tool. The development process of a tool is iterative when following a human-centered design process. That enables to achieve the best results by analyzing the process and development constantly. The basis of the research is to understand what is necessary and possible to do for improving the usability of the policies from the users' points of view. The context of the use is at the product creation process; when, why, and how the GOPS-policies are used, and how they affect the work of product creation teams.

The technical knowledge of creating the tool is left for the employees of adidas having the knowledge. Yet, the result of the thesis should be a suggestion to improve the usability of the GOPS policies to match the needs of employees, fast-paced work and future aspect to be inspirational for the employees to be interested in learning more information of the process. In the following chapter the needed methods of the research are described for achieving the target.

Measures for the thesis are aligned with the objective to improve the usability of the policies. Due to the limited time to complete the thesis, the long-term goals, such as profitability and cost savings (ISO 9241) cannot be measured. In addition, adapting to use the tool takes time, and it should not be used as a measure. Therefore the change can be measured on the first cycle of the development, which then means transforming the interview results and ideas into visual sketches of the tool. The performance can be measured regarding how well the prototype can be developed to match the needs of the employees with the collected data and its analysis. The satisfaction of the partner of the thesis can be measured as willingness to implement the system and take the further steps of the development process.

2 Methodology

2.1 Action research as a thesis

The criteria for an **action research** are: developing performance of a process, co-operation and practical approach. Its main functions are to change a process and solve problems. An action research supports using different research methods, because they can improve and create reliability of the results with triangulation. (Kananen 2009, 11). Typical for the action research is that the researcher is already familiar with the process, and is in an active role during the entire research cycle (Kananen 2009, 19).
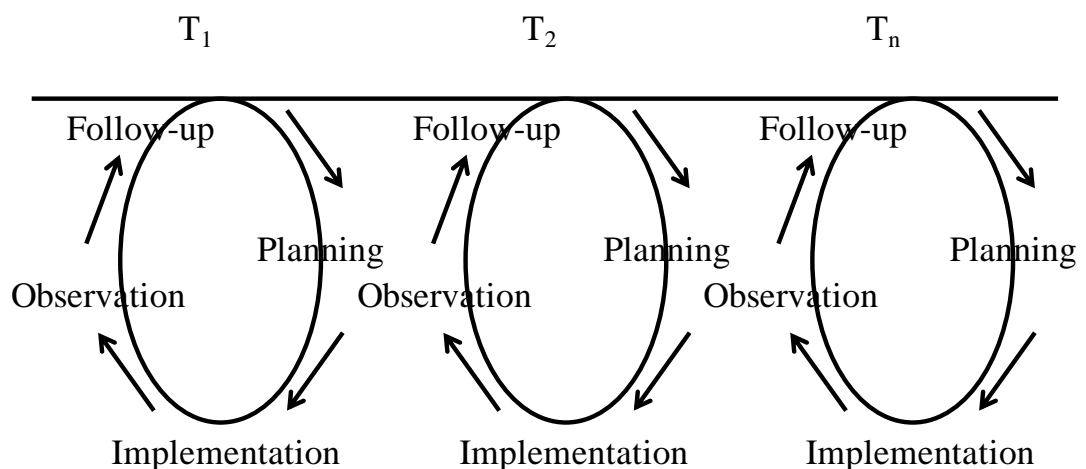

Figure 1. Action research process with cycles (Kananen 2009).

An action research is a process with cycles (see Figure 1.). Each cycle includes planning, implementation, observation, and follow-up phase. A research is always included in a cycle. The process is iterative with a new objective in each cycle; one cycle follows the other one. When other types of research only state the issue, an action research focuses on the operation to solve the problem. (Kananen 2009, 10-13.) The action research as a method supports the deep understanding of the topic. It is especially needed for improving the risk management to understand where the problems lay (Dallas 2006, 37). The research could be done as a basic qualitative research such as only theme interview or a survey, but that would let the future of the topic indeterminate. The practical action research brings the research a few steps forward, and can solve the issue. Therefore it is more promising to get results with action research.

The thesis aims to complete the first cycle of the research. The major input is on the planning and implementation phases. The data for the research is collected with theme interviews with a target user group, which is defined based on the assumptions made by the product safety and quality team. The aim is to gain the understanding of the current use of the GOPS-policies by the interviews and the observations at daily tasks by the author. At the interviews the users are activated to produce some ideas on how they would improve the usage of the policies, as well as to give examples of existing well-working solutions. By involving the users already in the beginning of the process the tool is more likely to meet the users' needs and users adapt the tool easier.

The objective is to produce a solution, as sketches that can be evaluated by the partner of the thesis, whether or not it is suitable for a prototype. Depending on the offered solution and its validity the development can proceed to the next steps; observation and follow-up. An action research is an iterative process; it has following steps no matter in which stage it has paused. The next steps after the thesis are described in the conclusion of the thesis, so that the project can be continued.

2.2 Literature and research review

The context of the thesis is the actual product creation process, the tasks when the GOPS-policies are used. In Chapter 3 the basic features of the process are described, and how the use of the policies affects the tasks or processes. The focus is on product development. Developers at adidas are responsible for the GOPS-policies, monitoring

the products on following them. Other roles at product creation process are described to bring the insight of the entire picture. *Beyond design: The Synergy of Apparel Product Development* (Keiser & Garner 2012) is one of the latest publications on apparel development stating detailed the entire supply chain. With the practical knowledge of the process at adidas, the process can be discussed through. The development of technical devices and software had led the clothing industries to change the habits earlier. Graham (2005) studied the efficiency and optimization of information in the supply chains, which can be an earlier research, to learn what may be the issues on the data management at product development.

The theoretical framework of the tool development and design is based on the *Part 210: Human-centered design for interactive systems of ISO 9241-standard: Ergonomics of human-system interaction*. It offers the standardized steps and concepts on human-centered design. Thus it can be used as a basis and to apply the thesis' topic in it. To deepen the understanding on human communicating with technology Saariluoma, Kujala, Kuuva, Kymäläinen, Leikas, Liikkanen and Oulasvirta (2010) describe more detailed examples and issues that may be taken into consideration. For the process review *Usability Success Stories: How Organizations Improve by Making Easier-to-Use Software and Web Sites* (Sherman 2006) is applied with the ISO 9241 process.

The data management, both in personal perspective and administrative aspect is studied with recent studies on how the data is generally searched. Voit, Andrews and Slany (n.d.) and Bergman, Beyth-Marom, Nachmias, Gradovitch and Whittaker (2008) researches' findings offer personal information management preferences. Together with *Implementing and Integrating Product Data Management and Software Configuration Management* (Crnkovic, Askund & Persson 2003) an effective and usable data structure can be studied. Data management is a topic which can have multiple solutions, yet it needs the understanding of the context of use as well, so that the best possible solution could be applied. Practical examples from Crnkovich, Askund and Persson (2003) ease the understanding that has been learned from other situations. The administrative aspect includes the communication to the users. Thus the already discussed new media options are discussed. *The new media handbook* (Dewdney & Ride 2006) states the concepts, features and possible activities, which may be applied.

2.3 Theme interview for collecting the data

The topic of the thesis is specific on the situation and practical, there is not much literature or researches about it. **A theme interview** was chosen for collecting the data. During the interview, the interviewee and interviewer have a conversation about the theme as free discussion. Preparation is done with finding keywords and questions to find out the information needed. The topic can be talked in depth to get more detailed understanding on the practical needs and requirements on using the policies. (Kananen 2008.)

A benefit of the theme interview is that the author is familiar with the topic and in a similar role than the interviewees. That should ensure understanding between the interviewer and participant, on the discussed subject and make the atmosphere relaxed. Essential for the success of the interview is that the interviewee can trust the interviewer. The author's inexperience in interviewing may affect the results by narrowing them and collecting only facile data. (Saaranen-Kauppinen & Puusniekka 2006)

The target is to understand *when*, *how*, and *why* the employees need to use the GOPS-policies during the product creation process to be able to understand and specify the context of use. For future, it is important to get employees committed and interested in the change, therefore asking for expectations and ideas on how they would like to use the policies may increase the rate of adapting the system. (ISO 9241.)

2.4 Author's role

Know-how on product creation was gained during a six-month internship as a Developer Apparel at adidas. The knowledge was obtained in the basic tasks of the product creation process, and the author learned to use the most important policies and manuals at various trainings and learning in practice. In addition, while working afterwards in the same role, the author became more familiar with the objective of the thesis on a daily basis. Altogether the author has one year work experience in the topic by the end the thesis was finished.

The author can observe and learn using the existing system of the policies during the study and she can get to know the topic in depth. That allows the structure of the data

to be understood, and what kind of improvements may be possible. On an action research the researcher should be familiar with the process. Yet, the researcher is not allowed to affect the interviews for example. Critical self-reflection needs to be kept in mind through the process. (McNiff 2013, 23.) Learning in practice the system may help understanding the users' points of view. Therefore the objective of offering a solution may be reached.

The author needs to monitor the whole process, may it be her own observations or interviews, how thinking process has developed to the end result. In addition, writing notes and analyzing how the communication with the mentor or the interviewees has affected the thinking should be monitored. Being able to think critically of one's own actions or receive critical feedback are essential for a successful research. (McNiff 2013, 104-105.)

3   Product creation process – policies as guidelines

There are various ways to handle the product creation process, which are affected by the company structure. The options vary from a vertical process, meaning all phases are organized and controlled by the company; to a hierarchical process, including various sub-contractors managing different steps of the process. In the middle it is possible to have a collaborative process, the internal and external operations are working together to make the process more efficient. (Keiser & Garner 2012). Adidas stands in the hierarchical end of the processes, the standard process is more collaborative with the manufacturers, but different processes exist for special teams (Adidas Group 2014b). In addition the internal structure can vary; usually fashion driven companies are more design driven, yet it can be a collaborative process with the design and production. The step in between the design and production is product development, or technical designing, depending on how it is placed. (Just-style 2013). The purpose is the same, to realize the design to an actual product, and communicate the details for the manufacturer. Product creation at adidas is a co-operational activity with product marketing, design and development. Additionally there is in-house support from planning to patterns and from sourcing to testing. The purpose of the support is to consolidate the process, yet the product creation teams need to be aware of what the meaning of those functions is.

The product developer is responsible for realizing the product as it was planned. Decisions on the fabric, trims, artworks, labels, packaging instruction, and colors need to be defined. In addition, testing the components and final product are under developers' responsibility to monitor. The job requires a precise communication with the manufacturers, who are located usually far away from the HQ. Since the industry strives on faster processes, any mistake may cause critical delays for delivering the products. Thus efficient communication is one of the key factors for a successful product creation. (Just-style 2013.) The way of choosing the materials can be eased by setting manuals, but some steps such as how the materials meet the quality standards are described in testing standards or what the labels have to include. Safety standards are set by global or local organizations for what criteria, technical features or items, for example kids' products can include. Such details need to be considered before sending the data for the manufacturer.

There are multiple options for a **product data management** (PDM) system for easing the communication, sharing information, and most essentially storing the product data. Such systems are implemented for the bigger companies. For the smaller ones the investment may seem to be high, but the advantages may not be seen. PDM-systems do not cover all the communication, their focus is on the product creation and communication around that phase. For example non-technical documents and logistical documentations are not included. (Fiber2fashion 2013.) The bigger companies have more options and need to create internal procedures, which need to be followed for consolidating the operations and processes. Those are needed for keeping the processes clear with the external manufacturers and agreements to be obeyed. Consumers' claims or costing issues are examples of guided processes. Due to the characteristics of the PDM-systems, they cannot be accessed within them. Thus such documents need to be stored where everyone whom it concerns can have the access to them and where they are updatable.

4 Human-centered design process

4.1 Usability and human-centered design

According to ISO-standard group 9421, *Ergonomics of human-system interaction*, **usability** means that a product can be **effectively** and **efficiently** used to reach a goal in specific context of use, and **satisfaction**, comfort and positive attitude towards the use of the product. **User experience** is a concept of personal feeling of a user, how he or he feels about the performance. User experience is formed from various things, from the personal abilities to work with the product to feelings and brand perception (ISO 9241.)

In terms of usability, the GOPS-policies are already meeting the effectiveness which can be assumed. The users can find their way to the goal. When planning an upgrade for a tool, the base level needs to be kept; improving the efficiency and satisfactory is the focus. The improvement of the usability reduces the risk of not following the policies. If the objectives are reached, the GOPS-policies' risk can be controlled better. (Dallas 2006, 34, 37.)

Efficiency can mean more than the user experience for the company. If the product is developed well, and users get their tasks done more efficiently, this increases its value for the company as well. The **value** is the balance of resources used and benefits gained. However, evaluating the benefits is not as simple as calculating the cost. Using the minimum of costs to receive the maximum benefits should be strived on. (Dallas 2006, 13-14.) Additionally, **quality** is noted for increasing the satisfaction. It is defined as an attribute of a product or a service which meets completely the specifications set for it. That is part for the service provider to take into consideration. It includes a set of the best possible and needed specifications, and ensures they are working error-free. (Chemuturi 2010, 23-24.) It may be part of the research to look for the quality features which improve the user experience (Saariluoma et al. 2010, 23-24).

Human-centered design (HCD) intends to improve usability with applying human factors and ergonomic features while focusing on **interactive systems** that receive input from and communicates output to the users. In practice, there is also a concept of **user-centered design** (USD), which is similar to HCD, but focuses only on the

target user groups, nobody else. (ISO 9241.) Both would be relevant to use in the research, for having a general idea on the HCD. Thus the general aspect is kept, not to mix any concepts. The action research and HCD process follow the same pattern; both are iterative processes and have similar phases (see Figure 2.; see also Figure 1.). However, in HCD process it is possible to go back to earlier steps to improve the result before going to public (ISO 9241). The processes' similarity makes it easy to follow up how to proceed.
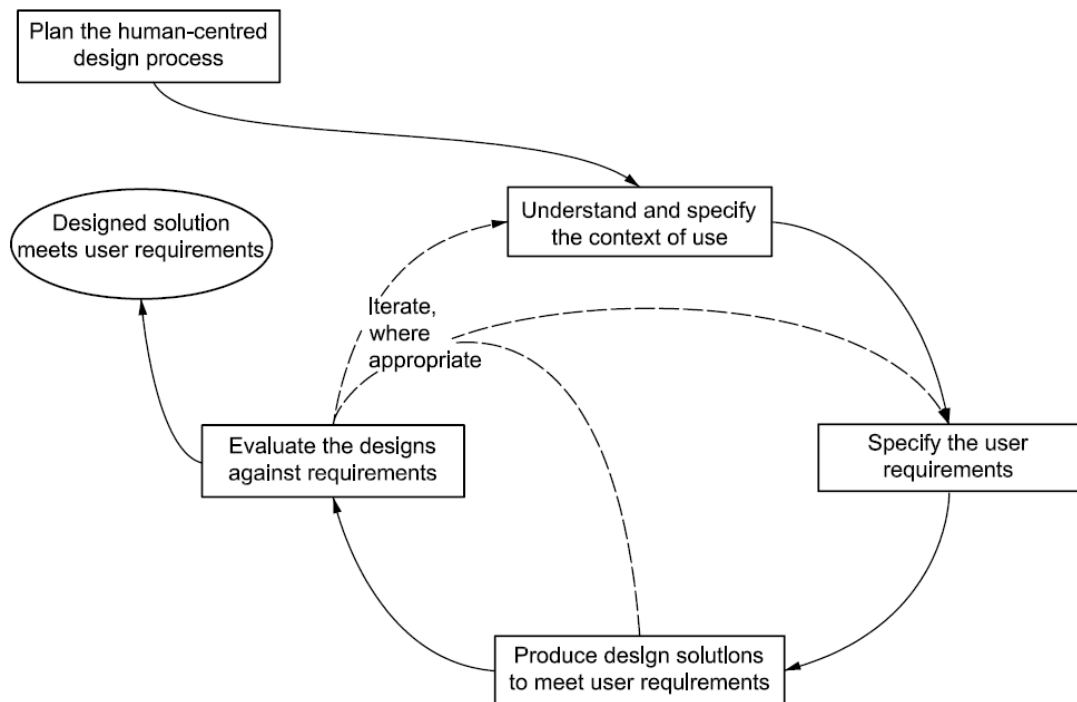
Figure 2. Human-centered design activities (ISO 9241)

When developing a product the approach of HCD can have substantial benefits for the users, such as improved productivity, reduced costs on training and support, increased usability, and reduced stress and discomfort of the users (ISO 9421). If the interaction and usability are not well-planned, the expenses may be even higher and affect the entire corporate. With a highly usable tool the training costs can be reduced. It can be seen well especially in bigger companies which have thousands of employees. The stake can be also the image of responsibility of the employer. (Saariluoma et al. 2010, 20-21.)

4.2 Development process

The first step of the HCD process is to understand and specify the **context of use**, *users, tasks equipment and environment in which a product is used*. By understanding the users, further identification of user groups can be completed. Each user group has their own task, goal, and environment of use. (ISO 9241.) That needs to be identified for each product separately, because each one is different (Sherman 2006). The design is based on the understanding of the context of use, otherwise chance of failure increase. The HCD process requires involving the users from all of the range of user groups. There should be a range of capabilities and experience in the use. When the users are involved to the process, it may increase the adapting to the use of a product. The human factor has an influence on because it may follow completely different logic than the developers'. (ISO 9241.)

For the further steps the data needs to be gathered from the users (Op. cit.). The concrete descriptions are the requirements for producing the design solutions. The solutions should specify the whole interaction which affects the user experience, presentation, functionality, system performance, and interactive behavior for instance. The principles of the design are set to fulfill to achieve the satisfaction of use. The product is required suitability for the task, self-descriptiveness, conformity with the user experience, suitability for learning, controllability, error tolerance, and suitability for individualization. (Op. cit.)

The tasks of development process (see Figure 3.) start from defining the critical tasks the product needs to be able to carry out. The user needs to complete the task. Once that is defined, the relevant ease-of-use metrics can be determined for evaluating the efficiency and satisfaction of use. The specified goals can be set with the requirements defined before. The target of the ease-of-use metrics and goals is that a task can be completed faster and with fewer interfaces for instance. (Sherman 2006, 22; ISO 9241.)
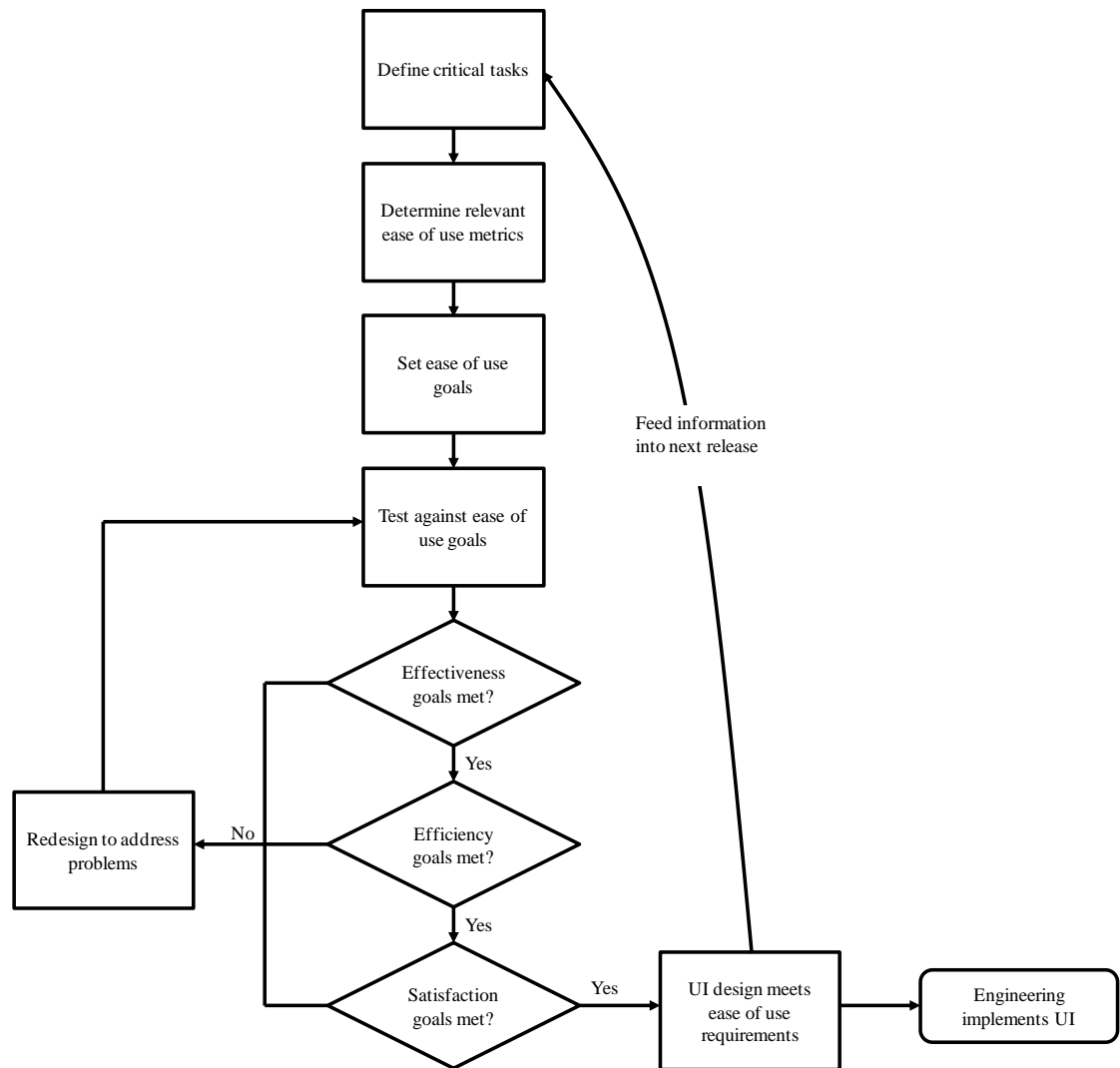
Figure 3. Iterative process for meeting ease-of-use goals (Sherman 2006)

The last step of a HDC process cycle (see Figure 2. on previous chapter) is to evaluate the solution against the requirements set in the beginning. The design solutions are some kind of prototypes, such as scenarios, simulations, models or mock-ups, which are suitable for the product development. The users and other stakeholders need to be able to give feedback on the suggestion. According to Sherman (2006, 22-23) the goals are tested with the levels of usability (see Figure 3.). All steps of the ease-of-use pyramid are tested step by step, starting from effectiveness. Relevant user groups are testing the solution with tasks given to perform and the tests will be passed when requirements for each level are filled. For example, the effectiveness- level is passed when enough (percentage) of the testers can complete the task (see Figure 4.). (Sherman 2006, 22.)

Figure 4. Ease-of-use pyramid (Sherman 2006, 22)

The design solutions are not only the sketches or a prototype of the product, but should also include the plan of the user interaction with the product. Addition to the whole design concept, the tasks and sub-tasks should be identified. The tasks can b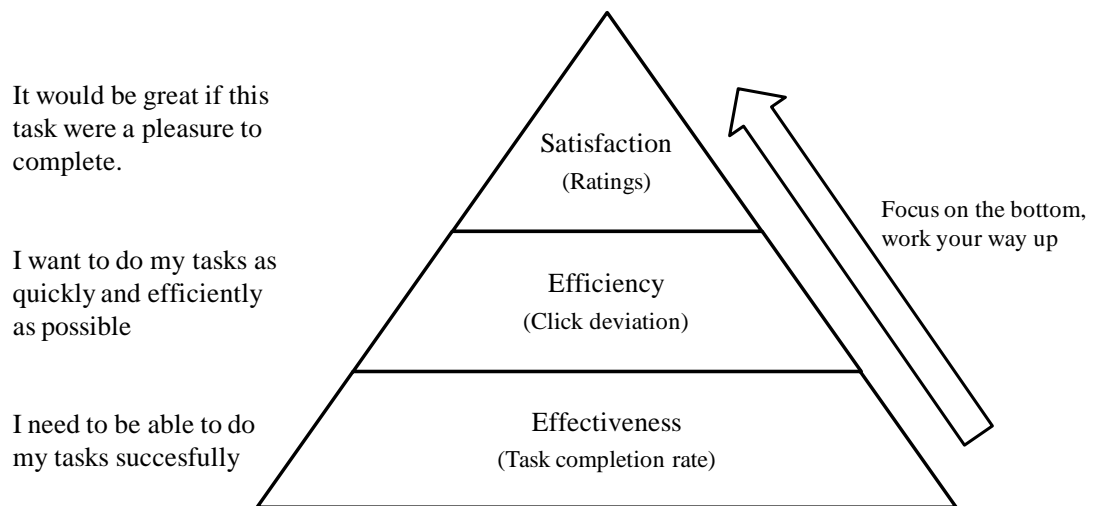e allocated in the solution and what kind on objects the interaction needs. For diving to the technical specifications, the system dialogue techniques can be selected, and define the required timings for completing an action. The bigger picture also requires the information architecture. (ISO 9241.) Document management and information architecture are discussed in the chapter 5.

To achieve the perfect results, product management needs to fully understand the required specifics of the product from the users' point of view. The specifics should be understood in only one way to ensure the fluency of the process. If the specifics are not clear enough, the software developers are not able to create the product to meet the objective. (Sherman 2006, 6.) That can be achieved with an iterative process (see Figure 2.), in which various prototypes of an application are tested and by that ensured it is working well. With an iterative development process the mistakes can be spotted and fixed. (Saariluoma et al. 2010, 40; ISO 9241) Due to the nature of the process; usually more than one cycle of design solutions need to be done. Once the alterations are executed, an implementation to a prototype may be done. Its planning is also part of designing the solutions, because the designer is not the person to actually develop the product, but need to be able to provide aids for the successful development. (ISO 9241.)

The thesis focuses on finding out the ease of use metrics and goals, first three steps of the process (see Figure 4.), and offering a solution according to the result. The HCD process team is ideally formed out of specialists in different areas. Thus the testing phase should be left for the usability engineers, because of their knowledge of setting the testing environment and devices. Additionally, they are in an objective position on the actual research by not being involved. (ISO 9241.)

4.3 Document management

The data architecture is one area of development for the tool (ISO 9241). Therefore planning the document management is important. Document management is one of the most essential things to keep an organization efficient. It affects the amount of time that is used for searching information, since the number of documents has increased in all sizes of organizations. **Document management system** (DMS) organizes the document life cycle, from the creation to disposal, search function system for documents and their content, location transparent support and access control. In addition it controls document editing, publishing and viewing on the **document container**, which is used by the user. The nature of the document container is that the content can be viewed at the same time in different formats, such as text, graphs or spreadsheets for example. (Crnkovic, Askund & Persson 2003.)

It is important to view the human aspect on managing information. **Personal Information Management** (PIM) describes the human aspect on maintaining and looking for information on a database. It can be affected in the way of accessing the database or its structure of information. (Bergman, Beyth-Marom, Nachimias, Gradovitch & Whittaker 2008; Voit, Andrews & Slany n.d.) The features of usability bring the note to navigate through the information. Various search options should be offered for highly usable systems. Yet, the taxonomy is suggested as the most important one. (Wilson 2004.) Bergman (et. al 2008) found out in their research a strong navigating preference. Both search and a clear document structure for navigating are important. A clear and easily memorized structure reduces the amount search-option used. (Bergman et. al 2008.)

Voit, Andrews and Slany (n.d.) conclude in a position paper, *Why Personal Information Management (PIM) Technologies Are Not Widespread,* eight requirements for

future PIM tools. Based on different researches it was found out that hierarchical systems, such as basic folder structure, are neither efficient nor updated. The difficulties were found that the information is preferred to organize by its location, the documents are overlapping in multiple locations, and the information which is not needed is stored anyways and not archived. The suggestions for improving PIM are following (Voit et. al. n.d.):

1. *Be compatible with current user habits*
2. *Minimal interference*
3. *Support multiple context*
4. *Support browsing*
5. *No unnecessary limitations*
6. *Transparency*
7. *Provide for expiry dates*
8. *Add metadata while storing*

The first rule is to make the transform from an older system to a new one as smooth as possible. The users should not need to learn to use a completely new system or install any kind of database on their computer. The easier the transform and learning are, the faster people adapt to use the new system. Minimalism of the interface also affects the learning; the steps of interaction should be minimized to absolute necessary ones. Therefore the information can be classified for the basic and advanced levels, in which the latter one can be set as an optional interface. (Voit et. al. n.d.)

One of the most notable findings is how the information is search and found. For both the user and the manager of the information it is necessary to have correct data. The information should be stored in as few places as possible, only one place would be ideal. Even a large number of documents can be controlled when having few locations, archive and the document accessing system. (Crnkovic et. al. 2003.) For easier accessing the information should be possible to find within different categories. Voit (et. al. n.d.) set the categories topic-related, time-related, provenance-related and form-related. In addition, Wilson (2004, 21) suggests organizing different topics for accessing information, such as alphabetical, chronological, topical, or audience for instance. The suggestion for easy access is tagging and labeling the information. In addition, that allows setting a hierarchy of the available options to be browsed through

when searching information. All of the data management, such as who updates the files and when there is an update, should be understood by the users. Having the feeling of controlling and trusting the data gives the confidence of using the system, therefore it helps with adapting to use the system in a long term. (Voit et. al. n.d.)

A short introduction for the *tagging* may be needed to understand how it helps in finding the information. **Tagging** organizes the items in the system by labeling them according to their meaning. Each item can have various tags under different categories to make an entity of tags which identify the item. There can be two kinds of tags, ones describing the item and the others categorizing the item. (Golder & Huberman n.d.) For the user the difference of tags does not make any difference, but can help creating the system for the manager of the system. The tags should be understood by the user, for example comparing *learn to read* to *literacy* (Wilson 2004, 22). Golder and Huberman (n.d.) identified some functions tags may have; the identifying purpose for understanding the contents of the item. It seems to be one of the base tags; defining the type of the item, such as policy or a presentation; identifying the ownership of the item; and organizing the tasks the item helps to perform. Additionally there are some functions which are more relevant for personal use of tagging, such as adding "my" items or characterizing tags. (Golder & Huberman n.d.) Tagging can help organizing the data under different categories where the user may look for them easier.

5 New media – a contemporary communication culture

5.1 From media to new media

Media is a set of communication channels. Different channels are targeted to different number of recipients; from private to mass communication (Sibbet 2013, 171). In the thesis the target is on the channels communicating to masses of audience. Newspapers, the internet, social media, and forums for example, can be called a mass communication media. Each has different characteristics and the target audience, as well as the amount of effort to create the message. The suitability of selected media for an organization can be evaluated and adjusted to the situation according the delivered message, audience and how private the information is. (Op. cit. 171-172.)

When communicating to a group of people, *attention*, *energy*, *information* and *operation* affect how the message is received. The message itself needs to hold the interest, be interactive and reliable in order to get people's attention. The device has an effect on the message whether it is understood and accessed easily and correctly without using too much energy during the entire operation. According to Sibbet, with these steps the effectiveness of the communication can be ensured. (Sibbet 2013, 172.)

New media is today's media practice and a contemporary cultural concept, not only a way to communicate with digital technology. It is noted that the concept of *new* might change, but the essential meaning of the concept of new media is that it has revolutionized the use of media in twentieth century with technological development. **Electronic media** is the transparent transmission system in the technological communication, including e.g. telephone, television and computing. Its feature is one-way communication, because it only carries the message electronically. Yet, it is still seen as a two-way communication because a media user is required for delivering the message. (Dewdney & Ride 2006, 20-21.) One of the key features of the new media is **interactivity**. It has two meanings from two different aspects. First, it has revolutionized the access and manipulation of the data to create new ways of thinking. Second, there is a set of communication tools available, which reset the roles and communication of users. (Op. cit. p. 206.) These two things make the communication diverse, because there is not a single way to set the practice (Op. cit. p.150).

According to Kupiainen, there are three different types of activities in using digital media, individual, communal and co-operational activities. **Individual activity** is about an individual posting something as a person. That one is connecting other people, but can be seen as individual action. As an example a blog is an activity, which is executed by an individual, but connecting other users. **Communal activities** connect groups of people, e.g. school classes, colleagues or similar interests. The purpose of posting something is to mean e.g. an entertainment or benefit for the whole group. **Co-operational activities** are formed by the group together in order to create something. Each activity has its own background, targets, and audience. Yet, they are creative and user-generated, and are using some of the internet platforms. (Kupiainen 2013.)

What makes the interactivity possible, is **human-computer interface** (HCI) and **graphical user interface** (GUI). HCI is divided into three levels which are only work-

ing together; devices operating the system, software that organizes the access and navigation of a database, and special technological cultural codes for understanding the use of data. GUI means the visual environment, which has changed from complex and long commands to e.g. toolbars and dropdown menus. (Op. cit. p. 187 & 192.)

5.2 Human and technology

When there is a digital tool, there has to be a user using it, otherwise the tool does nothing. Thus it is needed to discuss what kind of relationship man has with technology. Dewdney and Ride (2006, 187) have divided the **human-computer interface** (HCI) into three levels, the *physical device and operating system*, *software* that organize users' access and navigation of a database, and *cultural codes* for understanding, accessing and navigating in the data. Those levels are one entity in practical level: none of them would work alone. According to Dewdney and Ride (2006, 187) it is also possible to say that HCI consists of two layers; computer layer containing all the technology, physical device and digital software; and cultural layer, which contains the content in the means of message and its understanding. (Dewdney & Ride 2006.) Since the computer layer includes all the physical elements such as screen, keyboard, and mouse as controlling objects, it is not needed to discuss about them on first priority. The importance is to focus on GUI of the computer layer, and the entire cultural layer. (Op.cit. p.192.)

GUI has changed the controlling of computer from commands and text-based operations to icons, buttons, and menus, only few to mention. The graphical objects made the entire computer usage easier by directly manipulating them, and commands were not needed to memorize, because dropdown-menus had all the information for instance. (Op. cit. p.192.) For the thesis it is more important to discuss the connection between GUI and the cultural layer. Those may affect on successfully operating in the digital environment the most.

The means of how the GUI and computer operating systems are understood is meant by **cultural interface**. It is one kind of language, which consists of codes and habits combined with the cultural interaction of each person. The challenge is to use for example icons which are self-descriptive. Yet, adidas has recently published UI (user interface) Guidelines, the internal cultural codes for the intranet. Dewney and Ride

(2006, 194) reckon, since the cultural layer is already developed in the physical layer, the focus seems to be on bringing technology closer to the previous media forms, books by the way of changing the page for instance. (Dewdney & Ride 2006, 194.)

The focus of the cultural layer may be on consistency of the message in the work environment. Yet, it is relevant to discuss about **computer literacy**, skills on interaction with computer. It is generally thought and studied that younger employees are more advanced in using computer, than their old colleagues. Therefore learning settings may be set upside down from the traditional setting. (Prensky 2001; Hammarsten 2013.) Yet, Kupiainen (2003) emphasizes that everyone has the same expectations about being able to use new media applications, but adapting to use them varies from the personal background. Accessibility is one requirement for high usability as well, the majority of the users should be able to use the product (ISO 9241). Therefore it needs to be taken care that each employee, no matter how computer literate they are, has the possibility to adapt to use the application; to use and optimize it for their personal preferences; and still have the advantage of being more effective at their work. (Sibbet 2013, 178.)

5.3   Internal communication

The employees of a company should be aware and informed about the same matters before communicating anything to customers. That affects the entire brand image, because the employees are asked to answer the questions about the company by their relatives and friends. When the employees are familiar with the changes or even the vision, mission and values of the company, it is easier to talk about them with the network of the employees. (Malmelin & Hakala 2005, 134-135.)

The internal communication can be organized in many communication channels to ensure the message is received by as many employees as possible. An intranet is one option, which gives the same message to all employees, does not fill email and is reached when the employee has the time for it. That said, employees are free to use it, therefore the important information might be missed if the employees are not actively using the intranet. Activity, and as discussed in *Chapter 5.1 From media to new media*, interactivity are the key factors for open communication in between the employees and the board of directors and managers. Sending a message which allow employ-

ees to respond, is a starting point for adapting the active usage of the intranet. (Sibbet 2013, 172.)

The intranet of adidas is *aLive*. The information is structured in different information pages, documents, workspaces and apps, all of supporting a variety of personal to working needs. In addition employees can share inspirational or otherwise interesting links, update their personal profiles, or follow colleagues. Special departments, such as costing or product safety and quality, share data for other departments, such as product creation teams, who need it for their tasks. The advantage of digital environment is that it is easily accessed by a large number of people.

6 Research methods

6.1 Gathering the data

The empiric of an action research includes the *planning* and *implementation*, and possibly the *observation* and *follow-up*. The objective of the planning phase is to understand *when*, *how*, and *why* the employees need to use the GOPS-policies during the product creation process for being able to understand and specify the context of use (Kananen 2009, 11; ISO 9241). It is important to get employees interested in the change, therefore asking for expectations and ideas on how they would like to use the policies in future may increase the rate of adapting the system (ISO 9241). Additionally the planning includes the author's observations on how the policies can be used.

Interviews were decided to do as theme interviews. They are based on free discussion on pre-set themes, and allow getting in depth to the topics. The structure of the interviews follows the **tunnel-technique**, from general to detailed information. It is easier to think about the topic and slowly get the examples and go towards the improvement suggestions and innovative part. It is also considered as getting trust between the interviewee and interviewer to start with more general questions. Though, the themes are not discussed in the same order with all interviews, the discussion should flow free. The researcher can just bring the conversation to the topics not talked yet. (Kananen 2009; Saaranen-Kauppinen & Puusniekka 2006) The theme interview requires the users to be involved with the phenomena in order to get deep understanding (Saar-

anen-Kauppinen & Puusniekka 2006). That is necessary for the thesis topic, because of the intension to find out what kind of issues people have while using the policies.

In the end of the interviews it was decided to ask rating the usability of the current use of GOPS-policies. It was wanted to get some idea how the users feel about meeting the levels of usability to conclude the interview. The rating and interview results can be compare for understanding the need to improve the GOPS-policies. Scientifically the sample of the interviews is generally too small for having a quantitative research for representing the population. As discussed before, the rating was chosen to conclude how the usability of GOPS-policies is perceived.

Observations could have been a suitable method for seeing in practice how the GOPS-policies and the data within them are accessed. Yet, observation does not answer the question why some things are done as they are (Saaranen-Kauppinen & Puusniekka 2006). Therefore the interviews seemed to be more efficient method. By the active role of the author on the phenomena, it was decided to learn to use the GOPS-policies in order to understand what may be improved.

The solutions can be prepared with the data collected from the interviews. Feedback, ideas, good examples for instance can be data for meeting the user requirements for the tool. A model of the tool can be drafted with graphic software to look like a scenario of using the tool. A visual aid for presenting the idea it will help to present the solution to the stakeholders and users, and get feedback from them. Yet, the scenarios are not able to give direct feedback from the linkage of the pages or selections for instance. (ISO 9241.) To produce the scenarios, adidas' usability guidelines aid to consolidate the outlook of the tool.

6.2   The analysis methods

An action research is classified to qualitative methods, but quantitative methods can be included in the research as well. Therefore reliability and validity are not possible to be evaluated as e.g. in natural sciences; each method needs to be analyzed separately. (Kananen 2009, 87-90). As mentioned, the interviewees were voluntary participating. The confidentiality agreement and acceptance exists from the works council and data protection of adidas to confirm the subject of interviews and anonymity of the

respondents. The practice of the interviews was to show the opinion and information from the interviewees is appreciated, and not changed. Those are the main criteria for ethical research, and are fulfilled (McNiff 2013, 112-113).

Different kind of triangulation, e.g. data or researcher triangulation, creates the validity on interpreting the results correctly. Yet, in a qualitative research there is possibility for more than one correct result. (Kananen 2009, 96-97.) For the data triangulation author will compare the results of the theoretical framework, and collected data from observation and interviews. The mentor of the thesis can be seen as another researcher who evaluates the validity of the results because having the knowledge of the topic.

Qualitative methods should be measured for its reliability with the amount and quality of references. Their flawless and critical analysis is important as well. Using various research methods and documenting the process are important for measuring the reliability. Transferability and dependency can be ensured with the documentation. (Op. Cit. p.92-95). Since the target of action research is to change performance of a process, analysis is based on the change achieved with the research. In order to have reliable results, everything has to be proven and analyzed. (Kananen 2009, 98-99.) The current system and the features are compared and justified why they would make the tool improving the usability.

The first set of scenarios was shown to the mentor of the thesis with explanation why things were chosen to be and look like it. The feedback was collected and the sketches were re-worked. The last feedback was asked from one of the interviewees, because of already being familiar with the topic. The second set needed only few corrections, but left some features open as well. The sketches were not shown to many users due to tightening timelines, and in the name of correctness of research process. Usability tests and feedback should be gathered by a team who is not involved with the project and have objective point of view (ISO 9241). The researcher is already emotionally involved and may push the results to be as wanted (Sherman 2006, 24.) Therefore the testing part was left for the future steps of the process. It is also about the time to gather a specialist team around the topic.

6.3   The setting of the theme interviews

Defining the population and the sample

The product creation groups are the responsible ones to ensure product safety and quality standards are fulfilled in products. The main responsible persons are *product developers* (apparel, footwear, or accessories & gears), who are the contact persons in between of marketing, design and the factories, and technically ensuring the products are possible to produce. The product creation teams include *product manager* (PM), which means marketing person; and *designer*. That is the core team of product creation. Additionally there are *material developers* who are in contact with the factories and suppliers, but their responsibility is to ensure the materials fulfill the standards stated in GOPS-policies. Other supportive departments are *labs* both in HQ and LOs. Their responsibility is to ensure the chemical and testing to follow adidas' standards. There are also product testers who ensure the user-comfort and fit on the new products. The responsibility of following and obeying the policies is in the internal function, yet, the staff in the factories is educated and in practice working with the policies.

The main user group was assumed to be product developers according to the seminar's results, because they are responsible on the product safety and quality standards. Other functions in the product creation teams do have responsibilities in some procedures, yet not that much. Another aspect was the supportive functions, since they work closely with the product developers on the issues production may have. The sample of research includes the primary users of the policies, product developers, from different BUs.

The target size of the sample for interviews is from 10 to 15. Within that amount the data is reaching the saturation point; repetition in the answers and logic can be observed. In an ideal case the theme interviews produce new information already from small amount of participants. Discretionary sampling was used to choose the interviewees. The criteria for the invitations sent were the employees who are more likely to give feedback, and be open for a deep conversation. A wished characteristic was to be pro-active, and willing to improve the working environment. Such characteristics were estimated by the author's and recommendations. Interviewees were chosen from

the author's contacts and colleagues' suggestions. Some of the employees who were invited to the workshop organized in February were invited as well.

The invitations (see Appendix 1.) were sent via e-mail, for being able to decline and view the invitation when having time. Altogether the interviews were scheduled for eight volunteers, out of 15 invitations. Six of the interviewees work as product developers, and two are from the supportive functions. The interviews took place from the last week of September to the second week of October in 2014. The interviews were scheduled on a busy timeline on product creation process, which affected on the participation rate. Postponing them was not possible in regards of the timelines, but earlier time may have given more answers. That said, the sample was sufficient, since it started to reach the saturation point.

The interview process

An interview form (see Appendix 2.) was created, which includes all the questions which can be answered within the interview. The form helps the interviewer to track that all questions are answered. A test interview was done for a user of the policies, to test the form, and make the interviewer more confident. The form did not need any updates, but later on the interviewee noticed that some questions need more explanation. Though, in the theme interview the main themes are the more important ones to follow.

The interviews were noted down with hand-written notes. Because of not available recording device, except personal Smartphone, the interviews were not recorded. Using a personal device for recording would have given unprofessional image for the interviewee. That in mind, it was more trustworthy to write down the notes while listening when the interviewee can see what is written down. Yet, during writing the notes, the focus may loose on the actual conversation and some points may have missed to note, but it gives the time to think for the interviewee. Each interview was written up within few hours in order to still have the conversation in mind. The topic itself does not require word to word notes from the interviews, because the target is to gather experiences and ideas on the usage of the policies. Hand-written notes exclude the possibility to use word-to-word quotations, which may reduce the reliability. Interviews were held in neutral meeting rooms, for having the privacy to talk. Yet, for a request, the place was changed to another place at adidas' campus.

Interviews were started with an introduction to the research topic, to bring the interviewee familiar with the intention of the interview. Concepts of usability and GOPS-policies were discussed for common understanding in between of the interviewee and the author. Also it was pointed out that it was anonymous in regards of the information received and handled during the analysis.

The interviews started with discussing about overall questions on the GOPS- policies; how, when, and why they are used. Three themes were differentiated; **the tasks**, **situation and locations**, and **frequency of use**. The next theme was to get the **understanding of the process of searching information**. The interviewees were asked to name the differences in between which policies are the most important for their daily tasks, and which used seldom. The *how* -question intended to find out which location, and form the manual is used; if the policies are used digitally or printed, or if there are both used and why such difference is practiced. The answers for *when* -question concluded the time lapse; how often certain manuals are used. The last, *why* –question inquired an answer in what kind of situations the policies are used; whether it is for gaining new knowledge or double-checking the data for instance. During the interviews the interviewees were asked examples of well-managed systems, and why those were easy to use in their opinion, or why something did not work that well.

The next theme was the innovation part, **perfect world** and **preferences for development**. A question was how the users would see the GOPS-policies used in the future. The intention was to obtain the ideas for the development. Interviewees were asked the three most important things to improve in the system. The conclusion of the interview was to rate (see Appendix 3.) quickly the current system in terms of **effectiveness**, **efficiency** and **satisfaction**; the levels of usability. The efficiency was divided in two parts, accessibility and task ratio, to find out if there are difference in the looking for a standard, and information in it.

Interviews took from 30 to 45 minutes. Mostly it was easy to discuss with the interviewees, the topic was understood and felt important to focus on. It was slightly difficult to write the notes, but interviewees kept breaks when seeing not finishing the notes. The writing and focusing evenly on the interview and the notes got improved while getting forward with the interviews. Keeping the habit to write up the notes quickly after the interview was noticed to be good in order to remember everything

discussed. It was slightly difficult to make the difference in affecting the opinion and answers of the participants and asking deeper questions. The author's role being active and doing own observations on the topic felt to affect on the discussion. Though, it was necessary to understand the topic for understanding the contents of the discussion.

7 Improving the usability of GOPS-policies

7.1 Approach of Product Safety and Quality management

The data in the policies is managed by the core group of Product safety and quality managers. They are responsible for keeping the manuals updated in regular basis, and maintain the overview of the policies. In April 2014 there was the Global Product Safety –seminar where the managers were gathered at adidas HQ. During the seminar the change of the platform of the policies was discussed, and the idea for using some new media application for a solution was presented. The suggestion was greeted positively.

A suggestion for the user levels and media forms was created (see Figure 5; see Appendix 4.) due to the fact that the user groups are using the policies with different needs or knowledge. The core is the administration of the GOPS-policies within adidas Group. The members of the core group are responsible to keep the policies updated, and are the professionals of the topics of the policies. The first level is those who are responsible for executing the policies on the goods. It includes employees from various tasks and responsibility areas. Therefore the level 1 is the direct and the most essential communication partner. On the second level the information is also needed, and the contact with the goods is frequent. Yet having the information is not essential for this level. It would be beneficial for the business, if the level 2 would have the knowledge in order to achieve efficient processes. The third level includes the shareholders who are requesting the information regarding the goods. It can be either from business or consumer side. As a process, the awareness can be increased from center to outer edges, so that the actual employees are aware first and then sharing the information to external parties.
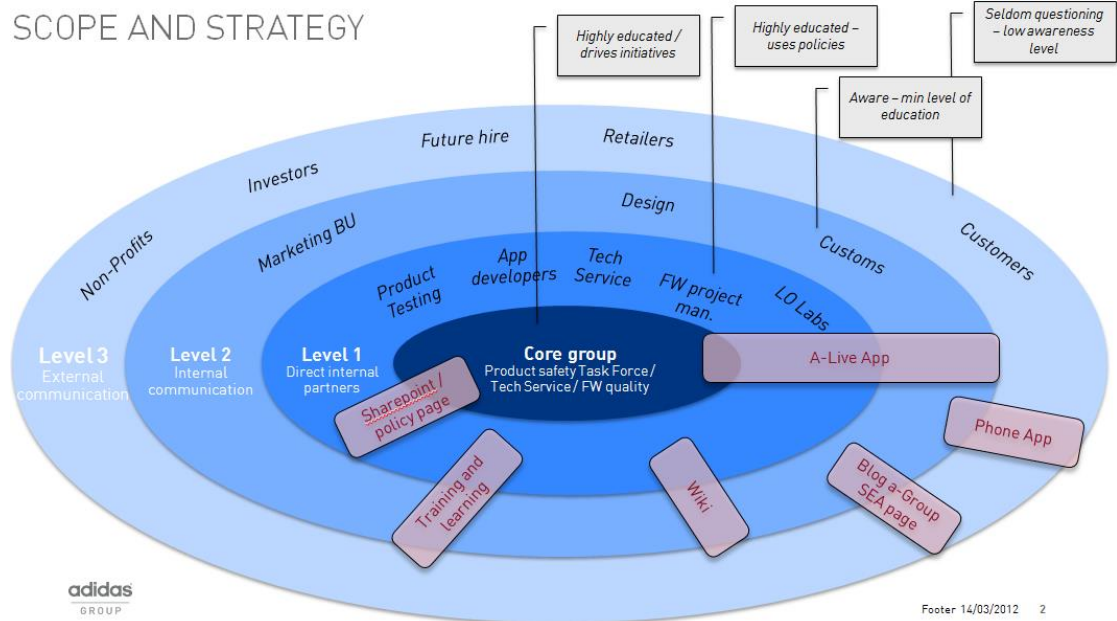
SCOPE AND STRATEGY

Figure 5. User groups defined at Global Product Safety –seminar (see Appendix 4.)

The storage system for the policies varies from the level of the usage as well. As mentioned before, most of the policies are stored in the GOPS-policy workspace in the intranet and in the Sharepoint. The local files at computer are excluded because it does not cover all the teams, and is not efficient for the process. On the right side of the In Figure 5 there are the options for media channels based on discussion at the seminar. An aLive app would cover all the internal usage. It would create transparency and availability of the information through all categories and teams. A wiki-page would be then another option targeted to the internal use only. That would have the information easily transferred from them policies, and linking within one policy and other policies would be possible as well.

7.2 Current situation – learned from work

The researcher has remarkable role in action research, being part of the phenomena and observing it helps the understanding. It also opens doors for ideas and solutions for the problem. As an apparel developer it has been possible to process the thoughts regarding the objective of the thesis. On the first place learning the ways to search and access information gave the idea of points to improve and created ideas for the solutions. During a year within the company there was also a change in the intranet, from adiweb to aLive. The intranet server was changed, and new kind of functions became

available. In aLive the different servers used in the previous systems were linked together, and visually changed to look similar. Therefore differentiating with aLive-app or -workspace and Sharepoint got more difficult. The Sharepoint- workspaces are accessed via a link or an aLive-workspace, not with a separate page which one could enter and search ones files. That change lead to unawareness of the location of data, yet, changes the habits to aLive-based searching.

Global Operations (GOPS) Policies and Procedures have a workspace dedicated to all different policies regarding the product creation process. The workspace is located in the intranet of adidas, aLive. It is formed as a library, where the topics are classified within the usage, such as *product creation* or *apparel quality*. Each topic has a menu which can hide the policies inside if wanted to. The policies are pdf-files so they need to be open separately. It is also possible to search a file, which gives the result from all of the content of the manuals. Other storing options are in the team folders in the laptop shared via corporate network and Sharepoint-workspaces where only the topic related policies are stored with other manuals and training material.

The theoretical policies are not alone the data which is needed for product creation process. There are different kinds of workmanship-standards to consolidate the ways of manufacturing a garment for instance. Workmanship standards and practical manuals (later on manuals) form the basis of the information together with GOPS policies needed by product creation teams. Those manuals are mainly stored in Sharepoint-workspace for one topic.

The teams have key users who are responsible from certain topics, and keeping the colleagues up-to-date. Additionally, the key users' responsibility is to gather feedback from their team(s), to be presented for the key user meeting. BUs may share the key user with a couple of teams, to balance the workload. The key users usually have special knowledge of the topic to be able to assist their colleagues best.

As a new employee there are trainings offered for the bigger topics, for how things work within the company. All of the trainings are soon in the beginning. That may affect the information is forgotten. Perhaps the reason is to get to know the responsible persons in other teams to reduce the barrier to contact them. The most important policies are learned to access and organize own files for the most used issues. Yet, it

varies from the team how much employees are encouraged to be pro-active in searching the answer, or if colleagues are showing where to find it.

7.3 The use of the policies

The analysis of the interview results were organised in categories for finding out the user requirements for the critical tasks, ease-of-use metrics and goals. Three main categories were established; a general view why the policies and manuals are used, how the information is accessed and what kind of habits users have to organize the data, and searching habits.

The usage of the policies and manuals

The general reason to use the policies or manuals through all interviewees was to look for the data for checking the processes, and details and requirements set for safety and quality matters. That matches with the intention of manuals, data has to be available to consolidate the safety and quality level of the products and production process. That said, there is still a big amount of information which is not memorized by the users. All participants said they need to use the actual GOPS policies seldom, an average from once a month to once a season. Therefore the data is not memorized, the need is rare. The manuals are used more often, multiple times a day to weekly basis depending on what phase of development it is. The intention usually is to double-check the correctness of some technical details.

Accessing the data

All of the interviewees use the policies and manuals at their desk. None of them look for the information in meetings. Two of the interviewees mentioned that it would take too much time there. In contradiction, one said that it would make sense to find it during the meeting to avoid extra meetings, but have not done it. The habit is to come back with the answer after a meeting. One mentioned using some manuals saved on the desktop at the business trips. Latter can be considered as seldom usage, but accessing the information quickly at meeting may happen more often. That would increase the efficiency of the meetings, and reduce the amount of further meetings in the best case.

Typically user accesses the manuals electronically to avoid printing. The intranet aLive, and Sharepoint are used the most when looking for information. Additionally some information is stored at local files at computer or email. The storage and organization is created by the users' logic. Generally the logic follows topics of the tasks such as *costing* or *fit classifications*. Additionally, the user may have a hard copy of seldom updated manual [AD streamline or fit classifications]. Printing out of manuals is avoided for not missing an update. That said, it is felt that such manuals are easier to handle as hard copy. The printed manuals are so big that scrolling through them would take too long time. Own structure may be created with adding post-it tabs and notes.

Searching data

The most of the users are proactive in searching the information. From 10 to 20 minutes is the limit when interviewees felt too long not to find the answer. Half of the interviewees said they would prefer faster access. They would reach their colleagues or team's key user in case of not finding the answer or a contact person who to ask. The most of the cases answer is found. Two of the interviewees said having had a case when it was needed to bring to higher level in the team to find a solution. Such cases did not have a solution in the policies. One interviewee explained feeling that it is unfair to interrupt a colleague from their work, because their efficiency will suffer. The same person thought people could be more proactive and trained in searching information. Two participants admitted to ask their colleagues more easily, simply because knowing they are probable to have the answer, even though they knew it may interrupt them. Nearly all (7) interviewees suggested to increase the awareness of users where to find the information.

The half of the interviewees felt that the search-function of aLive does not work well enough. It gives too many results, which needs to be filtered by the user according to the relevance for the searched information. In case of not having the correct keywords, the information was difficult to find. The naming logic of the files is not obvious enough to understand the content. The same opinion was repeated when talking about finding the person whom to ask help. A couple participants explained not trusting the updates of the manuals, because the change of personnel is frequent and new respon-

sible person is not stated. The trend through all interviews was a wish to have an aid for the searching keywords or topic.

7.4 Improvements and expectations

The second part of the interview consisted on the innovation and improvement part. The interviewees were asked to describe how they would like to access the policies in the future. Questions were asked from usability to media channels (see Appendix 3.). As a conclusion they were asked to set the three most important things to be improved, which can be classified in five classes described in this chapter.

Ability to access

Over than half (5) participants stated easy accessing on the top-three-list to improve. They explained that the policies are spread in too many places and behind too many accesses. Half of the interviewees were struggling with not knowing where to search it, and half thought that employees would need more training to look for the data.

As a media channel everyone said internet would be the place, and six of respondents defined aLive as the location. Two were also suggesting Sharepoint, because they use it fluently. It was suggested that the data would be accessed via mobile devices by two of the respondents. For future direction it is a useful note that interest for a mobile tool exists.

Search features

All of the product developers (6) mentioned search function to be improved. As a solution for easier searching there were few suggestions. Key words for searching or filtering function were listed by all interviewees as an easy search. Linking the data according to its *topic* or *department* was mentioned by most of the respondents. One also suggested a structure from the product creation timeline, which would show tasks in order and related functions. Additionally it was wished to have a system that may suggest keywords, like automatic fill in the search-bar. Seems like the supportive functions are more aware where the data is stored and more familiar its structure.

In the case of not finding the answer, five respondents would like to have a question tool or a place where the contact information is easily accessed. Some suggestions for

the features were topic related FAQ, orga-charts that shows the responsibilities, a question-tool which would filter the question to responsible person, and notes which would be visible only for key users or experts who could then answer. A little interest was shown for creating examples or suggestions, only a few (2) said they would use such function.

Data structure

Nearly all respondents felt either that there is too much information or they do not have an idea how much information exists. Half mentioned that consolidating the information would be good. There are different policies on same topic for different categories, apparel, A&G, and footwear. One suggested that policies could be organized so that user would have the content of different policies and manuals on one screen instead of opening many manuals in different windows.

More than half (5) thought that the information is too complex to understand and it would need to be simplified for better understanding. Half suggested adding some kind of visuals for easier understanding. That would help scrolling the information through and deciding if the data is relevant for the task they are performing. Detailed examples were suggested to help understanding why the policies are in use and how some processed can be done. Yet, one doubted if such examples may mislead people, because of thinking those examples are the only solution.

Rating the usability

In the end of the interviews the respondents were asked to rate the three levels of usability, from which the effectiveness was divided in two statements, accessibility and task ratio for finding the information in the end (see Table 1.). Rating scale was set from one to five, where one is totally not agree, three is partly agree or neutral, and five is totally agree.

Generally the rating (see Table 1.) can provide a view that users accept the current system and way of using the policies, but show that they are not fully comfortable with it. None of them totally disagree with any steps, and three out of eight respondents disagree with both rates for efficiency and satisfaction. Half of the respondents agree with the effectiveness and satisfaction, and three out of eight agree or totally

agree with the efficiency. Neutral or partially agreeing option was chosen by three for the effectiveness, two for efficiency and one for satisfaction.
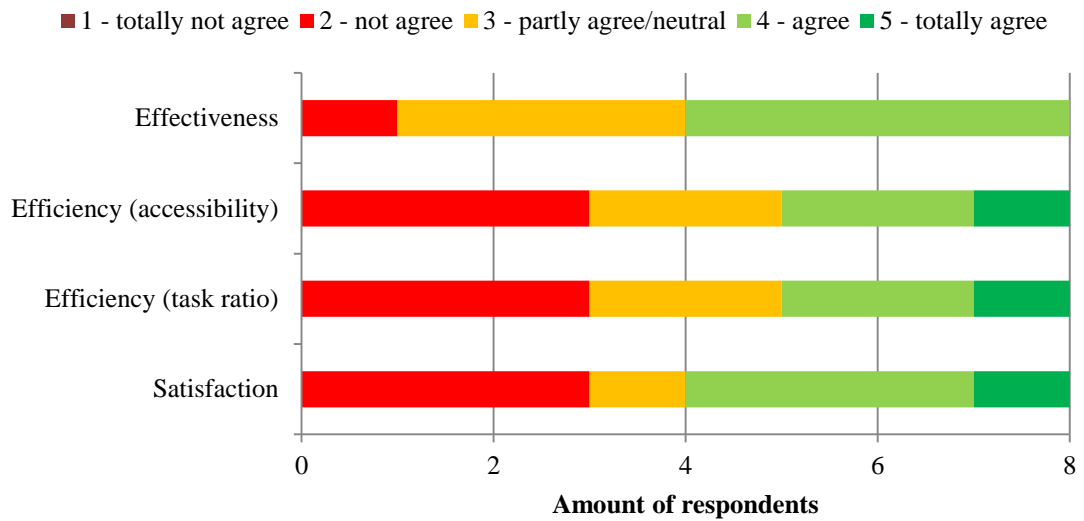

Figure 6. Rating the usability

By the average each is rated above neutral level; effectiveness by the grade of 3,375 as highest score, both levels of efficiency by the grade of 3,125, and satisfaction by the grade of 3,25. As a conclusion there are still things to be improved. Having the lowest level of agreement, efficiency in both accessing the policies and information should be improved.

The effectiveness and efficiency statements follow each other as the usability levels would follow. Effectiveness statement shows that users can find the information as it was assumed. Then again, efficiency is not that good. The last statement for satisfaction "*I'm satisfied with the current offering of GOPS policies*" the most indefinite, because it may have been mixed with general meaning of satisfaction, not as the level of usability (see Appendix 3.). More detailed statement such as "*I do not face any errors while using GOPS policies*" may have been more accurate for representing the satisfaction. Though, the satisfaction may be reached by not having the errors.

By comparing the interview results with the rating shows, the participants are having issues with the searching the data, it being the information or a person to ask help. Therefore the efficient rate was the lowest. The situation does not bother that much, the time searching the information may be reduced to increase the efficiency and satis-

faction. To follow the objective of improving the usability, there is work to do in order to meet it. In the next chapter the solutions are created in the base of the data analysis.

8 Scenarios of the tool

This chapter introduces the sketching operation for the thesis. It follows the human-centered design process requirements stated on the Chapter 4, and connection to new media from Chapter 5. The suggested features are derived from the results of data collecting. As the result there are scenarios of the tool, which would be more usable for the product creation teams to handle.

8.1 The requirements for the tool

User levels

The proposal for the user groups bases on the suggestion of Product Safety and Quality team (see Chapter 7.1.). For the first phase of developing the tool, the access is limited to internal use for testing the tool and confidential nature of the data. A suggestion would be to add one level after the core and delete the external level from the users, compared to the first assumption. Thus the user levels are reduced to three internal levels (see Figure 6.). The second user level would include the persons who are responsible for different policies and have some of the administration rights.

The first level would monitor that the tool works and maintain the archive of the data. There would be main users of the categories of the policies and manuals according to the specialist on a topic. The first level would be responsible to keep an eye on the updates coming from external parties, and leading the key user groups. The second level would be the key users. Input of that group would be to gather feedback and data from inside of adidas, product creation teams. The rights to update data would be with them in order to bring the hierarchy closer to the users. Yet, the first level needs to be aware of the update, and possibly approve it. The third level would be the actual users, the biggest group. That would include all members of product creation teams. All members of the group need to be at least aware of the content of the policies and manuals. For example filtering the information allows reaching the topics they are respon-

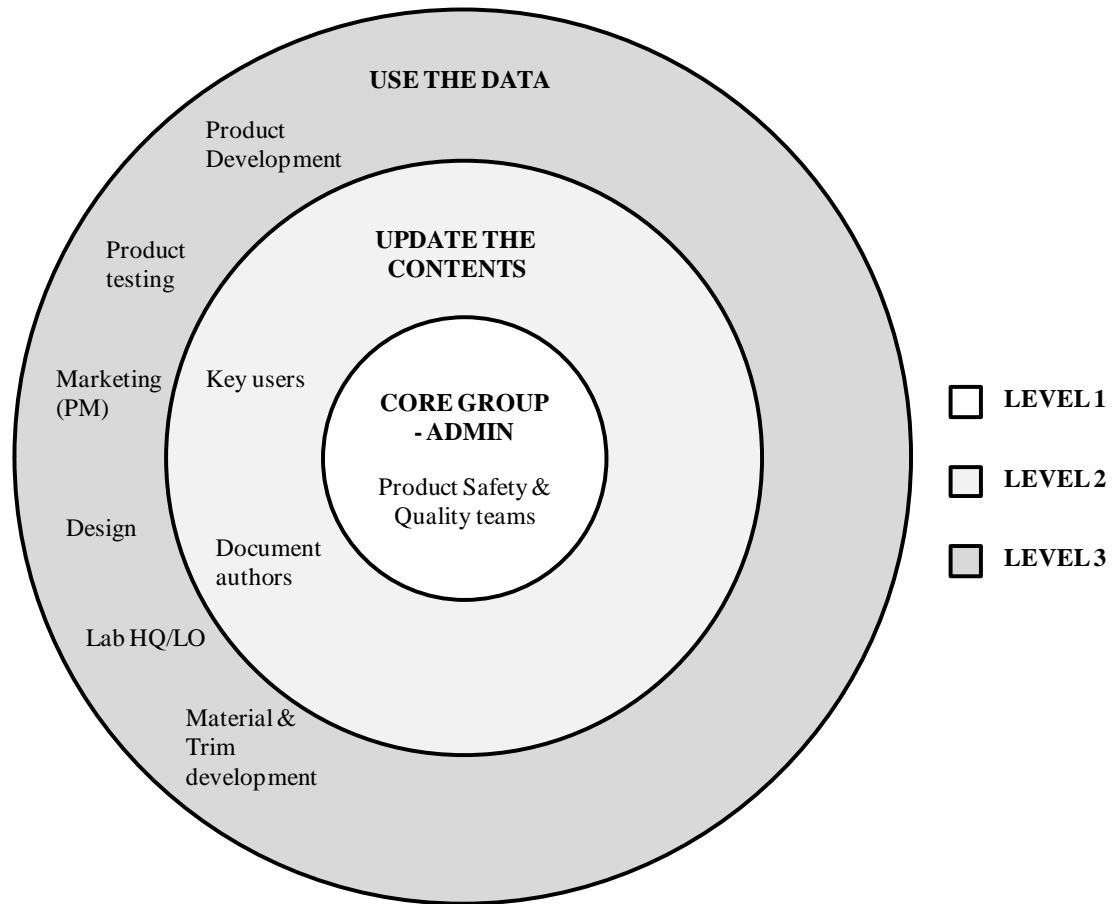sible for. That would increase the transparency of the information for the users and product creation teams.

Figure 7. User levels

The intention of the tool is to bring the employees to the same level of knowledge of the policies and manuals with a focus on product creation core teams. To reduce the time spent on searching the information should make it more efficient, as well as simplify the data and its naming for better understanding. Creating a data storage which is easy to maintain, search and adjust for personal preferences would increase the usability for all the user groups.

Tasks

The ease-of-use goals are set for filling the expectations of the users, not forgetting the high usability goal. A challenge is to offer a suitable tool for the tasks which has obvious interacting dialogue with the users, starting from the software to the system performance. Since there are rather big user group with various level of computer using

skills, the features have to be designed to be self-explanatory to allow every user the same abilities to access the data and personalize it for their individual needs. (ISO 9241.)

Critical tasks for the user are easy accessing the system, fast search and finding the correct data. With those functions the tool has the possibility to gain the trust of the users and be adapted in daily tasks. The tasks need to successfully meet the goal; the answer is found and understood. Sufficient amount of help-tools should be offered to cover the most common obstacles when using the page. Clear and consistent dialogue principles and obvious icons or codes should make the data easier accessed. Easy accessing would mean that the tool is found by the user, and it would not need permission to access. The intranet would be the place, since it is the current searching tool and offers the platforms for apps and workspaces.

The fast search would mean the server's ability to provide the search results fast, and with automatic fill –option also react fast to the typed letters on the search bar. The automatic fill -option would ease finding the correct data by helping to use the correct keyword(s) or tags. A creation of taxonomy of the keywords can help the users from level 1 and 2 to tag the documents. Such tag-library could be a usable too for controlling the concepts and abbreviations in the tool. The naming logic and the contents of the documents should be simplified to meet the understanding level of majority of the users.

User interface

The user interface needs to follow adidas UI Guidelines, which are already set as criteria for new workspaces. All possible functions are already offered as icons and buttons for instance. The general rule in the name of usability is that the workspace needs to be clear and self-descriptive.

Mainly the tool would be accessed via laptop, yet for the future an option to access system with mobile devices can be planned while designing process. The most of the devices have the Windows operating systems (OS) but also iOS can be used if preferred so. Especially design departments tend to have iOS instead of Windows OS, thus it is important to apply the option to use for both OS. Such things need to be taken care of when designing the software. These are the requirements needed to com-

municate for the actual software development team, and cannot be seen in the sketches (ISO 9241).

Since aLive is the used intranet and most of the information already exists there, it is the best location for the tool. As well the employees are getting all the global updates with that channel. The intranet is the most promising tool for communicating internal data or work environment changes (Malmelin & Hakala 2005). The division if the tool is better to create as an app or a workspace needs to be done. An app can be under a different server and is possible to access from the front page of aLive if placed there. In regards of the confidentiality, an app may need a login option, which is one extra step to access the information. An external server would allow the app to be accessed from other locations or devices as well. The workspace option would be easiest accessed on the front page, yet there is first one click needed to access the personal workspaces set on the *My workspaces*. The most of relevant information for product creation can be found under workspaces. Therefore it would be logical to place the tool under workspaces. If set workspace *private*, it needs a permission to access the workspace. Public workspace is fully accessed by all the users, and may lead to confidentiality issues. Both of the options can be designed to match a purpose to access and filter big amounts of data.

8.2   Creating the sketches

A new software creation can be started with sketches, to avoid making extra work in programming phase for not creating a solution which the users will not understand. It takes less effort and less money and time to create visuals. Advantages of the visual sketches are that they are easily updated, and used for the end solution if used vector graphic software. The first evaluations are essential for getting the first feedback before starting prototyping the software. Especially the logic of finding things can be evaluated. Yet, on the sketches user cannot test the reactions of the software. (ISO 9241; Sherman 2006.)

For the thesis the visual sketching was the best solution due to limitation of skills in programming, and time frame would have needed to be longer if doing co-operation with IT-department. Adobe Illustrator was used for create the sketches. Adidas' UI guidelines were used as an aid for matching correct colors, shapes, and navigation

ways with other workspaces and apps in the intranet. As well the existing workspaces were researched to gather ideas what can be done. With the data analysis and above mentioned aids, it was possible to create the solutions for the tool. The solutions were planned on three levels; *ideal*, *good*, and *basic –version*, yet one of them was sketched. Those offers would also give a possibility to improve the tool step by step. The good –version was sketched (see Appendix 5.) for seeing how some functions would look like and what can be taken off if wanted to simplify the tool. Following descriptions explain the features that are offered for the good -version and what may be added or deducted for other versions.

In order to get some feedback of the first version of the sketches were shown to the mentor. That raised things which were in the discussion in the beginning, and valuable for the Product creation team. Such as how the examples are collected or explaining detailed how the search works. With that feedback the structure was changed and new round of sketches created. Those were evaluated by one of the interviewees, if they seemed to be logical and fill the need. Only few small corrections for wordings were found out and the order of the lists was changed to alphabetical order. Yet, that amount of feedback is not sufficient for a proper evaluation, but gives the direction for future steps. The descriptions of the scenarios are the ones which have gone through both feedback rounds.

Tagging items to improve the search-function and data structure

The most essential requirements for the tool are to improve the search-function and accessibility according to the users. Therefore different kind of approach to organize the data may be a good solution. Voit, Andrews and Slany (n.d.) suggest two points to take care of, multiple context tagging and browsing. Both offer multiple options for user to find out the information, yet the possibility to find the correct information is not assured. That may be solved with obvious naming logic. Another challenge is to make user to trust the tool that it has the information, and they are able to find it. Therefore the system itself needs to be understandable for all of the users according to Voit, Andrews and Slany (n.d.). If solving the first issue with search-functions, the second issue should not be a problem.

At the current workspace there are two views, one with all the policies as pdf-files under multiple topics. They can be searched and the results are shown just as limiting

the policies which have the keyword(s) in them. When opening a policy, the parts are shown where the keyword(s) appear. If the user does not access the correct manual, another one has to be opened, and repeat until the correct one is found. Another view opens the same manuals as an opened list. It shows more features which can be filtered, such as department (apparel, footwear etc.) or topic. Additionally, in both views the amount of files can be seen behind the topic name. That shows the expected effort to find the document. If the documents cannot be filtered more, the number of documents does not have that important meaning. Therefore, an improvement would be adding more tags for filter the documents. That is the base for all searching and data structure offered for all of the versions.
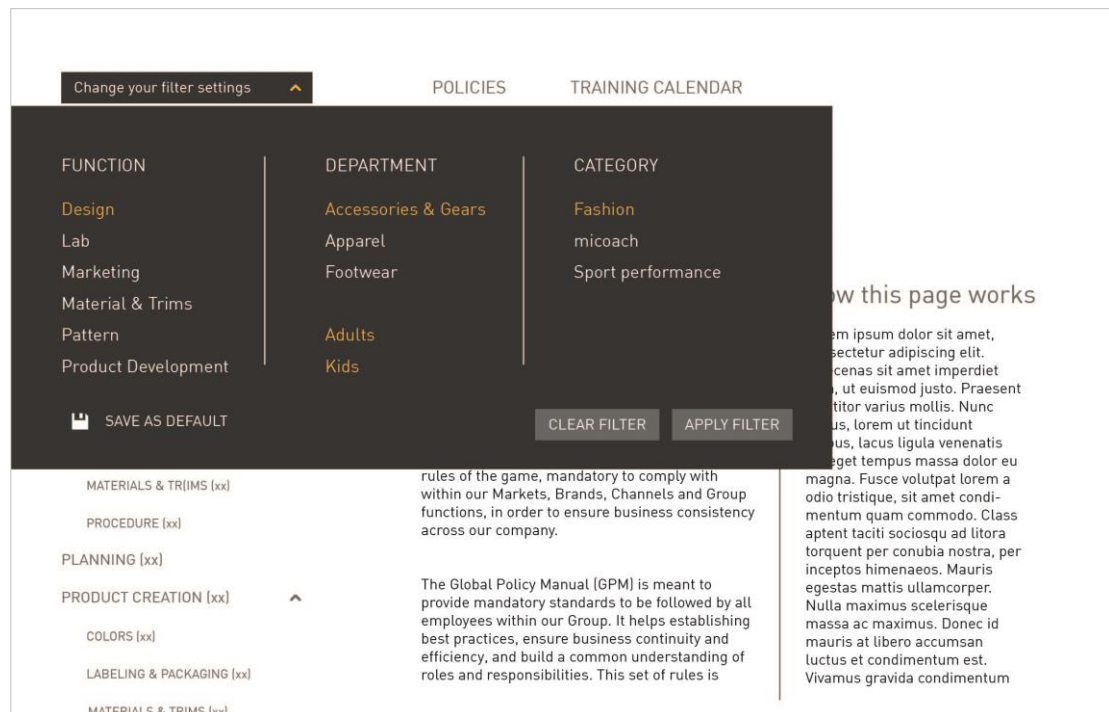

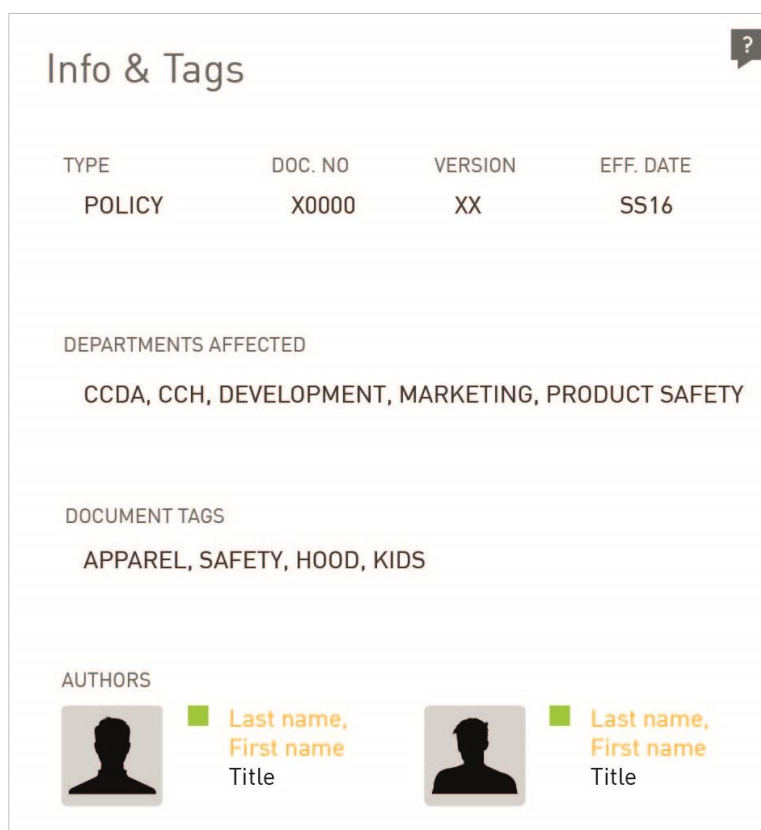**Figure 8. Setting the filters and how this page works -info**

On the intranet's news page the news can be filtered with multiple criteria under headlines of brand, department and location. The settings can be saved, and multiple options can be selected. That could be applied for the tool (see Figure 7.), with adding criteria of function, department and category. The purpose of it is to decrease the search results already before starting the actual search. The filter-menu is the first tagging category, to relate the data with department. One more filtering criteria can be applied for the brand, because there are some specific manuals for different sub-

brands of adidas. Though, the target is to consolidate the information, and the criteria can be deleted later on.

On the front page there is offered section "How this page works" (see Figure 7.), which has the intention to show quickly on the first view on the page what is possible to do and how to set the filter. Other help-icons are offered in each data-box, and they should show what can be done in each of them. That would help offering the help where it is needed. Yet consolidated help-information can be found on the front page.

The second part was to structure the data. The Apparel Costing -workspace was mentioned as clear example, it has navigation panel on the left side of the screen. All of the headings are shown always and are organized in two levels with the headings like *Daily Costing*, *Training and Policy*, and *Costing Knowledge*. Each heading has few sub-headings for direct access to the information. Based on the interviews and research of Voit, Andrews and Slany (n.d.), users are likely to prefer hierarchical system, which allows them to narrow the topic while getting a bigger picture of the data around. Wilson's (2004) advice is to set multiple search functions on a library-like system to fill the needs of different kind of users. Side navigation panel, options to organize the data according to topic and search bars should be available.

The GOPS-policies can be divided into categories, which should be under obvious names. A goal would be to see the most essential topics on the side navigation, so that they can be seen in one screen without scrolling. What cannot be seen at the same time may not be found. The task-tags (Golder & Huberman n.d.) were set to be the primary category on the side navigation. It was noted in the interviews, that users search the data or organize their own files according to the task it is related. The secondary-categories were set to be describing the task belonging to the primary-category. Additionally there is the search-bar for searching all of the tags set for the files within the page. The search-bar can be adjusted to search from different categories such as *example*, *people*, *policy*, or *training*. That is a common feature in aLive, therefore it is easily added in the tool. A next step of categorizing, a consolidation may be done to avoid having multiple manuals for different departments for example.

Figure 9. Tags in the documents

When setting the tags to the tool, it has the intention to improve the searching efficiency and accuracy. To make the users more familiar with the tagging system, it may be helpful to set the tags visible in the documents. On the front page of a document there are the tags shown, which define the document (see Figure 8). Various categories can be tagged from *document type* to *departments* and *document characteristics* or its *authors*.

Since there will be numerous tags, to keep consistency in tags may be helpful for the administrative level. Taxonomy of tags table (see Table 2.) can be an example of where the administrators can see the entity of the tags available. The tag-types are in set under columns, each tag can appear only once in a column. All of the tags of a document can be found on the default view of the document, *Info & Tags* (see Figure 8.). The taxonomy of tag –table is not complete; especially detail-column can include all chemicals tested, and materials used.

Table 1. Taxonomy of tags

Department	Task	Topic	Document type	Detail
A&G	Allocation	Color	Example	Antimony
Adults	Buy Ready	Kids safety	Policy	Arsenic
Apparel	Claims	Labelling	Presentation	Azo-amines
Design	Costing	Labor	Procedure	Cadmium
Factory	Planning	Materials	Training	Cotton
Fashion	Product Creation	Packaging		Cuff
Footwear	Product Quality	Sizes		Down
Infants	Product Safety	Techpack		Hood
Kids	Samples	Testing		Label
Lab		Trims		Leather
Marketing		Workmanship		Polyester
Material Development				Print
micoach				Sleeve
Pattern				
Product Development				
Sport performance				
Supplier				
Trim Development				

Variety of information offered

It was wished to simplify and improve the understanding of the policies with visual elements. Those elements can be examples of the process or a workmanship or *do and don't* -list. There is lot of written information, but more of the practical knowledge could be added. That was already a topic of conversation and concern of the Product Safety team, because of frequent change of employees and an expected retirement peak. The knowledge of the employees should be saved in order to keep it within the company. Therefore adding and gathering the examples of existing possibilities serve both visual aids and sharing the knowledge for all employees. An example-tab (see Figure 9.) can be set, which links the practical ideas to the chosen document. The ideas can be gathered with a commenting feature below the data boxes. Employees can fill in their solutions with pictures and words together. It would be the document au-

thors who have the administration rights to pick the well-working ideas to the example-tab.
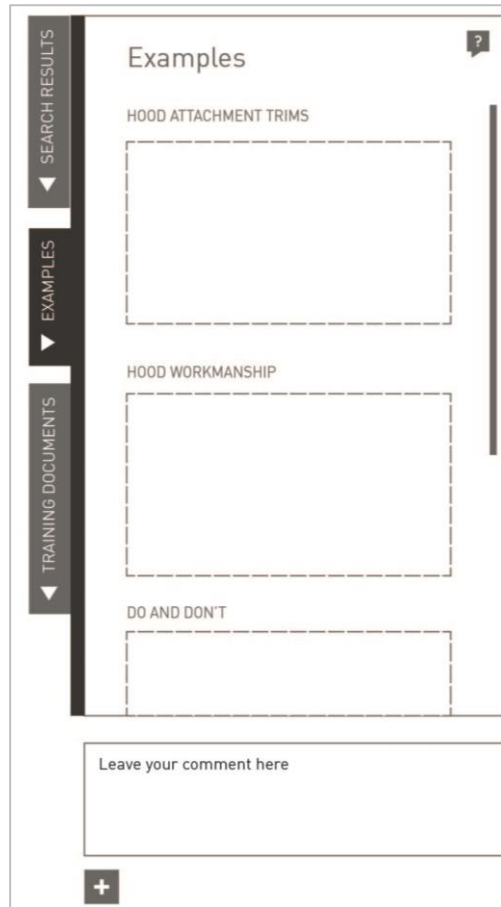
Figure 10. Examples- tab and commenting feature

An opportunity would be to add training materials for the policies with a similar function as the example-tab. It would link the policy with relevant training presentations. The items can be separate files which can be opened with other software. Therefore multiple files can be added as search-result list, and correct file can be chosen. That tab may not be necessary for the basic-version, since that is also big workload to gather all the relevant presentations.

The bigger workload in the beginning would be to transform the information in more readable and simpler form for the users to understand. Additional point of view may be to consolidate the policies. The less there are data to update, the less there is work needed to maintain it later on. That would serve the entire data structure and keeping the policies similar within different product categories. The improvement on under-

standability may be done in co-operation of the authors and key users, because they should be able to speak the same language with the users. Some departments are already looking for the opportunities to use the policies from different product categories due to lacking one policy for their category. That is an opportunity to co-operate for other missing policies as well.

Offering trainings

The interviewees pointed out that the new employees may be lost when looking for the information or some employees may not be aware of such things as policies. It is needed to make the users more aware of what policies there are, and how to use them. That requires more consistency from the core team to plan and organize the trainings and introductions. The key users can be activated to hold the trainings. The advantage of that would be them speaking the same language as the audience.

Figure 11. Training page

A training page (see Figure 10.) can be established where the employees can see the upcoming trainings and their details, and be able to register or cancel the registration.

When the steps to register are easy, the barrier to participate may be low. The simplicity of the registration can be set with compact details of the description and features of the training for gaining information. The registration asks only the name and department of the participant, nothing else is necessary. When registered, the page would send the calendar appointment, which can be declined later on if not making it.

The training calendar -page would be offered in the good and ideal –versions, since it requires time for planning the training structure. Additionally there can be an option to request a training, if there are none on the topic offered. Yet, the comment field can support such request by being open to read for all users and thus gain more interested ones. Such visibility may ease planning the trainings and recognizing the need of trainings.

Additional features for the ideal version

Since the wish was to be able to access all kind of manuals and policies under the same page, that may be considered to established later on in the ideal version. The same data structure would be able to manage adding the data, and make it more consolidated by the outlook. Some functions such as adding links in between of policies and manual may be added. Another tab for *related documents* can be one solution.

In the social media and in aLive as well, it is possible to follow documents and personalize own workspace. That would be another function which may be offered in the ideal -version. In its simplest form, it may be a favorite -tab as default on the policy-page, or another page for own notes and collection of policies. Personalizing is considered as high usability function according to ISO 9241-standard.

Adding too many features may sacrifice the usability of the system so each additional feature should be evaluated if it is really helpful for improving the efficiency of the usage. Keeping the system simple makes it more attractive and users confident.

9   Conclusion

The objective of the thesis was to find out how to improve the usability of GOPS-policies for product creation teams. For finding out the solution, eight users from the

pre-defined user group were interviewed. Additionally, the author was observing the using of the manuals in the daily work, and searching opportunities regarding what kind of solutions can be offered. From the data collected it was possible to create sketches on scenarios of a tool which would have more usable functions as the current workspace.

The research findings were that currently the GOPS-policies are not familiar to use for the focused user group. There were multiple reasons, such as too complex information, the user group not knowing the policies exist, or they used them only seldom, or were not able to use the policies efficiently. On the first priority accessibility, search-function and understandability of the data wished be improved. The solution of a tool was offered, an interactive workspace, which follows the UI guidelines for aLive page. The weak points of the current GOPS-policy page were analyzed and improved with the requirements derived from the gathered data. For the further steps it can be discussed to combine the policies together with other manuals under one tool.

According to the process of action research, and human-centered design process, the thesis was not able to complete the first cycle of the process, which was aimed to do. The sketches were not evaluated according to the HCD process. Otherwise the research met the requirements set by finding and offering a solution for the tool to be developed. The research offered data for understanding the occurrence, which can help the risk management even if the solutions are developed further. The research brought the project at a new stage, to gather the experts around it to finalize the development. Only proceeding to the further steps will show if the long-term advantages can be achieved. The mentor of the thesis was convinced that the tool has an important role in the future development on using the policies. Thus it will be presented to the Product Safety and Quality teams later on, and the further steps can be taken in near future.

9.1   Reliability and validity

The reliability of the thesis is formed from three aspects; quixotic reliability, diachronic reliability, and synchronic reliability. The author had enough time to get familiar with the topic and to get the data for the theoretical framework, which was essential to understand especially the software development process. Time for observing and

learning her own ways to search workspace of GOPS policies was sufficient. The timelines were extended and the process took longer than expected, the reason was a busy schedule at work or the holiday season. That gave time to get deeper into the topic in practice. The interviews were executed in the end of the process. Therefore there was not that much time for creating the solutions, and the phase of evaluation them properly was needed to postpone for further steps. The results and their justification were offered in the thesis.

The preparation phase was important for the author for being able to understand the results of the interviews. The interviewees were all interested in the topic, and volunteered for further inquiries or testing the prototypes if needed. All of them were familiar with the topic due to their work, yet some of them had a different aspect. As a characteristic of qualitative research, the interviews cannot be repeated for the same target group, because they already know more about the phenomena. Another sample group would need to be chosen. A longer time difference in between a repeated interview may change the view for using the technology, which may change the replies. The author's own observations and assumptions may have affected on the interview notes and what was "raised" from the data. Yet, that was noted before the interview and the author tried to avoid it. In addition, the inexperience in interviewing may have affected for not having obtained get deeper results, and lead to assumption of what and why the users actually think so. The author tried to avoid that by repeating their comments, to make sure that the interviewees understanding was correct.

The mentor and the author were in contact during the process to share the observations and discuss the direction and ideas for the tool. The mentor's role was to keep the topic in its frame, and comment the observations of the author. The observations and the interview results were similar, as well the author's findings to support the results. The research was executed entirely by the author. In the human-centered design process it is not an ideal case, since it requires specialists from different areas. Thus it was better to stop the design process after the first sketches, to have the possibility to involve other parties in the process.

Even though there were assumptions of the current situation in the beginning of the thesis, it was intended to prove and find out possible differences to the assumptions to have valid results. The research aimed to find the ways how the users found the

GOPS-policies and what kind of ideas they would have to improve the usability. Most of the assumptions matched the results, and the research offered detailed information on the topic. Further steps of the process may give new information on the topic. The following suggestions on moving on with the project are based on the HCD process, and the research results.

9.2   How to continue the project

As mentioned, the first cycle of the process was not completely finished during the thesis; the last step of evaluating the process could not be finished. The next step would be to do the usability testing for the scenarios. The usability team will organize such testing environment and gather the people at adidas. It would not be adequate to have the author do the testing, because of the objective role and emotional connection to the project. (ISO 9241; Sherman 2006) Therefore it would be better to present the idea for the usability team, and let them do the testing. A hand over like in HCD process can be done, with explaining the objective of the tool with the sketches and descriptions.

The Product Safety and Quality teams were introduced to the topic in the seminar, and they will be introduced to the results and suggestions later on. They have the opportunity to give feedback and further ideas before hand over the project to the usability team. The mentor will then be in charge of the project. However, the author has an opportunity to be involved with the project besides working.

As the first priority is the tool being developed and they should start going through the policies with the key users and authors to simplify and tag the information. It may take a longer time to go through all the policies, and raise some issues the solutions of which cannot be found. That can be another point of view for future steps on the process. If further researches seem to be necessary, the opinion on most of the user groups on suggested level 3 may be collected. They were not involved in this research, but are using and their work is affected by the policies. Another option would be to research how the users have adopted the tool, when it is finally proceed to an actual tool.

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Appendices

Appendix 1. The interview invitation

Hello **RECIPIENT**,

I would like to ask your help for supporting my thesis; **improving the usability of Global Operations policies for product creation processes**. The intention of the thesis is to find out how and when the GOPS policies (=safety and quality standards, testing etc.) are used and how we could improve their usability. I would also like to hear your thoughts for the future aspect; how would you like to use the GOPS policies in future.

Therefore I'd like to ask you to meet for an **interview within next two weeks**. The interview's duration would be maximum an hour. If you would like to be interviewed, please come back to me. **Taking part is completely voluntary**. In case you're not willing or wanting to participate, you don't have to state any reason. I'm grateful for your time and effort. Feel free to suggest preferred time or timeframe if you'd like to be interviewed.

All the results are handled anonymously and the notes are only accessed by me as interviewer; neither are the results or notes used for evaluating you in your job. The thesis is done as a Bachelors' thesis of Degree in Fashion and Clothing in JAMK University of Applied Sciences (Jyväskylä, Finland) with co-operation of adidas Product Safety team.

Thank you for the support!

Kind regards,
Jenni Leskinen

Appendix 2. The interview form

Short introduction into topic

Thanks for cooperation –CONFIDENTIALITY

Goal of the study – question paper

Overall Questions - Themes

A   Please describe the tasks in which the information of GOPS policies is needed.

B   In what kind of situations/locations you need to access the policies?

C   How often do you need to access the GOPS policies, and how quickly the information is needed?

Details on the process

D 1☐   Please describe how do you access and find the information in the GOPS policies.

D 2☐   Which policies you use the most?

D 3☐   Is there any difference how do you access policies?

D 4☐   Can you give me an example when something was difficult to find/went very well?

D 5☐   What is the ratio for finding an answer to your question?

D 6☐   If you don't find the answer on first try, how do you proceed?

D 7☐   How fast do you usually find the information you looked for? Is that satisfying?

Perfect world - innovation

E 1☐   In future, how would you like to access the GOPS policies?

E 2☐   What would represent efficiency in using the policies?

E 3☐   How would you improve the form/way of presenting data on policies for increasing satisfaction of usage?   ☐

Improvements & expectations

F 1☐   What kind of media channel would you like to use for accessing the policies?

F 2☐   Would you like to have the possibility to create practical examples on the policies?

F 3☐   Please name the 3 most important things to improve the policies?   ☐

Final wrap up – different sheet (rating 1: totally not agree, 5: totally agree)

G 1☐   Effectiveness

                     When I look for information in GOPS policies, I'm able to find the answer successfully.

G 2☐   Efficiency (accessibility)

                     I think the GOPS policies are easy to access.

G 3☐   Efficiency (task ratio)

                     I can find the information in GOPS policies quickly and easy.

G 4☐   Satisfaction

                     I'm satisfied with the current offering of GOPS policies.

Thanks for the support

Interest in testing new tool, future contact

Good-bye

Appendix 3. Rating the usability

Final wrap up

Rating   1 totally not agree
2 not agree
3 partially agree / neutral

4 agree
5 totally agree

Effectiveness
When I look for information in GOPS policies, I'm **able to find the answer** successfully.

Efficiency (accessibility)
I think the GOPS policies are **easy to access.**

Efficiency (task ratio)
I can **find the information** in GOPS policies quickly and easy.

Satisfaction
I'm satisfied with the current offering of GOPS policies.

Appendix 3. Product Safety seminar -memo

PRODUCT SAFETY SUMMIT – April 2014 – Herzogenaurach

- Communication tools and strategy for Product Safety: the group has reached a maturity step that now requires more effective and systematic communication within the company. Below is the proposed outreach communication model:
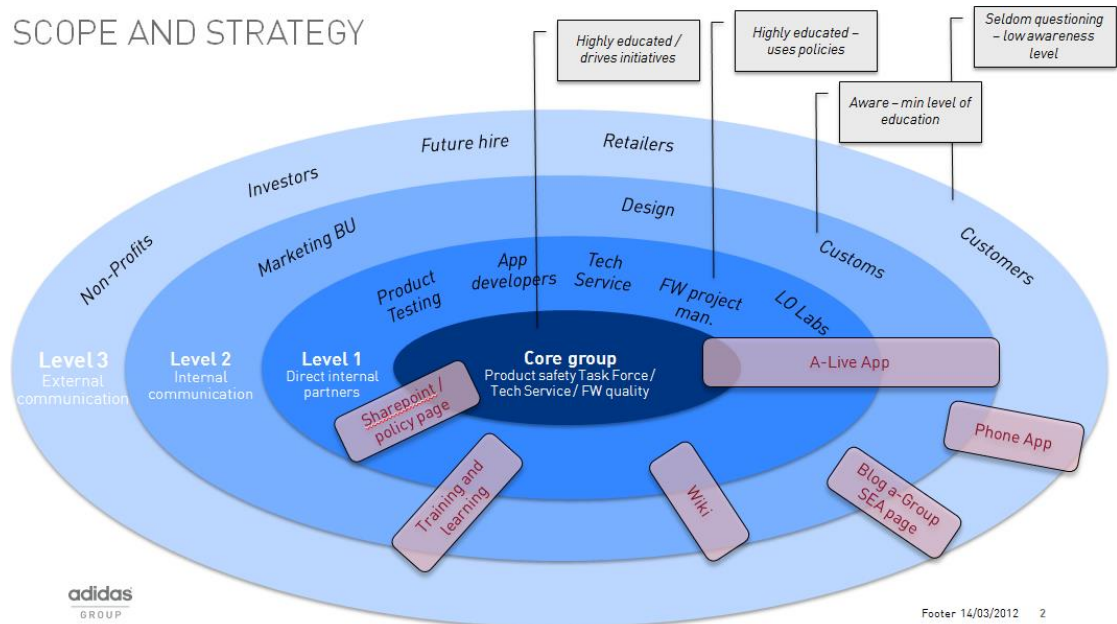
- A-Live App concept for product compliance: from a user perspective, it would make sense to create an a-Live app that covers all product related concerns: product IP, product safety, product quality, etc… this will allow to have a much more impactful presence and heavier traffic is we combine our message. Concept to be developed and shared with the other groups.

Appendix 4. Sketches on the first proto

Site Contacts

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POLICIES   TRAINING CALENDAR

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Marketing
Material & Trims
Pattern
Product Development

SAVE AS DEFAULT

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PRODUCT SAFETY [xx]

KIDS SAFETY [xx]

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DEPARTMENT

Accessories & Gears
Apparel
Footwear

Adults
Kids

CATEGORY

Fashion
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Sport performance

CLEAR FILTER   APPLY FILTER

rules of the game, mandatory to comply with
within our Markets, Brands, Channels and Group
functions, in order to ensure business consistency
across our company.

The Global Policy Manual (GPM) is meant to
provide mandatory standards to be followed by all
employees within our Group. It helps establishing
best practices, ensure business continuity and
efficiency, and build a common understanding of
roles and responsibilities. This set of rules is

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Welcome!

Dear Colleagues,

It is our overall objective to achieve qualitative and sustainable growth by building desirable leading brands in customer's and consumer's perception. In order to successfully manage the business growth of the Group and reach our Route 2015 goals, we need a framework of basic rules of the game, mandatory to comply with within our Markets, Brands, Channels and Group functions, in order to ensure business consistency across our company.

The Global Policy Manual (GPM) is meant to provide mandatory standards to be followed by all employees within our Group. It helps establishing best practices, ensure business continuity and efficiency, and build a common understanding of roles and responsibilities. This set of rules is

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KIDS SAFETY POLICY

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SPORT PERFORMANCE

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Info & Tags

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POLICY   X0000   XX   SS16

DEPARTMENTS AFFECTED
CCDA, CCH, DEVELOPMENT, MARKETING, PRODUCT SAFETY

DOCUMENT TAGS
APPAREL, SAFETY, HOOD, KIDS

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IMPORTANT NOTES

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DEPARTMENTS AFFECTED
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DOCUMENT TAGS
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Examples

HOOD ATTACHMENT TRIMS

HOOD WORKMANSHIP

DO AND DON'T

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Time: 31.10.2014, 1–2p.m.
Place: aBC
Description: How to read the policy
Feature: Practical training

A-01 – Advanced

Time: 31.10.2014, 1–2p.m.
Place: aBC
Description: How to read the policy
Feature: Practical training

A-01 – Basics

Time: 31.10.2014, 1–2p.m.
Place: aBC
Description: How to read the policy
Feature: Practical training

Register for a training

A-01 – Basics

Time: 31.10.2014, 1–2p.m.
Place: aBC
Description: How to read the policy
Feature: Practical training

Trainer:

■ Last name,
First name
Title

NAME :

DEPARTMENT : Men's training

REGISTER

October 2014

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	1	2	3	4
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