Perspectives on producing high-quality technical documentation

- Exploring users and their requirements on a quality assurance tool

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Abstract

The aim of this thesis is to analyze which potential users and requirements there are on a quality assurance tool to facilitate improving quality in technical documentation. The issues for this thesis to answer are to (1) define potential user groups and their requirements, (2) explore what ways introducing a quality assurance tool could facilitate quality in technical documentation, and (3) explore what challenges needs to be considered when integrating it into the workflow.

The empirical research carried out at Saab Support & Services AB in Linköping in the form of semi-structured interviews constitutes the core case study evidence. Three personas are constructed on the basis of collected and analyzed data, corresponding for the potential user groups. For each persona, data requirements, as well as functional requirements, are generated through scenarios that are constructed to constitute for the possible contexts that the personas could find themselves in using this quality assurance tool.

Further, this study explores some challenges that must be solved in order to satisfy the requirements of the potential users: to find a place in the workflow that suits the requirements from all perspectives. It shows important considerations to have in mind while integrating a quality assurance tool into the process of producing technical documentation, and opens up for questions of future studies within the integration of quality assurance tools into complex contexts.

*Key words:* quality assurance, technical documentation, personas development, user requirements, integrating tools
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1 Introduction

The question whether a product conveys quality or not is likely to elicit a range of diverging opinions, such as the endurance, or the technical innovation, of a product.

What may not be as obvious is the impact that technical documentation, the description of a product, has on how the product is perceived. A majority of customers believe that the quality of technical documentation affects their view of the product quality as well as their satisfaction with the product as a whole (Carey, Lanyi, Longo, Radzinski, Ruiller & Wilde, 2014). Since the technical documentation is of great importance for how the product is perceived, it should probably be in the interest of manufacturers to deliver this documentation in the best possible quality. This is not always an easy process since the context could be very complex and regulated.

Saab has produced approximately 40,000 pages of technical documentation, describing JAS 39 Gripen. It is a very complex product with a long lifecycle. This documentation describes procedures for repairing, maintaining and using the aircraft to ensure safety. It is important that the documentation is expressed in a clear way that cannot be misinterpreted by the external user. This means that it is important to regulate how it is expressed, since a great many technical writers have written it, for a long period of time. To ensure the accuracy of the documentation, editors review every document prior to delivery. What has been noticed, internally and externally, is that the documentation may contain deficiencies or errors in the way it is expressed. To keep control of how the documentation is expressed, Saab has introduced a set of rules that technical writers must write according to, and with the integration of a quality assurance tool, Saab hopes to perceive negative trends and to find a way of recognizing and correcting the deficiencies or errors that may exist in the documentation.

For making the integration of a quality assurance tool as seamless as possible, this thesis has collected knowledge in the potential user groups of a quality assurance tool, their requirements on this tool, and possible effects and challenges of integrating it into the process of producing technical documentation.
1.1 Purpose

The purpose of this study is to explore potential user groups and their requirements on a tool that measure quality in technical documentation, this in order to find out how this tool could be customized and integrated into the process to facilitate in improving the quality of the technical documentation.

Thus, this thesis should answer the following questions:

- Which potential user groups are there on a quality assurance tool? What is their current work, and how is the work of the potential user groups related?
- What requirements do the potential user groups have on this tool in order to facilitate their work in delivering technical documentation with higher quality?

For the above questions to be answered, following questions was considered as key:

- What effects do the potential user groups want to achieve by integrating a quality assurance tool into the process of producing technical documentation?
- What challenges need to be considered for this integration?

1.2 Limitations

This study will be limited to constructing personas and defining their requirements from the quality assurance portal. Challenges of integrating this tool in the work process are only to observe what needs to be considered in order to meet the requirements of the personas. The construction of the personas and definition of their needs are not limited due to these challenges. Further, this thesis will not include any form of sketching, designing, or implementation of a prototype.
1.3 Related work

Albertsson (2015) studied what features Saab internally did assess as violations against quality in technical documentation and how these violations could be automatically evaluated. In her study, a wide range of features that seem to impair the quality of technical documentation at Saab was found. These features are described in table 1, translated from Swedish into English by the author of this study. The placement of the features is irrelevant for importance.

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<td>Instructions not being grounded in reality</td>
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Table 1. Results from a previous study showing features that are internally assessed as violations against quality in the technical documentation at Saab.
1.4 Overview

In chapter 2, basic concepts are introduced and explained for the reader to properly understand this study, together with background and design approaches that are considered important for this study.

Chapter 3 presents the method of this study. It describes how the procedure from collecting relevant data to the analyses of these data’s has been conducted.

Chapter 4 presents the results that have been derived from the data analyses, giving answers to the questions of this thesis.

Chapter 5, the methods and results of this study are discussed.

In chapter 6, finally, the conclusions of this study are presented, as well as some thoughts of future studies.
2 Background

In this chapter theories and central terms are presented in order to make this thesis understandable for the reader. An illustration and explanation of how the quality assurance portal is currently used are also presented.

2.1 Technical documentation

Technical documentation is the overall documentations for a product. Technical documentation is generally viewed in a secondary or support role to the sale and function of primary products (Smart, Madrigal & Seawright, 1996). It addresses a technical subject for a specific audience and with a specific purpose, i.e. it is intended to help convey information for answering questions or solving problems (Hargis, 2004). In case users have questions about the product, they usually turn to the technical documentation for answers. The information can be of various types and usually tells the user something about the product in describing guidelines for how to use it, maintain it, repair it or troubleshoot it.

Whether the users feels satisfied with the technical documentation plays a critical role in their satisfaction with primary product quality (Smart, et al., 1996). If customers quickly find the information they need, the overall product is perceived as of higher quality (Carey, Lanyi, Longo, Radzinski, Ruiller & Wilde, 2014). The value of the technical documentation could be problematic to measure, as value can be defined as the benefit of an activity minus its cost. When the benefits of an activity could be hard to define (when it is measured in customer satisfaction, for instance) this value becomes vague (Mead, 1998), hence quality is not easy to measure. Although, for technical documentation to be recognized as of higher value, the following characteristics has been defined (Carey et al., 2014):

- **Simple to use:** help users to support their goals. Be free from mistakes and errors. Stick to facts and truth and include all necessary parts – and only these parts.
- **Easy to understand:** free from ambiguities or uncertainties. Users should be able to understand the documentation the first time they read it. It should, if needed, include appropriate examples, scenarios, and other necessities.
• Easy to find: in a coherent arrangement of parts that makes sense from a user perspective and allows users to find specific devices quickly and easily.

Further, Albertsson (2015) assumes that the opposite of the features that seem to impair the quality of the technical documentation at Saab is, in fact, improving it, i.e. quality in technical documentation can thus be achieved by avoiding the features that are described in table 1.

2.2 Assuring the technical documentation at Saab

Being a large aircraft manufacturer requires a lot of technical documentation. Saab has been producing a variety of products over the years with JAS 39 Gripen as it’s current primary product. JAS 39 Gripen C/D, which was released in 2004, is the fourth generation of the Gripen series.

The aircraft is used both within and outside of Sweden, in a range of customized versions. This requires the technical documentation to be correct and tailored for all the customized versions, as well as to ensure that users in different countries should not interpret it differently due to divergent language skills. To assure the quality of the technical documentation in order to facilitate guidance for the users while not allowing the user to interpret the documentation incorrectly, the documentation is written according to conventions.

2.2.1 Simplified technical English

One of the writing conventions in use is Simplified technical English (STE). STE is an international specification developed for the understanding and same interpretation of both native and non-native English speakers.

STE includes a defined set of writing rules that cover grammar and style, and a dictionary of controlled vocabulary. The words in the vocabulary were chosen for their simplicity and ease of recognition. The specification selects one of the existing synonyms to the exclusion of the others, for instance, “start” is chosen to the exclusion for “begin”, “commence”, “initiate” and “originate” (ASD, 2016). Its purpose is to increase safety by helping to produce information that is easy to understand while being consistent, hence reduce the risk of misinterpretation in terms of uncertainty and complexity (Saab, 2014). This way of producing technical documentation contributes to safer and more reliable documentation.
2.2.2 S1000D
S1000D is a specified framework of producing technical documentation. It specifies procurement and production processes of planning, managing, producing, exchanging, distributing and using of technical documentation that support the life cycle of any civil or military project (Saab, 2014). S1000D provides specifications that are tailored to specific projects. These project specific decisions are called business rules and are documented via a Business Rules EXchange (BREX) mechanism.

Within the BREX mechanism, rules can be added and exchanged during development and the use of formal description minimizes the risk of misinterpretation (Saab, 2014). It also allows validation of data using automated methods, as described in the next section.

According to the specification of S1000D, technical information is produced in modular form, called data modules. A data module is a unit of data for the description, operation, identification of parts or maintenance of the product and its support equipment. Every data module gets a unique data module code and is stored and managed in a database called Common Source Data Base (CSDB).

A CSDB will ensure that the right information is delivered to the end user. This way of producing technical documentation supports both page-oriented publications (based on paper or PDF) and Interactive Electronic Technical Publications (IETP), which is a digitized way of producing and using technical documentation (Saab, 2014). For not making this thesis unnecessarily complicated, the term technical documentation will correspond for all data modules.

2.2.3 Quality assurance portal
In order to assess the quality of technical documentation, a tool is being developed at Saab Support & Services. This quality assurance portal (QAP) locates editorial errors, errors in references, errors in figures and violations against BREX-rules and is meant to be used as a mechanical control that could mediate knowledge about their product of technical documentation in the current situation and how it could be improved.
Figure 1. Illustrating the current usage of the Quality assurance portal (Quality Portal). The review process being made by editors is not included in this illustration. Documentation (Data modules) are either newly produced versions or updates of previous versions. Every document needs to pass a BREX-validation before being stored in the database and delivered to the end user. When it is delivered, the quality assurance portal can be used for evaluating the documentation.

The current usage of the quality assurance portal is shown in figure 1. This figure illustrates the systematic flow and current usage of the quality assurance portal in producing and validating documentation and does not include the review process being made by the editors.

The technical documentation (data modules) are either created or updated by technical writers. It is then validated according to the BREX-rules that are in use before it is approved for being stored in the Common Source Data Base (CSDB). If the documentation fails this validation, the process starts over again, and the writer has to correct (or update) the documentation until it is approved by the system. It is then aggregated into packages and saved as either PDF-documents or into the IETP. It is in this next step that the quality assurance portal is used for evaluating the technical documentation (Szymanowski, 2013), i.e. the documentation is evaluated after it has been published and delivered to the end users. The quality assurance portal includes additional
BREX-rules that could be considered as advisory, as opposed to the Strict BREX-validation. The advisory BREX-rules make it possible to perceive problems that might need some investigation before being corrected.

2.3 Design approaches

In this section, relevant approaches for designing are presented. These approaches are important to note as they indicate the importance of customized design based on the users requirements on the systems to achieve efficient and well-adapted systems. With this in mind, it seems to be of great importance to design systems that are customized for the users requirements so that it does not demand attention in an unnecessary way.

2.3.1 Individuation

For a system to be useful, it must do what is needed while merging smoothly into the user’s work. Understanding the users and their requirements are important for this as it lets the designer know about how, for example, to name menu items and what features the system should provide (Johnson, 2010). Thus, the system has to be developed with the users in focus to facilitate the user interaction with the system. If the system has several users, it should be customized for the different perspectives needed in order to let the users work more efficient.

Individuation is directed to “explore ways through which each and every single individual can customize his or her own tools to optimize the pleasure and efficiency of his or her own personal interaction” (Hancock, Pepe & Murphy, 2005, p. 12).

With individuation, it is possible to better achieve users goals when systems must are customizable and dynamically adaptable to individuals by responding to their affective needs and changing requirements (Hancock et al., 2005).

Further, individuation is assumed to increase an individual’s perception of control over the environment (Burkolter, Weyers, Kluge & Luther, 2014). Perceived control satisfies the need for autonomy and therefore, has been shown to increase job satisfaction, work motivation, and positive affect (Hancock et al., 2005).
2.3.2 Goal-execute-evaluate cycle

Human behavior can be partly described by a thought cycle including three steps: goal, execute and evaluate (Johnson, 2010). This pattern is used constantly. Primary goals are formed and the person then begins to break their goals down into actions that lead towards the goal. Actions are executed and evaluated to determine whether they have moved the person closer to the primary goal.

For a tool to be as efficient as possible in supporting people’s goal-execute-evaluate cycle, it needs to be adapted to people’s ways of thinking:

- **Goal**: Provide clear paths to the user goals that the software is intended to support
- **Execute**: Provide clear information to point users to their goals. The users should not have to figure out how the software’s objects and actions map to those of the task
- **Evaluate**: Provide feedback and status information. The users should see that they are working towards their goal

This cycle interacts with short-term memory (the focus of attention at any given moment). People’s attention is very limited in capacity. When doing a task, people seem to target the most of their attention towards goals and data related to that task and devote little attention towards the tool they are using for the task (Johnson, 2010).

People perceive tools superficially and only pay attention to them when necessary. When people need to devote more attention to the using of their tools, the attention is drawn away from the details of the task. To let the user interact with a tool in an optimal way would enable the user to focus on the task rather than on the tool itself. This is known as “seamless interaction”.

By achieving seamless interaction, the tool would be used as an unconscious extension of the user (Hancock et al., 2005), hence let the user work more efficiently, which would be needed in a complex tool like a quality assurance tool.


3 Method

This chapter outlines the methods of this thesis and describes how data was collected and analyzed. The method of this study was mostly based on a design process called Goal-Directed Design (Goodwin, 2014), but with a few differences in the user data analysis, where a thematic analysis was conducted, and in the creation of personas, that were based on themes that had emerged from the thematic analysis.

3.1 Case study method

A single case study (see e.g. Yin, 2006) was conducted at Saab Support and Services in Linköping on the basis of a quality assurance portal that is currently in development. The aim of this single case study was to collect data relevant to the issues of this thesis, that capture and describe the circumstances and conditions prevailing in the process of producing technical documentation.

Saab was considered to be a typical example of large manufacturing companies where technical documentation needs to be produced and maintained.

3.2 Collection of data

The participants of the interviews were selected by a snowball sampling technique. This is an approach where contacts are found by making initial contact with a small group of people that are relevant to the research topic (Bryman & Bell, 2003). Two individual interviews were held with two involved stakeholders, one being a product developer and the other one being a product leader. The stakeholders referred to the rest of the participants that would be relevant for this study, hence the interviews were held in two separate periods because of the need for two analyses.

All interviews were conducted according to a semi-structured technique where the interviewer used a script including questions that allow for collecting qualitative data. A semi-structured interview technique allows for a deeper discussion than a structured interview, which is often conducted in studies where quantitative data is of interest instead of qualitative data. A semi-structured interview technique also follows a predetermined path as opposed to an unstructured interview (Rogers & Preece, 2011). The interview scripts were customized depending on the
participant’s role of employment. All interviews were between 25 and 50 minutes long. A sound recorder was used in approval of the interviewees, for recording the interviews in order to avoid data loss.

3.2.1 Stakeholder interviews
There were two clearly designated stakeholders for this project. Two individual interviews were held with the intention of exploring their separate thoughts. The stakeholder interviews had two purposes: to identify likely users for this tool in order to know which employees that should be interviewed in the next step, but also to explore their opinions about the goals and possible constraints with this tool. The interview guide for the stakeholder interviews is attached (in Swedish, since this was the language in which the interviews were conducted in) in appendix B.

3.2.2 Interview with potential users
Nine interviews were held with potential users of this tool that had been referred to during the stakeholder interviews (results about potential users can be found in chapter 4). The interviewed potential users were derived from three user groups. Two editors, three management employees, and four technical writers were interviewed.

The purpose of the user interviews was to explore the credibility of the stakeholder findings as well as to get extended knowledge about potential users, which was needed for constructing personas and the personas’ requirements from the tool. These interviews were customized depending on the role of employment of the participant. The interview guides are attached (in Swedish, since this was the language in which the interviews were conducted in) in appendix B.

3.3 Analysis method
The collected data was analyzed in three steps, which are explained below. First, the collected data was categorized and put together into themes. The second step was to search for requirements from the potential user groups. This was done by constructing personas and scenarios, based on some of the themes that have been found in the thematic analysis.
3.3.1 Thematic analysis
First, the stakeholders’ findings were analyzed. This had to be done in order to explore initial thoughts of the use of this tool. Following, the user interviews were analyzed. All of the collected interview data were analyzed according to a thematic analysis method (see e.g. Braun & Clarke, 2006).

To facilitate a deeper understanding of the collected data, hence allow for a deeper analysis of the recorded material, all of the recorded interview data was transcribed. Specific opinions and thoughts were highlighted and coded into smaller, detached pieces of information derived from every participant. A cross-case analysis was conducted (Goodwin, 2009); sorting the single cases into separate groups of themes for exploring relations and to identify code patterns and trends. These themes were given meaningful thematic names and facilitated for an understanding of the different perspectives of the user groups, which then became the basis of the personas and scenarios. Some of the themes were considered irrelevant for the purpose of this thesis and was consequently not included in the analysis. The following themes were included:

• Duties and activities of potential user groups
• Background of potential users
• Personal goals and motivations
• Concerns
• Feedbacks and communications between potential user groups
• Desired effects of integrating a quality assurance tool
• Desired features on a quality assurance tool
• Expected challenges of integrating a quality assurance tool

Quotes have been included to illustrate the good points of the comments. These quotes have been integrated into the themes in a way that hopefully makes the results easy to interpret for the reader, in accordance with the recommendations of Patel & Davidson (2011).
3.3.2 Personas

Personas are archetypes that describe various goals and observed behavior patterns among the potential users (Goodwin, 2009). It explains the most critical behavioral data in a way that designers and stakeholders can understand, remember and relate to.

What makes personas effective is their presentation as people rather than as abstract ideas of users (Goodwin, 2009). The creation of personas was based on the findings from the thematic user data analysis. Three personas were constructed and mapped together based on a set of themes that emerged from the thematic analysis, as described in chapter 4.

3.3.3 Scenarios and requirements definition

The requirements were defined in a generative way. By creating stories that describe possible scenarios of product usage, it was possible to draw requirements from those. Scenarios are used to answer basic questions as who, what, where, when, why and how the persona would interact with the product (Goodwin, 2009).

Each persona was given a few scenarios, based on themes that were derived from the thematic analysis of the user interviews. The scenarios illustrate how the persona would want to manage the flow from one task to another. The requirements that were generated in this study were of two different types, data requirements, and functional requirements. Data requirements specify the data that a user would need, and can be seen as the nouns of the personas requirements (i.e. the things that they need). Functional requirements can be seen as the verbs that describe what the users should be able to do with the data (i.e. the verbs of how the user would manipulate the nouns) (Goodwin, 2009).
4 Results

In this chapter, the questions of this study are answered. This is done by presenting results of the themes that were created using thematic analysis. The excerpts that are presented are quotes derived from the collected interview data.

In 4.1, three potential user groups that have emerged from the stakeholder interviews are shortly introduced and complemented with personas that describe the archetypes of the three groups. This is followed by a description of how their work is related to each other. In 4.2, the users’ desired effects of integrating a quality assurance tool into the process are presented. In 4.3, the defined requirements from the potential user groups are presented that have been generated through scenarios and personas. Finally, in 4.4, possible challenges that need to be considered when integrating a quality assurance tool are presented.

4.1 Potential user groups

This section will answer the first question of this thesis:

Which potential user groups are there on a quality assurance tool? What is their current work, and how is the work of the potential user groups related?

This is done by (1) presenting a short description of the potential user groups, as well as by (2) presenting personas that corresponds to these three groups and by (3) presenting an illustration of the relation between the potential user groups.

4.1.1 Defining the potential user groups

In this section, the reader will be provided with results from exploring the potential user groups in the stakeholders’ interviews.

Since the stakeholders that participated in this study are working as a product developer and a product leader and are currently involved in the development of this tool, they feel confident in their assumptions of which groups of users this tool should address to.
They are, though, uncertain of whether all of their assumed groups of users know about the current quality assurance problem, because of the tool not being used yet, as described in excerpt 1. All excerpts that have been extracted from interviews were translated from Swedish into English by the author.

“Most of the potential users do know that this tool exists, but because of it being hard to use, plus it is not decided that they do have to use it yet, not many of them do”

Excerpt 1. Quote from stakeholder interviews.

The stakeholders’ opinion is that this quality assurance portal should address three types of users: employees that are writing the technical documentation, employees that are reviewing the written technical documentation looking for errors, and employees that have the overall control of the technical documentation and therefore having the authority to make decisions about error corrections. These types of users corresponds to (in the same order):

1. Technical writers
2. Editors
3. Managers

*Technical writers* have the main responsibility for producing, i.e. writing, the technical documentation. They write descriptions for pilots and technicians, describing how to use the systems and how to maintain it. They receive job specifications that they should work according to. There are two types of main activities for technical writers, either they receive specifications from system engineers and material groups regarding new documentation or editing old documentations, to refine into a more readable version, or they receive specifications from managers or editors describing errors or deficiencies that they should correct.

*Editors* are reviewing every piece of documentation that is written for errors and deficiencies. Editors are reviewing for different types of problems depending on which department the editor is employed in. For instance, editors review for editorial parts of the document and search for errors in structure, linguistic errors, wrong terms or other types of violations against the technical writers conventions.
Managers have the overall responsibility of the quality of the technical documentation. They are ensuring that the staff is producing technical documentation the way they should and that the end users are satisfied with the technical documentation. They receive feedback both externally (from end users) and internally (from technical writers and editors), that are associated with errors or suggestions for improvement in technical documentation. Their work in investigating the quality of technical documentation is somewhat undefined, and they need to find solutions based on the incoming feedbacks.

4.1.2 Personas
In this section, the constructed personas are presented. A total of three personas has been constructed to correspond to the three user groups. The personas are based on the following themes derived from the thematic analysis of the user interviews: duties and activities of potential users, background of potential users, personal goals and motivations and concerns. These personas are essential for understanding the mindset of the user groups and will be the basis of the scenarios that are presented in a section that follows later.
Mathias | Technical Writer

Mathias has been working at Saab as a technical writer for a few years now. He knows his work is important, although it is very regulated. He writes descriptions for pilots and technicians, describing how to use the systems and how to maintain it. By receiving specifications from system engineers and material groups, his job is to refine it into a more readable version. Mathias has very high ambitions and would like all of the documentation to be flawless, although, his directive is to only work according to the specifications that he receives: he is not allowed to personally determine whether something should be corrected or not.

Mathias is usually not getting stressed up about his work, but it depends on the situation. When projects are about to be finished, there is usually a much higher workload. When Mathias feels that the job is done, he sends the documentation away for a review process. He thinks this usually is enough for finding errors, although some probably can slip through the system. He is a bit frustrated about how the reviewing process is not unified and that the way he receives his feedback depends on the editor.

For some time ago, Saab introduced two tools for assuring that the technical information is written according to BREX-rules and STE-rules. Although the process of producing technical documentation may take longer with these tools, he thinks it is nice to feel less responsible for these types of errors. But these tools are could be tricky according to Mathias. Sometimes he gets vague descriptions about the errors, which makes it both hard to find the error and to know how to correct it.

<table>
<thead>
<tr>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 30 years old, man</td>
</tr>
<tr>
<td>• 3 years of employment as technical writer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Receiving specifications from system engineers and material groups to refine</td>
</tr>
<tr>
<td>• Receiving specifications for correction from editing errors</td>
</tr>
<tr>
<td>• Writing descriptions for pilots and technicians</td>
</tr>
<tr>
<td>• Sending in requests concerning suggestions for improvement or error correction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motivations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Produce technical documentation with as good quality as possible</td>
</tr>
<tr>
<td>• Produce technical documentation that is true to writing conventions</td>
</tr>
<tr>
<td>• Produce technical documentation that is easy to understand and to interpret the right way</td>
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<tr>
<td>• Deliver technical documentation in time</td>
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<table>
<thead>
<tr>
<th>Concerns</th>
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</thead>
<tbody>
<tr>
<td>• No formalized way of reviewing and receiving feedback of errors in editing technical documentation</td>
</tr>
<tr>
<td>• Not allowed to edit parts of documentation that have not been specified for the task</td>
</tr>
<tr>
<td>• Not really aware of the quality situation</td>
</tr>
<tr>
<td>• Old documents can be tricky to edit because of vague error descriptions or different writing conventions</td>
</tr>
</tbody>
</table>

*Table 2. Technical writer persona.*
Katarina | Editor

Katarina has been working as an editor for two years now. In the past, she was employed as a technical writer. She has also been a team leader of new technical writers in being part of their training. As an editor, she is reviewing the work of the technical writers for editorial errors like misspellings or faulty structures. She does not think that her work in reviewing technical documents is too stressful, although it can differ from time to time. When the projects are close to release date, the workload tends to be higher. If the workload is high, Katarina and her colleagues help each other out. Katarina’s directive is to only review the parts of the documentation that currently have been edited and she would get stressed up about knowing about the deficiencies that she should not review.

However, she thinks that people seem to have different mindsets when reviewing documents. If she is double-checking her colleagues reviewed work, she could perceive errors that they have not, and vice versa. Katarina has noticed that deficiencies can slip through the review process, but these deficiencies do not usually have any major impact on the documentation.

Katarina’s opinion is that the introduction of STE-validation and the BREX-validation have facilitated her work considerably since this means that certain types of errors should be corrected prior to her review. What’s left for her to search for is often careless mistakes and certain rules that these tools could not evaluate. To give the technical writers their feedback, she puts her comments directly into the PDF-document and then saves it into a file structure, where the current technical writer could find it. By using this file structure, Katarina, and her colleagues have the ability to cooperate – if she is not available, one of her colleagues can read into the problems of the technical document and get knowledge of what should be corrected and reviewed.

Table 3. Editor persona.
Amanda | Manager

Amanda has an extensive background at Saab and has good insight into the various types of work being conducted in the business. She and her colleagues in the same department are responsible for the overall quality in the technical documentations. She is looking for strategies to maintain and improve this quality while giving the staff the opportunity of doing a good job, efficiently and cost-effectively. She is very careful about her employees and always has their well-being in mind. She receives errands, both internally and externally, with suggestions for improvement and errors to prioritize.

Four times per year, her department introduces audit packages containing the data modules that should be corrected. She is working together with employees from the administrative and business development on questions regarding how to strategically ensure that they have a plan for how to develop the products and look for what demands they need from the system.

Amanda feels that, although it can get a lot better, it is still not possible to get technical documentation that is completely free from editorial errors, because it would require too many financial resources. Sometimes when she gets complaints from external sources about the quality of the technical documentation, and she asks what it is that is unsatisfying, the sources does not seem to have anything specific to complain about. This puts her in a difficult position where the end users are not completely satisfied, although no one really knows why.

For ensuring that they are heading in the right direction, she would like information about whether they have positive or negative trends, and would like to compare newly produced publication against old ones. This could be basis for internal discussion, and knowledge about where training is needed.

**Table 4. Manager persona.**
4.1.3 Feedback and communication between the potential user groups
To describe how the user groups’ involvements in technical documentation are related to each other, a feedback cycle is constructed and presented in figure 4. This illustrates how the feedback is flowing throughout the organization. This describes how the process is working when errors or deficiencies are perceived.

![Diagram of feedback cycle]

Figure 2. A simplified illustration of how feedback is communicated when deficiencies or errors are perceived in documentation. Managers receive all feedback from end users. If editors and technical writers perceive deficiencies or errors that are not specified to be corrected, they send in inquiries to managers, who investigate it and have the authority to decide how to treat it. If the deficiencies or errors concern the engineering-related content, feedback is sent to system engineers & material groups who have to investigate it.

The three potential user groups are located inside the container. Before the technical documentation is published and sent to the end users, it needs to pass on through several departments where editors review it for editorial errors and content errors. If the documentation contains some sort of violation of the writing conventions of, for example, STE-rules or BREX-rules, or if it contains some sort of error that is directly related to the job specification, technical writers get immediate feedback from the editors and need to fix it.
In case technical writers or editors find errors that are not part of the specified job, they cannot correct it on their own, but could send in an inquiry for the managers to investigate. This may result in the correction of the error later on.

If every editor in the reviewing process approves the documentation, it gets published and delivered to the end users. In case the end users feel unsatisfied with the technical documentation, they inform the managers about this who investigate the problem. If they determine that the problem is critical and need to be corrected, they pass this on to the employees involved in the production of technical documentation.

If the problem concerns the engineering-related content of the technical documentation, e.g. if there is incorrect definition of tools, the problem must be investigated by system engineers and material groups. They will have to investigate it and send a corrected job specification for the technical writers.

4.2 Desired effects

This section will, by presenting codes and quotes that were categorized under the theme desired effects of integrating a quality assurance tool, answer the following question of this thesis:

What effects do the potential user groups want to achieve by integrating a quality assurance tool into the process of producing technical documentation?

The external end users of the technical documentation have been complaining about deficiencies in the documentation. For ensuring a long-term satisfied customer this type of tool had to be introduced. The deficiencies could be due to impossibility to keep control of the large data set of the technical documentation. The documentation could be very old and written on paper, and when it was digitized it was sometimes done without making the improvements that now are necessary.

One of the main purposes of introducing this quality assurance portal is to be able to deliver technical documentation that is of higher quality, but currently, there is no knowledge in how to achieve this solely by introducing a portal that are measuring errors. The results from this quality assurance portal need to be processed in some way. This quality assurance portal could generate something concrete enough for the basis of a discussion about quality and deficiencies
in the documentation. This makes it possible to set up strategies for how to improve quality over time and to figure out why the documentation has deficiencies.

As presented in excerpt 2, it is not always clear what the quality problems are, even with the knowledge of its existence.

"It is an easy thing to say that the quality is bad, but what is it that is bad?"

Excerpt 2. Quote from stakeholder interviews

Furthermore, there is an idea of switching to an IETP in the future to modernize the way of how the manuals are stored and how they are used. When switching to an IETP, there are high demands on the control of the data set and for maintaining the documentation, as described in excerpt 3. All of the documentation must be structured in the same ways, independent of who has written it.

"This is where the needs of this tool come in. A tool that gives us knowledge about our own product, letting us keep control of what we produce and what we deliver to the customer. If we are going to use our data for delivering an IETP, we got to have better control of our data set"

Excerpt 3. Quote from stakeholder interviews.

The data derived from the quality assurance portal could help managers in developing strategies for how to maintain and improve the quality over time. Managers want to get knowledge about what is going on in the organization and to extract data from this tool that is manageable for them. They want to perceive trends and to know about if it is heading in the right direction. Managers could use the result from the quality assurance portal to prove for the end users that the documentation is getting improved, as described in excerpt 4.

“And then to be able to communicate that we are taking care of this kind of error, prove that it will disappear and also able to show current trends”

Excerpt 4. Quote from manager interviews
Managers also point out that the quality assurance portal could help them figure out a way of saving resources by letting it keep control over the variables that could be controllable from a machine instead of employees, hence let employees focus on tasks that require humans, as described in excerpt 5.

“Regarding this, reducing workload, all the writers and editors would know that they do not have to take these things into account while writing and reviewing documentation because it has already been checked by the system”
Excerpt 5. Quote from manager interviews

Technical writers and editors think that this tool could help them save a lot of time. They could see their benefits in getting more accurate error descriptions (mainly regarding the BREX-validation) and an effective way of finding the errors in the document. This would save them time, which could have great impact in the long term.

The current BREX-validation does not always provide satisfying information. It could tell that errors exist in the documentation, but the description might be missing out on the exact location of where it exists. This is time-consuming as well as frustrating, as described in excerpt 6. This is something that should be better in the quality assurance portal.

“I had an old manual where the BREX-validation said that one title was empty, and it was a pretty large manual. I had to look through the document to find the empty title by myself. It would be nice if it was highlighted in some way”
Excerpt 6. Quote from technical writer interviews

Further, the current BREX-validation that is used is not a full 4.0.1 BREX (4.0.1 corresponds to a certain set of BREX-rules). Some of the rules are not possible to use currently, because it would require too many resources to match them, although, if these rules could be controlled in the quality assurance portal, without preventing the documents from being published, it could give valuable information as described in excerpt 7.
“About the BREX… it is not a full 4.0.1 BREX because we have some rules that we can’t apply since we wouldn’t be able to deliver our documentation anymore. And that is something we need to work on, but it is things like this I have been discussing with our product developers, if it is possible to use this QA-portal to turn on and off rules and perceive valuable information that we don’t control in the system.”

Excerpt 7. Quote from manager interviews

Editors want to be able to focus their attention on reviewing only the things that a machine couldn’t manage to review. By getting it automatically, they would save a lot of time, and also get a unified way of reviewing, and therefore get a unified appearance of all documentation.

Because of this work being done by humans, it means that the results depend on who the technical writer or the editor is. Every involved employee has different experiences and technical writers could have different stylistics, i.e. write in certain ways. Generally, technical documentation is only reviewed by one editor in each department. The fact that the documentation should, in general, only be reviewed once per department could be a concern because the results of the reviews could differ depending on the editor because of what they have learned to look for and what they perceive, as described in excerpt 8 and excerpt 9.

“We are different people and, therefore, we do not have the exact same way of thinking”

Excerpt 8. Quote from editor interviews

“If my colleagues have reviewed a document, I could probably find some more errors, and vice versa”

Excerpt 9. Quote from editor interviews

This could mean that the technical documentation is affected depending on the involved employees, which is, as described in excerpt 10, something that should, and could, be discouraged, through better control with the use of this quality assurance portal.
“We need to know how we could keep control of that we do what we should do, we don’t want to end up in a position where ten people work in ten different ways which could cause problems later on”
Excerpt 10. Quote from manager interviews

4.3 Requirements
In this section, the following issue of this study will be answered:

What requirements do the potential user groups have on this tool in order to facilitate their work in delivering technical documentation with higher quality?

This will be answered by presenting the requirements that have been generated from scenarios. The scenarios are constructed both on the basis of the themes that are used for constructing the personas; using the personas motivations, activities, and concerns and putting them in relation to codes that are derived from the following themes: feedbacks and communications between potential user groups, desired features on a quality assurance tool and desired effects of integrating a quality assurance tool.

The presented scenarios describe contexts that the personas would find themselves in using the quality assurance portal. These scenarios are not limited due to the way the quality assurance portal is used today. This is for generating possible ideas of how it could be integrated in the future. Every scenario generates a number of requirements that are listed in a chronologic order in relation to the scenario. A summary of all the requirements, split into data requirements and functional requirements, of the personas are attached in appendix A. The placements of the requirements in the lists are irrelevant for importance.
Table 5. Scenario 1.

A while has gone since the latest publication package was released to the end users. Today, Mathias has some extra time, so he turns to the quality assurance portal.

He explores the list that contains the deficiencies considered as less urgent, but yet important enough for a manager to put it on the list of correction. His directive is to start at the top and work his way down, so he clicks on the first document, where he is presented by detailed information about the amount of deficiencies, divided into types of deficiencies. By opening up the document, he is presented with the location of the first deficiency along with its specification, which is a misspelling. Mathias validates his correction and it gets approved.

By stepping through the document, he corrects all deficiencies according to its description, until he finds one deficiency that seems to be unclear, and decides to send it in for review. All of the deficiencies except this one are corrected, and he lets the quality assurance portal validate it, which notifies him about that one deficiency could still be corrected. He decides to dismiss it until he gets a response from the review.

When the review is done, he gets notified about this in the quality assurance portal, and opens up the document, whereupon he fixes the deficiency according to the new specification. The document gets approved by the quality assurance portal and moved into a list of corrected documents, ready for being reviewed by editors.
**Scenario 2, Mathias (Technical writer)**

Mathias received a specification for a new documentation. He opens up his writing software and connects it to the quality assurance portal.

Mathias likes to write by his intuition, so he decides to turn off the interactive validation in the quality assurance portal, so that he can write without it notifying him for errors as he writes. When he feels that the document is done, he uploads it into the quality assurance portal and validates it for errors.

The result from the quality assurance portal tells him that it contains a few violations against STE-rules as well as BREX-rules. Because all STE-rules are mandatory to follow, he needs to correct them before uploading the document. He does this by opening the document directly in the portal.

The errors that are mandatory for being fixed are highlighted in a red color, but the document also contains advisory BREX-rules violations that are not mandatory for being fixed, which are highlighted in a yellow color. The quality assurance portal presents suggestions for correction of the violations.

He decides to fix all of the mandatory errors, and most of the advisory. He evaluates it to the quality assurance portal and gets notified that it contains violations against advisory BREX-rules. He decides to save it anyway and it gets stored in a list for editors to review.

**Requirements**

- Ability to choose whether to use or not to use interactive validation
- Ability to upload new document into quality assurance portal for evaluating it
- Presented with the result from the evaluation
- Prevented from saving the document for review until every mandatory rule is followed
- Ability to open document in portal
- Highlighting locations of errors, red for mandatory and yellow for advisory
- Presented with suggestions for corrections
- Ability to evaluate corrected document
- Presented with remaining errors (violations against mandatory & advisory rules)
- Ability to save into review list if document does not contain violations against mandatory rules

*Table 6. Scenario 2.*
<table>
<thead>
<tr>
<th><strong>Scenario 3, Mathias (Technical writer)</strong></th>
<th><strong>Requirements</strong></th>
</tr>
</thead>
</table>
| Mathias logged into the quality assurance portal to look for documents that need to be corrected. | • Be notified when urgent matters exist  
| | • Ability to open list of urgent matters |
| The portal notifies him that it exists documents in the lists of documents that are urgent to be corrected, which is decided by the managers. He opens up the list and is presented by a variety of documents that is urgent to be corrected. | • Presented with list of documents that are urgent to correct, in prioritized order  
| | • Presented with short description of the errors that should be corrected in the different documents |
| The documents are prioritized in a descending order, and his directive is to start from the top and work his way down the list. Next to the documents is a short description of the type of error that needs to be fixed. | • Ability to open the document in the portal  
| | • Highlighting of the error  
| | • Presented with detailed description of the error  
| | • Presented with suggestions for correction |
| The specification of the first document is to change a word that has been misinterpreted by some end users. Mathias opens the document in the portal and locates the error. The portal tells him that this word is not specified in the vocabulary of STE, and suggests him with another word for replacement. | • Ability to either accept the suggestion of correction or correct it by personal preference  
| | • Ability to evaluate corrected document  
| | • Presented with advisory corrections  
| | • Ability to reject or accept to fix the rest of the advisory corrections  
| | • Ability to save document into review list |
| He accepts the suggestion and evaluates the document. He is presented with a number of advisory corrections, but since these corrections are not as urgent to fix, he decides it is best to continue working on the documents in the urgent list and rejects to fix the advisory corrections. The document is saved into the list for editors to review. | |

*Table 7. Scenario 3.*
<table>
<thead>
<tr>
<th>Scenario 4, Katarina (Editor)</th>
<th>Requirements</th>
</tr>
</thead>
</table>
| Katarina explores the quality assurance portal for documents to review. | • Presented with list that contains documents to review  
• Documents to review should be sorted based on time of upload |
| She opens up the list that contains documents that are approved by the portal, but yet not reviewed by any editor. The documents are sorted based on when they were saved, and her directive is to review the oldest documents first and work her way to the newer ones. | • Presented with total amount of deficiencies per document  
• Presented with deficiencies divided into violations of mandatory rules and advisory rules per document  
• Ability to turn off the presentation of violations of advisory rules |
| Next to the name of the document, she is presented with the amount of deficiencies that is found by the quality assurance portal, divided into violations of mandatory rules and advisory rules. Normally, mandatory rules are not supposed to slip through the system, but could exist if the rules have changed since the document was uploaded. Since advisory rules are not mandatory to follow, Katarina has the opportunity to turn them off if she feels that it is stressful to see deficiencies that are not urgent to fix. | • Ability to explore detailed information of separate documents  
• Presented with detailed information about all deficiencies that was found in selected document  
• Ability to open up the document to explore the errors in its context |
| Katarina clicks on the top document and is presented by detailed information on the various deficiencies that was found. She notices that the document contains errors in references and some violations against advisory BREX-rules, and decides to open the document to explore the errors in its context. | • Presented with highlighting of selected error  
• Presented with description of the selected error  
• Ability to step between errors in document  
• Ability to select errors that should be corrected  
• Ability to write descriptions for corrections  
• Ability to save document into list of non-approved documents to be corrected by technical writer |
| She locates the errors and is presented by description of the errors. She uses the portal to step between the errors in the document. She selects the errors that need to be corrected and writes descriptions about what needs to be edited. When she has considered all errors, she saves the document into a list of non-approved documents that needs to be corrected by technical writers. | • Ability to explore detailed information of separate documents  
• Presented with detailed information about all deficiencies that was found in selected document  
• Ability to open up the document to explore the errors in its context |

Table 8. Scenario 4
### Scenario 5, Katarina (Editor)

Katarina’s co-worker went on a vacation some days ago, although it is a stressful period right now because a new publication package is about to get released and many documents have to get reviewed.

Katarina received a notification about that it exists a document to review in the quality assurance portal. When she explores it, she notices that it is on the list for second-time reviews. Normally, the editor that first reviewed these documents, i.e. the one that gave the technical writer comments about correction, should review the corrected documents, but since her co-worker is off duty, Katarina has to review her documents also.

When she opens up detailed information about the review, she is presented with the errors that her co-worker had specified in the document, which is regarding a list of procedures that was formatted the wrong way. Katarina decides to open up the document directly in the portal to review the changes that have been made. The portal presents her with the problematic list straight away and she approves the newly formatted list, although, she did find a new deficiency that concerns her – she believes that there is some part of the procedure that is missing in the document.

She decides to send it back to the technical writer one more time. Katarina puts a comment next to the list, telling the writer that the new format is okay, but that the procedure seems to be incomplete. In the comment, she asks the writer to consult some engineers to find out if the process is incomplete or not. She disallows the document and it is sent to the list for the technical writer to correct.

### Requirements

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>• Notified that documents exist that should be reviewed</td>
<td>• Ability to explore detailed information about the review describing required corrections</td>
</tr>
<tr>
<td>• List of documents that should be reviewed a second time</td>
<td>• Ability to open up the document directly in the portal</td>
</tr>
<tr>
<td>• Documents that have been reviewed once already should be reviewed by the same editor</td>
<td>• Presented with highlighted error location</td>
</tr>
<tr>
<td>• Ability to review other editors documents if they are not available</td>
<td>• Ability to approve corrections</td>
</tr>
<tr>
<td>• Ability to put comment next to the error</td>
<td>• Ability to disallow document</td>
</tr>
</tbody>
</table>

*Table 9. Scenario 5.*
After a new package of technical documentation has been published, Amanda turns to her computer and logs into the quality assurance portal.

She wants to explore the total amount of deficiencies that it contains, so she uploads the new package into the portal. When the evaluation is done, the quality assurance portal shows her the total amount of deficiencies in the current package, together with a table that presents the amount of the different types of deficiencies that this package contains.

Since one of her long-term goals is for Saab to deliver technical documentation with fewer deficiencies, she decides to compare these numbers against the four most previous released packages. The quality assurance portal presents her with a line chart, describing the progression of the different types of deficiencies during the released packages. This chart tells Amanda that it seems to be a positive trend regarding errors in references, editorial errors, and errors in figures, although the BREX-validation seems show a slightly negative trend.

Amanda decides to print out this chart and use it as basis for discussion with her co-workers. During the discussion, she returns to the main page of the quality portal and decides to compare the four latest packages for deficiencies regarding only the BREX-validation. She is presented with a list, containing every published document, sorted in a descending order depending on amount of deficiencies in the latest package. Next to the number of deficiencies in the latest package is a comparison with the latest four is presented.

### Table 10. Scenario 6.

<table>
<thead>
<tr>
<th>Scenario 6, Amanda (Manager)</th>
<th>Requirements</th>
</tr>
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</table>
| After a new package of technical documentation has been published, Amanda turns to her computer and logs into the quality assurance portal. | - Ability to upload publication package  
- Presented with total amount of deficiencies  
- Presented with table showing deficiencies divided into types  
- Ability to compare current publication package against previous publications  
- Presented with line chart comparison of deficiencies in selected publication packages  
- Ability to print statistics  
- Ability to filter for certain types of deficiencies  
- Presented with list of published documents with number of deficiencies and comparison against previously released, selected publications |


**Scenario 7, Amanda (Manager)**

The end users have been using the current publication package for a while now, and since Amanda is the one that receives the incoming feedback, she has noticed that it exists some deficiencies that seem to bother some of the end users. What seems to cause most troubles is the existence of what is called “dead links”, i.e. references that do not lead anywhere. Amanda is very keen to fix this since she is responsible for matters that concern the end users satisfaction with the technical documentation.

Amanda uses the quality assurance portal to explore the publication package and she decides to filter for all deficiencies in references. She is presented with a list of all documents that contain incorrect references. She decides to open up some of the documents and is presented by the location of the errors and which documents it should lead to. By clicking on the incorrect reference, the quality assurance portal either locates the referenced part, or tries to locate the closest part in the referenced document, and she notices that most often, the problem is that the references point to wrong information.

She decides that all of the incorrect references need to be investigated, and selects every document in the list to print. Because of the documents being very large, she decides to only print contiguous parts. Amanda gets prints showing the location of the incorrect references and, if it exists, the referred section of the other document, or the closest part to the referred section.

She decides which references are crucial in being fixed, and by adding these documents to a list of correction, together with specifications of the errors, she has created work for the technical writers. A while later, Amanda explores the list of corrected documents, wherein the quality assurance portal verifies that the documents do not contain incorrect references anymore.

### Requirements

- Ability to filter for types of deficiencies
- Presented with list containing matched documents
- Ability to explore document
- Presented with highlighted error
- Presented with error descriptions
- Helped in troubleshooting errors

- Ability to select documents in list
- Ability to print selected documents
- Ability to print contiguous parts or whole document

- Ability to add selected documents and error specifications to a list of correction
- Ability to explore list of corrected documents
- Presented with verification next to the documents if they have been approved by the quality assurance portal

| Table 11. Scenario 7 |
After a long meeting, a decision has been made to investigate how the documents could adapt more BREX-rules than today, which is needed before it is possible to transfer the current documents into an IETP.

Amanda turns to the quality assurance portal and decides to evaluate the current publication package for BREX-rules. Before the evaluation, she is given the option to add certain rules that are not included in the current protocols. This is only for advisory evaluation and results in a list containing all documents that contain the selected BREX-rules.

Next to the document names, is a presentation of the amount of BREX-violations, which also is divided into types of most common violations. She notices that the most amount of violations are due to many empty paragraphs and headlines and decides to explore some of the violations deeper.

By opening up a document that contains a lot of violations, she is presented with the location of the first violation and is given the error specification. She decides to step through all of the violations in the document and concludes that some of the technical writers could have misunderstood the way XML-tagging works. She decides that it would be best to let some of the technical writers undergo training in how to use XML-tagging most effectively.

<table>
<thead>
<tr>
<th>Scenario 8, Amanda (Manager)</th>
<th>Requirements</th>
</tr>
</thead>
</table>
| After a long meeting, a decision has been made to investigate how the documents could adapt more BREX-rules than today, which is needed before it is possible to transfer the current documents into an IETP. | • Ability to evaluate publications for certain error types  
• Ability to add BREX-rules into validation  
• Presented with a list containing matched documents  
• Presented with total amount of violations  
• Presented with most common violations in document  
• Ability to open document  
• Presented with highlighted location of the violation  
• Presented with error specification  
• Ability to step through all errors in the document from top to bottom |
| Amanda turns to the quality assurance portal and decides to evaluate the current publication package for BREX-rules. Before the evaluation, she is given the option to add certain rules that are not included in the current protocols. This is only for advisory evaluation and results in a list containing all documents that contain the selected BREX-rules. | |
| Next to the document names, is a presentation of the amount of BREX-violations, which also is divided into types of most common violations. She notices that the most amount of violations are due to many empty paragraphs and headlines and decides to explore some of the violations deeper. | |
| By opening up a document that contains a lot of violations, she is presented with the location of the first violation and is given the error specification. She decides to step through all of the violations in the document and concludes that some of the technical writers could have misunderstood the way XML-tagging works. She decides that it would be best to let some of the technical writers undergo training in how to use XML-tagging most effectively. | |

*Table 12. Scenario 8.*
4.4 Expected challenges

This section presents codes and quotes that were categorized under the theme *Expected challenges of integrating a quality assurance tool*. These expected challenges have not limited the scenarios and requirements presented in 4.3, but will have a significant impact on the ability to satisfy the potential users' requirements for this tool, and are therefore crucial to consider. The following question will be answered:

> What challenges need to be considered for this integration?

As a manager, keeping track of the resources is very important. They need control of the work that is carried out by technical writers and editors in the sense of improvement or error correction in technical documentation. There are no sufficient means for correcting all of the errors that exist, especially if it does not have significant negative impact on the documentation. As described in excerpt 11, it would simply take too much time in consideration of the effect of the correction and is therefore not justified.

> “We are working on these questions in the long term, but in the meantime, our customer wants to get maximum profit from their investments, which is why they hold against these types of cleaning jobs and want us to work on things that give more effect. These types of errors do not seem as crucial in relation to other things”

Excerpt 11. Quote from manager interviews

This also means that the job, both as a technical writer and editor, is very regulated. Although they have high ambitions and want the technical documentation to be faultless, technical writers are not allowed to correct deficiencies that are not part of their current specification, because it would simply drain too many resources since every change needs to be thoroughly reviewed by the editors.

On this same basis, the editors are not allowed to look for deficiencies in parts of the document that is not currently in progress. Thus, there is a conflict in where accuracy meets resources like financial means. For the integration of a quality assurance tool that could point out
every measurable deficiency, a solution must be found to know how to (1) treat deficiencies that have different importance in order to make the end user satisfied, while (2) improving it in the long term and (3) having the resource problems in mind.

Although the quality assurance portal is working, and managers have the possibility to use it for measuring the errors in published documentation, it is not used frequently due to ignorance in how to use the results. Incoming feedback, both externally and internally, about deficiencies or suggestions for improvement is still the main way for managers to get knowledge of the problems that are in some way distracting for the end users or the employees.

Managers, editors and technical writers agree on that for this tool to be efficient, a new place of integration needs to be defined in the workflow. Right now, the quality assurance portal could only evaluate the documents after the end user already received it – which is a problem since it means that it is only possible to perceive the deficiencies after the end users already have access to the documentation. This prevents the possibilities for the technical writers and editors to use this tool prior to delivery, which is something that both technical writers and editors would like to do, although managers seem confused for how it could be integrated for allowing this, as described in excerpt 12.

“We need to find the solution. Some employee thinks that we need to use the QA-portal before we deliver to the customer. The problem for me is that we will get in a position where we will not be able to correct the errors and we’ll have to deliver anyway. Right now, we can’t use this QA-portal before we deliver because we need to squeeze the delivering process as much as possible for our own sake and for the sake of the customer. We need to find a good solution that will fit in the process, but we don’t have it right now”

Excerpt 12. Quote from manager interviews

Writers think that the current tools that are in use for validating the documents according to STE-rules and BREX-rules are helping them – but are in the meantime distracting. If they open up old documents that have not been opened for a while, it could mean differences in the writing conventions. This could mean extra work in getting the documentation up-to-date, which could
mean that even minor corrections could take a lot of time because all of the rework that is required in the documentation. This is a challenge, because these documents had already been approved, but suddenly, in regards to the new conventions, they are not approved anymore. If for instance, new BREX-rules are being integrated into the process, it is of great importance to have a plan for how to get the documentation updated.

A quality assurance tool must be integrated carefully, and should not put demands on things that would drain too many resources. Hopefully, as described in excerpt 13, this shouldn’t be a recurrent problem, though, as most of these old documents have been corrected.

“But I hope that BREX-validation problem is just a one-time thing, that we just have to correct it for now”

Excerpt 13. Quote from technical writer interviews

These are important aspects that need to be considered when integrating the quality assurance portal into the existing process of producing technical documentation. Although, for the basis of this study, these challenges are not considered when requirements of the potential user groups were explored, with the purpose of generating ideas for how this tool could be used in a good way for all potential user groups and to point out certain possibilities that could occur if the tool was integrated in a more allowing location of the work process.
5 Discussion

This final chapter includes a discussion that reflects on the chosen methods of this study and outcoming results in an objective way.

The findings from this theoretical analysis provide qualitative insights in the potential user groups and their requirements on a quality assurance tool. It also provides insights in their desired effects of integrating this tool and possible challenges to consider when integrating a quality assurance tool into the workflow of large, complex, organizations.

It presents the complexity in producing quality assured technical documentation from various perspectives. While the starting point of introducing a quality assurance tool is to acquire fewer deficiencies, it is a lot to consider before integrating it into the workflow.

This knowledge is important to have prior to designing a user interface for it to be integrated into the current workflow as smooth as possible. According to the concept of seamless interaction, a user interface should be customized and individualized to acquire these requirements. The findings of this study have made it easier to achieve seamless interaction when implementing and designing quality assurance tools by exploring the requirements of every potential user group. As presented in the design approach of individuation, it gives the user perceived control and satisfies the need for autonomy and therefore, has been shown to increase job satisfaction, work motivation, and positive affect (Hancock et al., 2005).

However, if, as in this case study, the requirements do not all fit in the current workflow, there might be challenges that need to be considered. The problem within the workflow process of this case study is that there is currently no place for a quality assurance tool to validate the technical documentation before it gets delivered to the end user. This makes it difficult to satisfy the requirements of the potential user groups, because most of them would like it to validate the documentation before it is stored and sent to the end user.

Although this tool may not currently have the possibilities for immediate validation, the advantages of knowing about the quality of the documentation, hence acquire knowledge about the product, might create ideas of how to proceed in improving technical documentation. Currently, this tool would be best suited oriented towards managers. This is the way it could be most helpful in the way it is integrated today, but it would require some way for managers and
editors to receive technical documentations and give feedback for technical writers for correction prior to the next publication.

This is much like the process of today – where technical writers get presented with packages containing perceived and prioritized deficiencies from previous publications, to correct for next publication. This idea was explored in the user interviews, which led to the idea of an integrated list function in this tool with a process structured like the current. Although this would not solve the integration problem of validating documentation prior to delivery – it could be an idea that might facilitate the correction of deficiencies in documentation.

This case study involved interviews with a small group with no more than 11 participants, consisting of 2 stakeholders and 9 users. The amount of participants might have had an impact on the reliability of this study, although it was in the opinion of the researcher that the collected data was becoming saturated. The 9 user participants were contacted through a snowball sampling technique, which is a non-probability sampling method. The downside with this type of sampling method is that it is unlikely that the sample will be representative of the overall population; meanwhile, the definition of the population itself could also be problematic (Bryman & Bell, 2003).

For this study, one could argue that the population would be users in an organization that produces technical documentation. This could be a too vague description of the population as the workflow of producing technical documentation might differ between organizations. Because of this, one should be careful when generalizing the results of this case study for a large population; it would only be possible to do so if the context is very similar.

The reliability is maintained by making this study repeatable and verifiable by others by describing the methods and attaching the interview scripts. The interviews were conducted during non-stressful situations, in recognized environments for the participants. To avoid possible misunderstandings or mistakes, every interview was recorded in approval of the participants, and also followed by a short discussion about what has been said (Esaiasson, et al., 2012).

It is important to maintain validity through the study. One of the central problems of validity is that the issues and problem statements are formulated on a speculative level, while the research
itself is done on an empirical level. The problem is to reconcile the speculative level with the empirical level, hence achieving validity.

To maintain validity in this study, all of the participants were informed about the purposes of this study prior to the interviews, as well as the purposes of the interview, what types of questions that would be asked, and what the collected data would be used for.

Although the participants were informed that the data collected from these interviews would be fully anonymous, they were aware of which of their colleagues that were being interviewed. This could have an impact on whether they have an objective perspective in relation to the purpose of this study. Because of their work being closely related, participants might have passed on giving information that would have a negative impact on another potential user group.

Further, participants could have been discussing the topics of the interviews prior to the interview, affecting their individual thoughts. These factors might have had an impact on the reliability of this study, which could be hard to notice.
6 Conclusion and future studies

This study has explored and presented potential user groups and their requirements on a quality assurance tool. It has shown appropriate questions to have in mind while integrating a quality assurance tool into the process of producing technical documentation and opens up for questions of future studies within the integration of quality assurance tools into complex contexts.

The process of producing technical documentation could be very constrained and regulated to ensure the safety to the end users. All documentation is thoroughly reviewed, resulting in that critical errors are generally perceived and corrected prior to the documents being published, although (less critical) deficiencies could occur. This is a very expensive process that takes a lot of time. As stated in this study, there is a conflict in the way this tool is currently used, not allowing for the requirements of the potential user groups. For this tool to satisfy the requirements of the potential user groups, the integration of it must allow an interactive evaluation of the written documentation, which is not possible currently due to the only way to evaluate documentation in this quality assurance portal is post-delivery.

Future studies could be done in investigating one of the main issues of integrating a quality assurance tool into a complex organization: to find a place in the workflow that suits the requirements from all perspectives. A solution must be found to know how to (1) treat deficiencies of various importance in order to maintain the end users’ satisfaction, while (2) improving it in the long term and (3) having the resource issues in mind. When a solution for this is found, the next step for this tool could be to develop a user interface, taking the requirements that have emerged from this study into account.
References


## Appendix A – Summary of requirements

### Technical writers

<table>
<thead>
<tr>
<th>Data requirements</th>
<th>Functional requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Presented with list containing all non-urgent matters that should be corrected</td>
<td>• Ability to explore specific document for amount of deficiencies divided into types of deficiencies</td>
</tr>
<tr>
<td>• Presented with highlighted location of errors</td>
<td>• Ability to open up the document directly in the portal</td>
</tr>
<tr>
<td>• Presented with errors that remain after validating the document</td>
<td>• Ability to directly validate the document</td>
</tr>
<tr>
<td>• Notified about when unclear error specifications have been reviewed and clarified</td>
<td>• Ability to step through the document top to bottom for all deficiencies</td>
</tr>
<tr>
<td>• Presented with the result from the evaluation</td>
<td>• Ability to send in unclear error descriptions for review</td>
</tr>
<tr>
<td>• Red highlights for violations of mandatory rules and yellow highlights for violations against advisory rules</td>
<td>• Ability to dismiss correction suggestions</td>
</tr>
<tr>
<td>• Presented with suggestions for corrections</td>
<td>• Ability to approve document and send it to list of corrected documents</td>
</tr>
<tr>
<td>• Presented with remaining errors (violations against mandatory &amp; advisory rules)</td>
<td>• Ability to choose whether to use or not to use interactive validation</td>
</tr>
<tr>
<td>• Be notified when urgent matters exist</td>
<td>• Ability to upload new document into quality assurance portal for evaluating it</td>
</tr>
<tr>
<td>• Presented with list of documents that are urgent to correct, in prioritized order</td>
<td>• Prevented from saving the document for review until every mandatory rule are followed</td>
</tr>
<tr>
<td>• Presented with short description of the errors that should be corrected in the different documents</td>
<td>• Ability to save into review list if document does not contain violations against mandatory rules</td>
</tr>
<tr>
<td>• Presented with advisory suggestions to correct</td>
<td>• Ability to open list of urgent matters</td>
</tr>
<tr>
<td></td>
<td>• Ability to either accept the suggestion of correction or correct it by personal preference</td>
</tr>
<tr>
<td></td>
<td>• Ability to reject or accept to fix the rest of the advisory corrections</td>
</tr>
</tbody>
</table>
## Editors

<table>
<thead>
<tr>
<th>Data requirements</th>
<th>Functional requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Presented with list that contains documents to review</td>
<td>• Ability to turn off the presentation of validations against advisory rules</td>
</tr>
<tr>
<td>• Documents to review should be sorted based on time of upload</td>
<td>• Ability to explore detailed information of separate documents</td>
</tr>
<tr>
<td>• Presented with total amount of deficiencies per document</td>
<td>• Ability to open up the document directly in the portal to explore the errors in its context</td>
</tr>
<tr>
<td>• Presented with deficiencies divided into violations of mandatory rules and advisory rules per document</td>
<td>• Ability to step between errors in document</td>
</tr>
<tr>
<td>• Presented with detailed information about all deficiencies that was found in selected document</td>
<td>• Ability to select errors that should be corrected</td>
</tr>
<tr>
<td>• Presented with highlighting of errors</td>
<td>• Ability to write descriptions for corrections</td>
</tr>
<tr>
<td>• Presented with description of the selected error</td>
<td>• Ability to save document into list of non-approved documents that needs to be corrected by technical writer</td>
</tr>
<tr>
<td>• Notified that documents exist that should be reviewed</td>
<td>• Ability to review documents that belong to other editors if they are not available</td>
</tr>
<tr>
<td>• List of documents that should be reviewed a second time</td>
<td>• Ability to approve corrections</td>
</tr>
<tr>
<td>• Presented with detailed information about the previous review describing required corrections</td>
<td>• Ability to put comments next to the errors</td>
</tr>
<tr>
<td></td>
<td>• Ability to disallow document</td>
</tr>
</tbody>
</table>
## Managers

<table>
<thead>
<tr>
<th>Data requirements</th>
<th>Functional requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Presented with total amount of deficiencies in publication package</td>
<td>• Ability to upload publication package</td>
</tr>
<tr>
<td>• Presented with table showing deficiencies in publication package divided into types</td>
<td>• Ability to compare current publication package against previous publications</td>
</tr>
<tr>
<td>• Presented with line chart comparison of deficiencies in selected publication packages</td>
<td>• Ability to print out statistics</td>
</tr>
<tr>
<td>• Presented with list of published documents with amount of deficiencies and comparison against previous, selected publications</td>
<td>• Ability to filter for certain types of deficiencies</td>
</tr>
<tr>
<td>• Presented with list containing matched documents of the selected filter</td>
<td>• Ability to explore document</td>
</tr>
<tr>
<td>• Presented with highlighted error</td>
<td>• Helped in troubleshooting errors</td>
</tr>
<tr>
<td>• Presented with error description</td>
<td>• Ability to select documents in list</td>
</tr>
<tr>
<td>• Presented with list of corrected documents</td>
<td>• Ability to print selected documents</td>
</tr>
<tr>
<td>• Presented with verification next to the documents in the corrected list if they are approved by the quality assurance portal</td>
<td>• Ability to print contiguous parts or whole document</td>
</tr>
<tr>
<td>• Presented with most common violations in document</td>
<td>• Ability to add selected documents and error specifications to a list of correction</td>
</tr>
<tr>
<td></td>
<td>• Ability to evaluate publications for certain error types</td>
</tr>
<tr>
<td></td>
<td>• Ability to add BREX-rules into validation</td>
</tr>
<tr>
<td></td>
<td>• Ability to step through all errors in the document from top to bottom</td>
</tr>
</tbody>
</table>
Appendix B – interview guides (the author of this thesis will translate the interview guides into English on demand)

Stakeholder interview guide

Intervjuaren utför ett examensarbete där en interaktionsdesign för ett verktyg som mäter kvalitet i manualer ska tas fram. I processen att ta fram verktyget används underlag från intervjuer för att utforska och undersöka de åsikter, krav, behov och perspektiv som finns hos intressenter och användare vad gäller det här verktyget. Om godkännande från intervjudeltagaren finns, så önskas intervjun att spelas in för att försäkra intervjuaren om att inte missa viktig information. Intervjudeltagaren är helt anonym och eventuell inspelning kommer inte att exponeras för någon annan än intervjuaren. Intervjudeltagaren kan, om denne så önskar, när som helst avbryta intervjun.

1. Kan du berätta om dig själv och din bakgrund här på SAAB?
2. Vad är din roll i förhållande till det här kvalitetssäkringsverktyget?
3. Kan du berätta lite om bakgrund och syfte för detta verktyg?
4. Vad har du för bild av det färdiga verktyget?
5. Vilken roll, eller jobbtitel, har de tänkta användarna? Finns det behov på flera avdelningar, med flera perspektiv?
6. Vet de tänkta användarna om att kvalitetssäkring av manualer är ett problem i dagsläget? Vad tror du användaren vet om det område där verktyget är tänkt att användas?
7. Vilka medel, resurser, eller teknik kommer krävas för att använda ett sådant typ av verktyg?
8. Vad behöver användarna för att kvaliteten ska förbättras? Är det några särskilda funktioner du anser extra viktiga?
9. Hur långt har arbetet kommit med verktyget idag? Hur långt är det kvar innan det blir färdigställt tror du?
10. Hur skulle du, personligen, definiera framgång och ett lyckat verktyg?
11. Känner du till några liknande verktyg i dagsläget? Vad finns det för positiva/negativa aspekter hos de verktygen i förhållande till vad ni söker?
12. Lite om ditt perspektiv på skribenternas arbetssätt:
   - Vad har de för mål med deras arbete?
   - Hur genomför de deras arbete? Har de bråttom, eller tid att arbeta kontrollerat?
   - Kontrollerar de på något sätt kvaliteten i deras manualer idag?
   - Vad kan en kvalitetsbrist bero på?
- Vad skulle motivera skribenten att använda systemet tror du?
- Hur tror du skribenten upplever situationen idag? Vad betyder det för skribenten att leverera manualer med högre kvalitet?
- Vilka variabler (språk, figurer, BREX och referenser) i kvalitetsmätningen tror du att skribenterna tycker är viktigast att bli rättade, och varför?
- Vilken typ av vägledning eller annan information krävs från verktyget för att skribenten ska kunna korrigeras språkfel, referensfel, figurfel och BREX-fel?
- Vad skulle ett lyckat kvalitetmätningsverktyg betyda för de tekniska skribenterna?

13. Lite om ditt perspektiv på de på managementavdelningens arbetssätt:
- Vad har de för mål med deras arbete gällande kvalitet i manualer?
- Kontrollerar de idag på något sätt kvaliteten i de manualer som produceras?
- På vilket sätt skulle det här verktyget gynna de på managementavdelningen tror du?
- Vilka variabler (språk, referenser, figurer och BREX) i kvalitetsmätningen tror du de på managementavdelningen tycker är viktigast att bli rättade, och varför?
- Vad för typ av information gällande kvaliteten behöver de?
- Vad skulle ett lyckat kvalitetmätningsverktyg betyda för managementavdelningen?

14. Lite om ditt perspektiv på de på managementavdelningens arbetssätt:
- Vad har de för mål med deras arbete gällande kvalitet i manualer?
- Använder de idag något verktyg för att få hjälp med att granska manualer?
- På vilket sätt skulle det här verktyget gynna granskare tror du?
- Vilka variabler (språk, referenser, figurer och BREX) i kvalitetsmätningen tror du granskare tycker är viktigast att bli rättade, och varför?
- Vad för typ av information gällande felet behöver de?
- Vad skulle ett lyckat kvalitetmätningsverktyg betyda för granskare?

15. Är det någon variabel(språk, referenser, figurer och BREX) som du tycker är extra viktig att hålla god kvalitet på? Kan du värdera dessa fyra variabler från viktigast till mindre viktigt?

16. Kan du nämn 3-4 önskemål ( vad som helst) du har på verktyget?

17. Vad skulle ett lyckat kvalitetmätningsverktyg betyda för dig i ditt arbete?

18. Vad skulle ett lyckat kvalitetmätningsverktyg betyda för verksamheten i sig?
Technical writer interview guide

Intervjuaren utför ett examensarbete där en interaktionsdesign för ett verktyg som mäter kvalitet i manualer ska tas fram. I processen att ta fram verktyget används underlag från intervjuer för att utforska och undersöka de åsikter, krav, behov och perspektiv som finns hos intressenter och användare vad gäller det här verktyget. Om godkännande från intervjudeltagaren finns, så önskas intervjun att spelas in för att försäkra intervjuaren om att inte missa viktig information. Intervjudeltagaren är helt anonym och eventuell inspelning kommer inte att exponeras för någon annan än intervjuaren. Intervjudeltagaren kan, om denne så önskar, när som helst avbryta intervjun.

1. Kan du berätta om dig själv och din bakgrund här på SAAB?

2. Vad har du för arbetsuppgifter och vilka mål arbetar du efter i ditt dagliga arbete?

3. Hur trivs du med att arbeta som skribent? Vad tycker du är mest givande med ditt arbete?

4. Kan du berätta, så ingående som du kan, hur en typisk arbetsdag ser ut för dig?

5. Kan du beskriva eventuella krav som finns på dig under ditt arbetspass?

5. Tycker du att ditt arbete är stressfyllt, d.v.s. att du får arbeta i hast för att hinna med det du behöver göra, eller har du tid att arbeta långsamt och kontrollerat?

6. Har du någon gång tänkt på ett hjälpmedel du tror skulle underlätta för dig i ditt arbete som skribent? Vad för typ av hjälpmedel skulle det i så fall kunna vara?

7. Hur upplever du situationen idag? Upplever du att det finns många fel att korrigera i de manualer som är skrivna?

8. Hur går det till när ni korrigerar manualer idag, hur får ni reda på eventuella fel eller kvalitetsbrister och hur går det till när de blir rättade?

9. Vad tror du en eventuell kvalitetsbrist kan bero på?

10. Är det någon variabel (språk, referenser, figurer och BREX) som du tycker är extra viktig att hålla god kvalitet på? Kan du värdera dessa fyra varior från viktigast till mindre viktigt?

11. Ett verktyg har möjlighet mäta de språkfel, referensfel, figurfel och BREX-fel som finns, men det krävs betänksamhet för att utforma verktyget på ett sätt så skribenter enkelt och smidigt kan uppmärksamma och korrigera de fel de ser. Vilken typ av vägledning eller annan information krävs från verktyget för att du ska kunna hitta och korrigera:
   - Språkfel?
   - Referensfel?
12. Vad betyder det för dig att leverera manuader med hög kvalitet?

13. Finns det någonting i arbetssättet idag som motiverar skribenter till att hålla så god kvalitet som möjligt i manualererna?

14. Finns det någonting i arbetssättet idag som försvårar möjligheterna för skribenter att hålla helt felfri kvalitet rakt igenom?

15. Kan du nämna 3-4 önskemål (vad som helst) du har på verktyget?

16. Vad skulle ett lyckat kvalitetmätningsverktyg betyda för dig i ditt arbete?

17. Vad skulle ett lyckat kvalitetmätningsverktyg betyda för verksamheten i sig?
Editor interview guide

Intervjuaren utför ett examensarbete där en interaktionsdesign för ett verktyg som mäter kvalitet i manualer ska tas fram. I processen att ta fram verktyget används underlag från intervjuer för att utforska och undersöka de åsikter, krav, behov och perspektiv som finns hos intressenter och användare vad gäller det här verktyget. Om godkännande från intervjudeltagaren finns, så önskas intervjun att spelas in för att försäkra intervjuaren om att inte missa viktig information. Intervjudeltagaren är helt anonym och eventuell inspelnning kommer inte att exponeras för någon annan än intervjuaren. Intervjudeltagaren kan, om denne så önskar, när som helst avbryta intervjun.

1. Kan du berätta om dig själv och din bakgrund här på SAAB?

2. Vad har du för arbetsuppgifter och vilka mål arbetar du efter i ditt dagliga arbete?

3. Hur trivs du med att arbeta som granskare? Vad tycker du är mest givande med ditt arbete?

4. Kan du berätta, så ingående som du kan, hur en typisk arbetsdag ser ut för dig?

5. Kan du beskriva eventuella krav som finns på dig under ditt arbetspass?

6. Letar granskare efter olika fel?

7. Tycker du att ditt arbete är stressfyllt, d.v.s. att du får arbeta i hast för att hinna med det du behöver göra, eller har du tid att arbeta långsamt och kontrollerat?

8. Vad skulle hända om du missar ett fel? Brukar det bli uppmärksammat innan det skickas till kund?

9. Händer det att innehållsmässiga fel släpps igenom, eller är det mestadels redaktionella fel?

10. Har du någon gång tänkt på ett hjälpmedel du tror skulle underlätta för dig i ditt arbete som granskare? Vad för typ av hjälpmedel skulle det i så fall kunna vara?

11. Hur upplever du situationen idag? Upplever du att det finns många fel att korrigera i de manualer som är skrivna?

12. Hur förmedlar du de fel du hittar till skribenterna? Har ni direkt kontakt?

13. Arbetar du tillsammans med någon från managementavdelningen, exempelvis Sofia, på något sätt? Hur kommunicerar ni?

14. Vad tror du en eventuell kvalitetsbrist kan bero på?

15. Är det någon variabel(språk, referenser, figurer och BREX) som du tycker är extra viktig att hålla god kvalitet på? Letar granskare efter dessa typer av fel, eller mer innehållsmässigt?
Kan du värdera dessa fyra variabler från viktigast till mindre viktigt?

16. Ett verktyg har möjlighet mäta de språkfel, referensfel, figurfel och BREX-fel som finns, Vilken typ av vägledning eller annan information krävs från verktyget för att du ska kunna uppmärksamma:
   Språkfel?
   Referensfel?
   Figurfel?
   BREX-fel?

17. Vad betyder det för dig i ditt arbete att leverera manualer med högre kvalitet? Blir det bättre?
18. Finns det någonting i arbetssättet idag som motiverar granskare till att inte släppa igenom fel?
19. Finns det någonting i arbetssättet idag som missgynnar ert arbete i att granska manualerna?
20. Kan du nämna 3-4 önskemål (vad som helst) du har på verktyget?
21. Vad skulle ett lyckat kvalitetmätningsverktyg betyda för dig i ditt arbete?
22. Vad skulle ett lyckat kvalitetmätningsverktyg betyda för verksamheten i sig?
Manager interview guide

Intervjuaren utför ett examensarbete där en interaktionsdesign för ett verktyg som mäter kvalitet i manueraler ska tas fram. I processen att ta fram verktyget används underlag från intervjuer för att utforska och undersöka de åsikter, krav, behov och perspektiv som finns hos intressenter och användare vad gäller det här verktyget. Om godkännande från intervjudeltagaren finns, så önskas intervjuen att spelas in för att försäkra intervjuaren om att inte missa viktig information. Intervjudeltagaren är helt anonym och eventuell inspelning kommer inte att exponeras för någon annan än intervjuaren. Intervjudeltagaren kan, om denne så önskar, när som helst avbryta intervjun.

1. Kan du berätta om dig själv och din bakgrund här på SAAB?

2. Vad har du för arbetsuppgifter och vilka mål arbetar du efter i ditt dagliga arbete?

3. Kan du berätta, så ingående som du kan, hur en typisk arbetsdag ser ut för dig?

4. Tycker du att ditt arbete är stressfyllt, d.v.s. att du får arbeta i hast för att hinna med det du behöver göra, eller har du tid att arbeta långsamt och kontrollerat?

5. Vilka typer av fel letar du efter i manueraler?

6. Hur ser kommunikationen ut mellan avdelningarna idag gällande kvalitet i manueraler?

7. Kan du beskriva eventuella krav som finns på dig gällande kvalitetsmätning(eller att leta fel) av manueraler?

8. Hur upplever du situationen idag? Upplever du att det finns många fel att korrigera i de manueraler som är skrivna?

9. Finns det någonting i arbetssättet idag som motiverar tekniska skribenter till att hålla så god kvalitet som möjligt i manueralerna?

10. Vad tror du att de flesta kvalitetsbrister beror på?

11. Det här verktyget har möjlighet att mäta de spräkfel, referensfel, figurfel och BREX-fel som finns i publikationspaketen, men det krävs betänksamhet för att utforma verktyget på ett sätt så det enkelt går att uppmärksamma de fel som finns. Vilken typ av information skulle krävas från verktyget för att gynna dig i ditt arbete med granska manueraler?

12. Kan du nämn 3-4 eventuella önskemål du har på verktyget?

13. Vad skulle ett lyckat kvalitetsmätningsverktyg betyda för dig i ditt arbete?

14. Vad skulle ett lyckat kvalitetsmätningsverktyg betyda för verksamheten i sig?