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# Exploring factors that decides on how a Business Intelligence tool is being received by its users

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## Abstract

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### Exploring factors that decides on how a Business Intelligence tool is being received by its users

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Self-Service Business Intelligence (SSBI) is a service where users can create reports and analyze data on their own. It is an approach to decentralize competence and knowledge within a company. It has been proven to increase productivity and provide employees with more possibilities to make smart data-driven decisions. I decided to do this project to learn more about SSBI and specifically explore what factors that contributes to the user experience of working with SSBI. With the help of a survey I was able to reach out to the employees at If P&C Insurance.

I asked how satisfied they were with the SSBI solution at the company, how they experienced loading times, how active they were and if SSBI brought value to their day to day work among many other questions. The data from the survey was analyzed looking at trends and correlation between answers to identify what parts employees were pleased with and the parts that needs more attention. This was done with the help of Decision Trees, correlation matrices and extensive graph comparisons. The results managed to answer my scientific question rather well. It shows that most employees find that working with SSBI at If P&C Insurance is an enjoyable experience and they believe that it adds real value to their work. There is an interest in further education in Tableau, which is the SSBI software being used at If P&C Insurance. A fact that shows that employees are eager to learn more, but also that the available education at the company has not reached out to all employees. There is also a major issue with loading times when browsing reports. Users that experiences that loading times are slow or very slow are also overrepresented in the group that is not pleased with the software. The issue with slow loading times has two solutions that I recommend to the company: Educate employees to create reports that require as low processing power as possible to browse. Increase the capacity on their servers. As using Tableau and creating reports has become more and more popular at the company, the servers have not been updated in the same pace, creating long delays when browsing and working with reports.

In general, I think If P&C Insurance has created a functioning environment for SSBI and if they address the few issues I have mentioned they will have a thriving Tableau community within the company.



# Populärvetenskaplig sammanfattning

Hur förmedlas information och kunskap inom ett företag? För ett företag som IF P&C Insurance är det av stor vikt att på ett smidigt sätt kunna förmedla rapporter om hur företagets olika avdelningar presterar, vilka kunder som är viktigast och var olika problemområden på företaget finns.

Tidigare har denna typ av rapporter skapats av företagets IT-avdelning, Self-Service Business Intelligence (SSBI) har som avsikt att förändra detta. Genom att decentralisera kunskapen om rapportskapande ger man anställda med varierande teknisk bakgrund möjlighet att själva skapa rapporter. Syftet med att använda SSBI är att förenkla informationsutbyte inom företaget.

På If P&C Insurance utövas SSBI med hjälp av verktyget Tableau. Tableau är en av ledarna inom SSBI på en konkurrenskraftig marknad. Programmet användas primärt för att skapa visualiseringar av data. Att implementera SSBI på ett företag ställer höga krav på organisationen och de anställda. Inkommande data måste anpassas och prepareras i flera steg för att tolkas korrekt av Tableau. Anställda, som är vana att IT-avdelningen skapar rapporter, måste lära sig ett nytt arbetssätt för att nyttja Tableau till fullo.

En enkätundersökning skickades ut till 1000 personer på IF P&C Insurance för att undersöka hur Tableau används och upplevs. 300 personer svarade på enkäten. Av svaren framgick att majoriteten var nöjda med Tableau, men att långa laddningstider kopplade till att granska rapporter påverkar deras upplevelse negativt.

Företaget upplever att vissa väljer att exportera rapporternas underliggande data till Microsoft Excel. Min initiala hypotes var att de som Exporterade till Microsoft Excel inte hade fått tillräcklig utbildning inom Tableau, men enligt en prediktiv modell skapad för att se vilka andra frågor som bidrog till om personen valde att exportera till Microsoft Excel så verkade motsatsen vara sann, alltså att personer med mer utbildning inom Tableau exporterade data till Microsoft Excel i högre utsträckning. Det skulle kunna vara en indikation på att Tableau saknar viss funktionalitet som finns i Microsoft Excel. Viktigt är att poängtera att modellens accuracy, ett mått som visar på hur pricksäker modellen är att klassificera, nådde endast en upp till 65% vilket inte kan anses tillförlitligt.

En annan prediktiv modell skapades för att mäta hur nöjda deltagarna var med programmet Tableau. Beslutsträdet, vilket är den prediktiva modell som användes visade med 85% accuracy att de som var nöjda med den funktionalitet som erbjöds också var nöjda med Tableau i helhet.

En slutsats kring att analysera enkätundersökningar med hjälp av matematiska prediktiva modeller är att det är svårt att få in tillräckligt med data för att skapa statistiskt signifikanta

samband mellan frågor. Valet att använda prediktiva modeller för sån här typ av data kan också ifrågasättas då enklare tillvägagångssätt har producerat liknande resultat.

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# Abbreviations and Synonyms

**Azure:** Cloud platform from Microsoft.

**Dashboard and Report** is used interchangeably through the report and means the same thing. It's a report with visualization of data.

**If :** IF P&C Insurance

**laaS:** Logging as a service. An IT architectural model for collecting data from various sources.

**SSBI:** Self-Service Business Intelligence

**On-premises:** Runs on computers on the premises of the organization rather than at a server factory or on the cloud.

# 1 Introduction and Background

## 1.1 What is Self-Service Business Intelligence?

Throughout the years companies have adapted to technical solutions to increase the effectivity and profit of their companies (Eckerson, 2010). To keep up with its competitors and a growing availability of information most companies are doing the transformation from making decisions based on “gut feeling” to a data driven decision environment. A study by Brynjolfsson *et al* 2011 on 179 companies showed that output and productivity increased with 5-6% after implementing data driven decision making.

Self-service business intelligence (SSBI) is a way to implement data driven decision into a company and give its employees more insight into available information. It gives employees the possibility to build, browse and analyze reports (Logi Analytics, 2015). SSBI causes employees to become more self-reliant in contrast to being dependent on the IT department of the company for information.

Working with SSBI provides clarity for decisions that are critical to business success. It is an approach that also can replace data analysis tools for more complex business questions. For the most complex questions there is a possibility to extract data from the software to continue your analysis in another tool.

## 1.2 Tableau

Tableau is the software of choice for If P&C Insurance (If). It offers both Tableau Desktop and Tableau Server with a web interface. Tableau Desktop is a software used to build reports and the Tableau Server is a server where reports are being uploaded to and shared within the company. You can also create reports in the web interface on the server but with limited functionality.

Tableau provides an extensive toolbox for working with data but excels at visualization of data. The more complex part of analysis is where the software currently lacks behind some of its competitors. As of now, there is limited support for complex mathematical models for classification and regression.

## 1.3 Purpose and project goals

### 1.3.1 Purpose

To explore the field of data usage is important for a company to understand how their software is being perceived by their users. By learning about the usage of a product you can extract information about how to further develop the product, and how to tailor education for the software. It can be used as a basis to point out problem areas that needs to be improved or reworked.

I saw this project as a chance to learn about a process that involves data warehouses, surveys, statistics, predictive modelling and visualization of data and how they are linked together. To understand how a product is being received by its users and what factors that affects the usage experience is applicable to many fields of work and is essential to understand in order to develop a good product. There is also great value in working for a company as it provides insight into what to expect from my work life.

### 1.3.2 Research Question & Project goals

The project was announced with one specific question: “Why do some users decide to work with Microsoft Excel instead of Tableau?”. The scope of the project has since then been reworked to be more focused on how employees at If experiences the SSBI environment. I have tried to find the main contributing factors to how Tableau is being perceived by its users. I have investigated specific reasons to why some employees have a negative experience with Tableau. Is it due to lack of education, slow loading times or something else?

I have also compared Tableau to its competitors on the market to see if the software is the optimal solution for If. My research question that the report is based on is “What factors decides on how a BI-tool is being received by its users?”

## 2 Material and Methods

### 2.1 The survey

To gain insight on what employees at If P&C Insurance thought of Tableau and their Business Intelligence Environment a survey was sent to 1000 Tableau users. The sample group that received the survey was extracted based on 2 different factors: Tableau usage frequency and if they used the functionality to download the underlying data of the report to Microsoft Excel. The goal was to create a balanced group between users who exports data and those who do not. The answer frequency was 30% which gave me 300 answers to the survey.

The reason I decided to use a survey was that it gives employees the chance to express their thoughts regarding the SSBI environment. I used Microsoft Forms for the survey as it is free and provided the functionality I needed. I wrote the questions with a main focus on extracting information about usage frequency, Tableau knowledge and satisfaction. The content of the survey can be found in Appendix Table A 1. The answers to each question can be seen in graphs 4-18.

## 2.2 Pre-processing of survey data.

In order to continue with the analysis of survey data, the data had to be pre-processed. This was done so it could be interpreted by a predictive model called Decision Tree. I transformed my answers to numerical groups which can be seen in the appendix, Table A 2.

After a quick comparison between the predictive models Random Forest, K-nearest neighbors and Decision Trees I decided to continue with The Decision Tree since it performed just as good or better than the other two models. The model is easier to interpret than the other models so I thought it would be a good choice for my thesis.

## 2.3 Decision Tree and Workflow

A workflow for analyzing the result from the survey was created in the software Knime, a data analytics, reporting and integration platform that allows you to build workflows and implement various mathematical tools. The decision to work in Knime was based on the fact that I had previous experience in the software and that it is available for free.

### 2.3.1 The workflow

The workflow is based on nodes that individually handles the data in various ways. An overview of the workflow can be seen in Figure 1

The workflow has the following structure:

#### **Excel reader (XLS)**

Reads a Microsoft Excel file and automatically sets a type such as String, TimeAndDate, Double, Boolean and Int for each column.

#### **Row Splitter**

Splits the data based on a selected column. In this case it splits the data based on the question “Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software”. Where “Yes” is split into the “Row Sampling” node and “No” goes straight into the “Concatenate” node.

**Row Sampling**

A filter that extracts a sample from the input data. The purpose of the node is to extract a sample of the same size as the group that answered “No” to the question “Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software”. This was done since larger portion of the survey responders answered yes to the question and I wanted a balanced data set for my Decision Tree.

**Concatenate**

Concatenates data from the Row Splitter and the Row Sampling node to create a unified data set.

**String to Number**

Converts string columns to numeric values. This is necessary to make binary splits in the decision tree.

**Column Filter**

Filters columns that will be excluded from the Decision Tree.

**Partitioning**

Splits the dataset into a training and a test set using a stratified sampling based on the “Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software” question. 80% for training and 20% for test.

**Cross validation Decision tree**

A meta node consisting of many different nodes used for cross validation.

Inside the Cross-validation Decision tree node:

**X-partitioner**

First node in a cross validation. Decides the amount of validations that will be performed. Splits the data set into test- and training data.

**Decision Tree Learner**

A Decision Tree classifier. Main node of the workflow. Creates a tree where it splits the users based on their answers to the survey. The higher up a node is in the tree, the better the split between the users.

**Decision Tree Predictor**

Predicts the test group with the Decision tree.

**X-Aggregator**

The end of a cross validation loop. Collects the results from all the iterations. Outputs statistics from the tree.

## Scorer / Statistics / Output table

Various nodes for confusion matrix and statistical measurements.

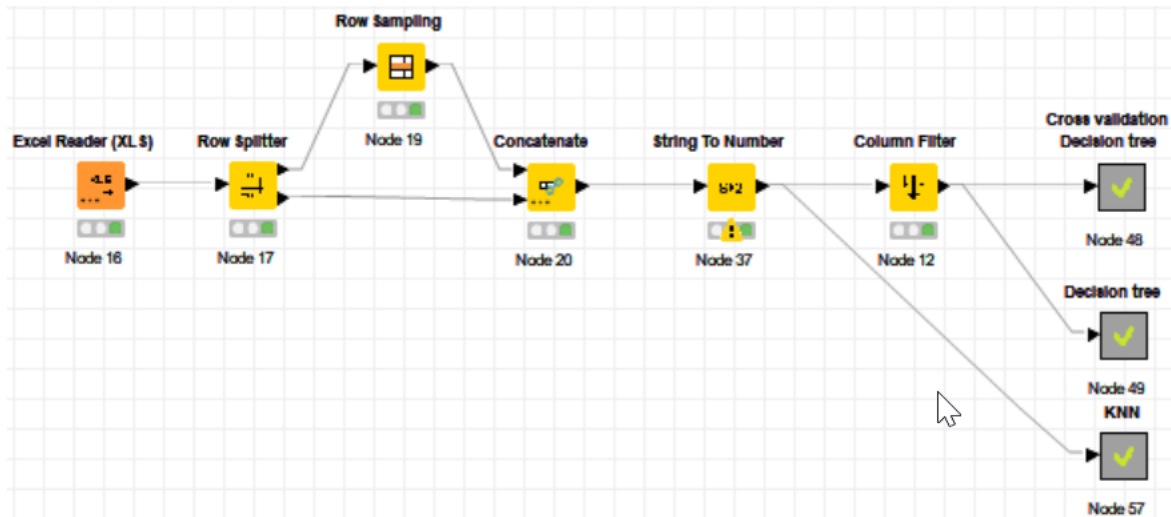


Figure 1 : Knoime workflow for Decisions Trees with cross validation

### 2.3.2 Decision tree

The choice to classify data with Decision trees was based on three main factors: It is a relatively easy model to implement, it is easy to interpret and in many cases, it perform just as good or better than more advanced models. The construction of a Decision tree happens in two steps, the growth- and the pruning phase. First, the tree is built in the growth phase. This is done by using recursive partitioning. This implies that the data set is split into subgroups until a certain criterion is met. The criterion I wanted to fulfill is for the tree to create partitions containing dominantly members from one class. The purer a group is, the higher up in the tree it gets placed. The pruning phase removes the nodes that contributes little to the classification. As I set a minimum of 20 members per node, an arbitrary number ensuring not to small nodes, the nodes that contain less than 20 members also gets pruned. This step also ensures that the Decision Tree does not get overfitted to the data (Mehta *et al.*).

#### 2.3.3 Fisher's Exact Test

Fisher's Exact Test was used to ensure statistical significance on the results from the Decision Trees. The test gives the probability that the result of the tree is due to chance. The "CrossTab" node is used in Knoime to perform Fisher's Exact Test.

## 2.4 Pearson product-moment matrix

**Error! Reference source not found.** shows the correlation coefficients between all pairs of questions from the survey. Blue indicates a positive correlation and red a negative correlation. The correlation matrix is using a measure called “coefficient Pearson product-moment” and is calculated as follows (Yeager, 2020).

$$r_{xy} = \frac{cov(x, y)}{\sqrt{var(x)} * \sqrt{var(y)}}$$

Where  $cov(x, y)$  is the covariance between the variables and  $\sqrt{var(x, y)}$  is the square root of the variance of the two variables. The result is a number between 1 (strong correlation) and -1 (negative correlation). A way to interpret the correlation coefficient is:

Strong positive correlation: A majority of the sample group has chosen the same answer option on the questions being compared.

Strong negative correlation: A majority of the sample group has chosen for example answer A on the first question and answer B on the second question. They agree on the answer, but they differ on the chosen answer between the questions.

No correlation: There is no trend between the answer alternatives between the questions.

## 2.5 Tableau vs Power BI

This part is based on literature studies. I wanted to do a comparison between Tableau and Power BI, two rivals on the Business Intelligence market.

There are many different Business Intelligence platforms on the market. Making a decision on which one to choose that suits your company requires knowledge on what the company will use the software for and what functionality different BI-tools provide. A comparison of the available business intelligence tools is provided by the Gartner's Magic Quadrant report (Richardsson et al. 2020) that comes out once per year. This report is praised and referred to by many BI platform providers as a business standard on how their product compares to their competitors. The report aims to classify products into what type of software they provide. The quadrant shown in Figure 2 is divided into four sub-quadrants labeled as following:

**Leaders:** Their software matches with their vision of the software and have a solid foundation for being able to implement new functionalities that will be needed in the future.

**Visionaries:** They have a good understanding of the market and ideas about how to change the market rules, but do not yet execute very well.

**Niche players:** Might excel at a specific task but has a hard time competing on other fronts. This could be due to lack of innovation or performance.

**Challengers:** Have a solid software that executes well but seem to lack the understanding of the direction of the market.

It makes sense to compare Tableau to Microsoft power BI as it is two platforms that provides similar products and competes within the same market.



Figure 2: Gartner's Magic Quadrant (Richardsson et al.) for Analytics and Business Intelligence Platforms.

## 3 Results and Discussion

### 3.1 Tableau vs Power Bi

Both Microsoft Power BI and Tableau provides a solid product with functionalities that correspond well with the demand from the market. Even though the products are similar, Tableau seem to be more directed for businesses that has to visualize large amounts of data while Microsoft Power BI has more developed mathematical models for complex data.

The development of SSBI is happening in a rapid pace, so it is possible that Tableau will implement more functionality within ML and AI soon. As of version 2014.4 they implemented the function “Ask data” which uses natural language to draw conclusion about the data set. As leaders within their field, both Tableau and Microsoft are quick to implement new functionalities to analyze and visualize your data. The current status at If today is that they use both Tableau and Power BI, but Tableau to a larger extent. In order to understand the comparison, there are a few words that needs an explanation. You can find them in the “Synonyms and Abbreviations” section at the beginning of the report.

**Table 1: Comparison on Strengths and Weaknesses between Microsoft Power BI and Tableau. Information for the table is mainly extracted from Gartner's Magic Quadrant report (Richardsson et al. 2020)**

Tableau	Microsoft Power BI
<b>Strengths</b>	
Blending of data. Tableau allows you to blend data from multiple sources.	Low price compared to Tableau. Price for Microsoft Power BI Pro is 10 dollars per month per account. Scaling it up might still be expensive though.
Able to handle huge amount of data with good performance.	Included in the Office 365 E5. As many organizations use Office, the software is easily available for them.
Best practice visualizations. Tableau allows for 24 different kind of visualizations that can be manipulated in various ways.	Developed functionality within AI, Machine Learning and predictive modelling.
High praise by its customers. Tableau continuously keeps getting high scores in usage experience.	Data preparation functionality
<b>Cautions</b>	
Some reports of weak governance and administration from Tableau support.	The on-premises service has reports of function gaps including dashboards, streaming analytics and Q&A natural language.
Expensive compared to other SSBI solutions.	If you want to invest in a cloud IaaS server you are limited to run it in Azure.
No functionality developed for Machine Learning (Tableau 2019.4).	Has a limited amount of database connectors compared to Tableau. The amount of connectors is increasing, but new connectors are not working as intended.
Steeper learning curve than Microsoft Power BI.	Limited to 3500 data points

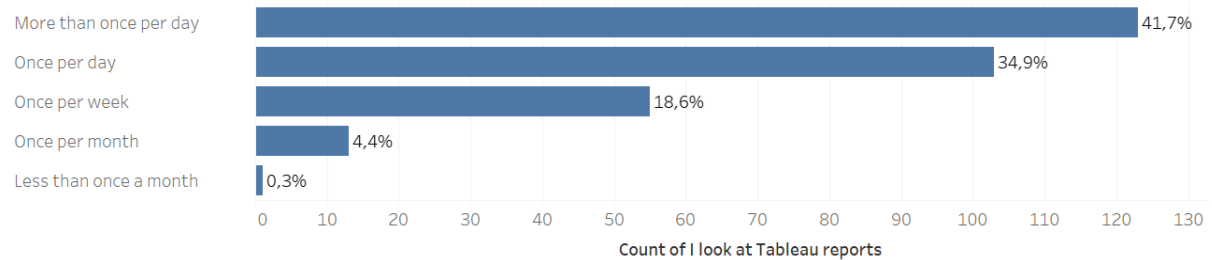
## 3.2 Answers to the survey

The graphs below show how the participants of the survey answered each option. For multiple questions the total amount of votes will be more than the total amount of participants. The comments in full can be seen in the appendix. The structure is based on the order of the questions in the survey.

### 3.2.1 “I look at Tableau reports”

For question 1: “I look at Tableau reports” the majority of the participants answered that they look at Tableau reports once per day or more, which is a good indicator that the survey reached out to users that frequently look at reports.

### I look at Tableau reports



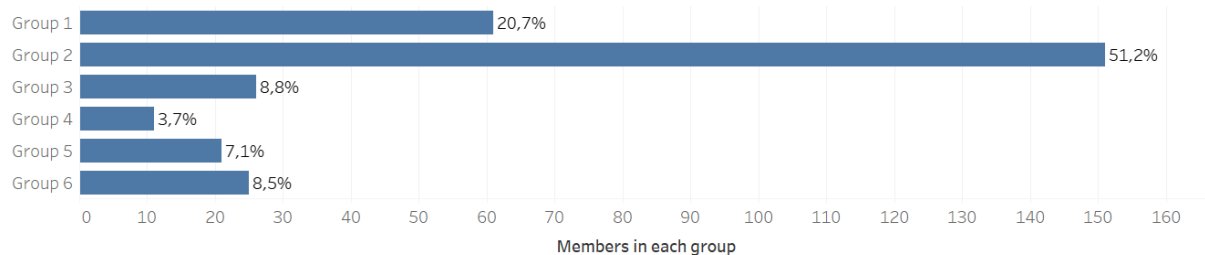
**Figure 3** How often participants browse Tableau reports

### 3.2.2 “What type of training have you received on Tableau?”

Question 2: “What type of training have you received on Tableau?” Is a multiple-choice question where 6 groups were created. Figure 4 tells us that most participants have not received any training on Tableau or have educated themselves using external material from the internet or by discussing with colleagues.

It is a positive indication that employees are willing to take responsibility and educate themselves. The analysis of the question in the survey where the participants could write anything regarding Tableau and the server indicates that there is a group of employees that would like to learn more about Tableau but have not yet taken any of the available courses. In most cases the participants seem to think that training is not available or not allowed for them to participate in. This indicates that there might be a problem reaching out to all employees and offering them Tableau training.

### What type of training have you received on Tableau?



**Figure 4:** The type of training participants has taken part in.

Group 1 is the least experienced group that have not received or taken part in any training.

Group 2 is composed of employees that have trained themselves using online material and by colleagues.

Group 3 has participated in Tableau basic training and / or the Tableau server introduction. This group has learned the basics of Tableau with the help from If Tableau specialists. This kind of training is focused on using Tableau in the web browser.

Group 4 has undergone the “Tableau desktop introduction” course which is a little bit more detailed and teaches the participants the basics of the software Tableau Desktop.

Group 5 has taken the “Tableau Desktop” course which is a 2 days course exploring Tableau Desktop in more detail. Once you have mastered the content of this course you are ready to create your own reports.

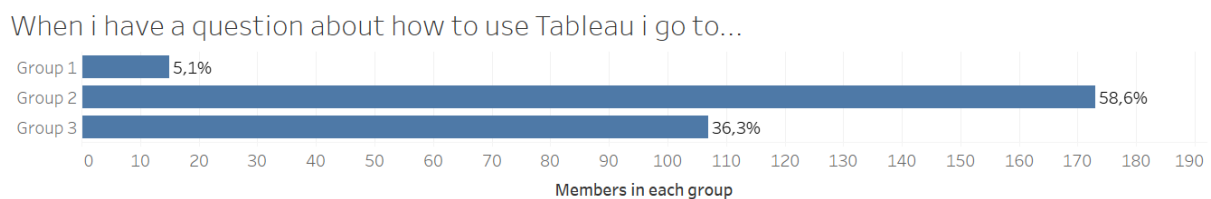
Group 6 is the most educated group. A lot of members in this group has participated in many of the available Tableau courses at If and has undergone the “Tableau Level of Detail” course which is the most advanced course available at If P&C Insurance.

### 3.2.3 “When I have questions about how to use Tableau I go to..”

**Question 3:** “When I have questions about how to use Tableau I go to..” measures where participants turn to when they need help.

The results are showing that only a small number of employees have no idea where to turn to when they are stuck with Tableau, while most people uses internet and their colleagues for help. When you get stuck with a problem it would seem reasonable to first discuss it with a colleague or google it. If that does not work, you could contact the expert help that is available.

The fact that most people turn to colleagues at first, letting the Tableau specialists turn their focus to more complex problems is a positive indication that a community and common knowledge about Tableau seem to exist at the company.



**Figure 5:** Shows where employees turn to in order to get help with Tableau.

**Group 1:** Those who do not know where to go if they need help.

**Group 2:** Turns to internet or to a Colleague for help.

**Group 3:** Uses the available help that If P&C Insurance provides by their If Tableau Specialists.

### 3.2.4 “Someone in my immediate team is able to help me use Tableau.”

Question 4: “Someone in my immediate team is able to help me use Tableau.” Also indicates that there seem to be knowledge of Tableau in most teams and they can help each other when they get stuck with a problem. There are still room for improvement as about one third of the participants answered “Neither agree nor disagree”, “Somewhat disagree” or “Strongly disagree”. One of the main reasons for implementing SSBI is to decentralize the knowledge on how to build reports, giving employees more power to create reports themselves. It is possible that the help on Tableau If provides could benefit in following the same path. This could be done by making sure there are competent Tableau users ready to help their colleagues distributed over all offices that uses Tableau on a daily basis.

Someone in my immediate team is able to help me with Tableau

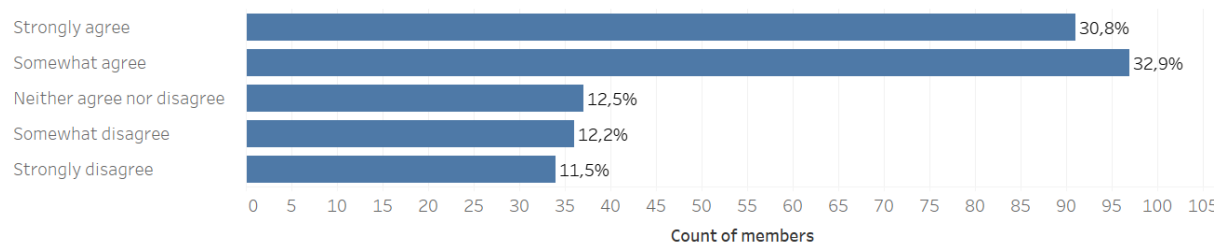


Figure 6: Answer distribution on question "Someone in my immediate team is able to help me use Tableau"

### 3.2.5 "I have enough knowledge to explore data of interest through Tableau"

Question 5: "I have enough knowledge to explore data of interest through Tableau" shows that the majority of the participants has enough knowledge to utilize the features Tableau provides. The result of this could be due to the fact that Tableau is built with an intuitive user interface, making it easy to learn and explore what the program has to offer. It is also probable that the high level of knowledge is due to the training in Tableau that If P&C Insurance provides. About 2/3 participants "Somewhat agree" or "Strongly agree" to this question, while roughly 1/3 of the participants have received any of the provided training on Tableau by If P&C Insurance. This indicates that a group of employees feel that they have enough knowledge even without the provided training.

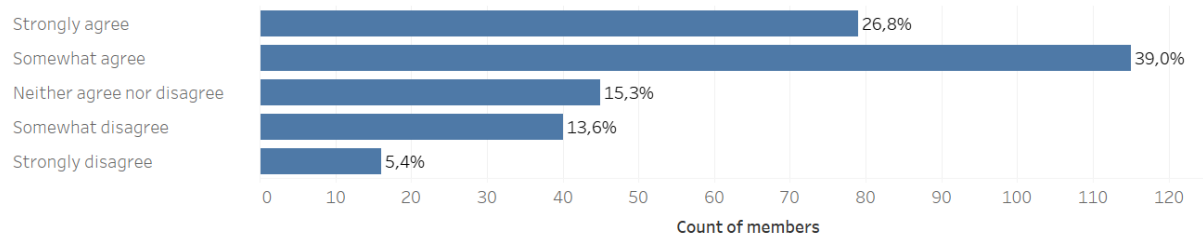
Reasons to this could be:

**Overconfidence bias** – people tend to be more confident in their own abilities than what is objectively reasonable. This group could be missing out on functionalities provided by Tableau that they are not aware of.

**Self learned** – Employees might not be aware of the available Tableau courses or experience that they do not have the time to participate, so they take it upon themselves to learn about Tableau using external guidance from internet, colleagues etc.

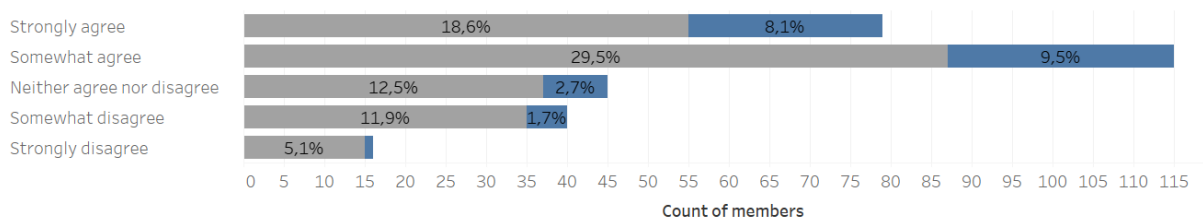
**Previous experience in similar tools** – If an employee has previous experience in similar tools Tableau might be intuitively comprehensible for them. Figure 8 show the distribution on the same question but with the members who have worked in similar tools before, and it shows that this group is represented in a higher frequency in "Somewhat agree" and "Strongly agree".

I have enough knowledge to explore data of interest through Tableau..



**Figure 7: Answer distribution on question “I have enough knowledge to explore data of interest through Tableau”**

I have enough knowledge to explore data of interest through Tableau..

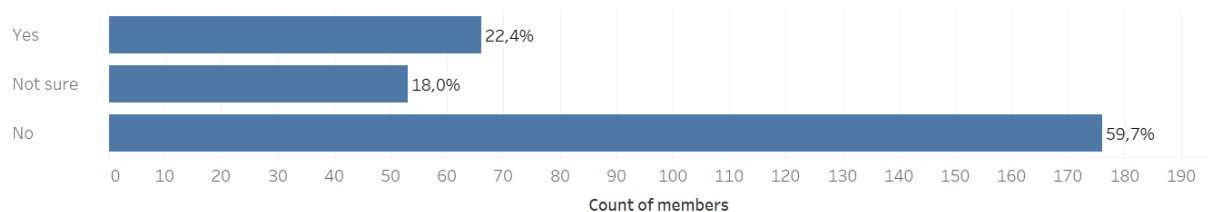


**Figure 8: How well participants that answered “Strongly agree” or “Somewhat agree” (blue group) on the question “I have worked in similar tools before” agree with “I have enough knowledge to explore data of interest through Tableau. The grey colored group include all members that answered different from “Strongly agree” or “somewhat agree”.**

### 3.2.6 “I have worked in a Business Intelligence software similar to Tableau before I started using Tableau.”

Question 6: “I have worked in a Business Intelligence software similar to Tableau before I started using Tableau.” The majority of the participants have not worked with BI-software before or do not know if they have. This indicates that the prior knowledge of working with BI is rather low. If P&C have adapted well to this by providing various basic courses employees can attend.

I have worked in a Business Intelligence software similar to Tableau..

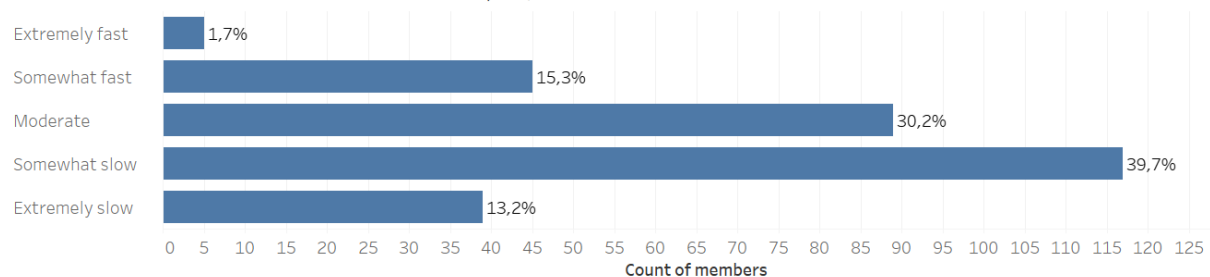


**Figure 9: Showing participants prior knowledge in tools similar to Tableau..**

### 3.2.7 “The time it takes to load a dashboard/report is..”

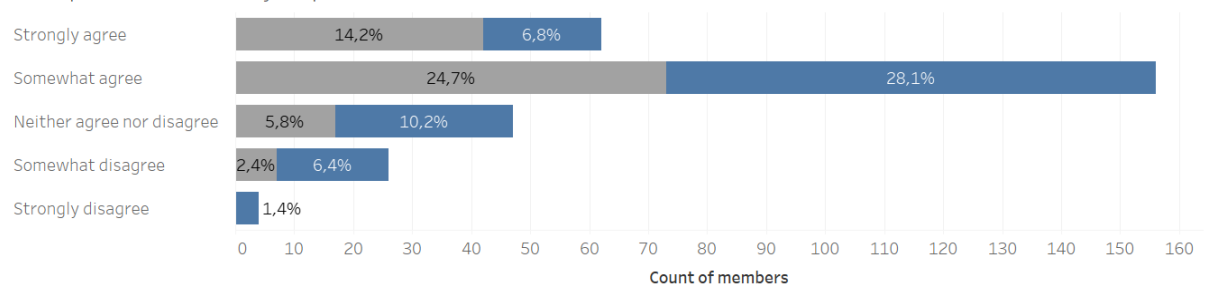
Question 7: “The time it takes to load a dashboard/report is..” shows that there is a serious issue with loading times. Only 50 participants experience that the loading times are “Extremely fast” or “Somewhat fast”. This is probably the main reason to why some employees have a negative attitude towards Tableau. The reason for this is not Tableau itself, but complex queries in reports and the amount of processing power If P&C Insurance have bought to run the servers. The problem has been noted by If and a solution to this is on its way. The group that answered “Somewhat slow” and “Extremely slow” makes up about 50% of the participants, but as can be seen in Figure 11 “I am pleased with my experience of Tableau” where this group is marked as blue, they make up 77% of all the “Strongly disagree” and “Somewhat disagree” responders.

The time it takes to load a dashboard/report is...



**Figure 10: How participants experience loadings times connected to browsing Tableau reports**

I am pleased with my experience of Tableau

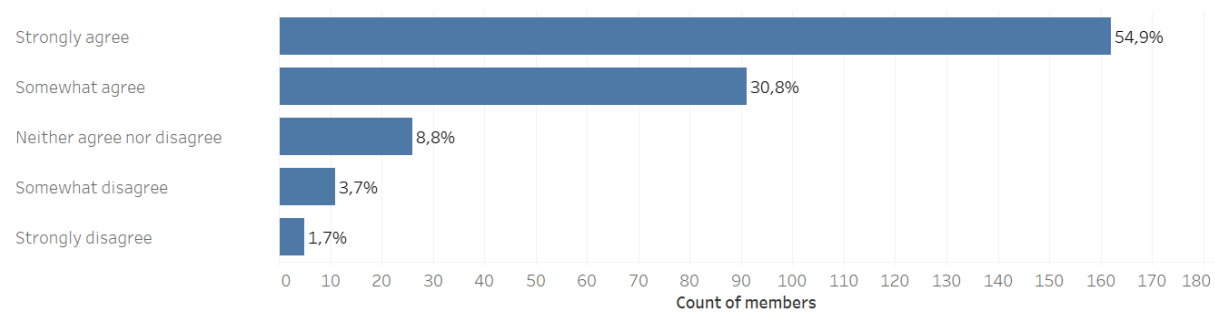


**Figure 11: The blue group consists of members answering “somewhat slow” or “extremely slow” on figure 14. The graph shows that they are overrepresented in “Strongly disagree” and “somewhat disagree” on the question “ I am pleased with my experience of Tableau..”**

### 3.2.8 “Published dashboards and workbooks are valuable to my day-to-day work,”

Question 8: “Published dashboards and workbooks are valuable to my day-to-day work”. Participants experiences dashboards to be very valuable to their day-to-day work. 86% “Strongly agree” or “Somewhat agree”. A good indication that dashboards brings value to employees.

Published dashboards and workbooks are valuable to my day-to-day work.

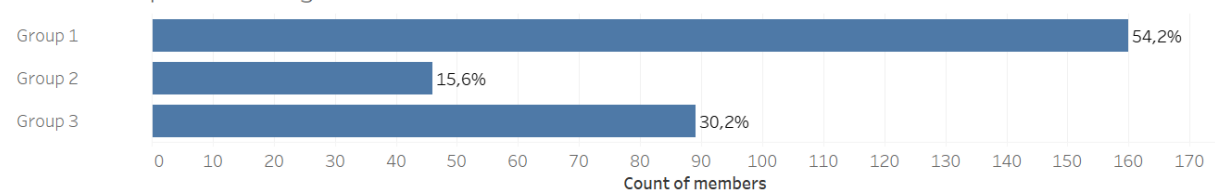


**Figure 12:** shows answer distribution on question “Published dashboards and workbooks are valuable to my day-to-day work.”

### 3.2.9 “I access reports through..”

Question 9: “I access reports through..” has been divided into 3 groups. Group 1 mainly access the reports through “https://tableau/”, which is an address that leads to Tableau server. group 2 uses If intranet to access reports and group 3 has a bookmarked link, are not sure or asks a colleague.

I Access reports through..

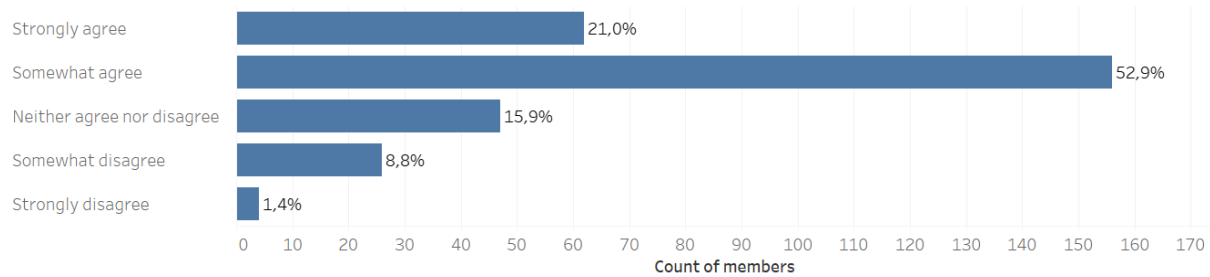


**Figure 13** Shows how employees access reports.

### 3.2.10 “I am pleased with my experience of Tableau...”

Question 10: “I am pleased with my experience of Tableau...” shows that most people find the use of Tableau an enjoyable experience. As shown before, there is a strong correlation between the participants that are not satisfied and how they experience the loading times. The group that “Neither agree nor disagree” is hard to interpret. One of the reasons they decide to go with that answer is probably that they are not aware of the fact that they are using Tableau when browsing reports. There are some signs that a few of the participants thinks that this survey is about Tableau desktop, which I should have made clearer in the description of the survey.

I am pleased with my experience of Tableau

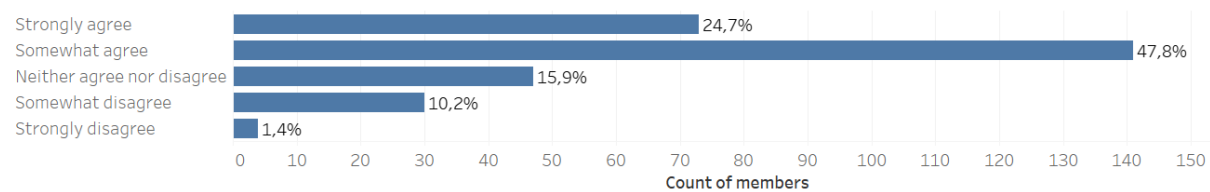


**Figure 14:** Shows answer distribution on question “I am pleased with my experience of Tableau”

### 3.2.11 : “ Tableau provides the functionality I need to work with reports effectively”

Question 11: “ Tableau provides the functionality I need to work with reports effectively” shows that most people agree with the statement. There is a wish from some participants that Tableau had more advanced analytic methods.

Tableau provides the tools i need to work with reports effectively

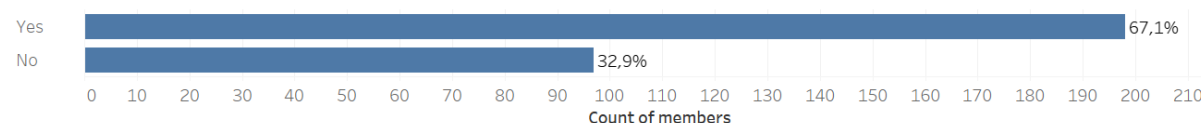


**Figure 15:** shows answer distribution on question “Tableau provides the functionality I need to work with reports effectively.”

### 3.2.12 “Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software”

Question 12: “Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software” shows a surprisingly high number of participants answering yes to this question. The members for the survey was chosen in order to create an even number of participants downloading the data to Microsoft Excel and participants not downloading data. This was done by looking at a specific attribute in the data logs tracking Tableau server which says if a user has used the “download data” button or not.

Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software



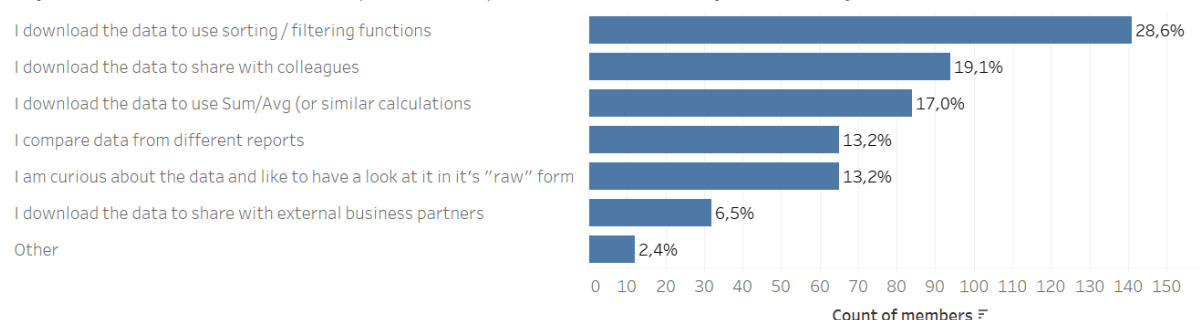
**Figure 16:** shows answer distribution on question “Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software”.

### 3.2.13 “ If you answered Yes on the previous question: what do you usually do with the information?”

Question 13: “ If you answered Yes on the previous question: what do you usually do with the information?” is a follow up on the question “Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software”. It is a multiple-choice questions that has not been grouped, therefore the amount of answers are higher than the amount of participants. There is a large group that exports data in order to do filtering, sorting, sum, avg on the data and in many cases this functionality exists in Tableau, so it is a matter of lack of education. Tableau also provides an excellent tool for presentations which in many cases could be a good alternative to Power point.

A quote by Pontus Sandgren, Tableau specialist at If P&C Insurance: "Rarely do I have to export my data to excel and when I do it is to look at the raw data. Many of the presentations done in Microsoft Power Point can be done in Tableau. However, Animated effects and transitions cannot be done in Tableau the same way it can in Microsoft Power point"

If you answered Yes on the previous question: what do you usually do with the information?



**Figure 17:** An overview on what the group that exports data to Microsoft Excel does with the data. It is a multiple-choice question without grouping.

### 3.3 Comments from the survey

A summary of the frequently occurring topics in the free text comments can be seen in figure 19. The bar plot shows that 3 topics are mentioned quite frequently. The issue that are mentioned the most are the loading times employees experience when browsing reports. It is causing some employees to not be able to do their job as effectively as they would have if reports loaded faster and were updated in time.

Some of the comments regarding the issue:

“I think Tableau is often very unstable, and it usually takes some time to load all the data. Also if you mis click something in a column or something, the entire page gets very difficult to handle.”

“The updates of the reports are often delayed wich effects my work.”

“Very slow but very good”

“Tableau has been very very slow lately and it takes ages to filter. Feels like we're using "old version".”

Almost as frequently mentioned in the free text comments are the fact that employees seem to be very satisfied with the Tool and want to share that view.

“I love tableau :) - I have two wishes, and I wish it could do better graphs and be significantly faster.”

“I think tableau support me to lead team to the right direction.”

“Tableau is starting to get to a level where it brings real value to my work”

“Our Tableau reports really supports our business needs in general, its easy for most of our users to work with and present for partners. Still miss some functions from Approach where it was possible to dig deep into details but overall satisfied with the tool.”

“Tableau is, combined with Teradata, my primary day-today tools at work. I do not have any experience with Tableau outside of If, but it is a pleasure to work with here. There are a wide range of people using the tools, which makes knowledge sharing ideal and easy. All the best with your project!”

There is a strong interest in further education in Tableau. It seems that the courses If P&C Insurance provides has not reached out to all employees.

“More structured education possibilities for "simple users" (or better marketing of this if it is existing already)”

“Would be nice to know more about the functions of Tableau.”

“I’m looking forward to getting started with my Tableau license and training.”

“More education about Tableau”

“I miss an education for users on different levels. "Tableau for dummies"”

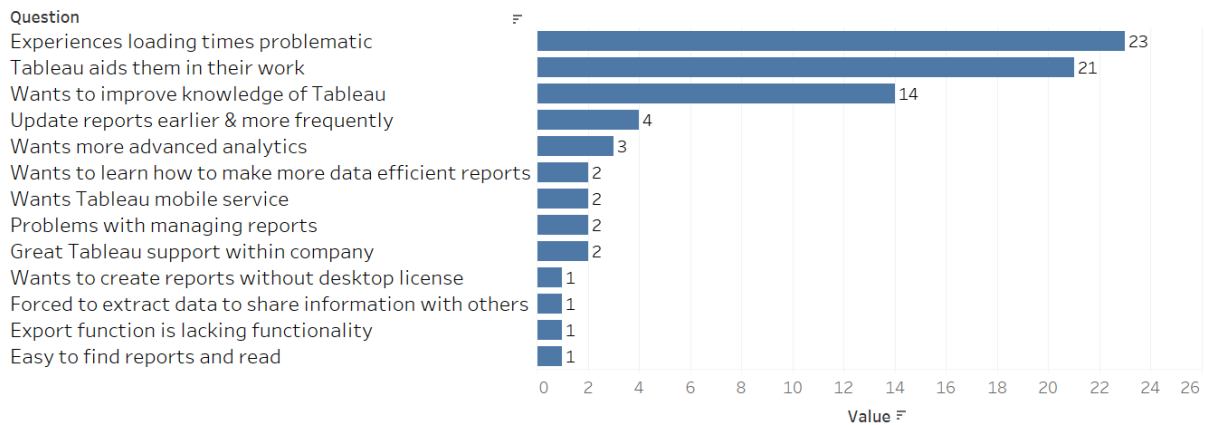


Figure 18: A summary of free text comments from the survey

### 3.4 Decision trees

Two decision trees were created to analyze the Questionnaire. They were created in order to find the main contributing factors the questions “Do you export your data to Microsoft Excel for further analysis?” and “How pleased are you with your experience of Tableau?”. In other words, I wanted to find what other questions in the survey that were highly correlated to these two questions. The results from both Trees were analyzed using Fisher’s Exact Test. The P-values were lower than the limit of 0.05 (5,27367E-05 and 7.34E-21) ensuring that the results are statistically significant.

#### 3.4.1 Do you export your data to Microsoft Excel for further analysis?

The final accuracy of the decision tree landed on about 65%, meaning that it could predict true positive and true negatives correctly with an accuracy of 65%. It is not great, and on the border of what is a reliable result. In order to get a higher accuracy, I would have needed a larger data set and perhaps shaped my questions in the survey a little bit different. I tried using KNN and Random forest, which are other predictive models to see if I could gain a higher accuracy, but without successful results. The tree, which was built upon the question “do you export your data to Microsoft excel for further analysis” indicates that the question which affects this decision the most is what training they have received in Tableau. Participants that has received more training in Tableau tends to export their data more frequently to Microsoft Excel. This was a bit contradicting to what was expected as my initial hypothesis was that users exported their data because they were not comfortable with using Tableau. This result could indicate that the users that do decide to export their data are familiar Tableau and knows when using Microsoft Excel would be a better option. Another reason could be that users that

have participated in more Tableau training have a better general knowledge of Microsoft Excel and similar software which makes them more comfortable in the environments they used to. The next split is based on the country of origin of the participant. Exporting to Microsoft Excel seem to be happening more frequently with Swedish users. Explanations to this could be that there is a difference within the kind of work employees do in respective countries and the kind of work performed in Sweden requires the use of Microsoft Excel. As we saw a trend on users with more training in Tableau tend to export to Microsoft Excel, its possible that it is easier to participate in Tableau training compared to other countries as the Tableau specialists are located in Sweden.

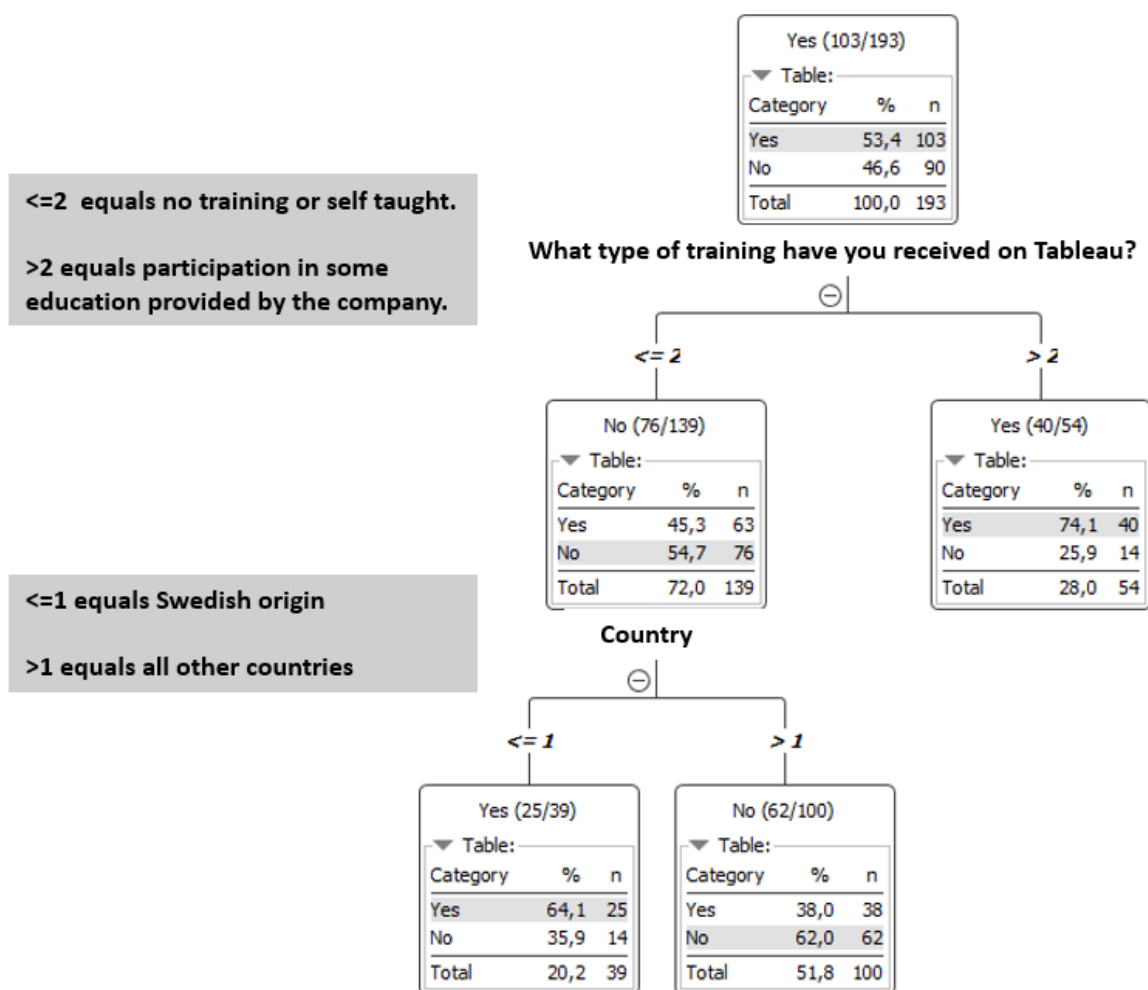


Figure 19: The decision tree used to find the major contributing factors to why some participants export their data to Microsoft Excel or similar software.

### 3.4.2 How pleased are you with your experience of Tableau?

This decision tree was built based on the question “How pleased are you with your experience of Tableau?”. The results indicate that with about 85% accuracy the most important factor of how pleased you are with Tableau is the functionality the tool provides. 88.9% of the participants that answered that Tableau do not provide the functionality needed to work with reports effectively were also not pleased with their experience of Tableau. The accuracy of the model is shown in table x and shows an accuracy of 85% indicating that this result can likely be trusted. The correlation between the two questions is also verified by the Correlation matrix created in the next section as the strongest positive correlation between two questions. The strong correlation could indicate that the expectation of the functionality Tableau provides does not match the actual functionality of the product.

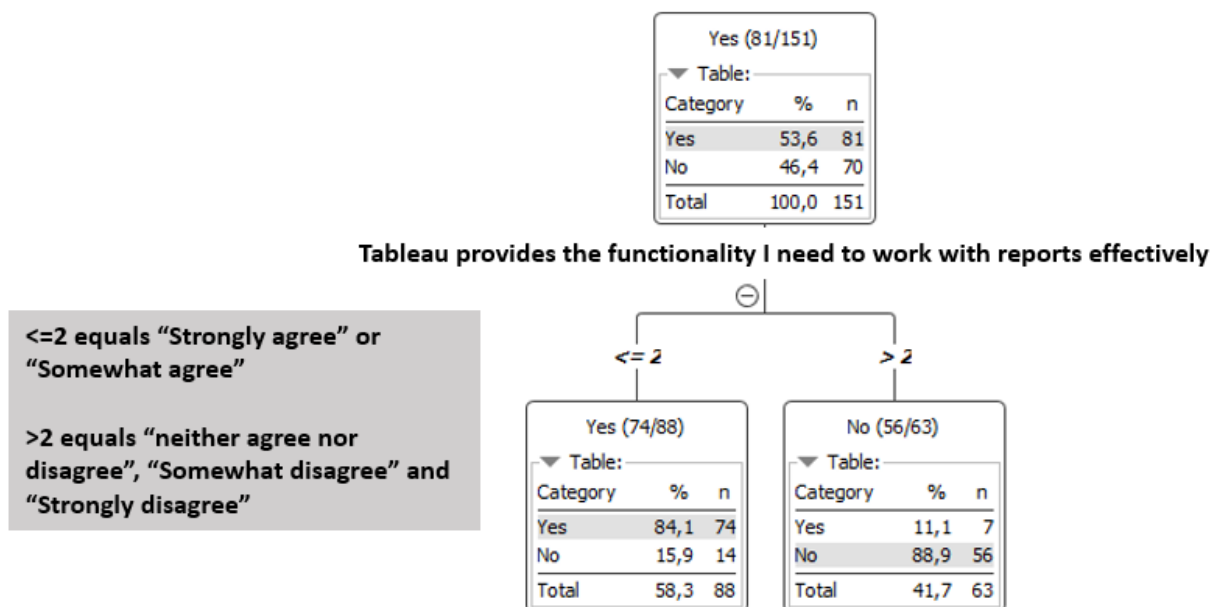


Figure 20: The decision tree used to find the major contributing factors to how pleased participants are with Tableau.

Group2class__I am ...	Yes	No
Yes	82	8
No	17	60

Figure 21: A confusion matrix showing how many of the members the model classified correctly.

### 3.5 Pearson product-moment matrix

There are two coefficients that stand out over the rest. The “Tableau provides the functionality I need to work with reports effectively” together with “I am pleased with my experience of Tableau” is one of them. It makes sense that the two questions are somewhat correlated as it is reasonable to assume that you would be pleased with a software that provides the functionality you need. The correlation coefficient value is a positive 0.72 indicating that the participant chose the same answer option on both questions 72% of the time.

The other coefficient, a coefficient that stands out with a negative value of 0.64 is “I have a Tableau desktop license” and “What type of training have you received on Tableau?”. This value is likely due to different amount of answering options and will not be analyzed further.

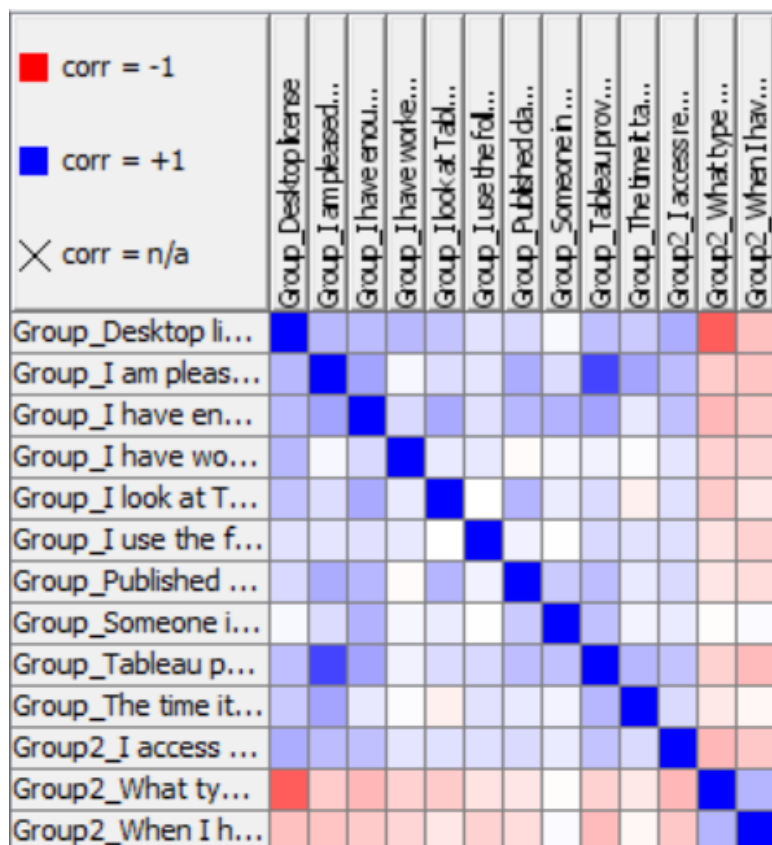


Figure 22: Pearson product-moment matrix showing the answer correlation between the questions in the survey

The corresponding p-values can be seen in Table 2. A threshold on 0.05 is reasonable here as the origin of the data is from a questionnaire. Sometimes, when dealing with sensitive data such as data for medical testing, the threshold could be lower. The p-value is a measure on how confident we can be in discarding the null hypothesis, where the null hypothesis is that the values are correlated by chance. A p-value of 0.05 would indicate that there is a 5% risk that the values are correlated by a coincidence. It is noteworthy that the p-values are surprisingly low.

Table 2: A list of the 10 questions with the highest positive correlation and their corresponding p-value.

First question	Second question	p value	Coefficient	r
I am pleased with my experience of Tableau..	Tableau provides the functionality I need to work with reports effectively.	0	0,732	
I am pleased with my experience of Tableau..	I have enough knowledge to explore data of interest through Tableau.	1,29E-10	0,363	
I have enough knowledge to explore data of interest through Tableau.	Tableau provides the functionality I need to work with reports effectively.	1,50E-10	0,362	
I am pleased with my experience of Tableau..	The time it takes to load a dashboard/report is...	2,18E-10	0,359	
I have enough knowledge to explore data of interest through Tableau.	I look at Tableau reports..	2,29E-09	0,339	
I am pleased with my experience of Tableau..	Published dashboards and workbooks are valuable to my day-to-day work.	1,27E-08	0,324	
Desktop license	I access reports through..	1,48E-08	0,322	
I have enough knowledge to explore data of interest through Tableau.	Someone in my immediate team is able to help me use Tableau. 1	1,48E-07	0,3	
What type of training have you received on Tableau?	When I have questions about how to use Tableau I go to..	2,54E-07	0,295	
I look at Tableau reports..	Published dashboards and workbooks are valuable to my day-to-day work.	3,05E-07	0,293	

**Table 3: A list of the 10 questions with the highest negative correlation and their corresponding p-value.**

First question	Second question	p value	Coefficient	r
Desktop license	What type of training have you received on Tableau?	2.58E-35	-0,639	
I have enough knowledge to explore data of interest through Tableau.	What type of training have you received on Tableau?	7,01E-07	-0,284	
I access reports through..	What type of training have you received on Tableau?	8,64E-07	-0,282	
Tableau provides the functionality I need to work with reports effectively.	When I have questions about how to use Tableau I go to..	3,20E-06	-0,267	
Desktop license	When I have questions about how to use Tableau I go to..	1,68E-05	-0,248	
I am pleased with my experience of Tableau..	When I have questions about how to use Tableau I go to..	7,38E-05	-0,229	
I access reports through..	When I have questions about how to use Tableau I go to..	1,78E-04	-0,217	
I look at Tableau reports..	What type of training have you received on Tableau?	2,97E-04	-0,209	
I have enough knowledge to explore data of interest through Tableau.	When I have questions about how to use Tableau I go to..	2,97E-04	-0,209	
I am pleased with my experience of Tableau..	What type of training have you received on Tableau?	4,52E-04	-0,203	

## 4 Conclusion and Recommendations

It has been an interesting journey to get insight in to how a big company gathers, refines and finally publish their data for all employees to take part of. It is evident that the way If handles data helps improve employees work. Employees at If seem to be pleased with the SSBI environment If provides, a statement that is reinforced by Figure 14 and Figure 15.

The most problematic area I have encountered is how employees experience loading times when working with reports. It was the topic brought up most frequently in the free text comments, and according to figure 12 five out of six of all participants in the survey experience that browsing reports are Extremely slow, Somewhat slow or moderate. This affects the satisfaction of Tableau negatively even though it is not a problem with Tableau itself, but the lack of server capacity. This is verified by figure 13 where you can observe that the majority of the participants that have answered "Very slow" or "Somewhat slow" is the majority of those who answered "Strongly disagree" and "Somewhat disagree" on the question about how pleased they are with their experience with Tableau. Resolving the issue with too low server capacity will therefore likely increase employee's satisfaction with Tableau, so my recommendation to the company is to invest in more server capacity.

Further education in Tableau was one of the topics that was brought up in the free text comments. Many employees want to learn more about Tableau in general, some want to learn how to make more efficient reports and quite a few asks for a "Tableau for dummies" course. There are quite a few courses available at If varying from basic to advanced level. In the majority of cases the problem is probably that employees do not know what courses that are available and if they are allowed to participate in them. As can be seen in figure 6 about two thirds of the participants have not taken part in any of the available courses even though the group extracted for the survey is quite active in browsing reports. Reaching out to frequent readers of reports and educate them will contribute positively to the Tableau community within if and likely increase the satisfaction with the software. There are some indications that some members would like to learn about how to make more efficient reports to reduce the strain on Tableau servers. To educate the employees that are responsible for the most frequently used reports in this could help reduce the loading times on the server

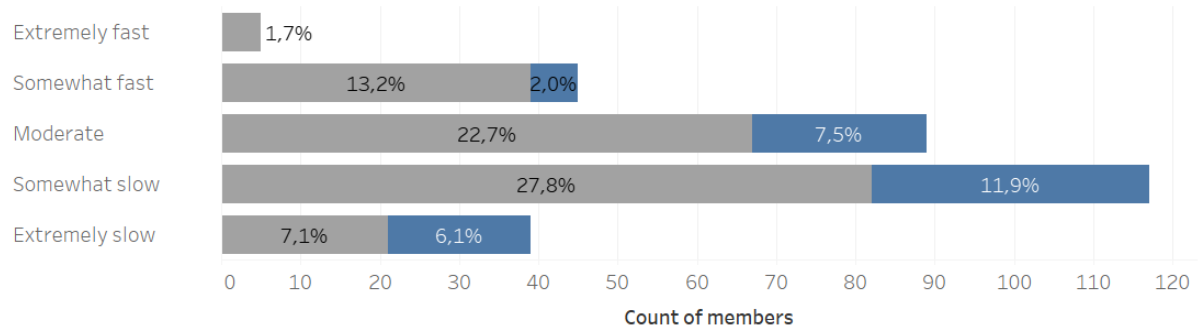
The first decision tree that was built to analyze the question "Sometimes I export my data to Microsoft Excel or similar software for further analysis" ended up with an accuracy of about 65%. With the low accuracy, the results from the tree should be looked at with some skepticism. The fact that the decision tree could not provide a higher accuracy indicates that the users that export their data to Microsoft Excel is widespread and has a low correlation to a few specific questions. The number of participants that uses Microsoft Excel for further analysis was higher than I originally expected. The tree is pointing at an interesting correlation. 76% of the participants that answered that they export their data to Microsoft Excel has received some kind of training from If in Tableau.

This could either be due to that employees that has taken part in education has previous experience in Microsoft Excel and similar software or that they have learned about the limitations with Tableau. When participants were asked what they usually do with the data in excel most employees answered that they use "filtering/sorting" or "sum/avg" functions. This is something that is possible to do in Tableau, so the results contradict each other. Therefore, it is reasonable to not focus too much on the results from this decision tree as the accuracy was as a low as 65%.

The second Decision tree based on the question "How pleased are you with your experience of Tableau?" provided an accuracy of 85%. It shows that the highest correlated question is "Tableau provides the functionality I need to work with reports effectively". There is a group of participants in the survey that seem to have a general negative attitude towards Tableau and the SSBI environment. Figure 24 shows how the group that answered "Strongly disagree", "Somewhat disagree" or "Neither agree not disagree" on the "Tableau provides the functionality I need to work with reports effectively" answered the question "The time it takes to load a dashboard is.." marked with blue. It can be observed that even though functionality and loading times should not be correlated with each other, there is a overrepresentation of those not satisfied with the functionality that experiences that loading times are slow. There is a tendency to answer all questions more negatively if you are not pleased with Tableau. This is probably one of the reasons to what can be observed in this decision tree.

The more simple explanation is that the correlation between the two questions are quite self explanatory. If a software does not provide the functionality you need, you are not going to be satisfied with the experience.

the time it takes to load a report is..



**Figure 23:** The blue group consists of members answering “neither agree nor disagree”, “somewhat disagree” or “Strongly disagree” on “Tableau provides the functionality I need to work effectively with reports”. The graph shows that they are overrepresented in “Extremely slow” and “somewhat slow” on the question “The time it takes to load a dashboard/report is..”

As a conclusion on the decision trees I believe that they are not the optimal way to analyze questionnaires. However, the experience that involved creating the trees have been very educational and nothing I regret spending time on. Most of my conclusions and recommendations are based on analyzing the graphs from the questions in the survey and comparing them to each other.

Let us come back to the initial question "What factors decides on how a BI-tool is being received by its users?".

I think it boils down to a few important factors. Education is key. To be able to reach out with available training and create education based on different levels of prior experience in working with data is essential to how a BI-tool is being received. It is also important to create a community within the company where employees have the possibility to discuss and share knowledge with each other. Finally, it is important to monitor the ratio of active users to server capacity. I think it is easy to forget to scale the server capacity accordingly when the software of choice becomes more popular at the company. Having the mentioned factors in mind when implementing SSBI at a company will greatly increase the experience, and satisfaction of its users.

## 4.1 Recommendations

Below are my three main recommendation for If P&C Insurance:

- Find a way to reach employees that wants education in Tableau.
- Educate employees in creating query efficient reports.
- Invest in more server capacity.

## 5 Thank you

**Felicia Petterson** and **Pontus Sandgren** for all the help throughout the project. Whenever a problem came up I always had somewhere to turn to. I would also like to thank you for educating me in the software Tableau.

**Stellan Sardal** For making the project possible by taking care of the formalities with Uppsala University and for making me feel as a part of the team.

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# Appendix

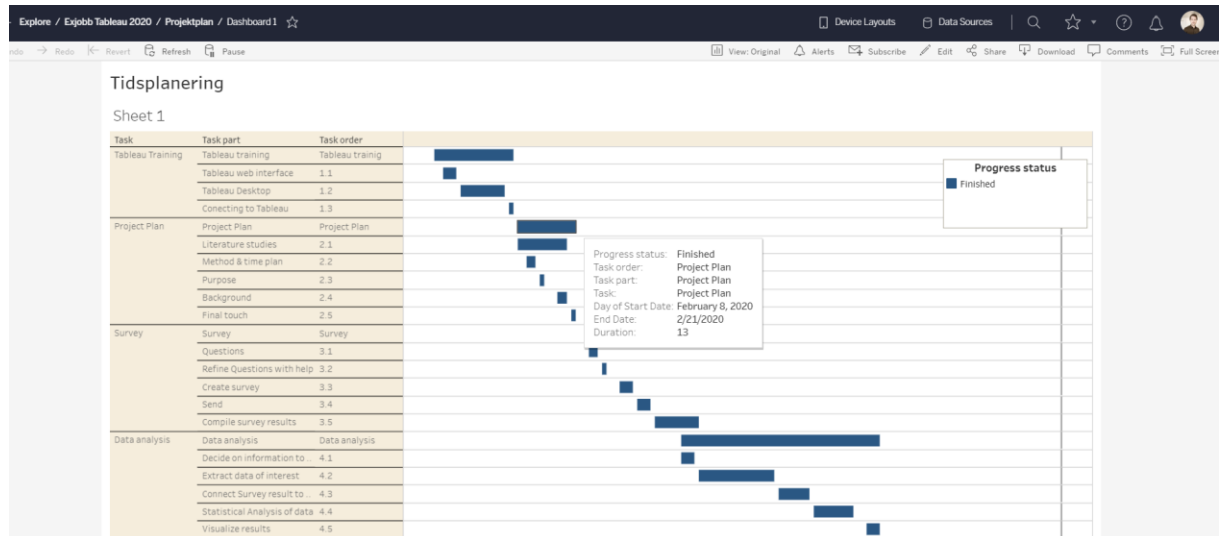


Figure A 1: is an example dashboard created in Tableau Desktop and published on the Tableau Server for If employees to take part of. It allows you to define multiple parameters depending on what you want to look at. A dashboard is a way to put together multiple sheets for an overview of the report and can contain both text and graphs. You can also choose to edit reports created by other users. From the edit mode you can change graphs, manipulate the data among other things.

Table A 1: The questions in the survey.

Questions	Answers
I look at Tableau reports..	More than once per day
	Once per day
	Once per week
	Once per month

	Less than once a month
What type of training have you received on Tableau?	Tableau Desktop Introduction by If (3hour course)
	Tableau Server Introduction by If
	Tableau Basic by If (1 day)
	Tableau Desktop by If (2 days)
	Tableau Level of Detail By If (2 hours)
	External (By Tableau, partner, consultants etc)
	From Internet
	By colleagues
	I haven't received any training.
When I have questions about how to use Tableau I go to..	If Tableau Specialists
	Colleagues
	Service Desk
	Internet
	Other external person
	I don't know who to ask for help
Someone in my immediate team is able to help me use Tableau.	Strongly agree
	Somewhat agree
	Neither agree nor disagree
	Somewhat disagree
	Strongly disagree
I have enough knowledge to explore data of interest through Tableau.	Strongly agree
	Somewhat agree
	Neither agree nor disagree

	Somewhat disagree
	Strongly disagree
I have worked in a Business Intelligence software similar to Tableau before I started using Tableau	Yes
	No
	Not sure
If Yes, what software?	Written answer
The time it takes to load a dashboard/report is...	Extremely fast
	Somewhat fast
	Moderate
	Somewhat slow
	Extremely slow
Published dashboards and workbooks are valuable to my day-to-day work.	Strongly agree
	Somewhat agree
	Neither agree nor disagree
	Somewhat disagree
	Strongly disagree
I access reports through..	<a href="https://tableau/">https://tableau/</a>
	Asking a colleague
	If Intranet
	Bookmarked link
	Not sure
	Other
I am pleased with my experience of Tableau..	Strongly agree
	Somewhat agree
	Neither agree nor disagree

	Somewhat disagree
	Strongly disagree
Tableau provides the functionality I need to work with reports effectively.	Strongly agree
	Somewhat agree
	Neither agree nor disagree
	Somewhat disagree
	Strongly disagree
I use the following tools in my work...	R
	Python
	SAS
	Microsoft Excel
	Scala
	None of the above
	Other
Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software	Yes
	No
If you answered Yes on the previous question: What do you usually do with the information?	I download the data to use sorting / filtering functions
	I download the data to use Sum/Avg (or similar calculations)
	I am curious about the data and like to have a look at it in its “raw form”.
	I compare data from different reports
	I download the data to share with colleagues.

	I download the data to share with external business partners
	Other
Is there anything else you would like to add? In general about Tableau or anything really. You may answer this question in your preferred language if you wish.	Written answers

**Table A 2: Grouping of questions in the survey**

	1	2	3	4	5	6
I look at Tableau reports..	More than once per day	Once per day	Once per week	Once per month	Less than once a month	
What type of training have you received on Tableau?	I haven't received any training;	By colleagues,  From internet,  External (By Tableau, partner, consultants etc),	Tableau Basic by If (1 day),  Tableau Server introduction by If,;	Tableau Desktop introduction by If (3 hour course),	Tableau Desktop by If (2 days)	Tableau Level of Detail by If (2 hours)
When I have questions about how to use Tableau I go to..	I don't know who to ask for help.,  Service Desk	Colleagues,  Internet,  Other external person;	If Tableau Specialists			
Someone in my immediate team is able to help me use Tableau.	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagreed	

I have enough knowledge to explore data of interest through Tableau.	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	
The time it takes to load a dashboard/report is...	Extremely fast	Somewhat fast	Moderate	Somewhat slow	Extremely slow	
Published dashboards and workbooks are valuable to my day-to-day work.	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	
I access reports through..	<a href="https://tableau/">https://tableau/</a> , all combinations with 2,3	IF Intranet All combinations with 3	Asking a colleague, Bookmarked link, Not sure, Shortlinks provided by analysts, Teams			

I am pleased with my experience of Tableau..	Strongly agree	Somewhat agree	Neither agree not disagree	Somewhat disagree	Strongly disagree	
Tableau provides the functionality I need to work with reports effectively.	Strongly agree	Somewhat agree	Neither agree not disagree	Somewhat disagree	Strongly disagree	
I use the following tools in my work...	Everyone who uses Microsoft excel and other software	Everyone that does not use Microsoft Excel				
Sometimes I download/copy the information in the report to access it in Microsoft Excel or similar software	Yes	No				

## Comments from the survey

1 "I think Tableau itself is quite handy and I believe I can use it relatively well. However, I am not an analyst and cannot therefore explore data sets and I am not aware of what kind of data sets would be available (outside of current reports). I don't know what is on the background of the reports. This is something I would need assistance on and I don't think we have enough resources to support this."

2 "I Think Tableau is good compared to other BI Tools, but there is still a lot of development opportunities left for the Tableau team to develop."

3 "It would be good if Daily Reports(eDM,DM,SMS KPI) are updated by 07:30 AM Swedish time everyday and not during middle of the day, to see the statistics for the Communications that were executed the previous day."

4 "I have difficulties with reading the measurements since they are changing quite often in sales KPI reports. The time it takes the data to flow from CIM to Tableau is long. I don't like it that Tableau changes into default settings if it's been too long unused. Other than that I find the reports easy to find and read."

5 "Tableau has been very very slow lately and it takes ages to filter. Feels like we're using "old version"."

6 "Uppdateringen av rapporterna är sker vid väldigt olika tidpunkter och många gånger saknas viss data. Detta gäller speciellt vid dagsuppdateringar som vi använder oss av dagligen i arbetet. Vi räknar med att ha uppdaterade siffror kl 11 men det fungerar inte oftare än det fungerar. Detta är dock inte Tableaus fel. Rapporter tar lång tid att ladda. Som helhet är dock Tableau ett grymt verktyg i vår vardag."

7 "Tableau in it self might be a good tool. Since it's hard to create new reports etc. compared to Google Analytics, it creates limitations to the organisation. We should not need a power user/analyst to create simple reports."

8 "Tableau is, combined with Teradata, my primary day-today tools at work. I do not have any experience with Tableau outside of If, but it is a pleasure to work with here. There are a wide range of people using the tools, which makes knowledge sharing ideal and easy. All the best with your project!"

9 "I love tableau :) - I have two wishes, and I wish it could do better graphs and be significantly faster."

10 "I would love to learn more about Tableau."

11 "I think Tableau is often very unstable, and it usually takes some time to load all the data. Also if you misclick something in a column or something, the entire page gets very difficult to handle."

12 "Extremely helpful to have Pontus and Felicia. Essential to get the full potential of Tableau. - Some reports are surprisingly slow. - More If internal training on Tableau data prep would be appreciated."

13 "The updates of the reports are often delayed wich effects my work."

14 "Our Tableau reports really supports our business needs in general, its easy for most of our users to work with and present for partners. Still miss some functions from Approach where it was possible to dig deep into details but overall satisfied with the tool."

15 "think tableau support me to lead team to the right direction."

16 "I would help if all numbers downloaded from Tableau comes in the format that you can easily carry on working with them in excel. For example 1000 is exported from tableau to exel 1 000. Thousand separator is annoying feature."

17 "Tableau is starting to get to a level where it brings real value to my work"

18 "More education about Tableau"

19 "I would be beneficial for me to have a more formal introduction to Tableau and other reports."

20 "I miss an education for users on different levels. "Tableau for dummies""

21 "Systemet är ju så galet långsamt. Skönt att få skriva av sig gällande detta. Många gånger har jag funderat på vem man ska muta för att få upp speeden i detta verktyg. I vår roll kan vi avsätta en dag för att skicka ut månadsrapporter och statistik till våra partners. Då funkar det inte att det ska ta 10-15 sekunder mellan varje val. URUSELT. Man tappat motivationen, blir stressad, börjar med annat, kommer av sig... listan kan göras lång. SÅ, ett önskemål från min sida (jag vet att jag också talar för hela mitt team) är att snabba upp systemet! Kanske inte är möjligt, men går det så snälla. För vår hälsas skulle om inte annat ;)"

22 "I would like a short session/course about how to use a colleagues published report as a base and how to access the data that report uses and how to further develop that report as a copy for my own purpose."

23 "Very slow but very good."

24 "Even though I have attend to a Desktop session I do not build reports - only a user."

25 "I might not be the best person to answer this survey as my responsibility is more to develop rather than use the reports."

26 "The possibility to sort in the columns"

27 "I find Tableau desktop excellent, but the published web versions can be a bit slow, even when using extracts. I am missing knowledge on how to make the most efficient reports in terms of data usage. How to structure reports so that the server load is minimal and the response time is as fast as it can be. Because of very slow load times on <https://tableau> I always use extracts, but my reports could probably be a lot faster if I knew how to structure the reports more efficiently. Could be an idea for a course for Tableau desktop users who publishes reports."

28 "Jag gillar Tableau när jag skapar rapporter och utforskar data själv, då tycker jag att det är ett fantastiskt verktyg. Men det finns några saker som jag stör mig på när det kommer till att använda andras rapporter. Jag tycker att Tableaurapporterna på intranätet (officiella siffror t.ex.) laddar alldeles för långsamt vid filtrering etc. Dessutom försvinner filtervalen ganska snabbt, så man måste ofta gå igenom den långsamma laddningsprocessen igen bara för att man varit idle ett tag. Jag tycker också att det är synd att man måste jobba med screenshots eller download as crosstab inkl efterbearbetning för att sprida siffrorna vidare till andra."

29 "The survey did not ask whether you are a Tableau User or developer. That is often quite a difference.."

30 "I have only access to Tableau desktop that is limiting my use and playing with data."

31 "I am not a Tableau desktop user anymore. I use only reader version"

32 "Usually in the mornings it takes a bit more longer to load the report, but otherwise Tableau usually works quite fast"

33 "I'm looking forward to getting started with my Tableau license and training."

34 "We use Tableau mainly as a quick visual reporting tool to all leaders and employees in Industrial + when we make presentations. We as controllers are though more into the details i.e in big excel sheets"

35 "Tableau as a BI tool is extremely easy to use and I need it in my every day work as an analyst. What is not so good though is that using the reports really is time consuming at times. I know there have been attempts made to free capacity, but not sure if this has truly taken place. Tableau developers and report publishers should be strongly advised to delete or somehow archive the reports that are no longer needed. This would also have an effect on end users trying to find the correct and up-to-date information."

36 “Sum, Tableau is a great tool. Our biggest challenge is to get a good structure of data, views, etc.”

37 “Tableau server speed is trash. Sometimes I can't even open dashboards.”

38 “The current Tableau report that I use is the only data source which I can use for one of my Daily tasks. When changing to IDW 2.0 I will not have this possibility any more and I have addressed the need to urgently solve this but the Tableau report is not prio 1.”

39 “Miinusmyynnit olisi hyvä näkyä raportilla, koska sen tulkinta on ilman niitä todella vaikeaa. Olisi hyvä myös saada tarkempi selvitys siitä miten myynnit kirjautuvat.”

40 “X”

41 “I hardly use Tableau and don't know much about it. I only download a few quite similar reports and work further with them in Excel. I do not need anything else from tableau to do my work.”

42 ”Saknar ålders segmentering och regionindelning i nuvarande rapporter”

43 “Good luck with your thesis :)”

44 “great tool, but as all datasoftware the output is always only good as the input. it is probably possible to have warnings/more information regarding this in Tableau, but that may be up to Our tablau contact person to add in the reports. (for example Reporting sales for several stores but as one store has missed Reporting the total sales is not Complete)”

45 “Fantastic tool. Some dashboard loads fast some not. So difficult to answer with one answer. Would be good if we could use the addins. Also good if Tableau would include more statistics/advanced analytics.”

46 “I was invited to a course, but that couse were based on desktop and on a higher lever than myself so I left the course early.”

47 “Den är extrem långsam!!!”

48 “A lot can be done with Tableau, but also slowness and report update is an issue.”

49 “Would be nice to know more about the functions of Tableau.””

50” Jeg hadde verdsatt om Tableau ville lastet raskere,og om jeg hadde hatt mulighet til å skreddersy det jeg ønsker å se av rapporter på mine medarbeidere i mye større grad. I tillegg kunne jeg tenke meg opplæring i tableau da jeg tror det fins mange funksjoner i programmet jeg ikke vet noe om, og som kunne vært hjelpsomt i min hverdag som teamleader. Jo færre

ting jeg trenger å beregne for å analysere selv jo bedre. Ellers vil jeg nevne at Tableau er LANGT bedre enn vårt forrige verktøy Treffpunkt. ”

51 “The web browser platform of Tableau is still rather slow for effective work. In my daily work I'm basically every day on the road, meeting our partners in the field. From that perspective it would be very nice to use Tableau with mobile devices, like iPad and iPhone. It seems there already is a Tableau application in the App Store, so I'm keeping my thumbs up. :)”

52 “Would like it to be faster and more updated. In some cases it seems as it isn't updated. And that the data isn't the real deal”

53 “I use tableau when reports are finalized, i do not build my own reports. Some of the questions were therefore irrelevant for me.”

54 “Loading times when jumping between pages/reports are somewhat slow. Otherwise it's a great tool.”

55 “Would be nice to have the information about how much admin time has been spent through out the weeks. As of now this is not available in our dashboard.”

56 ”Jag gick på Ifs tvådagars Tableaukurs för ett och ett halvt år sedan men har inte använt Tableau så mycket sedan dess. Därför har jag glömt väldigt mycket vilket har gjort det svårt för mig att använda Tableau nu trots att jag har gått utbildningen”

57 ”Går fruktansvärt långsamt. Borde gå att filtrera ut det som man vill ha.”

58 “I can only use it to look at what the creator for the Tableau has made for us. I can suggest things I want to see but I don't know how to edit, or do anything else than look at data.”

59 “Tableau is very useful in my work.”

60 “It's a bit unstable. Today for example it wasn't available at all. This and slowness are the biggest challenges. Otherwise I'm happy with it.”

61 ”Väldigt tungrott system, lång "loading time". Svårt att få ut den "data" man vill ha och som är relevant. Hade även önskat en utbildning från Tableau.”

62 “Can we get Tableau to work on mobile app as well?”

63 “More structured education possibilities for "simple users" (or better marketing of this if it is existing already)”