A transition framework for TIP Trailer Services

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Title Page

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Executive summary

Headquartered in Amsterdam, TIP Trailer Services provides trailer leasing, rental, maintenance and other value added solutions to transportation and logistics customer across Europe. After the acquisition in 2013, TIP Trailer Services and HNA agreed on having a common reporting language. Therefore, TIP introduced the brand new Business Intelligence tool called INFOR in the beginning of 2015. In order to successfully transition to this tool and increase its operational reports efficiency, TIP needs to acquire information about the current reporting situation, generated costs and transition plan. This report at hand aims at designing and providing a transition plan for TIP Trailer Services.

The approach used to achieve the above-mentioned aim is as follows. First, the current operational reporting efficiency has been investigated by means of the surveys. This was followed by identifying and measuring the hours spent on manual adjustments and running queries. Also, the expectations of the users with regard to the implementation of INFOR were analyzed. Secondly, a cost and benefit analysis was conducted to investigate potential risk, generated costs and benefits throughout the transition process. After finishing the main research with regard to the current operational reporting process, the transition framework was created. Here, the Lean Theory has been applied to ensure an efficient and structured automation process in INFOR, which is the main reason for transition. Moreover, a communication and training plan was developed to make sure that TIP employees will be updated with the project development and have the basic skills of using the software.

The following conclusions have been drawn. Analysis from surveys and interviews show that Safari is lacking the capabilities of improving the efficiency of operational reporting process. The lack of functionality has resulted in a lot of human errors. Poor customer service has made issues to become an integral be part of this software. Also, analysis show that users are limited to be innovative and gain competitive advantages over TIP's competitors. This is due to the lack of information and unstructured operational reporting process. In addition, Safari users are spending 69% of their time on manual adjustments and running queries, whereas only 31% of time on analyzing this information and adding value to the existing reports. Cost-Benefit analysis show that the benefits of implementing INFOR outweigh the costs. TIP should increase its operational reporting process by leaning the steps of automating process in INFOR. Here, Business Intelligence and IT team are not time, cost and effort efficient. In addition, the analysis show that a proper communication and training plan is missing.

In order to increase the time for data analysis of TIP's operational reporting process, the following recommendations with regard to an effective transition plan have been defined. TIP should raise the awareness of the project vision and development through an organized communication plan. The INFOR project leaders should involve team members on setting-up realistic deadlines. TIP should improve the overall knowledge about maintenance of the system. Trainings should be provided for INFOR project team to ensure sustainability of the project and cost efficiency. Then, INFOR project team should organize basic INFOR trainings – practice driven - for each department to ensure that TIP employees can make use of INFOR. TIP should reduce waste form its automation process to five working days by using zero-defect and first-in-first-out approach and increasing the efficiency of its documentation process. By the end of 2016, the following objectives should be achieved: reducing the time of manual adjustments and queries by 30% and allocating this time for data analysis, increasing innovation, and improve decision making.

Preface

This report has been written as part of my four months' work placement at TIP Trailer Services located in Amsterdam, The Netherlands. It has its origin in a Learning Arrangement during the graduation phase of International Business and Management Studies at the Fontys International Business School in Venlo, the Netherlands. This Learning Arrangement takes place in the eighth semester of the studies and is titled Graduation Assignment.

This is the purpose of this report. TIP Trailer Service it is in a transition phase from its old BI tool Safari to the new one INFOR. Within this report, a transition plan has been developed to increase the efficiency of the current operational reporting process in terms of data analysis.

This report has been conducted as mentioned in the following. The basis of this report is the experience and the great working environment at TIP Trailer Services. First, information categories were selected, information collected and afterwards structured in order to define and measure the current operational reporting process at TIP. Secondly, suitable tools were chosen to gather, use and finally evaluate the information to analyse the transition process. As a result of this process, a comprehensive and detailed lean analysis provided findings to successfully increase the operational reporting efficiency, which lies in front of you in form of this report.

This report is addressed to the following parties. To start, there is INFOR project team which includes BI and IT team as well as users affected by the transition process at TIP Trailer Services. Further, this report is addressed to Mr. René van Dal, Mr. Arjan de Bont who were the supervisors of this graduation assignment. On top of that, this report is addressed to external reader to provide needed information about TIP Trailer Services, Business Intelligence and lean management.

I would like to express my gratitude to Mr. René van Dal. Thanks to his understanding, support, guidance and patience this report could be executed. Also, I'd like to give thanks to the lecturers of HAMK University of Applied Sciences for the support during all three years of studies.

I would also like to express my appreciations to both of my company supervisors Ian Paxton, Razvan Kope and Aleksandar Treziev whose support made my internship a valuable learning experience. Additionally, I'd like to thank all my colleagues who made this experience unforgettable.

Finally, my family for the endless support all the way from Kosovo.

My sincere thanks,

Lend Hadri

Amsterdam, 24th May 2016

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Glossary of terms

Business Intelligence (BI) – is an umbrella term that includes the applications, infrastructure and tools, and best practices that enable access to and analysis of information to improve and optimize decisions and performance.

Operational Reporting - is reporting about operational details that reflects current activity. Operational reporting is intended to support the day-to-day activities of the organization.

Enterprise Resource Planning (ERP) - is business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back office functions related to technology, services and human resources.

System analyses and Programme networking (SAP) - One of the world's first and leading ERP, setting standards of how databases and other ERP's should operate.

Information Technology (IT) - is the application of computers to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise.

Database - is a collection of information that is organized so that it can easily be accessed, managed, and updated

Data warehouse - is a system used for reporting and data analysis, and is considered as a core component of Business Intelligence environment

Structured Query Language (SQL) – is a language used to communicate with a database

Cost Benefit analysis (CBA) **–** analysis on costs and benefits for decision making.

Query – is a command given to the computer to proceed with a certain action on the particular data.

Static report - is a report that is run immediately upon request and then stored, with the data, in the Data Warehouse.

WebEx – a screen sharing tool.

1. Introduction

In this chapter the background information about the Business Intelligence and its impact on the businesses are presented. Moreover, the focus of the research is outlined.

The large volume of data is described by the term of big data – both structured and unstructured – that inundates the business on daily basis. Nowadays, it's not the amount of data that is important. It is what organizations do with the data that matters (SAS, 2014). This data can be analyzed for insights that lead to better strategic business moves and decisions. Therefore, organizations are aiming to implement well-designed BI applications that can give anyone in the company the ability to make better decisions by quickly understanding the information.

After the acquisition in 2013, TIP Trailer Services and HNA agreed on having a common reporting language. Therefore, TIP introduced the brand new BI tool called INFOR in the beginning of 2015. In order to fully transition to this tool and increase its operational reports efficiency, TIP needs to acquire information about the current reporting situation, generated costs and the transition plan.

This report represents a framework for a transition planning, which advices TIP Trailer Services on how to increase operational reporting efficiency in terms of data analysis by implementing INFOR. The content of the reports is structured as it follows: Chapter two is presenting the Amsterdam headquartered company TIP Trailer Services and their main objectives. In chapter three, the project description deals with the problem definition of how can TIP increase its operational reporting efficiency by transitioning to its new BI tool INFOR, the project aim, the research questions and research methodology. The forth chapter gives the reader an overview of the BI and its tools – Safari and INFOR. The fourth chapter explains the lean manufacturing as the main theoretical methodology which will help TIP to transition successfully by reducing the waste and adding value to the operational reporting process. In the next chapter, the current analysis of the operational reporting process will be presented. Cost-Benefit analysis is built in the seventh chapter. Chapter eight leans the automation process and provides communication and training plan for TIP's employees. In the last chapter of the report, a conclusion is drawn as well as a recommendation, followed by the critical appraisal.

2. Company description

In this chapter the case company TIP Trailer Services is overviewed. Moreover, its operating activities within logistic industry are mentioned and the development of the company within the period of existence is shortly described.

The vision: To be the trusted advisor and provider of choice for companies active in the transport and logistics industry. To deliver integrated solutions to our customers around the management of trailer equipment throughout its life cycle. (According to the Corporate presentation 2016)

The business company, where the research is conducted is called TIP Trailer Services. TIP Trailer Services is a European company, which provides transportation and logistics services with leasing, rental, maintenance and repair and other value-added solutions. They keep the freight of customers on the move across the whole Europe. TIP Trailer Services has more than 70 branches located within 17 countries, so they offer various opportunities within the logistics industry, which can benefit the customers and establish the long-term partnership.
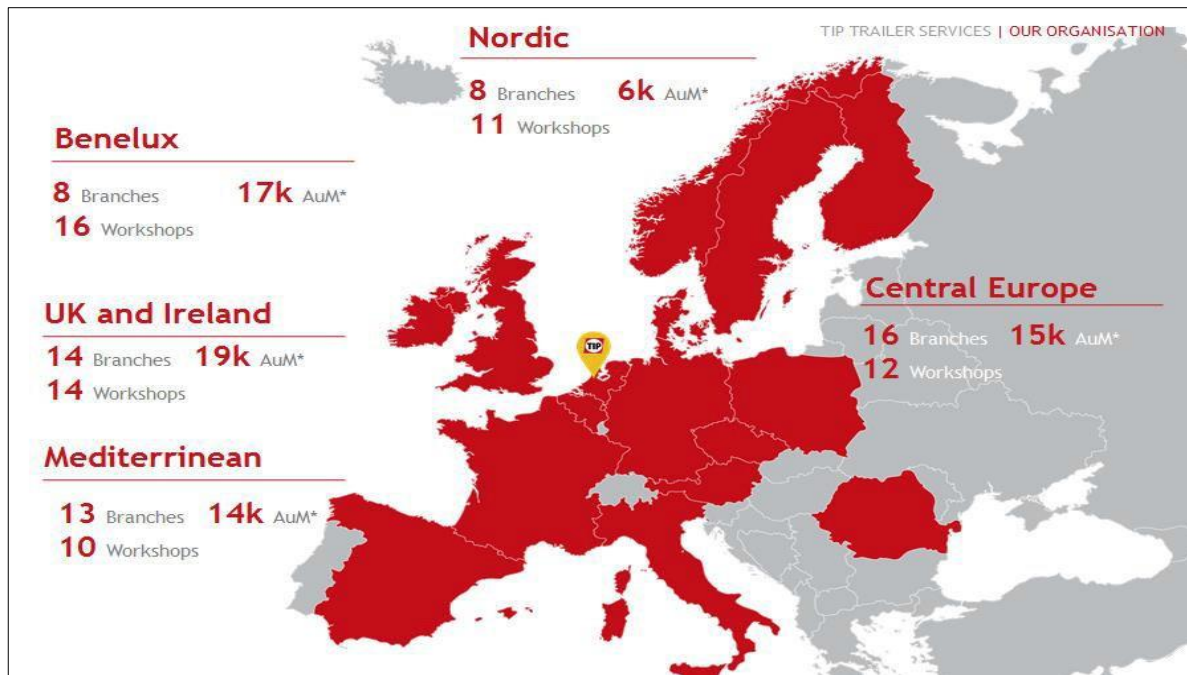

Figure 1. Organization Source: Corporate presentation 2016

Recently TIP Trailer Services became a truly innovative and integrated provider of solutions in a transportation industry. It is currently operating in Europe, dividing its area into five different regions, including the following (**Figure 1** Organization):

- Central consisting of Germany, Austria, Poland, Romania and Czech Republic

- Benelux consisting of the Netherlands and Belgium

- The UK consisting of United Kingdom and Ireland

- Mediterranean consisting of Italy, Spain and France

- Nordic consisting of Norway, Sweden, Denmark and Finland

TIP Trailer Services is a leader within the logistics industry and has one of the largest and most diverse trailer, tanker, intermodal and truck fleets in Europe. It is located in Rotterdam. A professional team in the company specifies, sources, finances, maintains, manages and remarkets the equipment for the clients. The process results into an establishment of the loyalty with customers and bringing the best expertise for them.

TIP Trailer Services was found in 1968 as **T**ransport **I**nternational **P**ool Inc. and the first branches were opened in the Netherlands and Canada. In 2004 TIP Trailer Services has become a part of GE (General Electronics). After the significant development and opening of new workshops, in 2007 the company offered a full range of services for the transportation equipment. In 2013 it was acquired by HNA Capital. HNA Group reported assets of 73 billion EUR and generated 23 billion EUR of revenue for the financial year 2014. As a result, it brought an interest of investors and potential customers. TIP Trailer Services showed the willingness to develop and expand its business.

The Headquarter of the company is situated in the Netherlands, Amsterdam. Today the company generates around 320 million EUR[1] yearly and it has approximately 20 million EUR of net profit, which makes TIP Trailer Services attractive for new customers and external parties. TIP Trailer Services' total managed fleet covers almost 6 million kilometers per year and the company spends around 50 million EUR for the actual maintenance of fleet.

The development of Enterprise Resource Planning software systems and its increasing role for the Business-to-Business environment had an impact on the TIP Trailer Services' strategy in general and on the operational reporting processes. At the end of 2015, a new BI tool was introduced with the ultimate goal of having automated reports and standardized reporting language throughout the company.

In conclusion, the company has undergone many significant changes in the recent years. With the current expectations of the future it is important that the company successfully transitions its operational reporting from Safari to INFOR as it will become an important source for future growth.

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[1] In the combined statement of profit or loss for the period ended 31 December 2014, the revenue was 314.9 million euros; in 2013: 312.0 million euros; in 2012: 337.8 million euros. The average for the recent years was calculated.

3. Project description

After describing the company TIP Trailer Services in chapter 3, this chapter defines the problem which TIP Trailer Services is currently facing, outlines the aim of the project and elaborates the research approach of the project.

3.1 Project definition

As it was previously mentioned TIP Trailer Services provides trailer leasing, rental, maintenance and repair as well as other solutions to the transportation and logistics for customers across Europe. The logistics company is in a continuous process of separating its operating system from its previous parent company General Electric. The change has been impacted from the acquisition by HNA Group where the companies agreed on aiming for standardization, sustainability, easy analysis and a common language in reporting. Hence, TIP has started a transition project of revamping the operational reporting process by introducing the new BI tool called INFOR.

The program provides next-generation business intelligence solution and tools that could easily produce effective analysis as well as developing highly detailed operational reports. However, the transition itself has brought challenges for the company. For automating reports in INFOR it takes months because the report must be built in a way to provide every possible outcome and remain solid throughout the years. Thus the availability of the information for the users will be provided only after the report is automated. Also, that would be the ideal situation for which Business Intelligence department is aiming for – to get every report automated, user-friendly and sustainable.

In parallel to the transition of INFOR, the logistics company has the old BI tool Safari as the main operating system at this point in time, which is wasting a considerable amount of time in manual work.

The current operational reporting is done by extracting the raw data from the data warehouse by using Safari, and creating reports by using Microsoft Excel. Once the reports are completed, then they are sent via e-mail to the main users[2]. This is a repetitive process done on daily, weekly, and monthly basis. Safari system has proven to be outdated by showing a lack of functionality, centralized control, highly manual and time consuming. Most importantly, the manpower involved in the reporting tasks is significant which exposes the company to many human mistakes and miscommunication within the company. These unfavourable outcomes prevented the opportunity for TIP to create a long term sustainability and visibility of management information.

The cause of the problem is lack of a transition strategy, which results from several factors. Firstly, there is lack of information to what extent Safari's capabilities are impacting the business and what are the expectations of its main users from Infor's implementation. The second factor is the missing information with regards to the generated costs and benefits of implementing the new tool. Lastly, an unstructured process of automating reports, lack of experience and communication is causing delays of the transition. As a consequence, TIP Trailer Services does not provide a standardized operational reporting process to its employees. This basically leads to the missing of the ability to establish a transparent flow of the information which would contribute for a potential future growth of the company.

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[2] Main users are referring to Operations, Finance and Controllership departments.

The main research question in focused on improving the efficiency of operational reporting in terms of increasing the time for data analysis for 30% by the end of 2016.

How can TIP Trailer Services improve its operational reporting efficiency in terms of time for data analysis by transitioning to a new Business Intelligence software for 30% by the end of 2016?

3.2 Project aim

The overall aim of the research project at hand is to provide valuable information regarding the methods of how can TIP successfully integrate INFOR into their business and serves the Business Intelligence Team of TIP in particular. The report aims at providing a recommendation on how can TIP successfully transition from its old data warehouse tool called Safari to the newly introduced BI tool called Infor. The final delivery of the report is to present a plan of transition which will contribute in increasing the efficiency of the operational reporting process in terms of data analysis. The plan will result in project management, and by using this plan TIP will be able to increase efficiency by 30% in terms of data analysis of its operational reporting. This will include the increase on productivity gains, efficient use of costs and resources and the strategy of transitioning the users.

3.3 Research Question

1.   What is the current situation of TIP Trailer Services in terms of operational reporting process?

1.1   What are the reasons that Safari lacked the required capabilities of improving efficiency in the reporting process?

1.2   How many hours are spent in manual adjustments of the current operational reports?

2.   What would be the generated costs in the process of integrating INFOR?

3.   How should TIP Trailers Service reporting process look like?

3.1   What will be the benefits of the newly developed reporting system?

3.2   How should TIP successfully transition its users from SAFARI to INFOR?

3.4 Research Methodology

In order to gather the right data and to deliver an appropriate outcome of this project, it is crucial to conduct research in a systematic and well thought manner. Here, the choice of research questions will be justified and the research approach will be explained.

What is the current situation of TIP Trailer Services in terms of operational reporting process?

The first research question looks at the situation in the company in terms of operational reporting process. It is of utmost importance to know the current situation in order to proceed with further investigation and solutions. The situation analysis will focus on the concerns about operational reporting process done by using Safari by giving a precise and detailed view of the situation. Here, the investigation will take place through the interviews with users of Safari from FP&A, Controllership and Operations departments. Additionally, for measuring the hours spent on manually adjusting and producing operational reports – surveys with Business Intelligence department will be conducted.

The outcomes will give an understanding of the current operational reporting situation caused by Safari which will be used for further analysis of identifying the bottlenecks and meeting the users' expectations with respect to INFOR's implementation. To draw out statistical conclusion, the collected data will be converted into the measurable by using SPSS tool.

What would be the generated costs in the process of integrating INFOR?

The second research question concerns the financial part of integrating INFOR. The implementation of the brand new BI tool it results to be costly due to high price of licenses, outsourcing and time-consuming. A research on the generated cost for implementing the BI application will be taken. The results will be analyzed by conducting Cost-Benefit analysis (CBA). It helps to provide justifications for the investment, and a basis for comparing projects. Also, it involves comparing the total expected cost of integrating Infor against total excepted benefits, to see for how much the benefits outweigh the costs. Here, research concerns interview with TIP's software supplier with a focus on their customers' experience in implementing Infor. This will give the opportunity to learn from the best practice. In addition, the cost part of analysis will be an approximation based on the information provided and disclosed by HR and Infor project manager.

How should TIP Trailers Service operational reporting process look like?

In order to define and create the right operational reporting process for TIP, a plan for transition should be developed. Therefore, Lean Theory will be applied, which is creating more value for customers with fewer resources and reducing waste. Here, the focus will be on adding value to the automation process of the operational reports. This will be done by splitting the process into steps and implementing the Lean Theory methodology in each of them accordingly. Additionally, interviews with Project Manager and Business Leader will be conducted.

Besides, a communication and training plan as part of the transition will be developed. The communication plan will be focused within the INFOR project team as well as future users to ensure that everyone will be updated with project status and progress. The training plan concerns the importance of knowledge sharing throughout the INFOR users.

This information will help TIP to move from an old way of thinking to reduce waste (lean) thinking. Hence, the overall efficiency of operational reporting process will be increased.

4. Business Intelligence Overview

This chapter gives an overview of Business Intelligence, and an introduction to the two BI tools which TIP is currently using.

4.1 Business Intelligence

Business intelligence, or BI, is an umbrella term that refers to a variety of software applications used to analyze an organization's raw data. Business Intelligence as a discipline is made up of several related activities, including, online analytical processing, data mining, querying and reporting.

The main reason that companies implement BI into their business is to improve decision making, identify new business opportunities and cut costs. With today's BI tools, business people can easily start analyzing data themselves, rather than wait for IT to run complex reports. BI tools help users to make business decisions based on hard numbers which otherwise be based only on gut feelings and anecdotes (Mulchahy, 2007).

Although the BI offer variety of options and holds great promise, implementations is greatly determined by technical and cultural challenges. To make the software trustworthy, executives have to ensure that the data used for BI applications is clean and consistent.

Back in 2001 during the General Electric umbrella, TIP started implementing the BI tool called Safari. For fourteen years and counting, the logistics company has been using this tool as a main source for operational reporting. In the end of October 2015, TIP introduced the brand new BI tool INFOR which is in the implementation phase. Currently, TIP is using both BI tools – Safari for sending operational reports and INFOR for building these reports - and by the end of the 2016 year is aiming to fully transition to INFOR. Below, a detailed review on what each of the systems offers can be found.

4.2 Safari the software

As previously mentioned, Safari is the first BI tool that TIP has ever implemented to its business. It is mainly used by its users for operational reporting purposes.

SAFARI is the business intelligence tool of System analyses and Programme networking (SAP). SAP is a well know market leader in producing business software tools which empowers organizations business. Safari is known as BI launch pad and it is part of SAP Business project 4.0 release. The application acts as a window to business information about your company.

The following tasks can be performed by using Safari. The user can organize objects, web intelligence documents by suiting them to their needs. Object is a document or a file created in BI platform or other software that is stored and managed in the BI platform repository. Safari has the possibility of scheduling as well. This means that the user can set up to automatically run an object at a specified time, which saves time in comparison of running it manually. Safari users can view information in a web browser, and export it to other tools such as Microsoft Excel and save it to a specific location. Also, by making use of its analytical tool user is able to explore the business information in detail (**Appendix 3**). However, this particular tool BI lunch (Safari) which is part of SAP it is not the most BI SAP sophisticated tool because they've shifted from web applications to desktop applications. The last update provided for TIP was back in 2008.

4.3 INFOR the software

TIP Trailer Services has introduced the brand new BI tool at the end of 2015. As previously mentioned, after the acquisition from the Chinese company HNA Group, the companies agreed on standardization and having one common reporting language. The main reason that derived the purchase of the Infor software was the possibility to fully automate the reports. This means that for example if operations manager needs a report every day at 9 AM, for showing how many units are on rent then Infor will send this information automatically.

There are various benefits of automating the reports such as: allowing the information to be distributed efficiently and consistently to the relevant end-users, informing end-users, in real time, about changes in numbers, especially if reports contain useful visualization features such as KPIs, gauges, etc.

Infor is an ERP software, which has access to several databases at once, and links the data in different data dimensions. Infor provides multidimensional data structure hierarchy, accessed in quick manner, for various business needs (Forpoint, n.d.).

TIP has purchased Infor software suite, which consists of: Office Plus, Application studio, Dashboard manager, and Analyzer. These products are used for different purposes but share a common goal – to make better decisions and improve business process by delivering meaningful information through the organization.

Infor BI Application Studio – is a web-based front end for data visualization, including reports, analysis, dashboards, and data entry. Users can create planning and reporting interfaces without needing any programming skills. Additionally, the users can access the data at any given time without depending on other people for sending out the reports via e-mail. Please take a look on **Appendix 1** for an example.

Infor BI Office Plus – is an integrated Microsoft Excel interface that delivers advanced reporting and sophisticated business analysis to improve collaboration and optimize key processes. Without requiring help from IT, the end-user can easily create sophisticated reports, produce custom templates, and adapt standard ones to incorporate design elements, key performance indicators, and more. The other possibility is that the user can find the most detailed information via Office Plus which might be missing in the reports presented in Application Studio. Please take a look on **Appendix 2** for an example.

Infor Dashboards - help the user to create great individualized dashboards in a web browser or on a phone/tablet. They are closely integrated with Application Studio content. For TIP, this application is very useful for Senior Leadership Team (SLT) by enabling to access the information via phone and check the business' performance in high level.

Infor Analyzer - Infor Business Analytics supplies role-based and industry-based reports, dashboards, key performance indicators (*KPIs*), and analytics for business users across the enterprise. Business Analytics integrates seamlessly with other.

For all the above mentioned application, it requires specific licenses for each user to access the information. Based on the purpose of using the application the type of license is chosen. The administrator license is used by the Infor administrator, design license is used by developers and view license is used by users who only required to access the information.

5. Theoretical methodology

This chapter describes the comparison of the process improvement methodologies and analysis for further investigation. The chosen model, which the report will be based on is explained more precisely. Moreover, the theory for the survey will be shortly discussed. It will give an insight on the general structure of the research.

Before starting the actual research, it is important to consider theoretical frameworks, which are applicable for the topic. The focus of this report is process improvements, specifically – the automation of operational reporting process. Therefore, the following two most popular models have been compared: Lean manufacturing and Six Sigma.

Six Sigma

Six Sigma is a quality control program developed in 1986 by Motorola with a great emphasize on cycle time improvement and the reduction of manufacturing defects to a level of no more than 3.4 per million. The essential goal of Six Sigma is to eliminate waste and defects, thus improving quality and efficiency, by streamlining and improving all business processes. While it was first designed for use in manufacturing, practitioners quickly discovered that Six Sigma could be useful and applicable throughout all aspects of a business - from customer support to management to service delivery. Through a rigid and structured investigation methodology, the process elements are more completely understood. Here, the assumption is the outcome of the entire process will be improved by reducing the variation of various elements.

Six Sigma includes five steps: define, measure, analyze, improve and control. The "define" step involves the process by identifying the customers and their problems. For the next step, the focus is on "measuring" the process by collecting the required data. Once the data is collected, it is "analyzed" which is the third step. In this step, the intent is to convert the raw data into meaningful information that provides insights into the process. The fourth step is to "improve" the process. Solutions to the problem are developed, and changes are made to the process. Here, the company will be able to judge whether the changes are beneficial, or if further changes are required. If the process is performing at a desired level, then it is put under "control". This is also the last step of Six Sigma.

Essentially, Six Sigma and Lean systems have the same goal. Both methodologies seek to create the most efficient system possible and eliminate waste, but they take different approaches toward how achieving this goal. In simplest terms, the main difference between Lean and Six Sigma is that they identify the root cause of waste differently.

Lean practitioners believe that waste comes from unnecessary steps in the production process that do not add value to the finished product, while Six Sigma proponents assert that waste results from variation within the process. Undoubtedly, there is truth in both of these assessments, which is why both Six Sigma and Lean methodologies have been so successful in improving overall business performance in different fields.

However, Six Sigma does not focus on the flow of the process which is very important on efficiently creating an automated process. As a result, Lean methodology, which focuses on the speed, waste and bottlenecks of the process has been analyzed. Lean emphasizes on reducing the amount of time between activities. The shorter the cycle time, the more cycles can be completed in a given amount of time. Moreover, the methodology is suitable for automating processes as the analysis is applicable.

For defining a suitable solution to create a framework for TIP Trailer Services' transition, the Lean Methodology has been chosen as a relevant framework for the analysis. The methodology will help to provide a base for the research as well as to execute it in a consistent way.

Lean manufacturing

Lean manufacturing or lean production, is often referred as simply 'lean'. It is used for eliminating the waste within manufacturing system or process. The customer or end-user is the main focus in this methodology. Therefore, the working is done from the perspective of the customer who uses a product of service – value – is any action that a customer is willing to pay.

Lean principles are derived from the Japanese manufacturing industry. For the first time, the term was used by John Krafcik in his 1988 article, "Triumph of the Lean Production System," on his master's thesis at MIT Sloan School of Management. However, the second approach for lean manufacturing was promoted by Toyota, called The Toyota Way, in which the focus is on improving the smoothness of work, thereby steadily eliminating waste (muda). The history of Toyota's developments towards the lean has started at the turn of the 20th century with Sakichi Toyda. It all started in a textile factory with looms that stopped working when a thread broke. This became the starting point of autonomation or described as "intelligent automation". In 1934, Toyota moved from textiles to producing its first car. The founder of Toyota Motor Corporation was Kiichrio Toyoda. Back then, he directed the engine casting work and discovered many problems in their manufacture. Toyoda decided that the repairing of poor quality must stop. Instead, to do an intense study of each stage of the process. Here, he developed the so called Kaizen for "improvement". This refers to activities that continuously improve all functions and involve all employees, starting from the CEO to the assembly line workers.

The post war economy of Japan caused low levels of demand. Therefore, the mass production on the lowest cost per item was not applicable. Taiichi Ohno a Japanese industrial engineer and business man, recognized that the scheduling of work should not be driven by sales or production target but by actual sales. Taking into consideration the financial situation during this period, over-production had to be avoided. Hence, the notion Pull was introduced to underpin production scheduling. Taichi, considered as the father of Toyota Production System (TPS), was the first one at Toyota to put these theme together. Since that time, the lean production has principally been developed from the TPS.

The goal of lean is to eliminate waste. Toyota has defined three broad of types waste: muda, muri, and muda. However, for this research the focus will be upon the muda types of waste. For increasing the efficiency at TIP, the wastes in the transition process should be identified. In order to do so, each step will be analyzed in detail and looked from the client's perspective.

Firstly, below can be found the 7 wastages identified in Lean methodology:

1. Transport
2. Inventory
3. Motion
4. Waiting
5. Overproduction
6. Over Processing
7. Defects

The first waste concerns the products which are not actually required to perform the processing. Inventory waste is regarding all components which are not being processed. The First-in-First-out (FIFO) practice is applied to maintain a precise production and conveyance sequence by ensuring that the first part to enter the process is also the first part to exit.

Motion waste is about equipment or people moving or walking more than it is required to perform the processing. Fourth waste – waiting – is waiting for the next production step. Producing ahead of demand means overproduction waste. Whereas, producing a process or product with defects means defects waste. This can be eliminated by using Zero-Defect theory. The main concept of this theory is no waste existing in a project. Here, waste refers to all unproductive processes, employees, tools etc. It also closely connects with "right first time" phrase. This means that every project should be perfect at every first time itself.

Being able to identify each type of waste in the reporting process will determine the next action which should be taken from TIP to improve the efficiency. To eliminate waste, it is important to understand exactly what waste is and where it exists. This will be done by following the process of lean which is divided into 5 steps: identify value, identify value stream, flow, pull and perfection.

Step 1 Identify value – From internal and external customers (users) standpoints, the determination of which features create value in the product is made. Value is expressed in terms of how the specific product meets the customer's needs, at a specific time. Specific products or services are evaluated on which features to add.

Step 2 Identify value stream – Once the value is identified, activities that contribute value are identified. The value stream is made by the entire sequence of activities. Then an evaluation is made whether activities that do not contribute to the product are necessary. Necessary operations are defined as being an essential part of the business or being a prerequisite to other value add activities. All other nonvalue added activities are removed from the process.

Step 3 Improve Flow – Once the value added activities are identified, then improvement efforts are directed toward making the activities flow. Flow is the uninterrupted movement of product through the system to the customer.

Step 4 – Allow customer pull - After waste is removed and flow established, efforts turn to letting the customer pull the product through the process.

Step 5 – Work toward perfection – This effort is the repeated and constant attempt to remove nonvalue activity, improve flow and satisfy customers deliver needs.

Lean principles will be used to lean the process of automating reports in INFOR. This is the main objective that TIP is implementing INFOR. However, the process is very complex and time-consuming. Thus, analysis will be conducted for each step. The bottlenecks will be identified and eliminated. The outcomes will help INFOR project team to deliver the promised products to its users and ensure an efficient operational reporting process.

Survey

In addition to the model described above, the base for the theoretical framework will be a survey. As previously mentioned in the preliminary investigation, the survey would be sent out to Business Intelligence department. Here the process of creating and sending out the survey will be outlined *figure 2*.

The **survey** describes the process of selecting sample of elements of a target audience. This is a technique, which allows to contact people and find out their attitudes to the specific topic. The survey can be designed in a form of questionnaire. Firstly, the objectives of the survey are set, secondly the audience is chosen. The step after the previous ones are completed is to design the questions. The questions will be two types – open questions and multiple-choice. The open questions are providing the opportunity for the respondent to express their opinion in regards to the certain topic.

The multiple-choice questions are willing to show the percentage of which alternatives of the answers have been chosen the most. Based on the findings the overview on the subject is provided. According to the results, which the respondents provide, the analysis should be executed. It can be done in a form of graphs, pie- charts and tables.
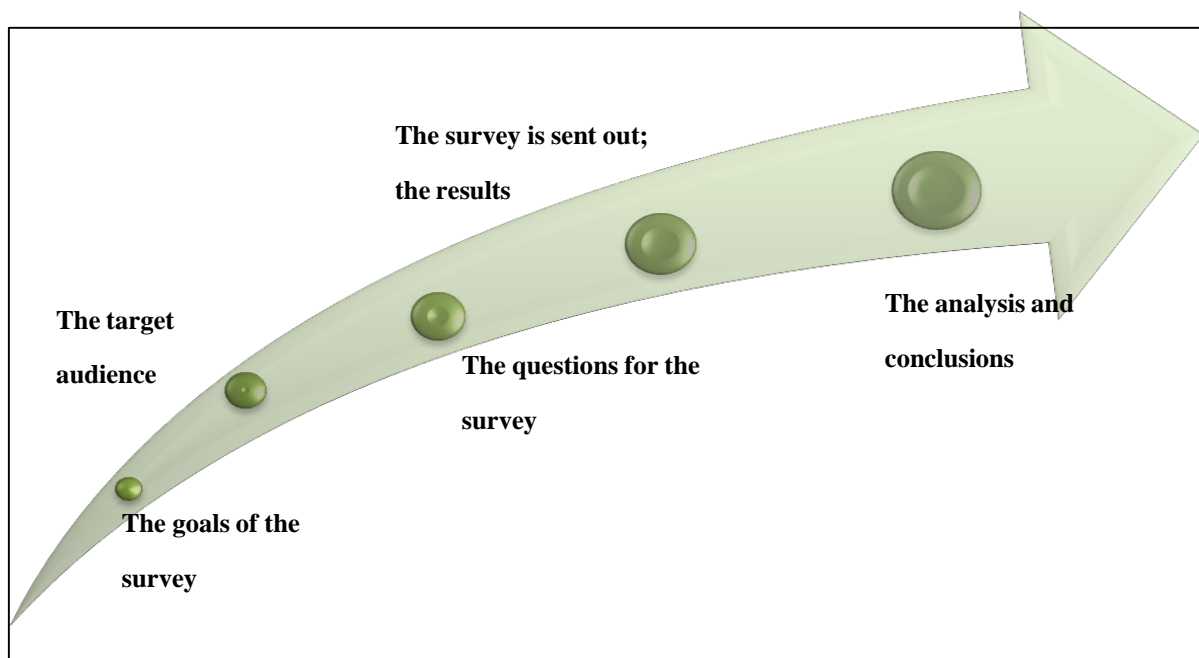
The survey is sent out;

the results

The target

audience

The questions for the

survey

The analysis and

conclusions

The goals of the

survey

Figure 2. The process of the survey design Source: own illustration

6. Current operational reporting process analysis at TIP

RQ1: What is the current situation of TIP Trailer Services in terms of operational reporting process? The upcoming chapter illustrates an analysis of the current operational reporting process represented in quantitative data. These data can be seen as a starting point for TIP in order to review to what extent Safari lacks the required capabilities to improve efficiency.

6.1 Safari analysis

Sub question: What are the reasons that Safari lacked the required capabilities of improving efficiency in the reporting process? This chapter investigates TIP's current operational reporting process with a focus on their BI tool called Safari. First the most important capabilities that Safari lacked will be analyzed, based on the outcomes the KPI's for measuring the efficiency will be outlined. The outcomes will be used as a benchmark in the following chapters to improve efficiency while transitioning.

High-quality internal reporting is critical for all organizations. Nowadays, this is achieved by implementing new Business Intelligence systems that interact with the business environment and ensure economic growth to the organization. These systems provide solutions that can help companies identify business opportunities by being more efficient and cost effective. Also, better reporting process within the company means eliminating the "guess decisions" which are usually without a solid background information. With a fast moving environment, for the last few years TIP hasn't successfully fulfilled these achievements by using Safari.

Therefore, the company is in the phase of implementing a new BI tool which will allow them to achieve their goals by automating operational reports. In order to evaluate the benefits of Infor and meet the expectations of future users, analysis of Safari's capabilities and the effect on day-to-day activities have been conducted by the means of interview and surveys. (**Appendix 4 & 5).** The following analysis are presented.

6.1.1 Analysis of the internal survey results

For a more in-depth look at the situation of TIP Trailers Services in terms of operational reporting process, a survey has been creating for sending it out internally. It was sent out to the Safari users from the following departments: FP&A, Controllership, Business Intelligence and Operations. The questions of the survey can be found in **Appendix 4.** The responsive rate in total was 80%, where 39 out 45 responded.

The main goals of the survey were to gather information for providing recommendations regarding: the capabilities and users' expectations which need to be met by the implementation of the new BI software. The participants of the survey are all from main departments that engage with Safari in daily or weekly basis. 36% of the total response is coming from BI, 28% from FP&A, 23% Operations and 13% Controllership. The results of the survey can be found in **Appendix 5**. This shows that the biggest teams which are using Safari are BI and FP&A.

The second question focuses on the capabilities of Safari. The results will aim to clearly measure the current operational reporting and identify the bottlenecks which need to be overcome by the implementation of the Infor. User-friendly is the poorest capability of Safari with around 50% very poor. Which is followed by the speed of system with around 29% very poor and 60% poor, and clarity of the data 43% poor. In-depth analysis regarding this question will be provided later in this chapter.

The third question takes a look on the time of data analysis in Safari. The question was asked in order to define how much time is spent on analyzing data in Safari. There were several alternatives of answers: 0-1 hour, 1-3 hours or more than 3 hours. The majority of answers were 0-1 – around 68%, 1-3 hours – around 28% and more than 3 hours – around 4%.

The fourth question relates closely to the third one. Basically, to define how much time is spent on manual work. Most of the respondents said that they spend 1-3 hours – about 64% to complete a query. 36% said it takes 0-1 hour and no one said it takes more than 3 hours. Therefore, the focus would be for TIP Trailers services on how to allocate this time of manual work into data analysis once the Infor is implemented.

The fifth question was asked in order to define Safari's biggest advantages and disadvantages. Two biggest advantages were listed as easy to use and confident. This answers come due to the long usage of Safari. In the other hand, two biggest disadvantages are speed of Safari – according to 32 respondents out of the total of 39, and lack of ad-hoc reports – 28 respondents. Since Infor has the ad hoc feature, the implementation will meet the expectations of most users.

The sixth question relates to the users' feelings towards the implementation of Infor. This question was asked in order to define the excitement and trustiness with regards to the transition. Most of the respondents said that they are confident – about 51%, the other 46% said they are extremely confident and 3% said that they're not sure. This means that TIP has the support and confidence of the main future Infor's users. TIP needs to focus on keeping this support from its employees by meeting their requirements.

The question seventh was asked to define the expectations with respect to Infor's implementation. The analysis on this question can be found later in this chapter.

The eighth and ninth question focus on the communication part of the transition process. Most of the respondents said that they haven't been enough informed about the transition with no – about 67% and yes with 33%.

The ninth question had various alternatives as an answer. They would like to be informed more on the capabilities of the system – about 40%, 10% about project related information, 5% about reasons of transition. Whereas 45% for other reasons. The answers were "about the lead team", "about the first reports that will be automated", "provide information in weekly basis", "benefits of implementation", "communication of challenges", "fist delivery expected" and so on.

6.1.2 Functionality of Safari

In the following, the importance of functionality for a BI software is outlined. Then, functional limitations of Safari are shown. Finally, their impact on operational reporting efficiency is illustrated.

Functionality is the ability of the system to do the work for which it was intended. Providing accountable information through organized reporting systems leads to improving decision-making and control (Ewert and Wagenhofer, 2007). In today's competitive economy, companies use diverse business intelligence systems deeply integrated into their organizations to support planning, budgeting and performance measurement (Paul Alpar, 2015). These systems are tools and solutions which help managers to better understand their business environment and boost the overall business performance.

TIP has been using Safari for more than 10 years. At the beginning, the software has been useful for different business purposes such as; data collection, management and analysis. The long usage of Safari has created a comfort among the users. According to the BI leader Ian Paxton, the long usage of Safari has made the main users feel confident toward the software. The interview can be found in **Appendix 6**. This is why, users know advantages and disadvantages of a software which can help to set-up expectations for a particular situation. Whereas, not knowing what to expect makes the software unreliable. In this sense, TIP employees find Safari

to be a reliable software, which represents the frequency of crashes of the program and variances in the data. The results can be seen in figure 2.

However, Safari's limitations have been growing with the growth of the business. TIP is involved in a market environment where information has to flow from one region to another in a fast and secured way. The need for a BI system that can provide a proper flow of information is crucial for the continuous growth of the company. Based on the BI leader, Safari lacks on adding value to the business **Appendix 6**. According to (Cini, 2011), a good BI tool can help companies decipher the data and add strategic value to their organization. Also, for TIP to determine whether the existing tool is adding value to the business; a clear distinction of what needs to be accomplished and a set-up of goals needs to be considered. In these terms, Safari's functionality does not comply with TIP's aim which is to fully automate operational reports. This is affecting operational reporting efficiency by challenging users to haunt down data errors, wasting time on reconciliation and so on. Additionally, unavailability of ad hoc reports from users' side is seen as huge disadvantage for the organization (Bornak, 2012).
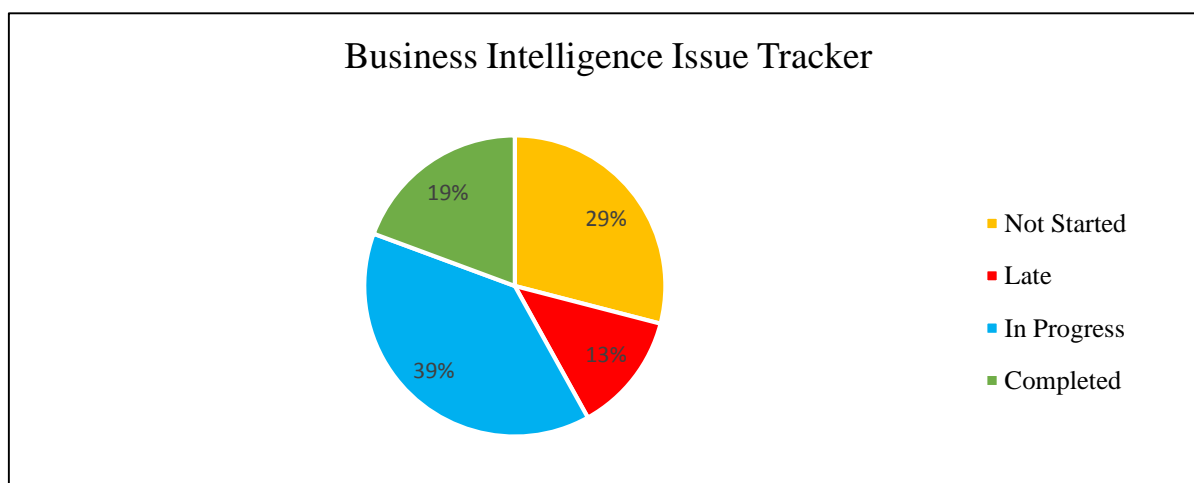
Figure 3. **BI Issue Tracker (source: BI Planner)**

As mentioned earlier, the main users consider the lack of Ad hoc reports as one of Safaris' biggest disadvantage. This functionality would speed the report creation process by empowering end users to work with their reports independent of developers. Currently, there is a lot of lengthy back and forth cycle between end users and IT to achieve a final report. Since, TIP's IT team is mainly located in India, the communication barriers sometimes make this process even harder.

This is directly affecting the efficiency of BI department to resolve the issues which have been addressed mainly by operational analysts from different regions. The issues are mostly related to the operational reports which are currently send out from Safari, where users find errors on formulas, data quality, requests for changes – mainly human errors. As seen from figure 3, from the total of 93 issues only 18 of them have been resolved from the beginning of 2016. The remaining 75 are split between in progress, not started or late. BI leader stated that human errors issues which contain around 55% of the whole issues tracker, will be eliminated once the implementation of INFOR is completed.

Also, the lack of dashboards and static reports is causing the data to be portrayed in a very unstructured and disorganized way. In the system all reports are structured in a form of

spreadsheets, which contributes on complicating the analysis process. That has a significant impact on the analyst productivity levels and overall performance.

6.1.3 User Friendly

Besides the functionality, the positive experience of the users towards a software is very important. Being easy for users to prepare, analyze and visualize complex data increases sustainability and efficiency. It adds up even more value to the business, if a system provides an end-to-end solution for tackling growing data sets from multiple sources. That comes out-of-the-box with the ability to crunch huge amount of data and support many users - all on a single commodity server.

First, Safari doesn't come as a full package software. There is an involvement of third-party software (Microsoft Excel) needed which makes the reporting process complex and time-consuming. Users agree that the current reporting process is not lean enough. Therefore, their expectations towards INFOR's implementation lie on the few usage requirement of Microsoft Excel.

Second, the daily engagement with Safari hasn't changed the way how the users feel towards the software. More than 50% of the users describe Safari as very poor from user-friendly perspective and around 22% find it poor as shown in *figure 4*. The software doesn't have any updates which means that users have been exposed to the same issue for years now. If an issue occurs, it will become part of the software.

The BI leader states that the current reporting process is ineffectively impacting on innovation. This enables TIP to take advantage from its competitors and offer special services for its customers.
All in all, the usage of complex and out dated software has been causing confusion and lack of innovation among TIP employees which directly impacts the reporting efficiency.
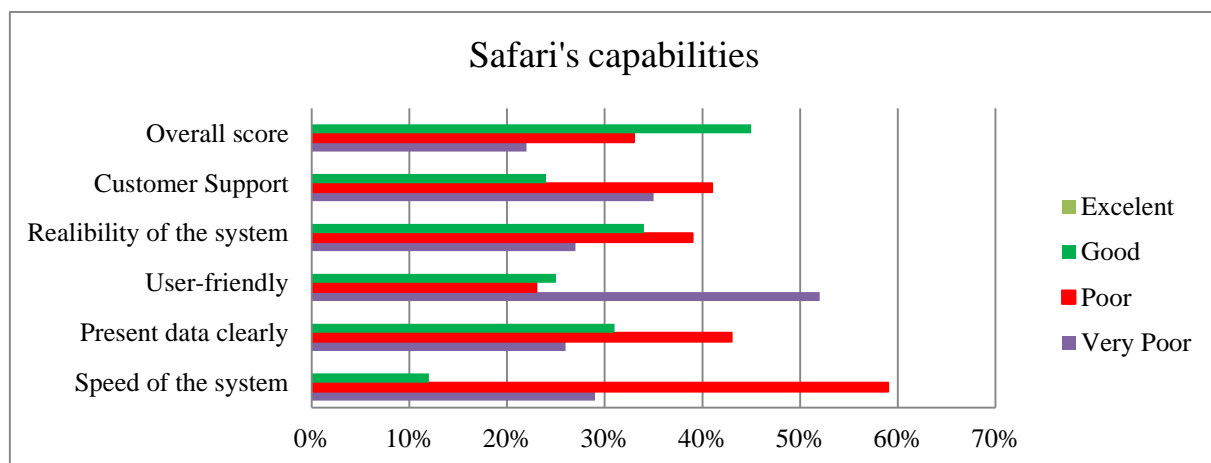

Figure 4 **Safari's Capabilities Source: Own illustration**

6.1.4 Other capabilities

Here, the analysis of the remaining capabilities which Safari is lacking to improve the operational reporting efficiency will be examined.

Based on users' responses, the speed of the software is one of the biggest capabilities that Safari is lacking. Results show the rate of Safari's speed with almost 60% poor and 28% very poor

(*figure 4*). First, the issue comes from Safari being a browser tool. The huge amount of data which is sorted in TIP's data warehouse is being accessed through a browser which makes the process inconvenient. As mentioned earlier, more than 64% of the users spent from 1-3 hours weekly on setting up queries in SAFARI. A query is the process of setting up the report requirements and exporting it into a Microsoft extension or a PDF file.

In total an approximation of 294.4[3] hours per month are spent on running queries. Successful implementation of Infor would mean extra 294.4 hours allocated for analysis or other tasks because everything will be automated.

For the purpose of this analysis, IT, BI departments and external consultant will be referred as the customer support of Safari. Customer support is rated 32% very poor. This is because the company is not provided with any customer support from the supplier. Here, all the experience and knowledge transfer comes internally which is cost-saving. However, it is not sustainable solution for two main reasons. First, employees from IT and BI department may leave the company and it could take more time for their replacement to come up with solutions. Second, different locations and time zones make it harder for IT team to be flexible. Currently, they provide support through tickets which have to be raised in their website (**Appendix 17**). There, the requestor has to clearly state the issue and what needs to be fixed. Users of Safari claim that sometimes it is impossible to explain the issue without talking through the phone and sharing screens. This adds up to the backlog.

To conclude, unsolved issues in time, lead to delays on decision-making due to the missing information. Or, if the information is sent with an error this may lead to wrong decision-making. Both ways the efficiency of operational reporting process is affected.

6.2 Manual adjustments required for the current operational reporting
Sub question: How many hours are spent in manual adjustments of the current operational reports?

In the following, the manual adjustments in the current situation are identified. Then, the time spent on manual adjustments is measured. Finally, the potential productivity gains are estimated after the implementation of INFOR.

To start, the overall operational reporting process requires a large amount of time for individuals to produce reports. This is because of 159[4] operational reports which are being sent out monthly from different departments (**Appendix 9**). These reports contain different information *e.g.* AUM is a report that shows the number of assets under management on a branch, country and region basis. The aim of the report is to identify the revenue coming in from maintaining these assets. Interviews show that manual adjustments are done for:
- Reconciling data
- Correcting formulas and running macros
- Copying data from one excel sheet to another
- Adjusting and refreshing Pivot tables
- Creating e-mail templates for sending the reports

On average, Safari user who is producing reports spends on average 4.5 hours for reporting process per week (on average 2.2 hours on manual adjustments and 2.3 hours on running

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[3] **32** Safari users' x 2.3 hours in average spent per week on running the query equals 73.8 hours per week or 294.4 per month

[4] The list was provided by Business Leader of TIP – Ian Paxton

queries) check table 1. On monthly basis, a user spends 18 hours on reporting process. In total, 32 identified users spend 576 hours per month. In contrast, they spend only approximately 2 hours on analyzing or improving reports. In total, 256 hours per month.

	AVG hours per user	Total amount for all users	AVG hours per user	Total amount for all users	Pecentage
Manual Adjustments	2.2 hours/week	70.4 hours/week	8.8 hours/month	281.6 hours/month	34%
Runing Queries	2.3 hours/week	73.6 hours/week	9.2 hours/month	294.4 hours/month	35%
Total of Reporting Process	4.5 hours/week	144 hours/week	18 hours/month	576 hours/month	69%
Analyzing reports	2 hours/week	64 hours/week	8 hours/month	256 hours/month	31%

Table 1. Total amount of hours spent for reporting process and analysis (own illustration)

As seen from the chart (*figure 5*), 69% of the total time is spend on reporting process (manual adjustments, queries), and only 31% on analyzing the reports and improving them.
Through the interviews and surveys, it was possible to collect internal information on the different systems as well as users' opinions on the transition that the business has started.
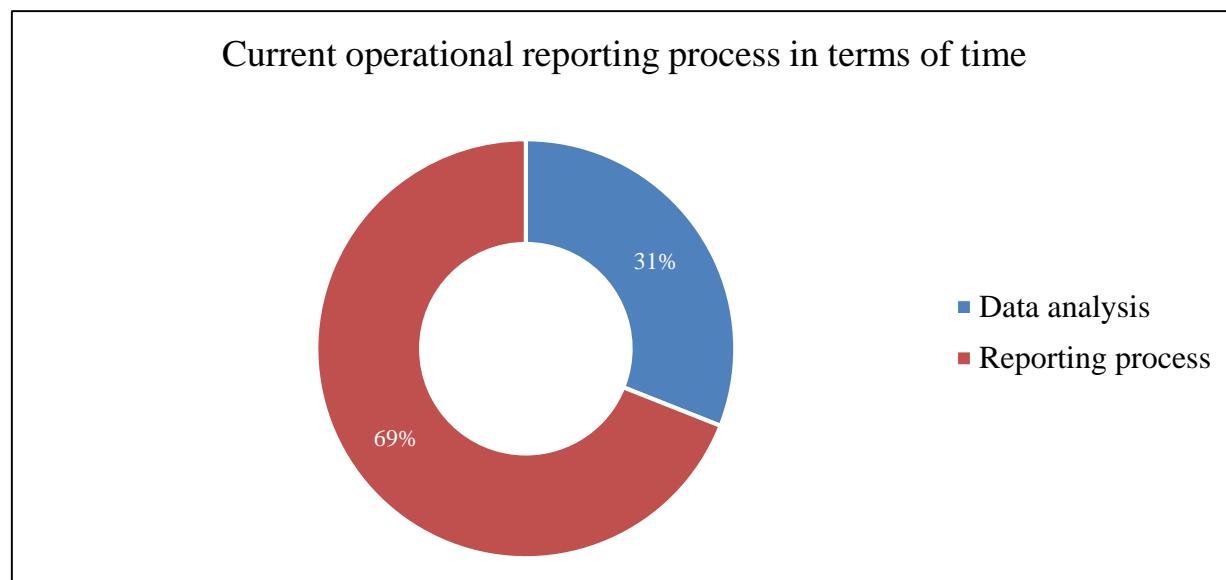
Figure 5. **Currents state in terms of time per month Source: Own Illustration**

To conclude, the analysis shows a clear current state of operational reporting process at TIP by using Safari as main BI tool. Users described that the lack of functionality, speed, excessive reports and the lack of centralized control are causing bottlenecks as well as inefficiency in their work process. Furthermore, the users' expectations will be analyzed and the interim conclusion based on the findings will be provided.

6.3 Expectations from implementing INFOR

With the regard to the previous outcomes one can say, that Safari lacks the capabilities to improve efficiency of operational reporting process. At the same time, the pressure and high expectations are set from implementation of the new BI tool – INFOR.

As already mentioned, INFOR has been introduced in the company in the beginning of 2015. Since that time, the BI team has completed one project with implementing some report for finance and operations purpose. From the interview with INFOR project manager she states

that the aim was to give users the first feeling of INFOR and its capabilities (**Appendix 7**). After the "testing phase" being successfully completed – the real transition has started at the end of 2015.

In order to successfully transition to its new BI tool, BI team and other people involved in this project have to clearly understand user's needs, expectations and suggestions. As seen from the survey, Infor future users are confident with the transition (**Appendix 5**). These figures are very important for BI team because it shows that TIP's employees are ready to be part of the change. Also, TIP employees were also asked if they think the business has informed them enough about the current situation and the desired BI changes. 67% of the participants don't feel properly informed (Appendix 5). The employees believe that the business could provide more detailed information which will help the integration and acceptance process of the new BI system. The participants highlighted that providing weekly information in a form of newsletters will improve the communication issues the project is experiencing.

Additionally, the participants were asked on which points they would like to be informed. 45% of TIP employees would like to receive information regarding capabilities of the INFOR system (**Appendix 5**). Moreover 40% selected other information such as resolved issues that have been highlighted by the users, information regarding stabilization of the system as well as what type of data is implemented into the system.

Lastly, even though employees haven't been using or interacting with INFOR for a long time, it is of utmost importance to understand their first feelings towards the experience of using INFOR. Thus, the participants were asked to evaluate the INFOR BI system on the same characteristics as SAFARI. The reason for this was to collect data that could support the research for measuring the change in the efficiency levels when users use INFOR. As seen in *figure 6*, speed of the system, user interface and data representation are positively ranked by users.

However, users are still unsatisfied with the reliability of the system and the customer support. Since the system is still in the stabilization phase crashes and variances in the data are experienced in the process, which is decreasing the confidential levels of the users. Customer support is still a ranked low, because of the limited resources the INFOR team is receiving, providing slow responses and solutions to issues raised by users. Still participants are positive about the overall picture of INFOR of close to 60%.
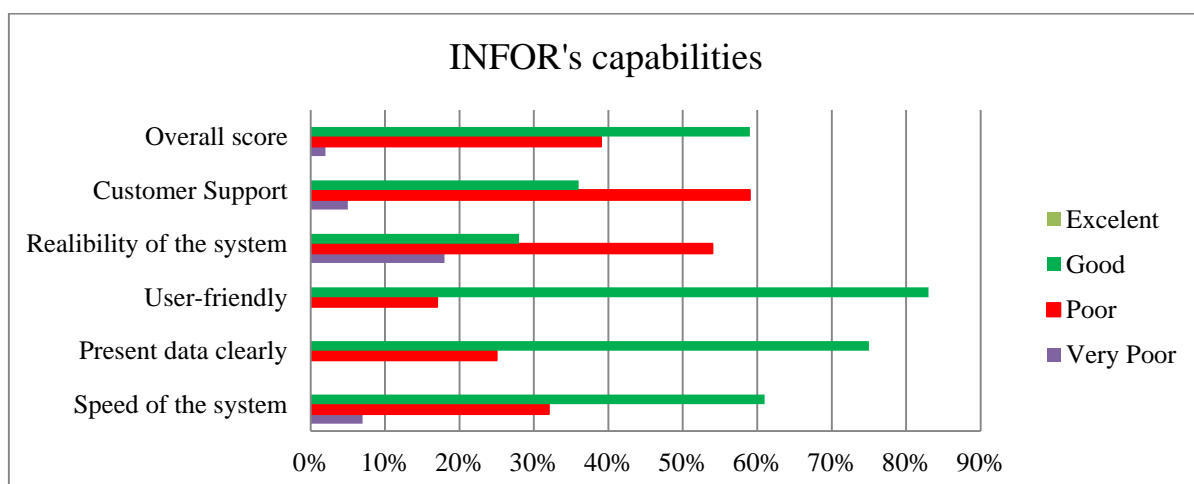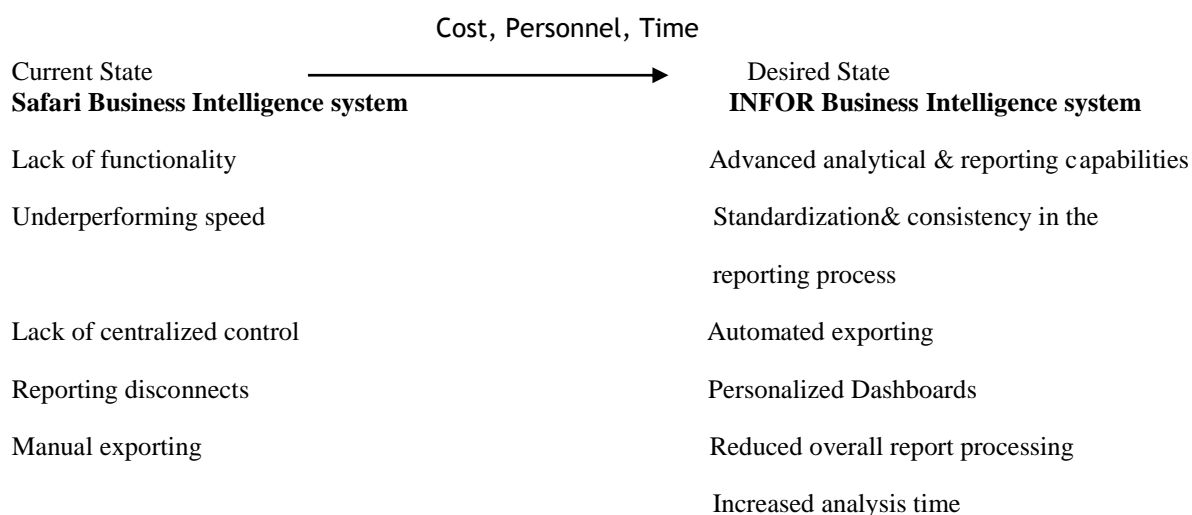

Figure 6. **INFOR Capabilities (own illustration)**

After having evaluated the first impression of the users towards INFOR, the analysis and outcomes give the INFOR project team (BI and IT department) a better understanding of users' expectation from the transition process. It sharpens the focus on the implementation requirements and the way of how the communication should be done.

Below you can find the conceptual model of Current State Vs Desired State.

Cost, Personnel, Time

Current State	Desired State
Safari Business Intelligence system	**INFOR Business Intelligence system**
Lack of functionality	Advanced analytical & reporting capabilities
Underperforming speed	Standardization& consistency in the reporting process
Lack of centralized control	Automated exporting
Reporting disconnects	Personalized Dashboards
Manual exporting	Reduced overall report processing
	Increased analysis time

Interim conclusion Chapter 6

In this chapter the current operational reporting process at TIP Trailers Services has been analyzed. The capabilities of the current BI tool Safari have been examined. The outcomes will be set as a benchmark for the implementation of Infor. Main users view Safari as a reliable data source. However, the poor speed of the software, lack of customer support and user-friendly has affected the efficiency of operational reporting. This has impacted the overall performance of the logistics company by missing on opportunities and innovation. There is twice as much time spent on manual adjustments and queries than in data analysis. Therefore, the willingness of TIP Trailers Services for transitioning to the new BI tool is the crucial strength for moving forward. The main reason for transition is the automation of operational reporting. The automation process will be analyzed later as part of the main transition framework.

By continuing the analysis of the current operational situation at TIP Trailers Services, a detailed data set with regards to the expectations of Infor's implementation has been analyzed and presented. A positive overall picture with respect to Infor's performance has been created by the first engagement with the users. However, BI team should continue to fulfill users' needs by enhancing their communication throughout the organization and providing more trainings. Following the current results from the research, firstly cost and benefits analysis will be presented. Further the transition framework to achieve this benefits will be designed.

7. Cost-Benefit Analysis

RQ2: What would be the generated costs in the process of integrating INFOR? In the following section, Cost-Benefit analysis module will be used to analyze the costs generated on the implementation of INFOR. Then, the remainder of the potential benefits that can be brought to the organization will be outlined. Finally, an overall picture of the analysis will be drawn

7.1 Cost analysis

In the following section, costs that have and will potentially occur from the implementation of INFOR will be presented for the year 2016. Then, an analysis of these costs will be drawn. Finally, the outcomes will be used on the analysis of the next chapter for Lean theory.

The cost of implementing INFOR is not only limited to the purchasing cost of the software. The cost of INFOR's implementation extends beyond this, it covers a wider range of expenses, some of which are directly calculated while others are combined with other costs.

Table 2 represents the initial investment TIP will need to make in the integration of INFOR. Detailed information with regards to the costs shown below can be found in **Appendix 10 & 11.**

Software & Hardware	
INFOR software (€)	345,000
Licenses (€)	135,854
Hardware costs (€)	650,000
HR Costs	
INFOR consultancy (€)	357,600
Internal costs (€)	403,200
Training costs (€)	15,000
Unexpected costs (€)	75,000
Total Costs (€)	1,906,654

Table 2. Cost for implementation of INFOR (own illustration)

The costs are divided into two main sections: Software & Hardware and HR Costs.

7.1.1 Software and Hardware costs

The initial cost of purchasing for software is 345,000€, which is easier to quantify and the exact figures has been directly calculated from the actual purchase document. The purchase of INFOR is a single investment being made for the software.

The license costs have been estimated for initial 80 users for 2016 which sums up to 135,854€ or 1,698.17€ per user (**Appendix 7**). For Safari, the license for every user isn't required. There is a common account for every department. However, for INFOR this is not possible. Every user needs to have his/her own account to access the information. 80[5] users are estimated from the number of team members from each department that requires the information for operational reporting purposes such as; Financial Planning and Analysis (FP&A). controllership, operations, BI and Senior Leadership Team (SLT) etc. INFOR project team has to be aware of the fact that the costs will increase once INFOR starts to fully replace Safari as a main BI system.

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[5] The number of licenses was provided by Infor project manager – Daniella Buricescu

Hardware costs consist of servers which will support the system and will store the data. These costs are fixed, but could potentially increase in the future if the company decides to upgrade the BI or in case the data storage is inefficient.

Generally, the above-mentioned costs are direct costs and it is easy for TIP to keep track on them. From the interview with Infor project manager, she states that potential cost-savings for TIP could be done from the purchase of licenses **Appendix 7**. INFOR as supplier, provides discounts if the purchase is in bigger amounts (30+) up to 10%. Besides, the 80 licenses which were purchased, currently BI team is purchasing licenses in smaller amount. Thus, the price of a license would be 1,698.17€ instead of the actual price 1,867.98€. For 30 licenses TIP could save 5,094.51€. This is why, for hardware and software costs, TIP can only reduce costs by purchasing bigger amount of licenses in one go.

7.1.2 Human Resources Costs

In the following, HR costs will be analyzed. Then, potential costs-savings will be presented. Later, the analysis will be used for lean theory.

The HR costs have been divided into sub-categories: INFOR consultancy costs, internal costs, training costs and unexpected costs.

Infor consultancy costs

The consultancy costs from INFOR have been estimated based on the current usage of the service. According to the Infor project manager, in the current integration process INFOR consultants are very often needed **Appendix 7**. TIP is in the stabilization phase of the software, and is regularly experiencing system failures which are causing the need for that service. Currently, TIP has two INFOR experts working 4 days per week which are paid 12,400€ per month or 148,900€ annually. They are involved in the process of cube buildings and ensuring data-quality. At the same time, they are providing knowledge transfer session for the rest of the BI and IT team. Moreover, there are weekly meeting with INFOR team regards the project flow. They provide assistance on strategic plans such as; setting-up realistic deadlines and achievable objectives. Besides, TIP has an Infor consultant specifically for developing and building dashboards. The costs incurred here for TIP are 64,000€.

Overall, the estimated costs for Infor consultancy for the year 2016 are 357,600€ (**Appendix 10).** These costs are expected to decrease drastically after INFOR is successfully integrated. Later in the chapter, the strategy for cost-saving through trainings will be presented.

Internal costs

Internal costs represent salaries and benefits of the personnel fully involved in the integration project. The estimated internal costs for 2016 are 403,200 (*Table 2)*. The INFOR project team is composed of 18 employees – 4 IT employees, 5 interns, 6 BI employees, 2 managers and one project manager. Detailed information can be found in **Appendix 11**. The costs information was provided by HR on average basis due to confidentiality purposes. As mentioned before, IT team is an offshore team located in India. This means that the salaries are considerably lower than in Europe. The average IT salary is 650€. For 4 IT employees which support the INFOR project team with daily activities, the costs are 2,600€ or annually 31,200€. Interns make a big part of the INFOR project team. The costs for five interns in a year are 30,000€ or 500€ per month. The costs for two managers for a year sum to 108,000€. Additionally, the costs for the Infor project manager are 93,000€. From the calculation BI leader and data scientist have been excluded because of the simultaneously involvement on other projects as well.

Training costs and unexpected costs

Implementation of INFOR includes trainings which will be provided to its main users. In the upcoming chapter, a detailed training plan will be provided. The current estimation is 15,000[6]€. It is based on 1 moth training of the BI team in INFOR. The costs for each member is 1,000€. In total the number of Infor team members is 18, however for 3 employees it was offered for free. The purpose of the training is to enhance the BI team's expertise on the software. After this is completed, then BI team will provide trainings for the rest of the company. For employees who just require only the basic understanding and usage of INFOR, it is recommended for TIP to give this project to BI interns. Since, interns are big part of the team, this responsibility will motivate interns who might potentially be future employees of the company. Also, it is cost-saving for TIP as well.

Due to the size and complexity of the project team needs to take into consideration expansion of the team. Therefore, the calculation includes the unexpected costs of 75,000€ which may occur during the integration process. This cost may be allocated to hire a new employee, purchase extra licenses or require more support from Infor consultants.

As shown in the table, the total estimated costs for transitioning to INFOR are close to 2 million. Based on the Infor project manager, the overall budget of the project INFOR team is 2,2 million **(Appendix 7)**. Analysis shown will help TIP to keep track on their costs. Also, to ensure that costs do not exceed the project budget. Furthermore, to justify the investments that have been made and will be made, the cost analysis will be compared with the benefits that the newly developed BI software will bring to the organization.

Finally, it is recommended for INFOR project team to allocate its resources wisely in order to achieve independency from INFOR consultants as soon as possible. Also, engagement of interns in the training phase it is advisable. This will help TIP to increase cost-savings.

7.2 Benefit analysis

In the following, benefits of implementing INFOR for TIP will be identified and explained. The purpose of the benefit analysis is to outweigh the earlier mentioned costs and to address TIP's employees that transition will make their daily tasks easier and add value to the business.

With the integration of INFOR, TIP will aim at improving the issues and gaps which were identified in Chapter 6. These distortions were mainly caused by the lack of Safari's capabilities to increase operational reporting efficiency. The main benefit of INFOR is the ability to fully automate the exporting process of all the operational reports required by the business. The software provides scheduling options which could be programmed to send reports on previously set time and date without any physical input. The participants who need to receive the reports will get the information in their mailbox without any delays. As previously calculated, currently TIP is spending 576 hours on reporting process (manual adjustments and queries) per month. If TIP manages to fully transition to INFOR 576 hours per month can be allocated for other purposes. In terms of cost-savings this approximately equals to 107,136€[7]. This helps to generate more time on analysis and building new value added reports in INFOR. Analysis and innovation will help the business to increase its operational reporting efficiency which will directly impact profit figures. From an interview with BI Leader he gave an example on how TIP has lost three deals in one month from the same competitor. After some investigation, they found out that they've been missing relevant information regarding the trailers and competition

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[6] The amount is provided by Project Manager which they agreed with INFOR Team
[7] 576 (hours per month) x 15.5€ (average salary per hour) x 12 (months) = 107,136€

which led to poor pricing efficiency. With the required data, they estimated that 1 out 3 deals would have been signed by TIP. Therefore, having data readily accessible can help management and development teams make the right decisions at the right time.

The next benefit of INFOR is the reporting control across the business. By developing one reporting environment with centralized control, the business will restrict the current practice of employees creating reports by themselves. This process is causing excessive amount of unused reports in the system, significantly affecting the speed of Safari. With INFOR Application Studio, users will be provided with static reports which can be used for finding the information by just few clicks.

Additionally, Ad-hoc reports in INFOR Office+ will be used for finding more detailed information without affecting the overall reporting environment. As mentioned, Ad-hoc reporting will help to decrease backlog for BI and IT team. User can click-drop the required information without any formula or manual adjustment. 55% of the total issues received consist of human-errors *Figure 1 pg. 18* This will be fully eliminated by INFOR. Based on IT and BI team **Appendix 5,** it takes 1-3 hours to resolve an issue. If there are 75 issues and 55% or approximately 41 of them result to be due to human errors, then the potential cost-savings for TIP are about 19,065€[8]. The calculation is based on the information which was provided from IT and BI team. The analysis includes information from the beginning of 2016. Earlier, these teams didn't have any issue trackers **Appendix 6**.

Furthermore, TIP will benefit from increasing the representation of data in INFOR. The program can provide personal dashboards to different functions for quick and easy analysis. These functions can be accessed through smartphones and tabloids. In real time, users can get the information they want. The reports are structured in the way that allow the user to drill down to the lowest account level. This will decrease the dependency of analysts on employees who are currently sending out the reports via e-mails. Sometimes, the deadlines are missed due to various reasons, affecting and delaying the whole operational reporting process.

Overall the advantages of INFOR will bring advanced analysis & reporting capabilities, by standardization of the operational reports through the business. The organization will be able to easily conduct predictive analysis to determine and translate the strategic decisions taken by the business.

Interim conclusion Chapter 7

According to the Cost-Benefit analysis for TIP Trailer Services for the implementation of Infor, the following conclusions can be made. First, the costs of implementing Infor have been divided into two categories: Software & hardware costs and HR costs. Software & hardware costs are fixed costs, therefore are easier to track. Here, it is advisable for the logistics company to purchase the licenses in larger portions (30+) to save up to 10%. For HR Costs, they've been divided into sub-categories to give a better insight on costs which will occur during the transition phase. The highest costs are internal costs followed by Infor consultancy costs. These costs might potentially decrease with the 1-month training of Infor project team. Second, the benefits of transitioning to the new BI tool out weight the costs. 576 hours of manual work will be allocated to data analysis which will increase the operational reporting efficiency. It will also bring reporting control over the business. Finally, 55% of total issues will be eliminated by the implementation of Infor.

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[8] 2.5 hours (average hours for an issue to be resolved) x 41 (average. no of issues per month) x 15.5 (average salary per hour) x 12 (month) =19,065€

8. Lean Theory

RQ3: How should TIP Trailer Services operational reporting look like? In the following, Lean Theory is used to eliminate any waste of time, effort or money in the current TIP's transition plan. This model can be seen as a framework for TIP's transition to its new BI tool – INFOR. The analysis is based on previous findings on current operational reporting, CBA analysis and observation method.

8.1 Automation process

Sub-questions: What are the benefits of the newly develop reporting system? First, the current transition approach in TIP will be explained. Then, the waste areas for each step will be identified, measured and analyzed. Finally, the conclusions concerning leaning each step will be drawn.

In order to achieve the mentioned benefits, INFOR project team has to show results to its users. The deliverables which have been promised to TIP's employees should be brought. As already mention, the main reason for transitioning to INFOR is the ability to automate reports. However, the automation process is very complex and time-consuming. This is repetitive process for each report. Therefore, it is of utmost importance to be structured and reduce the waste in the best way so it doesn't cause any delays for the project. To ensure that transition will take place, the automation process should be successful.

Currently, INFOR project team doesn't have a consistent way of automating reports. There is a lot of confusion and back and forth process which is causing delays on the transition. In order to successfully automate reports, the analysis will provide a "leaned" automation process which consists on the following steps (*figure 7*).
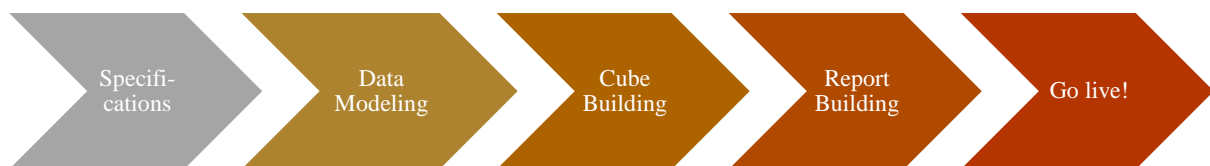
Figure 7 – **Automation process Source: Own Illustration**

The automation process consists of 5 steps. Each of the steps will be analyzed and the lean methodology will be applied to reduce waste and increase the efficiency of the automation process. Moreover, each step will be demonstrated with an example which will give a better insight of an improvement of a process step.

Step 1 – Report Specification

The first step concerns the final look of the report. Basically, the reports which are currently in Safari are redesigned and readjust to be implemented in INFOR. Here, INFOR project team should structure the list of operational reports by their importance. This is also the first step of Lean methodology – identify value - which can be found in chapter 5. The value here is that the reports with the highest importance from the customers' standpoints are identified.

Hence, the reports which are listed as high priority should be the first ones to undergo the process of automation. This can be decided by operational analysts which are Infor's main users. In this way, the most valuable information will be added in INFOR for the business. Currently, INFOR project team doesn't have a consistent way of choosing the right reports to be automated first. This may delay the transition process by not attracting users with the right information.

After the report is chosen, meetings are set with operational analysts and BI leader to discuss potential development of this report. The decisions derive the specification process which is a document containing objects, formulas and measures that make a report. Currently, there is not a standardized way of documenting this information. The interview with data analyst, said that 1 out of 3 reports is sent back due to the errors which are found in these documents. In order to eliminate time and effort, it suggested that INFOR project team creates a template on what and how the required information should be documented. This makes the specifications' document easily readable. After, the document is finalized it should be sent back to the BI leader and operational analysts for approval. Dependency on many people causes delays on the whole process of automating a report. In order to reduce the time of this step, it is crucial to arrange meetings 2 weeks in advance because these individuals have main roles in the organization therefore their schedule is very tight. Here, the process owner should use the zero-defect approach to reduce the waste further as described earlier. This means the document has to be without any mistake because that affects the whole automation process. Poor quality of the report will result in spending extra money for fixing the report. Waiting for approval is the most time consuming part of this step.

Currently it might take that operational analysts delay this step for a day. If this is planned beforehand as recommended, team will be able to finish the specifications for one report in one day or 8 hours.

Here, the example that would best demonstrate the improvement of the process is as follows. Before starting to write the specifications for a certain report, the data analysts chooses the most important report to undergo the automation process based on operational analysts' request (i.e. Utilization report). After that, the report is initially specified based on the existing report in Safari. Then, in two weeks advance a meeting is set with BI leader and operational analysts to discuss further developments. In any time, if there are changes to the current report then this should be documented in the specification's file. After deciding on the final look of the report, then an open discussion with IT team is made. The purpose is to clarify whether everything is possible from technical point of view. If the IT team agrees then this means that the first step is towards the finalization. The final document should contain reports' business purpose, measures, report design and reconciliation method. To move to the next step, it is required to be signed off by BI leader, IT and regional analysts. The visualization of this step can be found in **Appendix 15.**

Step 2 – Data Modeling

After the report is designed and has all the required information on how it will be measured then it is proceeded with the data modeling. Data modeling is the process of ensuring that the requirements for a new application are fully understood. This step is used on the analysis and design phase of TIP's transition project. The documentation of data model shows how the data should be combined in order to have the final report.

TIP has currently a variety of data warehouses which consist on different universes. The complexity of data requires deep understanding of the business to get the way of how it flows. The analysis in TIP's current transition process outline the most time consuming areas:

- Understanding the flow of the data
- Finding out where the data is sorted
- Maintaining data models

Due to unstructured process of the data modeling at TIP a lot of issues occur when the information of a report is send out for programming. Back and forth meetings between IT and data analysts. Estimated wasted hours are approximately 4 hours per report. This is all coming because there is not enough support provided for data analyst from the business side. INFOR project team has to be aware that before the data modeling goes for programming the document needs to be sent to the BI leader or operational analyst for approval. This will ensure that the "product" has zero defects.

Besides, there is overproduction waste present in this step. Data analyst doesn't have a clear documentation of what data is currently in INFOR cubes. Therefore, that might lead to creating new cubes instead of integrating them in one. To prevent the risk of extra effort for BI and IT team, it is recommended that an intern to document all objects that are currently in INFOR's cubes. This will help the data analyst to have pre-checks whether there is a possibility to just add information in the existing cubes, or to decide for creating a new cube. Also, it will ensure sustainability of a process in case of data analyst replacement, the process will continue smoothly.

Finally, engaging the business knowledge and clear structure in this step will help BI team finish the data model within one day, and prevent back and forth discussion which are time-consuming. As shown previously, end-users have rated INFOR with more than 50% poor in terms of reliability. This step will enhance quality and reliability of data, which will become a real asset of TIP.

To illustrate this step, the same example will follow. After the specification file for Utilization report is completed, it is sent to data model analyst. Ideally, the file should have all the "ingredients" required to build the data model. The data analyst will check from the specifications file what are the measures for this report and map them to TIP's data warehouse **(Appendix 16).** The documentation of all measures will be used by the data model analyst for pre-checks. Here, the reports with the most common measures end up in the same cube to reduce the overproduction. Example would be if two report relate to units like Units on Rent (which shows how many units are on rent) and Sitting Units (which shows how many units are sitting) then they are likely to be built in the same cube. After the data model is completed, a meeting with IT team is arranged to discuss the technical part. If both parties agree, then the file with Specifications (step 1) and Data model (step 2) is sent for cube building.

Step 3 – Cube Building

After the data model is finished, then the cube building process starts. This is the most complex and time-consuming step because it involves a lot of incorporation between IT, BI team and Infor experts. The cube building is the process of storing the right data in a multidimensional format. For example, TIP has currently one functional cube which is the finance cube. In this cube, by using INFOR Office+, employees can make use of Ad-hoc reports and get the right information they want for a selected time period.

The process of building a new cube or adjusting the existing ones is taking approximately three days. In an interview with INFOR expert, he stated that team members should have clear roles in the process. It happened in many cases that the data model document was finished, but due to the lack of communication, IT team located in India was not aware of this. This is the third step of Lean methodology – to improve the flow. In order to prevent this, it is recommended for INFOR project team to make use of Office 365 – Planner. This tool will help to visualize and follow-up the process **Appendix 6**. Here, team members can assign the task to another team member. In this way, each member will get a notification when they can start doing their jobs. This will eliminate waiting hours and miscommunication from both sides. It will make the process transparent. To support this even more, daily wrap-up meetings are necessary. These meeting should last maximum of 30 minutes and each team member should answer the following questions.

1. What do we see as the next actions?
2. Who should take responsibility for them?
3. And what should the timeframe be?

This will help everybody in the process of cube building to be aware of what is really happening. Then, an e-mail should be sent as a reminder. For the project team this will increase efficiency of communication and transparency.

The role of IT team is to create SQL by-passes which are used to pull the right data from TIP's data warehouses in INFOR's cube as documented in the data model. Another alarming thing which could potentially risk the transition is that in the last 3 months two of IT members left the team. One of the former employees[9] stated that the pressure from unrealistic deadlines was affecting the whole working environment. Losing experienced member, it's huge loss for the whole project team. This has caused delays of the project for two weeks. Thus, INFOR project leadership should set-up realistic deadlines by including and empowering the whole team. Generally, this will help the team to have focus and fair scope of the reports that need to be automated. Basically, because step one and two take less time to be completed then the pipeline of reports is increasing for step three. Project leader said that the work is left unfinished and another one is started (**Appendix 7**). To improve this, First-in-First-out (FIFO) approach should be implemented. This methodology has been described in chapter 5. It means that the first report which was decided to be automated, should be finalized first. INFOR project team would easily control the flow and consistency of this step.

Furthermore, adding value to this step is the documentation part. For each cube, an SQL needs to be created. As already said, team is trying to integrate as much similar reports to one cube as possible. Every time something is added to the cube, the SQL should be adjusted first. If the SQL is adjusted wrongly, then going back to the previous version might take 1-3 hours to

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[9] For confidentiality purposes the identity cannot be disclosed.

readjust everything. Project manager agrees that there is a lack of SQL documentation in INFOR project team. Having a documentation part of all SQL versions would be a back-up in case of wrong adjustments which are likely to happen. Again, zero-defect approach should be included in this step as well. The final SQL should be reviewed and approved by data analyst.

After this is successfully implemented, then INFOR experts start building the cubes in a multidimensional format (**Appendix 15**). Project leader should assign members to work closer with INFOR expert so they can develop their cube building skills. In longer term, this will help to gradually decrease the assistance from INFOR experts which will result in cost-savings of 3,100€ (from one expert) per month for the project team.

A functional cube for operational reporting purposes is the goal of this step. Being able to pull together all the required information from different data warehouses would make the reporting less time-consuming and more efficient. This will enable the users to get the right information at the right place with just few clicks by the use of Ad hoc reports in Office+.

To conclude, this step is currently taking approximately 3 working days to be finalized based on the complexity of the report. Using the Planner tool which is already introduced in TIP, will help to control the workflow. Additionally, wrap-up meetings will keep team-members focused in the right things and contribute in team-building. Waiting hours will be fully minimized which result on approximately half a day. Documentation will ensure sustainability of the process and minimize the errors which take 1-3 hours to be corrected. Finally, arranging knowledge transfer would increase the possibility for TIP to save 3,100€ per month in the near future. Seeing things as recommended, INFOR project team will be able to finalize this step in approximately one and have to two working days.

Step 4 – Report Building

After finalizing the cube in INFOR Office+ which is mostly used for Ad hoc reporting, the process of report building starts in INFOR Application Studio. Here, the source of information is Infor Office+, however the report is static and has a particular design.

This step is about finalizing the automation of the report which was initially designed and specified in step one. It takes two days and it involves two BI members and INFOR expert in cases where the complexity of report is high.

Referring to Lean Methodology, the fourth step – allow customer pull – will be used to decrease the waste in this step of the automation process. Meaning that before the report is officially signed off and goes to production (step 5 – live), the main users have the chance to test it and give their feedback.

The report building step is not fully dependable in the completion of other steps. Therefore, it can be split into two parts: design and data. To save one working day at the end, the first part of creating the design can be started immediately after the first step is approved. This is possible because it doesn't require any data, it only concerns the design of the report. Later, when step three is completed then the report building process (step 4) owner can immediately start filling the templates with the required data, formulas, measures etc. Before it is send out for approval, BI team has to make sure once again that the data reconciles with the one in Safari. To make the whole process reliable, the reconciliation process needs to be presented to regional operational leaders. A template was developed for this step **Appendix 12**. This template should be used in order to prove that the data is reconciling and the report should be moved from development to production environment.

The involvement of the INFOR expert concerns the creation of dashboards. This is huge step towards innovation at TIP. The most important data such as; assets on rent, utilization of trailers etc., can be accessed via mobile or tablet at any time. The dashboards will be mainly used by SLT. Therefore, an expert is needed.

To demonstrate this step, the same example will follow. Based on the specifications (step 1) of Utilization report, the BI member starts designing only the layout of the report. To fill it with a reliable data it has to wait for step 2 and 3 to be finished. Once this is done, the report developer continues to build the functional part of the report. To prove that the data is reliable, then a reconciliation between Safari and Infor is required. Additionally, if dashboards are required from the business then they are developed in this step. If everything reconciles and the report is fully functional this means it is ready for testing. The report it is tested by the main users. If each of them approve the report to go live, then the report is considered to be finalized. If there are changes requested, then this changes are discussed within senior employees in the project team and it is decided for further actions in order to improve the process.

To conclude, this is the final technical step in the automation process. The step where the final product is ready to go live. Dividing the step into two parts: design and data will reduce the waste for one day. Additionally, presenting dashboards will add value to the overall business, and align with the BI's team motto "The right information, at the right time". The feedback of the main users is crucial to improve the automation process and the efficiency of operational reporting.

Step 5 - Go Live

After the completion of all four steps, then the report is ready to go in production. The production environment consists of live data which gets refreshed three times per day. First in the morning around 7:00 am before the working hours, then during the lunch time and finally after the working hours. When data is being refreshed the users cannot access the information. Therefore, the refreshment of the cube is set outside the working hours which would not interfere the daily activities.

At any time, the user can access the most recent information regarding the operational reporting. For example, the user can check at any given time the utilization of the fleet or units on rent per region, country or branch by just few clicks.

Also, the last step concerns the communication part of the automation process. By the end of each Friday, INFOR project manager should send a communication via e-mail that the report is ready to be used. However, in case that there is a delay of finalizing the automation process, a communication should be send explaining what is the issue, and when it is expected to be solved. Both scenarios, will help to raise the awareness of the project among TIP's employees. The communication plan will be presented below.

All in all, the automation process which includes steps 1-5 is a repetitive process for each report. According to the last step of Lean methodology – work towards perfection –is the repeated and constant attempt to improve each of the steps by reducing the waste, improving the flow and satisfying customers' needs. With each report automated, TIP should aim towards perfection. The benefits of reducing the waste in the automation process by implementing the Lean theory will be presented below. Also, the comparison before and after the lean methodology will be found examined.

Benefits of implementing Lean theory

The leaned steps will help TIP to ensure that the automation process will be reduced by around 50% in terms of time (*figure 6*). As already mentioned, the key points to increase efficiency of the process are:

- Zero-defect approach

- First-in-first-out(FIFO)
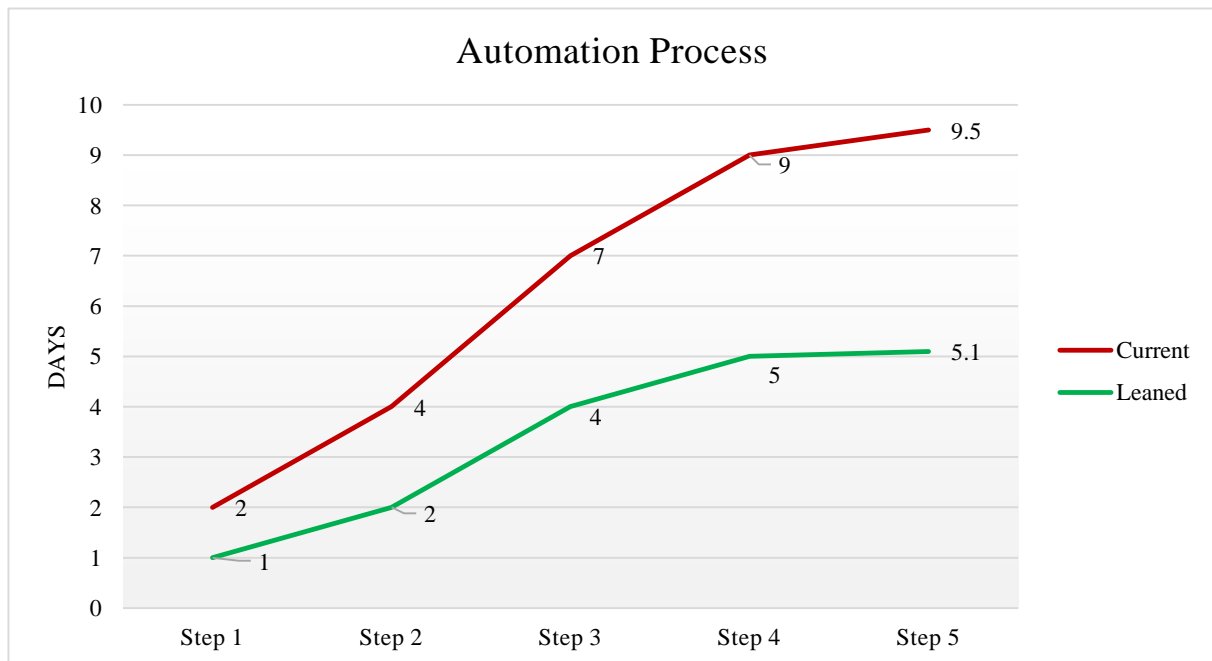
- Documentation of the processes

Figure 8. **Current vs leaned automation process**

INFOR project team should be able to automate a report within one working week by following 1-5 steps. This will ensure that TIP's operational reporting efficiency will be increased by 30% in terms of time-analysis by the end of 2016.

As already calculated, an average of 4.5 hours per week is spent for reporting processes including manual adjustments and queries. Detailed information can be found in **Appendix 13**.

After a report is automated, the reporting process is not required anymore. Therefore, 4.5 hours will be added for analysis in one week. Or, in total 18[10] hours per month for one report. For 4 reports in one-month productivity gains equal to 72[11] hours. In the following 3.5 months, will increase its analysis time for 252 hours or by 30% of total the operational reporting process of 832 hours *(figure 8).* The time-frame is 3.5 months excluding 2 week of holidays in total, and 3 weeks catching up with the deadlines, and 2 week of unexpected delays.

The detailed diagram of the automation process at TIP Trailers Services can be found in **Appendix 15**. The diagram has been created by the author.

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[10] The calculation is as follows: 4.5h per week x 4h weeks= 18h per month/report

[11] The calculation is as follow: 18h per month/report x 4 reports per month = 72

OPERATIONAL REPORTING

■ Reporting process　■ Time for Analysis

CURRENT: 30% / 70%

IMPROVED: 60% / 40%
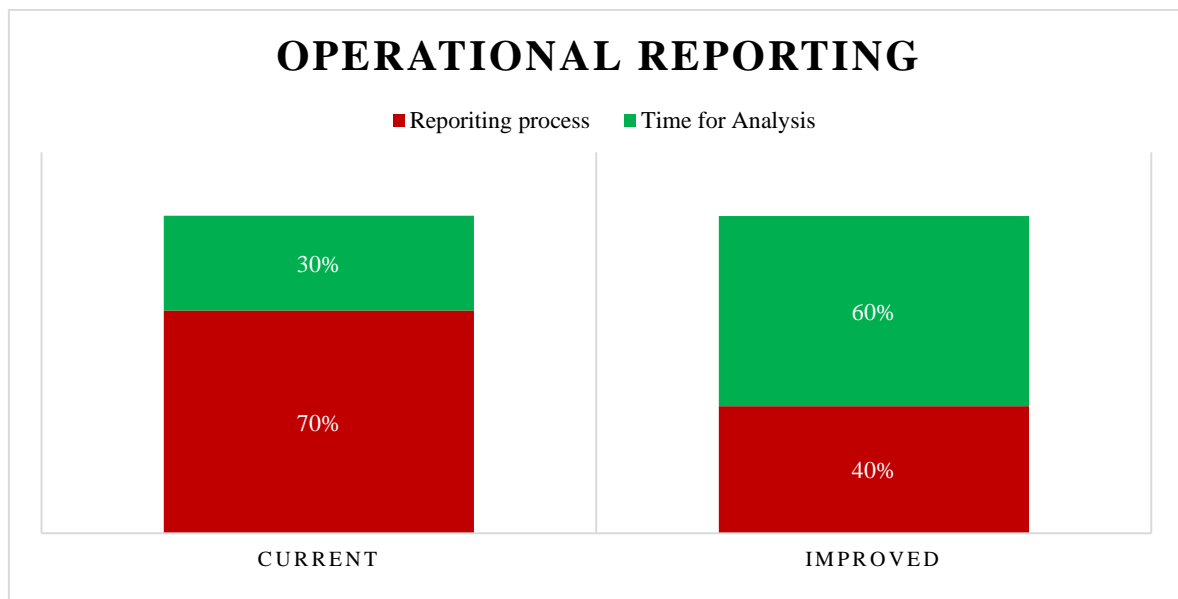
Figure 9. **Operational reporting efficiency Source: Own illustration**

As previously measured, currently TIP's employees involved in the operational reporting process spend 576 in manual adjustments and running queries *table 1 p. 18*. Whereas, only 256 hours in average for analyzing report per month. After the first month, reporting process will be decreased for 72 hours and analysis time will be increased by the same amount.
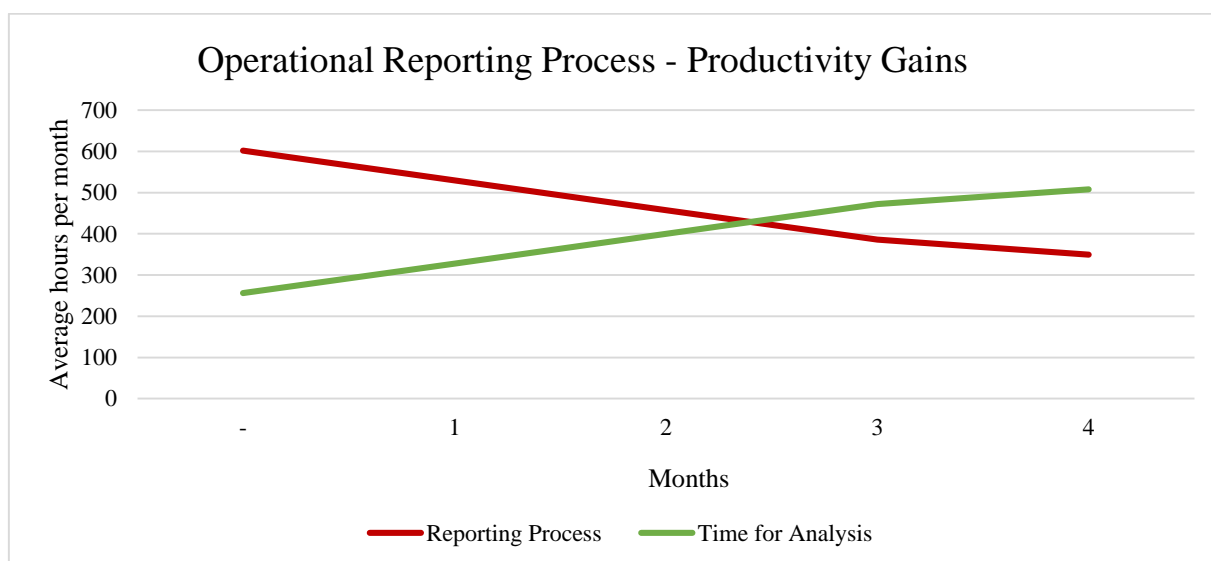
Figure 10. **Productivity gains shown per month for operational reporting process**

By the end of the year, reporting process will be decreased by 252 hours, and this time will be allocated for analyzing reports. *Figure 10* illustrates the flow of productivity gains by the end of 2016. Check **Appendix 14** for detailed calculations.

To conclude, TIP should enhance their operational reporting process as shown above. 30% more time to analyze the data will improve decision-making, innovation and boost the overall performance of the business.

8.2 Communication plan

This chapter presents the communication plan for the INFOR project team, as part of the transition plan for TIP. First, the importance of an efficient communication will be outlined. Then, the focus for the project team will be examined. Finally, a conclusion is drawn.

After ensuring a smooth process of automating reports, developing a communication plan shouldn't fall down in the priority risk of the project team. To start with, communication has been mentioned several times during this research. It has been an issue of the INFOR project team to properly communicate to the business the developments and changes that are achieved in the integration of INFOR.

The lack of information is causing users to lose sight of the project, which leads to a decrease in the confidence levels of the system. Effective communication will provide facts about the improvements and developments of the Infor project team. Additionally, it will give TIP's employees information about the roles they play in the project and how the changes are affecting them. The communication plan can allow targeting the right people beforehand, defining communication responsibilities, fostering explicit understanding of the project goals and stages to all stakeholder and users.

It is important for TIP to embed a constant flow of communication in the business which can include checklists, weekly newsletters and trackers. With efficient communication the productivity levels in the organization will remain high. When participants are kept in the communication cycle they tend to feel more comfortable with their tasks and responsibilities. Since different members are involved in the integration of INFOR, communication will allow collaboration and effective performance of the whole team. That flow of information will create trust across the business that the team is successfully adding up to the expectations and making it easier to solve problems when they arise. Having the trust of the users and stakeholders could help overcome the worst obstacles, increasing the chance of favorable outcomes from the project.

Overall in order for TIP to successfully transition to their new BI tool into their business they should focus on 3 points:

1. Communicate the project vision
2. Communication of project status and progress
3. Use different communication channels

Communicate the project vision

In order for the team and the whole business to contribute in the integration process all must understand what the project objectives are and how the teams can add additional value with their tasks. TIP should clearly communicate the vision of INFOR, desired end results and the route of achieving them. To do this, the logistics company has to communicate the vision in a way that matters to people. Basically, the vision should be something that people in the organization believe it and pass it on.

The more communication channels TIP uses, the higher are the chances of the employees to understand the vision. This point will be analyzed later in this chapter. With this the project will build a clear picture in the minds of all employees further motivating them to deliver their objectives and increasing reliability towards the software.

Communication of project status and progress

Progress reports need to be regularly sent with various levels of details throughout different stages of the integration process. First, TIP should facilitate Infor team development. Proper communication provides the basis for the project team to work together and understand objectives and tasks that need to be completed. This is why, better communication means better performance. Second, from defining the user requirement to finalizing reports, a communication plan aids in informing all project stakeholders needs to be developed. This includes the type of communication channels that will be used on the project, the team hierarchy, the frequency of reporting, type and the format of the project meetings.

The goal should be to make the update for stakeholder as easy as possible. If the communication is effective enough then there will be an impact on the reduction of project documentation.

The communication will monitor the progress of the project as well as the individual input of the team. It is advisable for TIP to maximize the use of charts and graphs to easily represent various project areas across the business. In the other end users will quickly understand the overall status of the integration activities.

Use different communication channels

Ensuring everyone can access information by integrating different communication styles is the last point of the communication cycle that TIP needs to adopt. For the organization to efficiently integrate INFOR sending out weekly newsletters would not be enough. Too much email information can cause TIP users to get fed up leading them to not pay as much attention to the presented information. TIP should consider preparing monthly face to face meetings for stakeholders where the project team will present completed tasks and future steps. The meetings will keep stakeholders on track, providing room for discussion where new ideas can emerge.

Change is the time when organizations need to communicate more than ever. By using different communication channels, TIP needs to keep processes open and transparent. Besides, Infor project team should be good listeners. As explained in the fourth step of automation process – report building - where main users test the reports, that's the time when the team should reflect. Understand not only what is said but also what is left unsaid.

Long usage of Safari means that some users may be resistant towards the transition to Infor. As previously mentioned, users are reliable and comfortable with Safari. Therefore, for Infor project team it is relevant to clearly communicate the affect Infor's implementation will have in their day-to-day. Doing this, TIP will help its employees to take the transition in thinking.

To conclude, efficient communication regarding the project contributes in the overall transition process to INFOR. Automation process is not enough for the transition, if that is not properly communicated to the end-users. Focusing in these three main points, TIP will ease its way towards the transition to the new tool which will improve the operational reporting efficiency by 30% in terms of data analysis.

8.3 Trainings

The following chapter presents the training plan for TIP Trailer Services. First, the importance of an adequate training will be outlined. Then, the focus for the project team will be examined. Finally, a conclusion is drawn.

Being able to automate the reports within one week, and communicating it to the rest of the organization it is not enough to ensure successful transition. The knowledge is required to use the product. Therefore, a training plan is developed for TIP's employees. Due to different purposes for using Infor, the training should be split into two categories: high level training and basic training. As previously described in the Business Intelligence overview chapter there are different kinds of licenses. Therefore, each category will be treated separately.

The first category concerns the BI and IT team which is the whole INFOR project team. Since INFOR requires very specific skills, having the right expertise in operating the system proves to be very important. The project manager said that INFOR project team now operates with people who have been trained from previous employees. The lack of expertise has impacted the transition phase to be lacking by 3 weeks behind the schedule. Therefore, TIP should provide a proper team training to ensure the ability to solve problems quickly and efficiently during the transition process of INFOR.

As previously mentioned in CBA, the costs for INFOR training has been agreed to 15,000€. The training will last 1 months and it will be 8 hours per week (4 hours on Monday and Friday) **Appendix 7**. This will be a great opportunity for the project members to enhance their technical skills with respect to the software. Even though, not all the project members are fully involved in the development of reports or building the cubes which require technical skills, this training will help to provide a better insight of how INFOR works and what are the possibilities.

For example, in the step one – report specifications – the data analyst is fully engaged on only how the report will look like and what calculation needs to be made to get the correct number. This tasks can be executed without any good knowledge about INFOR. However, if the data analyst from the beginning has a greater insight of INFOR and its potential then the INFOR mindset would be set among the team. This would ensure that everybody in the team has more than basics INFOR skills.

Analysis show that the costs for one INFOR expert per month are 6,200€ **Appendix 10**. An efficient training, in the long run, would prevent the organization from spending huge amounts of money for INFOR consultants to resolve on-time issues. This training would be seen as a starting point for Infor project team to resolve the on-time issues by themselves. Of course, it would take some time TIP to be fully independent from the consultants however this training is one step closer.

Additionally, to the high level training, knowledge capacity must be kept by documenting all the acquired information. TIP should develop templates for documenting different processes such as how to upload the data in the cube, error logs while exporting reports, maintenance of the data-warehouse etc. The documentation will help to reduce the risk when people leave the organization. This way knowledge will be kept in the organization providing solid base for the newcomers. The strategy could support TIP to make a smoother transition to the new BI system.

The second part of the training concerns the basic users of the software. In doing so, the basic knowledge and skills are required. As already mentioned, this training sessions can be held by BI member with the help of an intern.

The training plan should be as follows:

1. Develop learning objectives
2. Design and develop training materials
3. Implement the training
4. Evaluate the training

First step concerns the training needs assessment. The goal of this training is to provide TIP employees with the required skills for using INFOR. With these skills, an employee should be able to access the information which can be found in INFOR.

Second, in order to keep the training short and helpful, the following documents should be developed. An installation presentation should be sent before the meeting via e-mail. This presentation should provide the detailed information for each step which would guide the user to successful installation of INFOR. Also, the account details (account and password) should be sent to every user via e-mail. This way, users will be able to use their own laptops by being prepared before the meeting. Also, the e-mail should contain the following information such as the purpose of the training, place, time and duration.

To reduce chaos, the trainings should be provided separately for each department. The number varies from 15-20 for each department. For reducing the costs of travelling, the training for employees in other locations rather than HQ should be provided via WebeX[12]. Additionally, to ensure greater attendance, the meeting invitations should be sent two weeks before the training.

The implementation of the training should be practice oriented. Meaning that the instructor demonstrates to the users how the software works and shows an example. Then users are challenged with exercises which need to be completed by themselves in the meeting room setting. The training should be interactive between both parties – giving the opportunity to the users to ask many questions. Also, the training should provide an introduction to the INFOR dashboards and how the employees can download the application on their phones. In addition, the difference between Safari and the replacing tool INFOR needs to be explained.

From the implementation step the trainer can evaluate the training. This can be done by reviewing the results of the exercising part. If most of the employees managed to successfully complete the tasks then the training should be considered successful. To get a better appraisal, face to face discussion with users with regards to the training should be held at the end. The feedback will help to improve the level of training if required.

To conclude, an effective end-user training strategy will make INFOR's deployment both a more cost effective and a happier experience for everyone involved. The smooth and stable automation process, communication and training plan will ensure a successful transition for TIP and increase it reporting efficiency in terms of data analysis, innovation, predictive analytics and decision making. All in all, this will contribute to boost TIP's performance and gain competitive advantage over its competitors.

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[12] WebeX is a screen sharing tool.

Interim conclusions Chapter 8

In this chapter the current automation process of INFOR at TIP Trailer Services has been analyzed and improved by the implementation of Lean methodology. Then, to ensure a successful transition communication and trainings plan have been developed.

The outcomes show how the operational reporting process at TIP should look like. This has been done by analyzing all five steps of the automation process. For the first step, it is recommended that meetings with operational analysts and business intelligence leader to be set-up weeks in advance to reduce the waiting time for approval. Besides, the zero-defects approach needs to be adapted to ensure efficiency and reduce waste. The same approach applies for the second steps. Here, the biggest part of the time is saved by documenting the measures included in each existing cube in INFOR. For the most complex and time-consuming step – cube building – Infor project team needs to use FIFO approach to make the process consistent and reduce backlog. Here, to reduce the time of 1-3 hours of SQL adjustments, a documentation file should be created and maintained for each cube. Also, the Planner tool needs to be utilized among the team to help control the workflow. The fourth step needs to be divided into two parts: design and data. This will help to save one day at the end of the process because the design part can be started after the first step is completed. The final step concerns the communication part. In both scenarios when the report is automated or it has been delayed, the communication should be sent to keep the process of the project visible and the users informed.

By implementing the lean methodology into the automation process of Infor at TIP, the completion time per report has been reduced from 9.5 days to 5.1 days. By the end of 2016, TIP will increase its operational reporting efficiency in terms of data analysis by 30% by successfully transitioning to its new software.

Creating a smooth automation process does not ensure a successful transition. TIP needs to improve its communication with regards to the transition and provide its employees with proper trainings. The communication needs to be focused in three main points; communicate the project vision, communication of project status and progress and the usage of different communication channels. By doing so, TIP will keep its employees informed and form trust which will ease its road toward transition. The last point for TIP is to make its employees capable of using INFOR. This needs to be done 1-month training of Infor project team. Then, the team will provide a basic training for the end-users. In the longer term, the 1-month training can be seen as an investment which will help TIP to reduce the amount of money spent on external resources.

9. Conclusions & Recommendations

In the following chapter, a conclusion on previous research findings will be drawn in order to take a bigger picture of TIP Trailer Services' operational reporting situation. After that, recommendations with regard to the transition plan will be given.

9.1 Conclusions

In the following chapter conclusions on the previous research findings will be drawn in order to take a bigger picture of the situation at TIP Trailer Services.

The main objective of the report at hand is to set up the right transition plan for TIP Trailers Services to its new BI tool INFOR by increasing the operational reporting efficiency in terms of data analysis. In order to do so, analysis on the current operational reporting process were conducted to investigate the impact of the main BI tool Safari. The end-users' expectations with regards to the implementation of INFOR have been drawn in accordance with the findings from the internal survey. Cost and benefits analysis module has been used to calculate the costs generated on the implementation of INFOR. The outcomes were provided to give TIP a better insight of the expected costs and benefits of the transition. Here, the degree to which TIP employees would benefit by transitioning to INFOR is determined. In the last part of the research, the current automation reporting has been analyzed from the interviews conducted. To create a smooth and stable process, lean methodology has been applied in the current automation process of INFOR. Communication and training plans have been developed to ensure a successful way towards the transition for the logistics company. Using the defined transition framework, TIP Trailer Services will be able to transition to TIP Trailer Services by increasing 30% of data analysis by the end of 2016.

The following interim conclusions have been drawn. The poor speed of the Safari, lack of customer support and user-friendly has affected the efficiency of the operational reporting process. The dysfunctionality of the software is causing 55% of the total issues to be human-errors due to the high involvement of manual input. The outdated software is enabling TIP to be innovative and gain competitive advantage over its competitors. The low speed of the software is exposing TIP's employees to the long waiting hours for the data to be reloaded. 69% of the total hours for operational reporting process is spend on the manual adjustments and running queries, whereas only 31% of time on data analysis. The results of the current operational report from Safari has been used as a benchmark for INFOR implementation.

The crucial strength of TIP Trailer Services for moving towards the transition is the confidence of its employees. The main driver for the implementation of INFOR is the possibility of automating the reports. The costs of implementing INFOR are 1.9 million for 2016, and they're under the budget of 2.2 million. The costs of implementing INFOR has been divided into two categories: Software & Hardware costs and HR costs. To increase the costs visibility, the two categories have been divided into sub-categories. For the first category, the highest costs are Hardware costs. Whereas, for HR costs, the highest are internal and consultancy costs.

The benefits outweigh the costs to ensure that the investment is justified. In the short run, TIP will be able to improve the time of data analysis by 30%. However, with the current automation process TIP won't be able to reach this goal. Therefore, the lean methodology has been implemented to in the current automation process to reduce the time of completion per report from 9.5 to 5.1 days.

Currently there is an inefficient communication among the organization with respect to the implementation of INFOR. Besides, the project team and end-users do not have sufficient skills to perform the tasks with INFOR. Therefore, a communication and training plans have been developed.

9.2 Recommendations

In the following chapter the recommendations for the transition framework of TIP Trailer Services will be provided. The recommendations are based on the results of the research, which has been conducted and according to the information gathered from primary and secondary sources.

Here are the recommendations with regard to TIP's successful transition to INFOR. To start with, the current operational reporting from Safari should be used as a comparison with the implementation of INFOR. This way TIP will precisely identify the productivity gains and the efficiency of the newly developed BI tool. Moreover, TIP should make INFOR more reliable source of data by sending out reconciliation reports between INFOR and Safari. This will prove the data in INFOR is correct.

TIP should improve the overall knowledge about maintenance of the system. The current approach for solving on-time issues with the assistance of INFOR consultants it is costly. Therefore, trainings should be organized to ensure the ability of the INFOR project team to solve problems quickly and efficiently during the process of integrating the new software. Then, the team should provide basic trainings to the rest of the employees on the usage of INFOR Office + and Application Studio. Besides, the INFOR project team should prepare a concise list of people who require licenses, and purchase all of them together. This will save TIP up to 10% of the total costs.

Also, the current automation process in INFOR should be improved with regards to the structure, documentation and approval chain within each step. Currently, the process of automation per report takes 9-10 days. The INFOR project team should be able to automate a report within 5 working days. This can be done by using zero-defect and FIFO approach and improvement of its documentation process.

Communication plan should be developed through the organization to ensure smooth implementation of INFOR. In order to do so, TIP should focus on three main points: communicate the project vision, communication of project status and progress and usage of different communication channels.

By the end of 2016, the following objectives should be achieved: reducing the time of manual adjustments and queries by 30% and allocating this time for data analysis, increasing innovation, and improve decision making.

10. Critical Appraisal

In this chapter, the report is critically appraised. First, the limitations of the report will be outlined. Secondly, the value of the report and further research opportunities will be explained.

The limitations of this report are as follows. To start, the communication between potential INFOR users outside Amsterdam Headquarters and myself as an intern was insufficient. The only possible way to keep in touch with them was through the questionnaire that has been sent, which in many cases they didn't respond. Also, if further questions arose, it was quite difficult to get answers. Therefore, the report lacks analysis for greater picture of TIP regarding operational reporting process

Furthermore, besides one short interview with an INFOR expert, the supplier did not accept to provide any information without compensation. Therefore, no information was provided about the best-practices which TIP can follow for their transition based on INFOR's experience. Besides that, due to confidentiality issues the cost generated during the implementation might be higher. This information prevented to accurately prove whether the cost which will occur in 2016 will potentially exceed the project's budget.

Finally, the knowledge of the intern with regard to business intelligence is clearly limited. The department requires both business and IT skills. This working experience is the first input ever received with regard to business intelligence in a business context. Consequently, the intern is no expert in this field and it might be possible that the results of the transition plan is not the best for TIP to implement INFOR.

Here, the value of the report and further research opportunities are discussed. The report provides highly valuable information about the current state of the operational reporting process, benefits and the transition plan which TIP should take into consideration while transitioning to its new BI tool INFOR. This is because the analysis includes evaluation of the facts and important figures with regard of two BI tools, which might affect the transition process.

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11. List of Figures

13. List of Tables

14. List of Appendices

Appendix 1

INFOR Application Studio

Source: INFOR Application Studio

Appendix 2

INFOR Office Plus

Source: INFOR Office+

Appendix 3

Safari Report

Source: From http://prod.apps.tipeurope.com/

Appendix 4 Internal Survey

The internal survey regarding the performance of Safari and users' expectations for the implementation of Infor.

The goals of below survey are to gather information for providing the further recommendations regarding:

☐ The capabilities of the new software which need to be met.

☐ The expectations of the new software which need to be met.

According to your personal work experience in terms of operational reporting, please answer the following questions. Please feel free to make any comments or additional recommendations.

1. What is your position?

2. Please rate the following points about Safari's performance.

	Very poor	Poor	Good	Excellent
Speed of the system				
Clarity of the data				
User- friendly				
Reliability of the system				
Customer Support				

3. How much time do you spend daily on analyzing reports in Safari?
   - o 0 – 1 hour
   - o 1 – 3 hours
   - o More than 3 hours

4. How much time do you spend daily running a query in Safari?
   - o 0 – 1 hour
   - o 1 – 3 hours
   - o More than 3 hours

5. Name two advantages and disadvantages of the Safari system
   Advantages:

   Disadvantages:
6. How confident do you feel about the transitioning to INFOR?
   - o Not at all
   - o Not sure
   - o Confident
   - o Extremely confident

7. Please rate the following points about Infor's expectations.

	Very poor	Poor	Good	Excellent
Speed of the system				
Clarity of the data				
User- friendly				
Reliability of the system				
Customer Support				

8. Do you think the business has informed you enough about the business transition?
   - o Yes
   - o No

9. If not, what points would you like to be informed?
   - o Capabilities of the system
   - o Project related information (such as status, progress etc.)
   - o Reasons for transitioning
   - o Other: _____

Appendix 5 The results from the internal survey.

The survey has been sent to 45 employees from three different departments which are the main users of Safari and Infor for operational reporting purposes. 13 employees from FP&A, 7 from Controllership, 12 from Operations and 18 from BI.
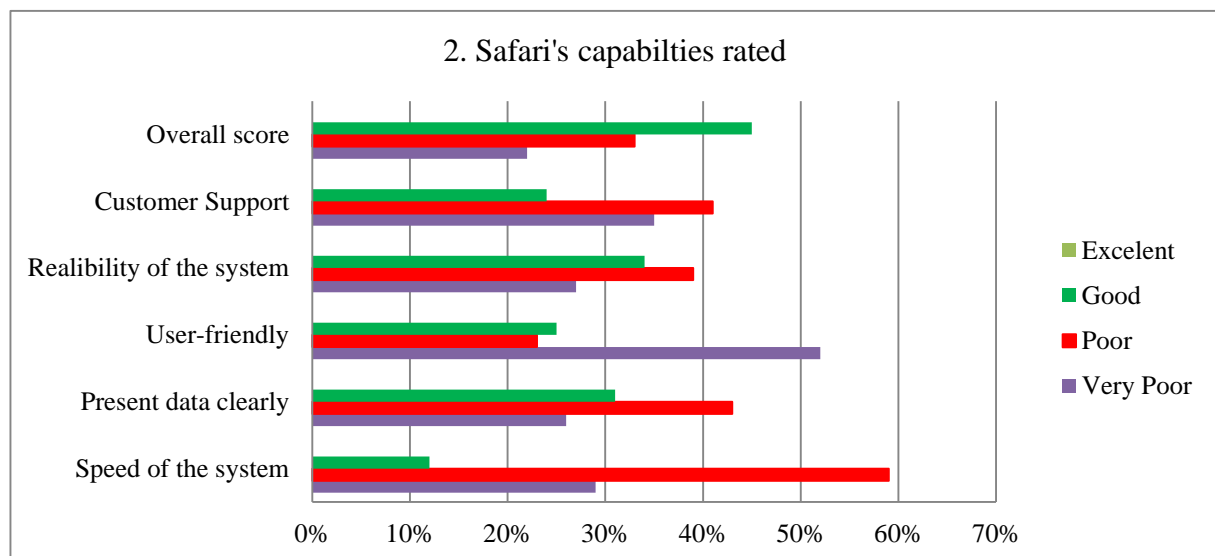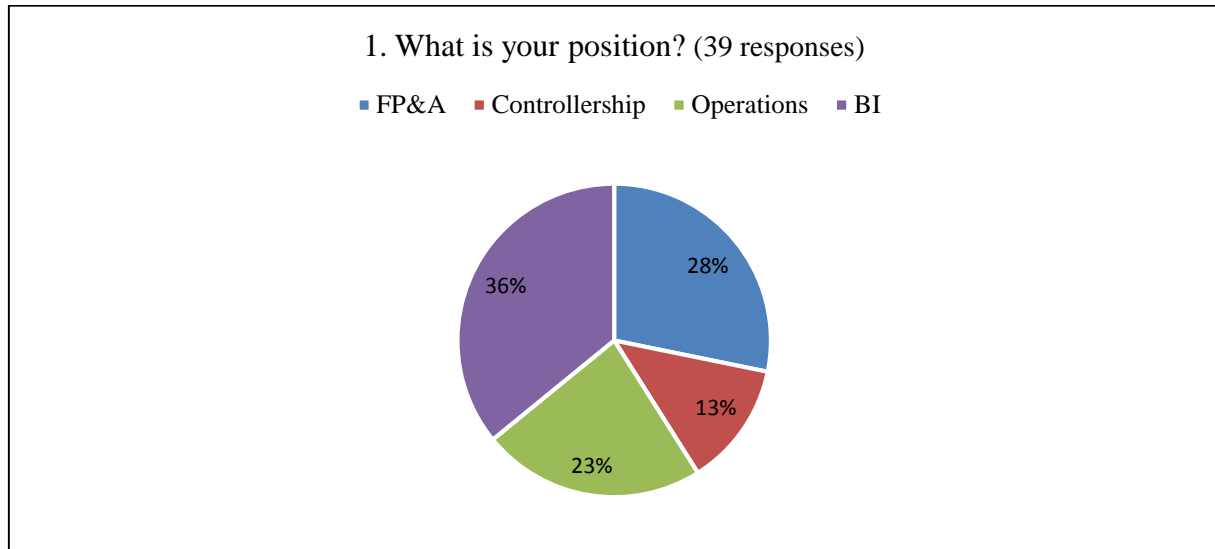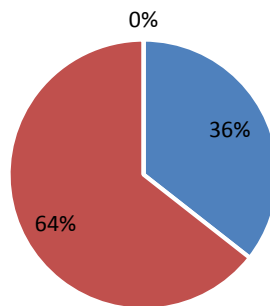
3. How much time do you spend daily on analyzing reports in Safari? (39 Responses)
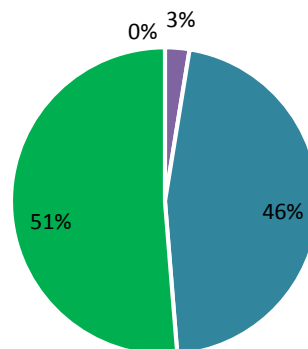
■ 0-1 hour　■ 1-3 hours　■ More than 3 hours

4%
28%
68%
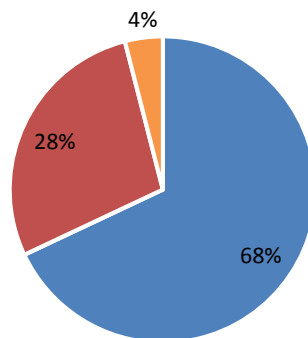
4. How much time does it take to complete Safari query? (39 responses)
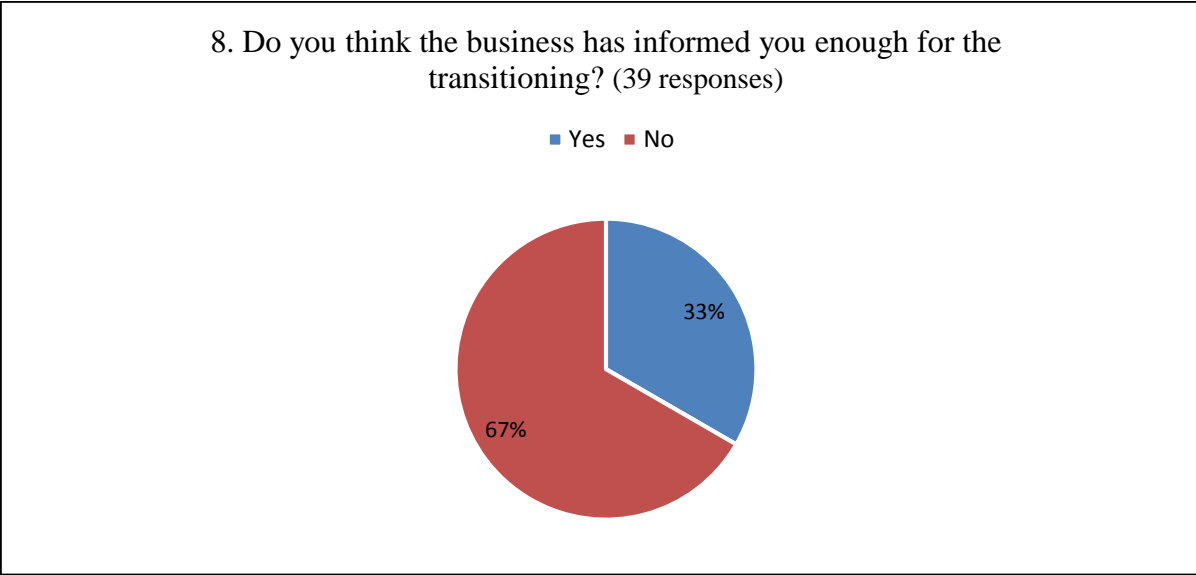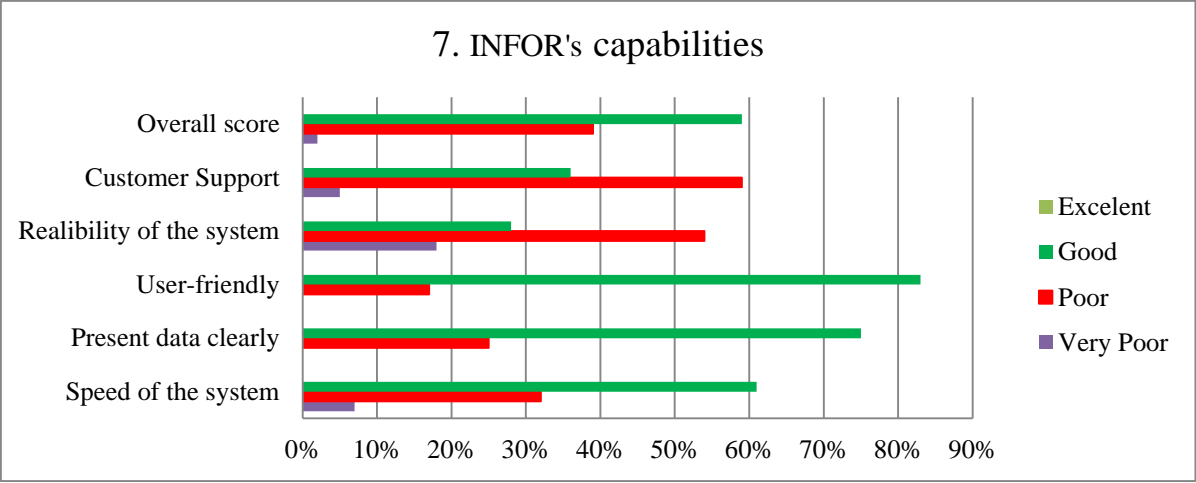
■ 0 - 1 hour　■ 1 - 3 hours　■ more than 3 hours

0%
36%
64%

6. How confident do you feel about the transitioning to INFOR? (39 Responses)

■ Not confident　■ Not sure　■ Confident　■ Extremely confident

0% 3%
46%
51%

7. INFOR's capabilities

8. Do you think the business has informed you enough for the transitioning? (39 responses)

9. What points would you like to be informed? (39 responses)

■ Capabilities of the system ■ Project related information ■ Reasons of transitiong ■ Other

40%

45%

10%

5%
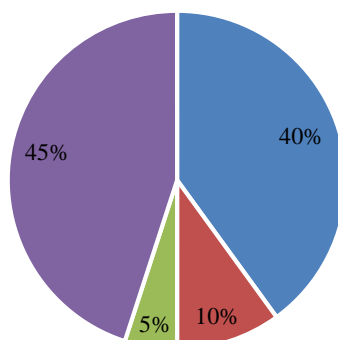
Appendix 6 The interview with the Business Intelligence leader Ian Paxton

Name	Ian Paxton
Job Position	Business Intelligence Leader
Number of years working at TIP	October 2001 – Present (15 years)
Why there was a need for introducing a new BI tool?	The main driver for introducing the new BI tool was the growth of the business. Safari lacks the capabilities of providing real time information which is affecting the decision making. Not being able to react to the market immediately, has made Safari an outdated tool which doesn't add too much value to the business anymore.
Based on the internal survey, results show that most of the main users find Safari as reliable software. What do you think of this?	I think this is mainly coming because of the long usage of Safari. These users have spent days on reconciling the data from Safari, and they've come to a point where they know all the advantages and disadvantages of the software. Therefore, they find the software reliable.
What is the main goal of implementing Infor at TIP Trailer Services?	The main goal for the implementation of Infor is the possibility to automate each report.
What would be the immediate effect of Infor's implementation to the business?	Currently the BI and IT team have a lot of challenges to combine day-to-day activities with issues which are requested to be resolved from Safari users. After the implementation of Infor, all of these issues which are listed as human-errors will be eliminated.
What is causing the manual work in Safari?	The main ones are: data reconciliation, correcting formulas, copying data from one sheet to another, adjusting pivot tables and creating e-mail templates for sending the reports.
What other features the business is most excited to see from Infor's implementation.	Dashboards. Especially Senior Leadership Team are very looking forward to using dashboards. It will help to easily check the performance of the company at any point in time by using their phones, tablets or laptops.

What are the main long-term benefits of implementing Infor?	The implementation of Infor in long-term will help the innovation of the business by being able to predict the need of the market.

Source: made by author

Appendix 7 The interview with the INFOR project manager Daniella Buricescu

Name	Daniella Buricescu
Job Position	INFOR Project Manager
Numbers of years working at TIP	January 2012 – Present (4 years)
When was Infor first introduced to the end-users? What was the impression of the end-users?	Infor was first introduced to the end-users at the beginning of 2016. There were only few reports implemented in the software. The purpose of this testing phase was to give the end-users the first impression of Infor. Overall, the impression was very good.
How many users have been estimated to use Infor in 2016?	Initially, there were 80 users identified for 2016. This number includes different departments like: FP&A, Operations, BI, Controllership etc. However, only 30-35 are considered as main users which will engage with Infor in daily basis. In this big list SLT is included as well.
How much money has TIP Trailer Services spent on purchasing licenses for INFOR?	The price of one license is 1,867.98€.
Are there any potential cost-savings when purchasing licenses?	For the first purchase of the licenses we got 10% discount. This mean that the price for a license was 1,698.17€ TIP will be getting this discount for INFOR each time it purchases more than 30 licenses in one go.
How often are the INFOR consultants required to help the project team? Why?	Currently, I'd say that INFOR consultants are needed very often. This is due to the lack of expertise from the project team. Most of the INFOR project member have had short trainings from the former BI employees which has caused in many cases not to be able to solve on-time issues.
Do you think with training this would be improved?	Definitely, there is a need for high-level training to improve the INFOR technical skills within our team. There is a 1-month training or 8 hours per weeks arranged with INFOR.
What are the costs of this training?	It has been agreed for 15,000€ for the whole team. 3 people are for free.

What is the INFOR project budget for this year?	The budget which have been approved for this year is around 2.2 million €
What do you see as the biggest challenge for the automation process?	I'd say the structure. We need to put more structure in place. Especially, in the Cube Building step where one task is unfinished the other one is started. This is causing delays to the project.

Appendix 8 IT service desk

Source: http://servicedesk.tipeurope.com/Home.aspx

Appendix 9 List of Operational Reports

The list of Operational Reports

#	Report	#	Report	#	Report
1	Branch P&L Monthly Trend	54	AR VAT Report	107	P&L for Bank
2	Bad WO Report	55	Asset AUM	108	Pay-go revenue
3	Daily overview of UOR per customer	56	AUM Overview	109	Pay-go tracker
4	Weekly movements of assets	57	Bad Debt	110	Physical Inventory report
5	Per Country overview asset type& per Customer ADR	58	Bad Debt Analysis	111	Portfolio Overview
6	AUM ADR Information included within the report	59	Bad PO Report (1)	112	RC Invoices without VAT
7	Sitting units per asset type	60	Bad PO Report (2)	113	RC MM YYYY
8	AUM Fleet numbers by Customer	61	Balance sheet for Bank	114	Regional CV Report
9	TROTTER Matrix - Finance	62	Billing validation report	115	Reservation NBD Sitting
10	Branch P&L MTD,QTD,YTD	63	Borrowing base certificate	116	Revenue report
11	Branch P&L Detailed Trend	64	BS + P&L per Legal Entity	117	Risk Management Pack
12	NSFE tracker/Maintenance Cost Tracker	65	CAPEX Report (Peter Sijs)	118	Serviced Fleet CV Tracker
13	Duplicate PO's	66	Cash flow statement for bank	119	SG&A Analysis
14	Rebills	67	Cashflow Statement	120	STR Progression
15	FOC_Report	68	CENTRAL Customer report	121	TIP Function
16	TROTTER Matrix - OPS	69	CENTRAL Rebill Reminder	122	TIP Indirect sourcing masterfile
17	Insourced %	70	Corporate Tax report	123	TIP Region
18	WSLiq uidation Report	71	Credit Limit Tracker	124	TIP to Sungard V3
19	OPS Pulse Report	72	Credit notes KPI report	125	Top 15 Delinquency
20	PVM Report	73	Credit report	126	UTE AUM Flat File UTE ADR
21	Service Tracker	74	Creditors report SPECS	127	UTE Data V1
22	MED WOL_Aging_in_Volume	75	Customer Insurance report	128	UTE Overview
23	Final (NSFE) Flex	76	Days Sales Outstanding (DSO) Report	129	VAT detail report (CVS)
24	Parts Supplier Metrics (FP&S)	77	Depreciation Detailed Trend	130	Vendor metrics
25	HUBO Report	78	Depreciation MTD QTD YTD	131	Weekly Collections Report SPV
26	Activity KPI Summary	79	Dx Invoices	132	Weekly Trailer Sales Report
27	Pre-PO spend per date	80	Final (NSFE) Flex Files	133	Working Capital
28	Service Overdue Report	81	finops_billing_invoices_treshold_check	134	FC Comitted Revenue
29	WO_J_CODED	82	Fleet Care daily tracker	135	Real Estate Property
30	Tyre Report	83	Fleet overview	136	Fleetcare SRC Reporting
31	MSU Activity details	84	Fleetcare CV Tracker	137	Customer CV Reports
32	Spend by bucket	85	Fleetprotect CV Tracker	138	Extended WS Performance Report
33	Warranty Dashboard	86	Consolidated NSFE Tracker	139	Revenue PVM
34	Unit Summary Report	87	Full year monthly P&L	140	Monthly KPI Report for CCM
35	Unit Summary Report	88	HNA Weekly Report	141	Rebills per repair type
36	Balance Sheet - YTD by period	89	Indirect Sourcing Masterfile	142	Missing Rebills
37	P&L - YTD by period	90	Indirect Sourcing Masterfile SPECS	143	NSFE Tracker Daily Supplement
38	Overview (L,M,S)	91	Indirect Sourcing Universe SPECS	144	ROM P&R Report
39	Overview Long by entity (Net balance)	92	Integration report	145	ROM R&R Report
40	Overview Medium by entity (Net balance)	93	Invoice Duplicate Audit Rep inc PO SPECS	146	Services Tracker
41	Overview Short by entity (Net balance)	94	Invoice Duplicate Audit Report SPECS	147	Month End Services Tracker
42	Overview - External	95	Invoice review report SPECS	148	Bad WO's
43	Overview - HNA Loans	96	Journal Entries	149	NSFE Productivity Deck
44	Loans walk by entity	97	LTL Committed Revenue Report	150	Workshop Metrics
45	Loans by currency - Exposure	98	MED Billing_report_MED	151	NSFE Recharge Analysis
46	GAP/MOR Graph	99	MED Cost Tracker	152	Potential duplicate PO's report
47	Note 26 from IFRS	100	MED OR_MED_France_Spain_Italy	153	Asset UTE
48	Acronyms	101	Monthly AUM	154	Growers & fallers
49	3 way PO Report SPECS	102	Monthly services report (SPV)	155	Sales ADR Report
50	AP VAT Report	103	NSFE by country	156	UOR Report
51	AP VAT SPECS	104	On hire and delivery report	157	STR Pricing Reports
52	AR Detailed Data	105	Open Lease File	158	Refurb reports
53	AR subledger report	106	Order confirmation report	159	Reservation Tracker

Appendix 10 Detailed calculation of INFOR consultancy costs.

	Salary	Personnel	Total per month	Total per year
Infor expert	€ 6,200	2	€ 12,400	€ 148,800
Infor dashbaord expert	€ 5,400	1	€ 5,400	€ 64,800
Infor team	€ 12,000	1	€ 12,000	€ 144,000
Total	€ 23,600	4	€ 29,800	€ 357,600

The calculations are based on the information which was provided from HR. Due to confidentiality only average figures based on the positions were provided.

Appendix 11 Detailed calculation for Internal Costs

	Salary	Personnel	Total per month	Total per year
IT Team India	€ 650	4	€ 2,600	€ 31,200
Interns	€ 500	5	€ 2,500	€ 30,000
BI Team	€ 1,950	6	€ 11,700	€ 140,400
Managers	€ 4,500	2	€ 9,000	€ 108,000
Project Manager	€ 7,800	1	€ 7,800	€ 93,600
Total	€ 15,400	18	€ 33,600	€ 403,200

The calculations are based on the information which was provided from HR. Due to confidentiality only average figures based on the positions were provided. The calculation includes only personnel which is fully involved in the INFOR integration process. BI leader and data scientist were excluded from the calculation because they're working in other projects simultaneously.

Appendix 12 Templates for reconciliation

INFOR reconciliations		Application Studio	Safari	variance	comments
Cube	Maintenance				
Region or Country	Benelux				
Period	Feb-16				
Currency	Not in Cube				
Banch	0223 0256 0458				
		Application Studio	Safari	variance	comments
Cube Measure Name					
WOL _Total_Cost		659720.01	659720	-	OK

Source: Own illustration

Appendix 13 Analysis hours increased for one month when all four reports are automated.

Reports	Analysis hours per week/report	Analysis hours per month/report
Report 1	4.5	18
Report 2	4.5	18
Report 3	4.5	18
Report 4	4.5	18
Total		72

As previously calculated, 2.2 hours are spent in manual adjustments and 2.3 hours are spent in running queries. When a report is automated these hours will be fully eliminated because no such an actions are required to be taken.

Appendix 14 Operational reporting process calculations per 3.5 months' time frame.

Months	Gains	Reporting Process	Time for Analysis
-	0	576	256
1	72	504	328
2	72	432	400
3	72	360	472
4	36	324	508

Currently, TIP employees' involved in operational reporting spend 601.6 in manual adjustments and queries. Whereas, only 256 hours in average for analyzing the reports. After the first month, reporting process will decrease for 72 hours and analysis will be increasing for the same amount from 256 hours to 328 hours. By the end, reporting process will be decreased by 252 hours, and analysis will be increased by the same amount. From the total of 832 of the overall operational reporting process analysis time will be increased for 30%.

Appendix 15 Infor Project Planning
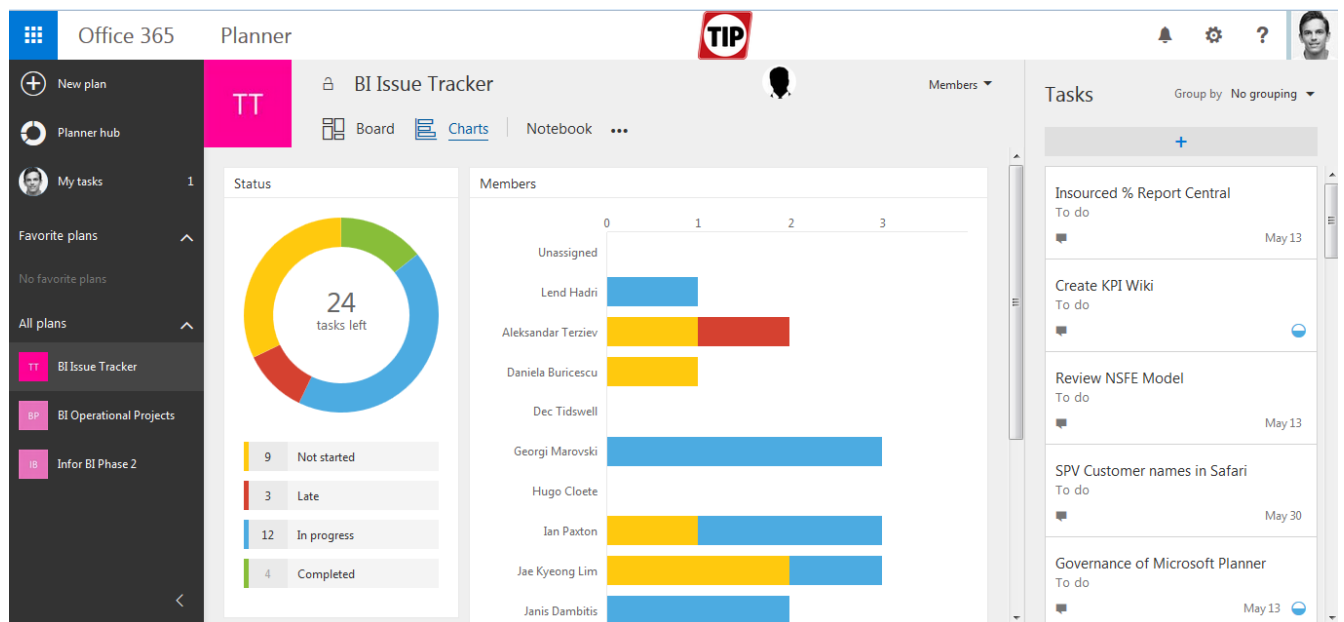
INFOR PROJECT PLANNING

Source: own illustration

Appendix 16 Example of Data Modeling
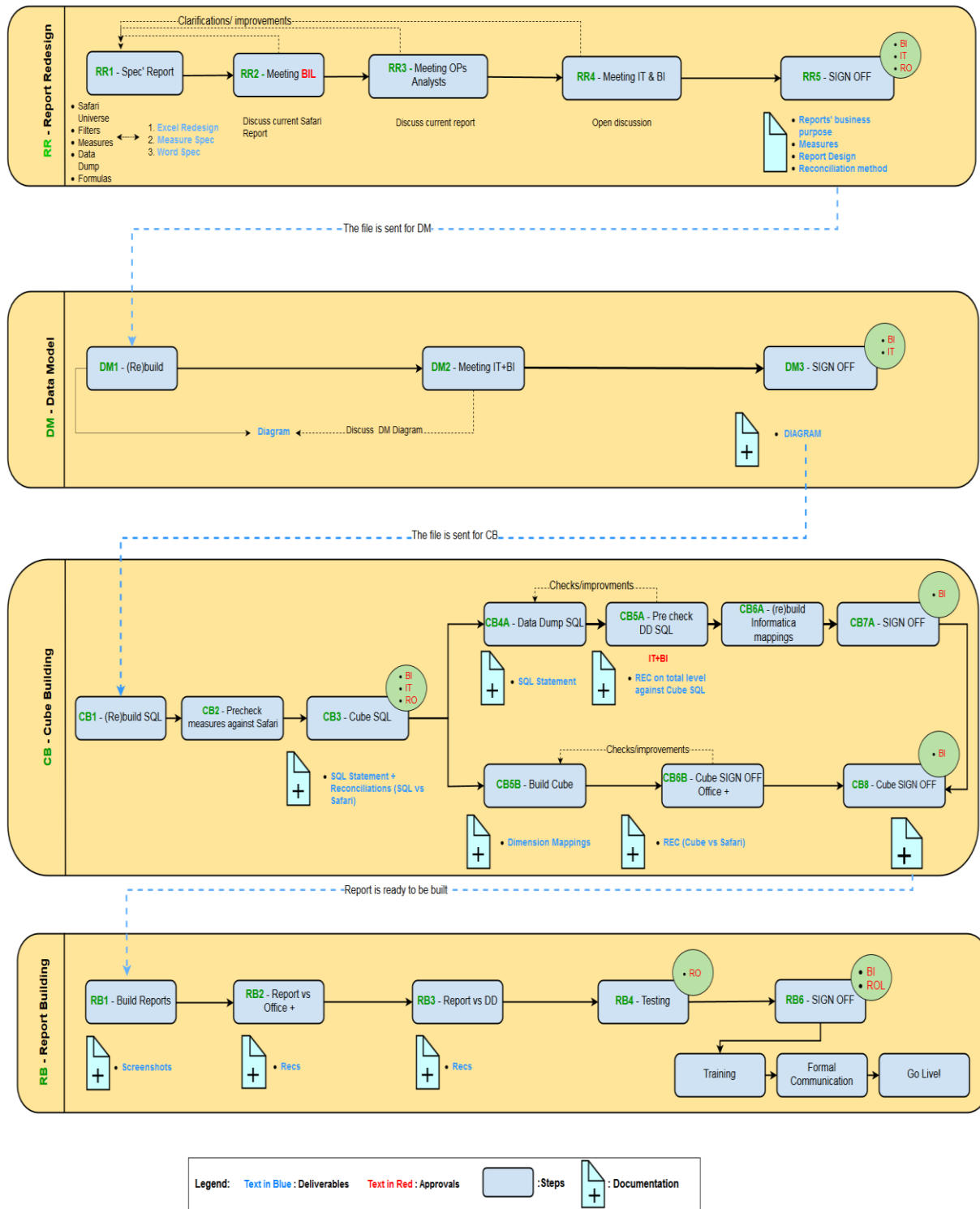
Source: Data Model Analyst – Razvan Kope

Appendix 17 Business Intelligence Issue Tracker

Source: TIP outlook 365 – Planner tool.

Appendix 18 Competence Report

In February 2016, I've joined TIP Trailer Services in Amsterdam as a Business Intelligence intern. The Business Intelligence internship is a position that requires great analytical skills. Therefore, it is important to be numbers person, analytical and fact focused. During this experience, I've supported the business reports on operational and financial data and help them make strategic decisions.

II.3 International Strategic Vision development

During my internship I was closely working with the Business Intelligence Leader, therefore I was exposed in a lot of strategic decision which were made. Business Intelligence is for helping people to make the right decisions. In order to do so, the right information to the business people should be presented. Since I've been involved in the current transition of operational reporting I had the opportunity to develop my skills with regards to the strategic vision development of the company. I had the chance to be involved in the development of the project's vision. The input which I have written on the thesis, has been highly appreciated by my fellow colleagues. I've been able to simplify and lean the process of automation. Furthermore, I've had the chance to create a pitch regarding this topic and present for the whole BI and IT team. This opportunity has helped me to be able to define strategic limits, to see beyond the box and come up with different vision and strategy. As seen from the feedback of my supervisor, I've completed this competence with an excellent performance. However, I should still improve my thinking towards lean thinking. I'll try to do this by surrounding myself with experienced people from whom I can observe and learn more.

IV.2. Co-operation

In BI team there are around 14 people. The co-operation with other people is inevitable. As an intern, I've tried to involve myself in different projects to enhance my professional and personal skills. During my internship, I've been involved in two different steps of the INFOR project. Firstly, I've started to do the specifications for each report. I had to set-up daily and weekly meetings with operational analysts around Europe. I had to consolidate all their ideas in one single report. Also, with my own initiative my project for creating a new report for TIP in cooperation with the branch in Paris was approved by the CEO. Secondly, I've been involved on the report design which required a lot of IT skills. In the first two months I was in charge of organizing daily meetings with the whole team. This involved maintaining the BI reporting overview, which is a file that contains all the reports that have to be sent out in a specific time. Therefore, I had to make sure that everything is send out on time by co-operation with people and kindly reminding their tasks.

Besides, I've assisting Finance department which is not directly linked to our department. Being involved in a diverse environment has improved my co-operation skills. I've learned that there is no best co-operation approach, but is important to get to know as fast as possible the person you'll be co-operating with. With regards to my supervisor, the skills required for co-operation such as team working capability, openness to others and commitment effort have been successfully achieved by myside. However, I still need to work on my initiatives by

VI.6. Learning and self-development

The whole BI experience it has been a learning and self-development for me. At the beginning, mainly everything was new and unheard for me. Especially, understanding the role of BI team and the split between business and IT part. However, I've learned that no one will come at your

desk and ask you to learn and integrate. Thus, with my initiative I was trying to ask as much as possible question which would allow me to understand the main concept depending on the situation. Also, I've used to organize feedback session with my supervisor with regards to my performance. The feedback would help me to improve more. One thing which I heard from a lot of people was my voice intonation when presenting. I still haven't reflected on this issue. However, I know that the only way for me to improve is to practice. Therefore, I will try to take every opportunity which would expose me to bigger audience and present.

Appendix 19 STATEMENT OF AUTHENTICITY

(Student includes signed statement in research-report)

I hereby solemnly declare,

1. that I myself wrote my graduation report, without the assistance of any third party;

2. that in my report, I identified and specified all direct literal quotes from literature and indirect quotes (ideas/indirect quotations) from other authors.

I am fully aware that any violation of this code may result in disadvantageous consequences for me (for example withdrawal of study credits and, in the case of a repeated violation, withdrawal of complete study units). If fraud can be proved, I will be required to bear the costs of investigation into and sourcing of the original document.

Place, date

Signature