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Improving the sales reporting practice in medical device company

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Master’s Thesis | Abstract

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Improving the sales reporting practice in medical device company

Nowadays companies store a huge amount of data. Data has always been a part of companies’ processes but the difference in today’s business is the huge amount available in real time and how companies can utilize it.

This thesis was conducted as an action research project to design a tool for budgeting and monitoring sales within a medical device company in Southwest Finland. The goal was to develop a reporting tool that could help monitor progress and goals across the sales team and for individual representatives. Previously, there was no dedicated tool for this; instead, Excel spreadsheets were used, which the commissioner company felt were cumbersome and outdated. The company wanted a real-time, easily accessible tool for quicker goal reviews.

The theoretical part of the thesis covered key concepts, including sales budgeting, sales forecasting, sales performance measurement, and business intelligence. The research took a qualitative approach, involving a development process explained through various phases. Data was gathered from sales managers, sales and finance directors, and the business development manager through interviews and workshops. Based on their responses, a comprehensive reporting tool was created, which included budget and sales data and allowed comparative analysis.

Keywords:

budgeting, forecasting, sales performance, business intelligence, action research

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Maria Koivunen

Myynnin raportointikäytännön parantaminen lääkinnällisiä laitteita valmistavassa yrityksessä

Tämä opinnäytetyö toteutettiin toimintatutkimuksena, jonka tavoitteena oli suunnitella ja kehittää Varsinais-Suomalaisen lääkinnällisiä laitteita valmistavan toimeksiantajayrityksen myynnin budjetoinnin ja seurannan työkalua.

Työn tavoitteena oli kehittää helppokäyttöinen ja reaaliaikainen raportointiväline, joka mahdollistaa koko myyntitiimin ja yksittäisten myyjien tavoitteiden seurannan, korvaten aiemmat aikaa vievät Excel-taulukot. Toimeksiantaja yritys toivoi arkipäiväistä raportointivälinettä nopeaan tavoitekatsaukseen.

Opinnäytetyön teoriaosuudessa avattiin keskeisiä käsitteitä, joita olivat myynnin budjetointi, myynnin ennustettavuus, myynnin suoritusten mittaaminen ja business intelligence.

Opinnäytetyö toteutettiin laadullisena toimintatutkimuksena. Työ sisälsi kehittämistyön, jonka eri vaiheet avattiin tutkimuksessa. Toimintatutkimuksessa käytettiin myyntipäälliköiden, myynti- ja talousjohtajan, sekä liiketoiminnan kehityspäällikön kyselyistä sekä työpajoista saatuja vastauksia. Niiden pohjalta rakennettiin laaja raportointi työkalu, joka sisälsi budjetti- ja myyntilukuja sekä niiden vertailuja.

Opinnäytetyön tuloksena syntyi analytiikkaan perustuva raportointityökalu myyntitavoitteiden päivittäiseen ja kuukausittaiseen seurantaan.

Asiasanat:

budjetointi, ennustaminen, myynnin suorituskyky, business intelligence, toimintatutkimus

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List of abbreviations

AI	Artificial Intelligence
BI	Business Intelligence
CEO	Chief Executive Officer
CRM	Customer Relationship Management
DW	Data Warehouse
EIS	Executive Information Systems
ERP	Enterprise Resource Planning
ETL	Extraction-Transformation-Load Tools
IBM	International Business Machines Corporation
IT	Information Technology
DSS	Decision Support Systems
KPI	Key Performance Indicator
KRI	Key Result Indicator
MIS	Management Information Systems
OLAP	On-Line Analytical Processing
RI	Result Indicator
SQL	Structured Query Language
VAT	Value Added Tax

1 INTRODUCTION

1.1 Background and the commissioner company

Nowadays companies store a huge amount of data. Data has always been a part of companies' processes but the difference in today's business is the huge amount of it available in real time. A successful organization can take advantage of all the available data that is distributed across different functions. Sturdy (2012) explains that as organizations become more "knowledge-centric", many of their employees need to have access to a variety of data to be effective. When the number of data sources increases companies have difficulties making use of them and producing consistent and timely operational reports. Business intelligence (BI) has become the solution to collect, process, analyze, and transform data into information and the knowledge shared in decision-making. (Sturdy, 2012, 175-181.)

The internal and external information is used in technologies and processes to analyze, understand, and support decision-making. By using business intelligence (BI) tools a company collects data, and information, reports, and analyzes present situations as well as predicts future scenes. This helps companies in their strategic and operational decisions. (Davenport & Harris, 2007, 26.)

Many companies implement dashboards and scorecards as key content in their BI initiatives. With these tools, it is possible to summarize visually a large amount of data that is related to organizational performance and accessible by anyone in the organization. Dashboards are designed to be user-friendly, and they demonstrate in a single or few screens, easily how the company's actual performance compares to goals and previous performance. (Sturdy, 2012, 175-181.)

Business intelligence (BI) solutions aim to provide tools and possibilities to create layers between the database and the reporting tool, which can be

dragged and dropped into the report and created simply. This allows business units to create their reports and not rely on the IT personnel. Even though collaboration with the IT department is needed for technical possibilities, business units should find appropriate business intelligence solutions that will help them solve business problems. (Sturdy, 2012, 175-181.)

The research was conducted in a commissioner company, which is a class III medical device company located in Southern- Finland. The core of the product's technology is bioactive glass, which is a "smart" biomaterial consisting only of elements that exist in the human body. Thus, this material seamlessly integrates with human biology, making it uniquely suited for filling defects and replacing bone tissue. Positioned at the intersection of technology and human biology, the company's innovative solution minimizes the need for antibiotic treatments, ultimately enhancing the quality of life for patients.

The company was founded in 2009. It has subsidiaries in Germany, the United States, and Italy and customers across 6 continents and 40 markets. It is led from headquarters located in Finland and it employs 40 people. Since the company was founded, there has been rapid growth in both employee and sales figures. Thus, there is an emergency need for new tools to measure and report sales.

1.2 The aim of the thesis and research questions

Due to increased sales and customers, the thesis aims to examine the present state of the commissioner's sales reporting and how to improve and develop it with the existing tools. In addition, due to the large amount of data, the purpose of the thesis is to find solutions for how the commissioner company could use the BI tools for effective business information management in the entire company.

This thesis examines how the commissioner company's reporting should be developed to have effective business information management. The work aims to answer how the commissioner should improve the existing report system by

building different sales reports with the existing data and systems and how to use BI tools in the built reports. In the end, the commissioner company wants to reduce manual work and errors in the reports, have user-friendly reports, and gather automatically different information from different sources into one place without manual processes.

The research will focus on BI, customers' budgets, sales forecasts, and sales performance. The research questions which the thesis aims to answer are:

How do sales managers report sales results in the commissionaire company? What kind of reporting tools do sales managers want to use for reporting and following the sales results?

What kind of reporting tool does the commissionaire company's management need to follow daily sales and sales performance of the sales managers? Can business intelligence be used for this purpose?

The researcher will be familiarized with BI literature and utilize one's own experiences in report development. As the BI – concept is broad, the research will concentrate only on interpreting the topic from an internal point of view. Hovi et al. (2009) explain that companies that collect, understand, and develop their activities from their business information are the basis of an internal interpretation. According to this perspective, the company's own information systems, databases, and CRM (customer relationship management) are the basic resources - where the information is numerical and structured, i.e. sales reports, in which sales are documented in the system. (Hovi et al., 2009, 78-79.)

The research aims to understand which are the critical measurement points and figures that need to be reported and how this information can be found and structured from the company's data. The researcher aims to use the existing ERP (enterprise resource planning) and CRM tools and understandably present the information threw dashboard reports, which will be available to everyone in the company who needs them.

1.3 Research method and structure of the thesis

The researcher will use action research as a research method. According to Costello (2003), action research is a process that identifies a problem and involves research and action. He adds that it aims to understand, evaluate, and change. Research consists of collecting and analyzing data and using the findings as learning and decision-making actions toward positive change. (Costello, 2003, 3-6.) The action research was chosen because the commissioner company has an emergency need for new tools to measure and report sales.

The first chapter introduces the thesis. In Chapter 2. the thesis continues with the literature review which introduces and defines the key concepts. It includes works of literature and journal articles related to topics such as sales budget, sales and sales forecast, key performance indicators (KPI), and business intelligence. The sources act as the database for this research.

Chapter 3 introduces the research methodology and the data collection. The data is collected using theme interviews, participant observations, and organizing workshops. The first part of the research was done by interviewing 8 participants - the finance director, chief executive officer (CEO), and sales team which consisted of 4 sales managers, a business development manager, and the sales director. Interviews were discussions with topics such as what data we have, what we need, and how to get and structure it. The interviews were thought of as time-consuming, so in the second part, the workshop was conducted only by the researcher and the business development manager. Questionnaires were not suitable for this research as there are not many people to whom they can be sent. (Klanke et al., 2016, 129-130.)

The results of the research are presented in Chapter 4. Based on the research, sales reports are created including data such as customers' budgets, sales targets, and actual sales and their calculations. The reports demonstrate how BI tools ease the reporting of sales in the commissioner company. They are also used to following sales managers' performance.

During the research process, the author became familiar with artificial intelligence (AI), and the use of Chat GPT. The researcher had no previous experience with this kind of technology, so the thesis acts as a learning platform. The researcher used the Chat GPT to structure Chapter 5 which includes conclusions and discussions of the research. Additionally, the application was used to refine sentences during the writing process, as well as in the English version of the summary.

2 THEORETICAL FRAMEWORK

2.1 Budgeting and forecasting

What is budget? Shim et al. (2012) define a budget as an expression of management's goals, plans, and objectives. They cover all operational aspects and are written for a specific period. A budget is a tool to indicate and direct a corporation’s financial strategy, motivate managers to target achievement, and provide result analysis. Budgets enable control over the immediate environment, help to master the economic aspects of the job and department, and prevent problems before they occur. Shim et al. (2012) underline that a budget is a financial plan that is used to control future operations, decisions, and results. (Shim et al., 2012, 1-2.)

Writers Fabozzi et al. (2007) highlight that a financial plan is essential in allocating a company’s resources to achieve its investment objectives. This plan enables managers to evaluate how specific strategies affect the company's financial position, cash flows, reported earnings, and need for external financing. Additionally, well-formulated financial plans enable companies to respond more quickly to market changes, such as unexpected fluctuations in sales or unforeseen challenges. This proactive approach helps managers adapt strategies effectively to maintain stability and achieve objectives despite market volatility. (Fabozzi et al., 2007, 158-159.)

According to Doxey (2020), different kinds of budgets are i.e. advertising, purchasing, sales, manufacturing, research and development, and cash budget, which are compiled into a master budget for the company’s entire operations. Writers Shim et al. (2012) and Doxey (2020) declare that the five purposes of the approved budget, which is part of the company’s strategic planning process are to: communicate and direct; coordinate; plan; control; and evaluate and analyze. (Doxey, 2020,182; Shim et al., 2012, 2.)

In parallel, writers Neilimo and Uusi-Rauva (2005) point out that the budget links various functions and departments within the company, fostering alignment and collaboration. It can also serve as a tool to enhance employee commitment and motivation by providing clear financial goals and shared objectives. (Neilimo & Uusi-Rauva, 2005, 230-231.)

Doxey (2020) interprets that there are six types of budgets: fixed budget, flexible, continuous, operating, financial, and consolidated budget. A company cannot use only one type of budget, but it must find the best mix which budget types it will use and gather them into one consolidated budget. He continues that the sales budget is a part of the operating budget, which gathers also data from other different parts such as production and administration. (Doxey, 2020, 182-184.)

Writers Jobber and Lancaster (2015) identify the sales budget as the primary indicator for a consolidated budget, serving as the starting point for the company's budgeting process. Other functions depend on sales and total revenue, in the prospect of products that the company sells. The sales predict how many units the firm is expected to sell and based on that knowledge the company plans its production, and other finance costs. In the end, the company combines the previous to estimate profitability. (Jobber & Lancaster, 2015, 461-463.)

Jobber and Lancaster (2015) continue that the sales budget is the most important for a company as it is the revenue earner, and other budgets are present as expenditures. Figure 1 explains how the sales forecasts are the basis of the sales budget. They are followed by the sales department budget and production budget which cover all costs involved in manufacturing the product. The administrative budget covers all other costs. (Jobber & Lancaster, 2015, 461.)

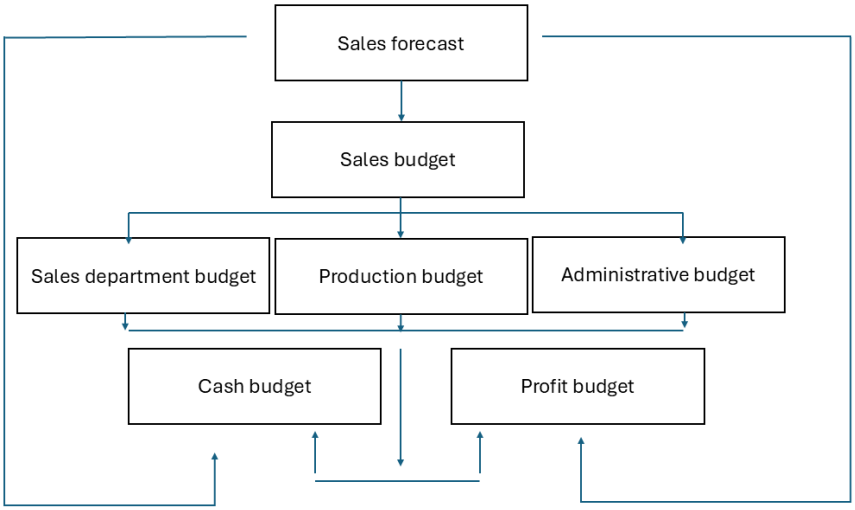


Figure 1. Sales forecast affecting every department. Adapted from (Jobber and Lancaster, 2015, 462)

Neilimo and Uusi-Rauva (2005) further highlight that once the company's sales budget is finalized, the key goals should be translated into individual targets. This often involves breaking down the sales budget into specific targets for each sales representative, ensuring alignment between organizational objectives and personal performance goals. (Neilimo & Uusi-Rauva, 2005, 234.) Writers Jobber and Lancaster (2015) add that targets do not need to be individually based but they can be settled to be as group or region based. Additionally, the sales budget may be broken down into quarters or months so that it would be more realistic and more incentive for the salespersons to achieve the targets. (Jobber & Lancaster, 2015, 461-462.)

2.1.1 Sales budget method

Doxey (2020) points out that when the company has decided on the sales budget process, it needs to examine the historical data. The company needs to look at its financial statements. It is also crucial to look at more specific data such as sales and cost trends for specific products and customers. The whole

plan needs to start with gathering and analysing historical data. Doxey (2020) adds that the company needs to know its past performance based on: regions, customers, and products. (Doxey, 2020, 185-186.)

Neilimo and Uusi-Rauva (2005) emphasize that a key aspect of the annual budgeting process involves reviewing and analyzing the company's past financial performance and comparing it to the established sales budget goals. The analysis may be complete once the previous year's budget outcomes are finalized. Usually, this is done before the budget preparations for the upcoming year begin. During this phase, the company evaluates changes in the business environment and updates its plans for the coming year. (Neilimo & Uusi-Rauva, 2005, 234.) According to Fabozzi et al. (2007) the budgeting process generally begins four to six months before the year ends (Fabozzi et al., 2007,160).

Doxey (2020) emphasizes that a sales budget must be assigned and effectively implemented. The actual results need to be tracked on a monthly and quarterly base. Companies tie the sales budget process to strategic planning and the components that are mostly tracked from the sales perspective are sales budget, forecasts, and actual sales. Companies must conduct detailed tracking, analyze variances between these components, and provide explanations for any differences, whether expressed in currency or percentage terms. This ensures a clear understanding of performance gaps and supports informed decision-making. (Doxey 2020, 191.)

Doxey (2020) underlines that sales budgeting is crucial for companies. That is why the budget process must be part of the corporate culture. Senior management, finance, and department managers are a vital part of the process. They should be engaged in it so that they can translate the goals into specific departments. By translating the strategic goals into operational plans and by measuring the performance against the plan, companies can achieve their objectives. (Doxey, 2020, 188-189.)

Neilimo and Uusi-Rauva (2005) add that there are three different methods that companies can use when they plan their budget methods. In the democratic

budget method, it is done from the bottom to the top where the starting point is in different functions. The role of the management is to compile all the functions' budgets into one and to guide them. This kind of method may miss an overall view and lean toward partial optimization. The authoritarian method is the opposite of democracy, where management defines the main budget levels and instructions based on strategic targets. This method may be used in different crises where the company needs to achieve centralized targets. (Neilimo & Uusi-Rauva, 2005, 239.)

The writers Neilimo and Uusi-Rauva (2005) continue that the co-operation method combines the democratic and authoritarian methods. This approach is widely utilized in large and medium-sized companies. In this method, management collaborates with various functions to define overall budget targets. Although this approach involves extensive discussions and teamwork, making it time-consuming, it ultimately leads to highly effective results. (Neilimo & Uusi-Rauva, 2005, 239.)

2.1.2 Forecast

Doxey (2020) explains that a sales forecast looks the same as a sales budget. However, it is different due to the fact which data it contains. Sales budgeting defines a company's revenue for one year and it is done a year in advance. Forecast refers to the information that is taken for a time in the past and comparing it to the same numbers in the future. The forecast takes also into account different circumstances, world situations, and financial instances into account. The forecast predicts the future by using the information from the past. It is based on uncertainties whereas budgeting is based on certainties and refers to planning the future. (Doxey, 2020, 221-222.)

Åkerberg (2017) points out that a company might set targets, which are goals that need to be achieved by the company within a specific time. Sales targets are more ambitious than sales budgets, which are usually set equally to or below the best estimate of the sales forecast. This creates a setup where the

company’s sales budget is set to be low, and easily achieved. The company might be satisfied with the situation, but from a business view, this is seen as a slowdown to the business competitiveness. Åkerberg (2017) underlines that a company may lose many opportunities if it is satisfied with reaching the sales budget, even though the actual markets are ten percent larger. (Åkerberg, 2017, 42-43.)

Sales budget and sales forecasts are important for motivating the sales force. The sales budget is usually determined by the sales forecast. It is broken into sales quotas for individual salespeople, regions, and customers. According to Jobber and Lancaster (2015), good forecasting starts with a good sales strategy, whose outcome is to close the deal. It may include a SWOT analysis or a clear understanding of customer criteria for decisions. Another important aspect is to understand buyer’s behaviours and how they make decisions and what kind of process they use. (Jobber & Lancaster, 2015, 463-465.)

Researcher Jobber and Lancaster (2015) continue that forecasting requires also a milestone-driven pipeline process, which refers to the customer's buying process. Once the company is familiar with the customer buying process it can offer specified products and services to the customer. Key milestones can be for example analysis, field studies, demo products, etc. which help the client commit to the sales process. As the forecast represents a phase in time, continual improvement is needed. The circumstances change constantly, and the forecasts need to be continually refined. The changes might occur in the market, business, or customers’ value. (Jobber & Lancaster, 2015, 463-465.)

Accurate sales figures are not important only for the sales department, but they can be crucial for the whole company. Jobber and Lancaster (2015) add that for the manufacturing department sales forecasts are important as they must purchase enough raw materials to manufacture the products. The figures must also be accurate so that the stock is sold. If there are more products produced than sold it creates overstock. This increases additional warehouse costs. On the other hand, if the forecast has been too conservative, not enough units are

made. This creates backorders, loss of clients, and order cancellations, and the company's reputation can be damaged. (Jobber & Lancaster, 2015, 464-465.)

Jobber and Lancaster (2015) claim that the most accurate and reliable forecasts are made with ERP and CRM solutions, which contain a large amount of sales analytics. When using systems for forecasting, factors such as buyers' behaviours (purchase history) and the average time for sale at certain stages of the sales process (i.e. summer vs. winter) are considered. System forecasts are a better solution for forecasting than "best guess", as it allows more precise calculations of risks and rewards, and it is more accurate. It also helps production to order the right number of raw materials, manufacture the right number of products – not too much or too little, meet the sales goals, and perform well. A company may have a demand planning, which follows the system forecasts and communicates them to the production team. (Jobber & Lancaster, 2015, 464-465.)

Additionally, Jobber and Lancaster (2015) point out that other techniques can be used in sales forecast processes. One is called cumulative sales, which usually shows the monthly and cumulative sales. It is calculated by adding each month to the next one and can be compared to the previous year. Writers continue that a company may use also a customer survey method, where it asks customers about their purchases. This refers also to market research. The technique is suitable more or less for smaller companies without organizational buyers. It may also lead to inaccuracies if customers and salespeople are very optimistic when predicting the future. (Jobber & Lancaster, 2015, 444, 453.)

Neilimo and Uusi-Rauva (2005), explained in the budget chapter how a company can plan its budget method using bottom-up and top-down. The very same principle is introduced as the sales forecast method. Jobber and Lancaster (2015) explain that in such techniques, the experts who might be a mixture of external and internal personnel present a prepared forecast that needs to be achieved. The opposite is bottom-up where the forecast has been collected by the sales representatives from basic market data. Prudent manager forecasting is a useful variation of the above-mentioned methods where a

company’s sales representatives are asked to assume the role of a purchaser in a customer company. This allows them to look at company sales from the customer’s point of view. It also forces them to consider factors such as economic situation, competitors, delivery, and prices. (Jobber & Lancaster, 2015, 444-445.)

According to Dimon (2013), forecast processes refer to continued planning and they are starting to replace annual budgets. Rolling forecast increases flexibility, as the forecasted periods remain constant with its number. Dimon (2013), explains this with an example of a five-quarter rolling forecast, in which a new forecast is added when the current ends. In the end, there are always five quarters that are forecasted. This improves the company's accurate forecasting, as it does not have to wait until the fiscal year quarter, quarter 4 but it has a plan or forecast for the next year. (Dimon, 2013, 107.)

2.2 Sales Performance

Parmenter (2019) explains that there are two kinds of measurement types, which are, result indicators and performance indicators. Result indicators are measures that sum up several teams’ work, but do not show which teams were performing well, and which were not. Performance indicators are tied to one team working together for a common goal. The team itself is responsible for good or bad performance. (Parmenter, 2019, 3-4.)

Parmenter (2019) continues that KRI (key result indicators) measures always the past, i.e., customer or employee satisfaction, net profit on key product lines, or return capital employed. All financial performance measures have resulted from result indicators (RI). Monthly sales are a good summary, which shows the work of many teams – from sales to production. KPI (key performance indicators) focus on the indicators that are important for the current and future success of the company. One critical metric to a company’s success is the sales team’s sales metrics, which are data points measuring sales performance, both on the individual and a team level. (Parmenter, 2019, 5-7.)

Jobber and Lancaster (2015) point out that for the sales team, the sales budget is the most important performance measurement. It is a criterion, against which the actual results will be evaluated. The sales budget is a statement of the projects of individual salespeople. The figures that the salesperson needs to achieve are called sales quota or sales target and they reflect the amount that needs to be sold to achieve forecasted sales. Quotas and targets are identified as performance targets that need to be reached. The writers continue that sales performance may be measured with key performance indicators, and the measuring time may vary from monthly to quarterly and yearly. There are often incentives that are linked to salespeople achieving or exceeding the targets. (Jobber & Lancaster, 2015, 461-463, 475.)

According to Cohen (2019) KPIs are an important part of a process, an enablement process that represents what a company does to achieve its revenue and business goals. KPIs, among others, are defined as processes such as business activities, sales planning and budgets, and role plans that are further turned into learning programs and content that are used in customer engagement. Cohen (2019) continues that a company needs to focus first on the most basic strategies and tactics before going into advanced initiatives. It is important to clarify KPIs and to be clear about how much has been invested and how much is required to achieve targets that are important for the business. (Cohen, 2019, 66-70.)

Metrics contribute directly to the business's overall sales objectives. To get a complete view of the sales team’s performance the sales manager needs to track various metrics related to the sales process. The total amount of revenue generated does not tell why the figure increases and tracking only the sales activities without measuring their effectiveness is difficult. When deciding what metrics to follow, a company usually aims for a combination of sales performance metrics and sales goal achievement metrics. (Smith, n.d.)

Key performance refers to specific performance metrics that are connected to one or more company-wide targets. They may be presented by using different sales dashboard reports created by a system. Sales dashboards are a kind of

method of seeing sales performance from a bird-eye view. With the help of these reports, one can measure key sales metrics, an individual team member's performance, and sales activities. They allow the collection of data from various sources and display it in a dashboard layout, which shows the actual performance compared to desired metrics. (Smith, n.d.)

Sales dashboards are used to help sales managers and sales representatives set sales and development targets and measure activities. Successful reporting uses sales metrics of numerous indicators which indicate how each aspect or sales representative of the sales operations performs and are the set targets achieved. (Smith, n.d.)

In nowadays organizations there is less time to make decisions concerning business activities. Many companies have shifted from quarter reporting to monthly, weekly, and even daily reporting. For this kind of purpose, a company needs to have accurate information, which is up-to-date, and automated. Hovi et al. (2009) refer to a near real-time data warehouse where a company can follow transactions within the same day. These kinds of transactions with daily figures are presented in a real-time indicator, in which the predetermined figures are followed. These key performance figures (KPI) are for example sales vs. sales budget, sales by top products, inventory turnover, etc. and they can be presented as dashboards. (Hovi et al., 2009, 76.)

Today's management wants to have versatile analyses to be able to make faster decisions. This means that information needs to be combined from different sources, which creates challenges. Integration of the information has become crucial for CRM, sales management, and ERP. (Hovi et al., 2009, 76.)

2.3 Reporting and Business Intelligence

2.3.1 Reporting

Åkerberg (2017), explains that budgeting, targets, forecasts, sales performance, and overall company success cannot be measured in isolation from the

company’s strategy. Åkerberg (2017), emphasizes that strategy is a plan outlining both short- and long-term objectives, along with the methods by which the company will achieve them. The process begins with establishing visions and missions, but it is crucial to focus on the business plan that supports the strategy. This plan should outline and detail how the company will organize key projects that contribute to achieving its targets. The strategy should also outline the resources required to achieve the targets and establish methods for tracking progress. This alignment ensures that resources are effectively allocated and that progress toward objectives is monitored systematically. (Åkerberg, 2017, 49-53.)

Åkerberg (2017), continues that sales targets and budgets are one of the most important parts in the strategy process and implementation of the strategy. Budgeting plays a vital role in strategy implementation by helping executives identify and establish annual development and planning directions. Budget control, in turn, ensures that the company stays on course toward its financial goals. Figure 2 presents how the set budget targets, actual sales figures, and variance analyses are regularly monitored and followed by different metrics. (Åkerberg, 2017, 49-53.)

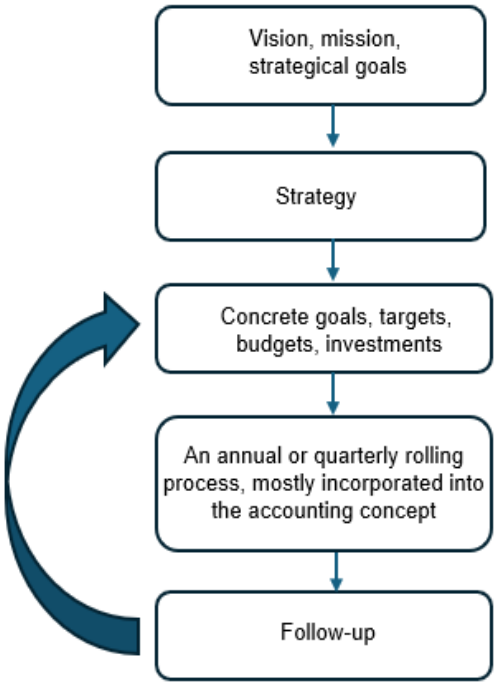


Figure 2. Traditional strategy planning process. Adapted from (Åkerberg 2017, 50.)

Both Åkerberg (2017) and Cohen (2019) point out that everyone in the company must know the company's strategy and its goals. This means the targets must be concrete, understandable, transparent, and aligned with the organization's strategy. At the management level, the management should make sure that the company's personnel understand the targets and motivate them to achieve them. Once the targets are communicated and realized they can be transferred into numbers, sales budgets, objects, reports, and KPIs. (Åkerberg, 2017, 49-57; Cohen, 2019, 24.)

Martikainen (2013) highlights in his research that a company's strategy process is closely linked to its performance management. He explains that, from a strategic process perspective, performance management is essential to strategic planning, execution, and monitoring. It supports strategy development by providing a systematic method for analyzing both external and internal environments, collecting data at each stage, and evaluating this information. Monitoring is performed by using metrics, budgets, and plans, which are also

used as instruments for strategy execution. Performance management allows companies to evaluate how the strategy might need to be adjusted and how it should be implemented in the future. (Martikainen, 2013, 24.)

Jobber and Lancaster (2015) point out that salesforce evaluation is a crucial part of performance management. The evaluation is a comparison of salespeople's goals with results. The salesforce evaluation process looks very similar to the company's strategy planning process. It begins with setting the targets, which are sales revenue, market shares, and profits. The strategy decides how the objectives will be achieved. Performance measurements are compared to overall goals and targets which are set for the company and results are measured. After the comparison of results and targets, different actions are taken to improve follow-up and performance. (Jobber & Lancaster, 2015, 472-473.)

Reporting and analyzing past performance are essential for companies and effective performance management, serving as key components of business analytics. Analytics involves gathering data, analyzing it, creating forecasts, and providing insights that guide business decisions and drive changes across various functions. These changes are monitored through continuous data collection, reporting, and analysis—an ongoing process in which data collection and reporting are vital. Figure 3 illustrates how reporting and analytics integrate into business intelligence (BI), supplying critical information to directors and executives to support informed decision-making, which affects company targets, and strategic decisions and drives continuous improvement. (Davenport & Harris, 2007, 26-27; Hovi et al., 2009, 74-75.)

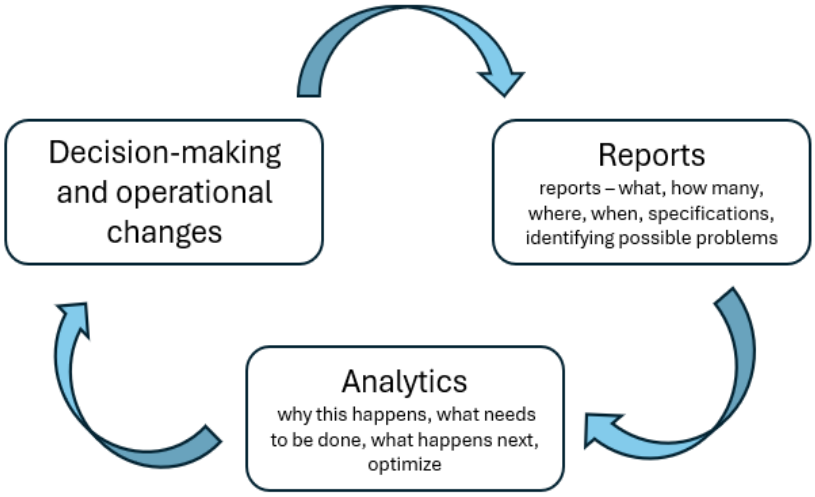


Figure 3. Reports are part of decision-making. Adapted from (Hovi et al., 2009 75.)

2.3.2 Business intelligence

Business intelligence (BI) is an umbrella term that compounds data and data visualization, analytics, and structure. Business Intelligence enables access to real-time data, to extract and present the information in a significant way and analyze it. (Hovi et al., 2009 74-75.) By examining history and current data, situations, and performances, decision-makers can make better and faster decisions. Having the relevant information at the exact time to the right people, the organization can perform real-time decision-making. (Turban et al., 2011, 28-29.)

Turban et al. (2011) explain that the business intelligence (BI) term was introduced in a journal article by computer scientist H.P. Luhn from International Business Machines Corporation (IMB) in the late 1950s, but the actual use started in the mid-1990s when Gartner Group coined it. However, the concept is much older. For a long time management information systems (MIS) have been used for reporting. It was static, two-dimensional, and had no capabilities of analysis. Decision support systems (DSS) and executive information systems (EIS) emerged with capabilities such as multidimensional reporting, trend

analysis, status access, critical success factors, forecasting, and reporting. (Turban et al., 2011, 29.)

Olszak and Ziemba (2007) emphasize that to be able to react rapidly to market changes companies needed a management system that could collect data, and analyze cause and effect analyses of the companies and environments. Business intelligence (BI) provided the solution to collect more data from different – internal and external sources and to combine it into practice that can be analyzed and which help the decision makers in their future decisions and forecasts. In this process, illustrated in Figure 4, the data is transformed into information and knowledge, then into decisions and actions. (Olszak & Ziemba, 2007, 135-137.)

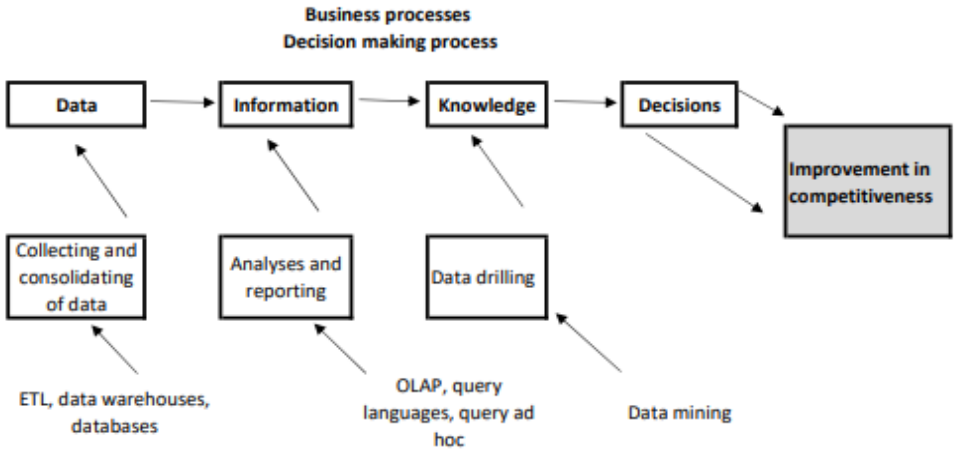


Figure 4. The role of BI systems in decision-making. Adapted from (Olszak and Ziemba, 2007, 137.)

Olszak and Ziemba (2007) continue that business intelligence (BI) can support decision-making at different management levels. On a strategic level, BI may be used to set targets and KPIs and follow their realization as well as to prepare comparable reports, e.g. past results, examine the profitability of particular customers, or forecast future outcomes. On a tactical level, BI can be used to

provide a base for different decision-making in sales and marketing. Operation level may use BI to carry out ad hoc analyses and reports demonstrating ongoing operations such as up-to-date financial and sales situations and cooperation with customers. (Olszak & Ziemba, 2007, 137-138.)

Different business intelligence (BI) systems support data analyses and decision-making in many companies' functions. They may be used for example in marketing analyses, monitoring business activities, measuring sales performance, meeting sales targets, and customer and salesperson analysis. (Olszak & Ziemba, 2007, 137-138.)

Olszak and Ziemba (2007) continue that the BI system provides software tools that help to gather data from different sources, combine and analyze it, and make it available. Important components of the BI infrastructure are data acquisition tools. These tools are used for extracting, transforming, and loading data (ETL, Extraction-Transformation-Load tools), and they transfer system and internet data to data warehouses where aggregated and analyzed data is stored. The analytical tools (OLAP, Online Analytical Processing) access users to analyze and model business problems as well as share information stored in the data warehouse. With the help of data mining tools users can discover different models, generalizations, and rules of information resources. Reporting and presentation allow users to present the decision information in a comfortable form. (Olszak & Ziemba, 2007, 138-139.)

2.3.3 Data selection, designing, and implementation of business intelligence

Writers Olszak & Ziemba (2007) explain that selecting a BI tool can be very difficult, as there is a wide range of products that offer a selection from simple reports to distinguished BI platforms. When choosing a BI tool, the company needs to consider the functionality, complexity, and compatibility of the solutions and make sure it is up to date to meet the company's expectations in the future. Nowadays ERP systems providers supply their products with BI modules that

use the OLAP technique and make them dynamic and analytical. (Olszak & Ziemba, 2007, 143.)

Olszak & Ziemba (2007) continue that the company needs to determine in which areas it plans to use BI. Planning and budgeting are areas that use BI techniques but there are also other areas that even require specialized and additional high-level features. This will direct whether the company should plan its' BI purchases by suppliers in each category, whether it should use only one provider, or is better to select the best products in each category sold by different providers. Depending on which option the company chooses it needs to consider that not all solutions have the best system quality and options. There might be also issues related to responsibility if the system providers use other providers for particular models. (Olszak & Ziemba, 2007, 143.)

Once the company has decided on the execution of the business intelligence system it needs to decide on the complexity of the system. Olszak & Ziemba (2007) underline that the creation of a customized BI application requires plenty of time in designing and making sure that the application is logical and coherent. (Olszak & Ziemba, 2007,143-144.)

Additionally, designing BI involves data warehouse building. Writers Turban et al. (2011) clarify that a data warehouse (DW) is a bucket of data that is produced and supports decision-making; it combines the current and historical data, and it is structured in a form that is available for analytical processing, for example, online analytical processing (OLAP), querying and reporting or other applications which supports the decisions. The systems analyze large amounts of data from diverse sources and management systems and provide rapid results to enable essential processes. (Turban et al., 2011, 50-54.)

Writers Olszak & Ziemba (2007) underline that a company has a lot of data that it may use. That is why it is important to find internal sources as well as external sources alongside verified and reliable ones. This requires cooperation between decision-makers, operational workers, and IT departments. It is important to find the data that can be found from the system and to analyze whether it is relevant

or not. Secondly, Olszak & Ziemba (2007) explain that the data that is found needs to be logically structured and related to the business process. Additionally, it is important to have a clear vision of which data cannot be reported as the data may be inconsistent. (Olszak & Ziemba, 2007, 141-142.)

Tähinen (2005) indicates that once a company has identified, selected, and designed its data for the business intelligence system, it must start implementing the process. During this process, the company analyzes different techniques, technologies, resources, and system integrations as well as its personnel resources and needed training. In many cases, the company lacks qualified personnel who can implement this kind of process of system integration, or they are experts in only one field of the system. To have the best system a company needs to rely in many cases on experts outside the company. (Tähtinen, 2005, 154-158.)

Tähtinen (2005) continues that the implementation of a business intelligence system is a project. However, developing a company's system is a process. When the project is planned it needs to be scheduled, budgeted and personnel should be aligned and committed. The system techniques in the implementation process are the easiest ones to work with. During the process, different challenges may occur such as different ways of thinking among the users and change resistance. During the project, all the participants of the project need to have a coherent understanding of the implementation, as well as time management. (Tähtinen, 2005, 154-158.)

According to Olszak & Ziemba (2007), experiences have shown that companies will need to use multidimensional analyses at some point. Business intelligence solutions will develop and in addition to viewing data, users will require data that provide better customer understanding in terms of supply chain, geography, and other impacts. This leads that a company needs to pay attention also in designing interfaces between different systems which may provide possibilities to carry out analyses for areas such as customer lifetime value, segmenting and profiling customers, customer loyalty, and market campaign studies. (Olszak & Ziemba, 2007, 143-144.)

Artificial intelligence (AI) is nowadays a topic that is also discussed among researchers and system providers. It can be seen as one option for multidimensional analyses in various systems. According to Bodnar (2024), AI can be applied to various tasks that require analyzing large amounts of data. By integrating AI into a system users who perform data analytics regularly can benefit from a faster, comprehensive, more productive, and effective way of working. (Bodnar, 2024, 14-19.)

3 METHODOLOGY

3.1 Background of the action research in the commissioner company

The commissioner company is a Ltd. (limited) company, which has different reporting obligations. Various reports are created quarterly for the sales and management team, the shareholders, and the board of directors. The reports include total sales figures, sales by product groups, unit sales, sales by area, sales vs. sales budget, and sales of subsidiaries. Reports are created manually using ERP and CRM systems. The information is inserted into an Excel file where the information about the previous years can be found, and some comparisons can be made.

The commissioner company reports also monthly. These reports consist of the entire group's calculations and include the same data as quarter reports such as sales figures, sales by customer/ area, and sales vs. sales budget. After the monthly accounting is ready the needed figures are extracted from the ERP system into an Excel file. The intercompany sales are eliminated, and the consolidated sales are calculated. The Excel report is done manually, the possibility of errors increases, and it is time-consuming due to it not being automated. Weekly reports measure the sales every week. The calculation principle is the same as in the monthly sales report. All reports are sent to the Finance director and CEO.

In addition, the sales team has its own reporting procedure. Their sales reports are updated monthly and are structured with information such as sales representative’s customers and their calculations, sales budgets, targets, sales, and forecasts. The sales figures are manually extracted from the ERP system and reported in Excel, which is time-consuming, and the error possibility increases. The layouts of the sales files are different from the monthly/weekly files and there is no connection between them, which creates difficulties in analyzing the situation.

3.1.1 Research context

The commissioner company is growing rapidly in revenue and entering new market areas. The current report and data management have brought challenges in providing and following accurate real-time data and targets. Fast-growing and increased reporting requirements require designing and developing new types of reports as well as making integrations to different software. To support this the researcher studied different information management systems used by the commissioner company and aimed to design a report that is an efficient BI platform, that supports operations in decision-making, forecasting, and following one of the main sales teams' KPIs.

The main information management system that the commissioner company uses is the ERP system, Oracle NetSuite which is used to measure sales and create reports, such as income, sales, and cost reports. The ERP system used is in real-time and by every employee in the company. It is suitable for inventory flows, purchasing, invoice automation, finance, customer and order registration, production, and management. Many reports can be created and automated through the ERP, but after different tests, it has been found that is not very suitable as an analyzing tool. One of the biggest problems is that importing Excel files without affecting different departments and layouts is difficult. Another crucial matter is that at this moment not all the subsidiaries use the ERP system, which creates problems in transparency.

To consolidate subsidiaries' performance data and facilitate analysis, the commissioner company has implemented the Microsoft BI tool. This tool simplifies importing and working with Excel files and enables data extraction from ERP systems and other sources. Microsoft BI tool has many features adapted from Microsoft Excel, which ease the use, but limited user access creates challenges.

The third system that the commissioner company uses is HubSpot CRM. It is a CRM system, which enables the sales team to constantly find newer, more effective, and efficient ways to engage with prospects throughout the selling

process. The system is ideal for maintaining data about customers' and prospects' information, identifying sales opportunities, recording meeting notes, emails, and service issues, and managing marketing campaigns and customer activities. As the system is connected to the company's websites it collects data from users, visitors, comments, and questions. It is a tool for analyzing leads, prospects, and customers, but it creates challenges in creating company reports. One of the most difficult challenges is that Hubspot uses the data from the ERP system, but it does not transfer data back. There is also no experience in importing Excel files into it. As the data needs to be exported from the ERP system anyway and modified, it has been concluded that at this stage Hubspot is a better tool for marketing purposes.

3.1.2 Research approach

The research was conducted as action research and development work with a qualitative research approach. Kananen (2019) explains that the qualitative research method aims to realize the case problem and to answer the topic question as well as to present a possible solution to the problem. (Kananen, 2019, 25-26.) At the beginning of the qualitative research, the researcher has an image or pre-knowledge of the problem. During the research process, the researcher deepens this knowledge by studying the case problem in detail as well as comprehensively, and having a deeper understanding of the case problem. (Helakorpi, 1999, 50-52.)

Writers Heikkinen and Kaukko (2023) describe action research as a research strategy that aims to study reality to change it. It is a special field of research that focuses on the development and improvement of practical activities or problems. It is a process where people participate, interact, try to understand, and find a solution to the problem. (Heikkinen & Kaukko, 2023, 6-7.)

Heikkinen and Kaukko (2023) claim that in action research, research is approached through practical action, so it closely combines action, research, and goals. The object of research is often a specific practical problem or

phenomenon that one wants to better understand or develop. At the same time, research itself is a type of activity in which participants, such as persons or groups who are the subject of research, are actively involved in the process. They continue that nowadays actions researches are used in many companies. The smallest action research might be the development of one's work, and self-development where one needs to cooperate and interact with other people. (Heikkinen & Kaukko, 2023, 6-7.)

Heikkinen and Kaukko (2023) explain that cycles are relevant for action research. The action is planned and tested, observed and reflected. The methods are divided into constructive, which looks ahead and forward to the future, and reconstructive which looks backward reviewing the past. The research does not end in one cycle as the development work often leads to new improvement ideas. Figure 5 shows how one cycle follows the other, and the third and fourth – creating a spiral where new ideas follow the planning, actions, observations, and reflections creating new cycles. (Heikkinen & Kaukko, 2023, 11-13.)

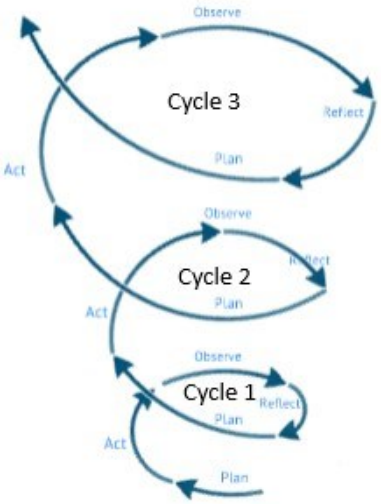


Figure 5. Action research spiral. Modified from the original figure (Heikkinen & Kaukko, 2023, 12-13.)

The writers Heikkinen and Kaukko (2023) continue that a researcher must review the action research and the spiral critically as there are many processes connected to the research action, and it can be difficult to simplify them into one spiral. During the research, there might occur smaller problems or research assignments that were not thought of at the beginning of the research. They are called unexpected problems or side spirals of the research. (Heikkinen & Kaukko, 2023, 11-13.)

Writers Heikkinen and Kaukko (2023) add that the researcher is part of the action research by participating and changing it. The researcher is an active influencer who aims to create a change, an intervention. The main point in action research is that the researcher collaborates with others within the research and does not act as a neutral observer. (Heikkinen & Kaukko, 2023, 13.)

The key idea of this action research is that not only one external research expert collects the data, but all the members of the research are in a key role position generating and analyzing the data. This approach advances dialogue and collaboration between different people and departments and can lead to a deeper understanding of the organization’s challenges and opportunities.

3.1.3 Qualitative method

The conception of the qualitative research method is that it uses non-science methods for gathering data. These are interviews, personal documents, observations, or notes, and are so-called soft data. According to Helakorpi (1999), action research can be explained as a qualitative method as the researcher participates in the observations and is part of the development project. The researcher’s knowledge and pre-understanding at the beginning of the process are very narrow, but they get deeper during the research process. (Helakorpi, 1999, 50-52.)

Helakorpi (1999) continues that to get a deeper understanding the researcher may divide the research problem into research questions that will help to

research the topic. The research methodology should answer the research question and problem and lead to a result and solution. In Figure 6 the qualitative method is seen in the research as a process where the problem is studied first from a very detailed perspective and after that from a comprehensive view. The process continues and allows the researcher to deepen the knowledge of the problem and to observe it in versatile contexts. The research process consists of chain interpretations, followed by other interpretations, which steer the process. (Helakorpi, 1999, 50-52.)

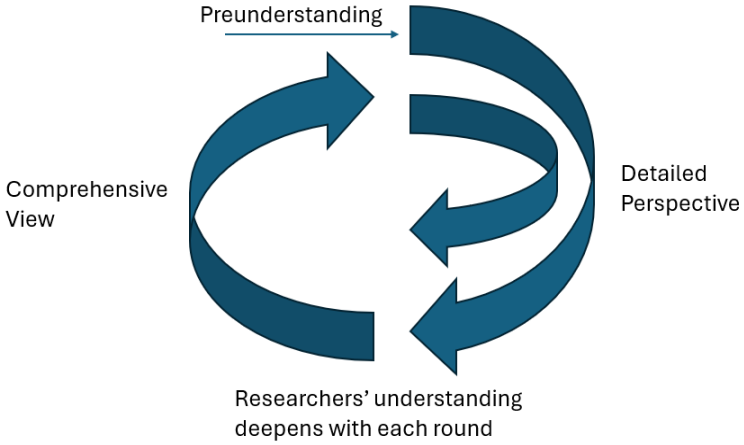


Figure 6. The research process, where the researcher's understanding of the subject gradually deepens. Adapted from (Helakorpi, 1999, 52.)

Helakorpi (1999) explains that qualitative research strives to analyze and understand the problem, subject, and phenomenon and their relationships. Its feature is that the collected material, non-numerical data, such as interviews, experiences and observations, and intuitive and subjective experiences are converted into a written format for analysis. It aims to understand the concepts, opinions, and experiences as well as to compile new insights and ideas and to generate solutions. In quantitative research, the analysis relies on, statistics, logical empiricism, and formal and structured questionnaires, and typically the

material is converted into numbers and an observation and statistical matrix. (Helakorpi, 1999, 50-53.)

3.1.4 Data collection

Writer Bhandari (2020) claims that qualitative research is shared among humanities and social science studies. He adds that qualitative research is used to understand how people experience the world (Bhandari, 2020). Data collection methods in qualitative research are observations, workshops, and interviews. From these mentioned methods, the thesis applied interviews and workshops. The biggest advantage of interviews is that the interview can be semi-structured, which allows the researcher to ask thoughtful questions and get a better image of the subject and research questions. The interviews can be also theme or open interviews, which are more discussions where the interviewer directs the point of the discussions. (Helakorpi, 1999, 55-56.)

The research was conducted in three different parts: Interviewing participants, observing, organizing a workshop, and creating and testing phases. The schedule and different tasks of the action research are presented in Table 1. The first part of the interviews was done by interviewing 8 participants - the finance director, CEO, and sales team which consisted of 4 sales managers, a business manager, and the sales director. The selected interviewees work in sales budgeting and sales and are experts on different topics. The interviews with the participants were 15-minute discussions on topics such as what reporting data we have and what we need.

Table 1. Schedule of the action research

TASKS	March-Apr 2023	May-Aug 2023	Aug-Sep 2023	Oct-Dec 2023	Jan-March 2024	Apr-May 2024	Jun-Sep 2024
Interviews, discussion							
Observing							
Workshop							
Designing the system							
Building the reporting tool							
Testing the reporting tool							
Use of the tool							
Feedback							

Interviews were carried out in a semi-structured manner, but in the end, there turned out to be more discussions about the topic. The participants who answered the interview questions (Appendix 1) were enthusiastic about the idea of improving the reporting system and answered the questions, led the discussion, and expressed their opinions.

The interviews were organized during March-April 2023, but for the sales director and business manager, the interviews were held after the summer, in September 2023. The interviewers were contacted by sending a meeting request. During the meeting, the purpose of the research was explained, and the questions were asked. During the interview, there were a lot of discussions, and one question led to another. The schedule was strict, and the non-official meeting was estimated to last 15-20 minutes. Table 2 shows the participants and their answers to questions 1-3.

Table 2. Participants in interviews.

	Role in the company	Reporting system used in daily/ weekly/monthly work	Reporting system used for reporting
Person A	Salesperson	NetSuite/ Excel	Excel
Person B	Salesperson	NetSuite/ Excel	Excel
Person C	Salesperson	NetSuite/ Excel	Excel
Person D	Salesperson	NetSuite/ Excel	Excel
Person E	Sales Director	Excel	Excel
Person F	Finance Director	NetSuite/ Excel/ BI-tool	Excel/ BI-tool
Person G	Business Manager	NetSuite/ Excel	Excel
Person H	CEO	NetSuite/ Excel/ BI-tool	Excel/ BI-tool

From the results, it can be determined that all interviewees use Excel in their daily work. Some people from the management use BI-tool, but due to the role restrictions, it is not very common. It was also mentioned that some people can get information from other employees, i.e. customer service. Questions 4-5 were about usability. Many of the respondents described NetSuite as a not-friendly system, which might be a consequence of low training and use. It was also mentioned that the system seems to be mixed as several numbers measure the same issue, and it is confusing. The system was thought to be time-consuming, as many people could use it from 30 minutes to several hours to find the needed information or data. This affected motivation and the low use of the system. Several people used NetSuite only for copying the data to Excel files and continued to use them as reporting platforms.

The use of Excel can be also explained by the fact that not all data is available on NetSuite. People could not, for example, find or see sales targets in the system. Additionally, they needed to modify the data and delete incorrect

figures to get a better understanding of it. Many of the interviewees said that they would appreciate a report that is real-time based and shows with a click days situation. They said that this kind of real-time report would help them with decision-making and to react more quickly.

3.1.5 Data analysis and action

The second part of the data collection and analysis was conducted as a workshop where the researcher and the business manager organized meetings, went through the answers, and had discussions about what kind of reports the commissioner company would need.

During the workshop discussion, it was noticed that the sales team needed urgently a report where they could follow their targets and actuals daily – management was interested in how the sales team is progressing daily and whether they are achieving the goals, on monthly and quarterly levels. Otherwise, they commented that the rest of the data and information received is enough as it is accessible when needed.

It was also found that the sales team, business manager, and sales director wanted to have more detailed information about each one of their customers and their progress, but the management was interested in the whole picture. After the interviews and workshop, it was decided that the monthly reports prepared with Excel files for administrative purposes are enough and will not be affected by this research. The commissioner company was interested in how it could automate its sales reports, follow sales targets and utilize current systems.

4 ACTION RESEARCH CYCLE

4.1 Plan

The research started in March-April 2023 with the interviews. They were followed by a workshop and action. The researcher used the action research cycle as a base for the report creation. Figure 7 presents one cycle of the action spiral which contains four phases: planning, acting, observing, and reflecting. The idea of the circle was presented by Kurt Lewin in which the action research is seen as a reflective circle where action and its observation and reflection are followed by a new plan. The model is commonly used in approaches that involve collaboration between the researcher and participants to identify, analyze, and conduct real-world issues. (Heikkinen & Kaukko, 2023, 10-11.)

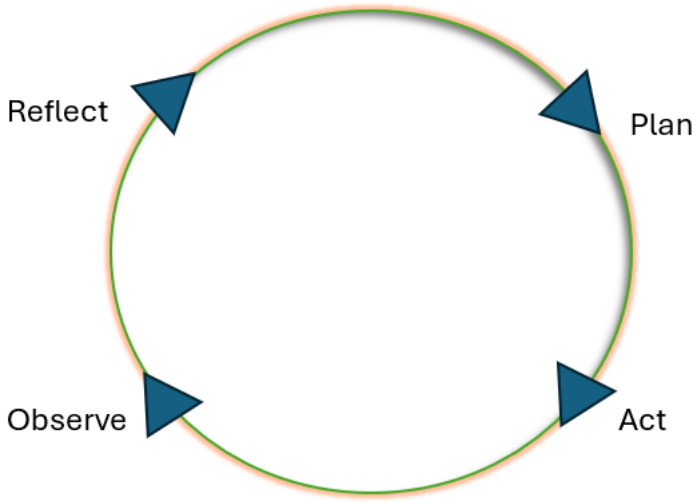


Figure 7. Kurt Lewin's action research cycle. Adapted from (Heikkinen & Kaukko, 2023, 7.)

The first step of the cycle is planning. In this research, it was done during the workshop with the help of the business manager. Based on the interview answers and history it was obvious that the report needed to have the sales

budgets, which are called in this research targets, and actual figures. The report needed to have automated calculations between these two data. It needed to show the whole real-time situation as well as it needed to be able to be sorted, by year, quarter, month, sales representatives, and customers. This is all easy to build in Excel and share with all who need it but as the aim was to automate the process, a report needed to be built in a system.

As previously mentioned, the CRM system HubSpot was deemed more suitable for marketing purposes, while Microsoft BI was not considered due to authorization restrictions. The only viable system option was the ERP system, NetSuite, as it was already validated and required no additional reports or validations.

4.2 Act

The next step was to add the sales budgets and the targets into the system so that they would be visible to the people who needed them. It was known from previous experience that if the data is added as sales budgets the figures will mix the financial part and create wrong records. The researcher conducted different tests on where to add the data, but the budget fields behind customer data were not active. They could not be also used because it was only possible to insert one figure. It did not show the data yearly or monthly, and the data was not comparable.

Since the finance department was already using the Microsoft BI tool for reporting purposes, it was suggested to transfer all financial data from the ERP system to the BI tool. This would enable the researcher to input sales target figures without affecting other data. However, as the researcher had only basic knowledge of the ERP system, a comprehensive study of Oracle NetSuite was necessary to learn how to input additional data and create comparable reports effectively.

To examine one sales representative's customer, its targets, and actual sales progress was easy, as the ERP system calculated this automatically. However,

to have a large amount of data that gathered the whole sales team's performance into one was challenging. After several tests and many hours of Oracle Help Center studies the result was that the needed report needed to be built using the Oracle NetSuite business intelligence tool, NetSuite Analytics and Reporting, which provide real-time visibility into commissioner company operational and financial performance across different business functions.

The researcher became familiar with NetSuite Analytics. The tool offered a range of instruments for business users, including saved searches, workbooks, reports, key performance indicators (KPIs), and dashboards. Correct and well-timed analytics empower business users to monitor operations, identify trends, and strive for optimal outcomes. With the right metrics in place, the commissioner company's sales managers can meet their targets and be confident that their decisions are supported by accurate and timely information.

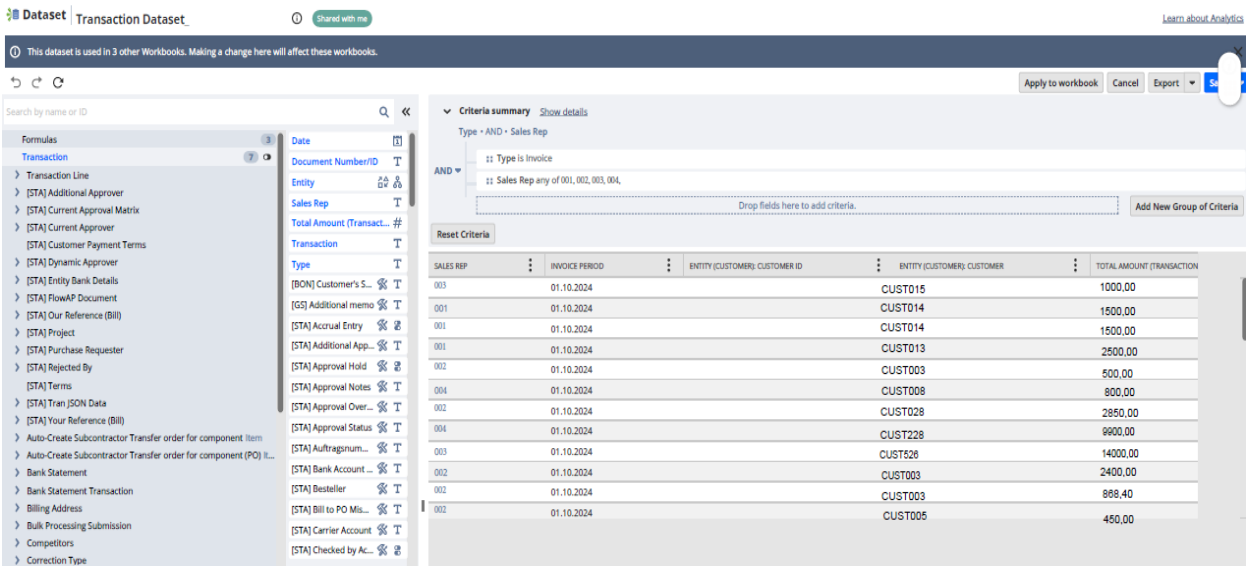
During the acting phase, the researcher studied Oracle NetSuite instructions related to NetSuite Analytics. Based on that knowledge it was decided to use NetSuite Analytics Workbook, which offers advanced query capabilities to examine and analyze operational and financial data. The report was planned to be built by using the pivot table and charts.

Pivot tables are used to calculate, summarize, and analyze data for cases like comparing performance over time. They also allow users to customize, filter, and format the view of the data. Charts present the data visually using different chart types. Datasets are the foundation of the workbook. They can be compiled using field data from multiple record types and including custom records. Custom formula fields are also supported, and one can create and add calculated values. Datasets can be linked in workbooks, which enables comparison of metrics from different datasets in one workbook, one report. The report can be shared and limited to the modification only to authorized people. (Essential Metrics and Reports to, 2024)

The researcher started the report building by defining the dataset. In the dataset, the fields of a root record type and joined related record type are

combined to create a query. In the dataset builder, the results of the query are displayed in a tabular format in the data grid on the right, where joinable record types and fields, which can be added to the query appear on the left, in Records and Fields lists.

The first dataset was selected to be under the root record type, transaction. The chosen record type determines the types and fields that can be joined into the dataset. As shown in Picture 1 the root record type is transaction and is shown on the left side. The selected joined fields are shown next to it and the chosen ones are displayed on the right. They contain data such as invoiced sales, customers, dates, and sales representatives.

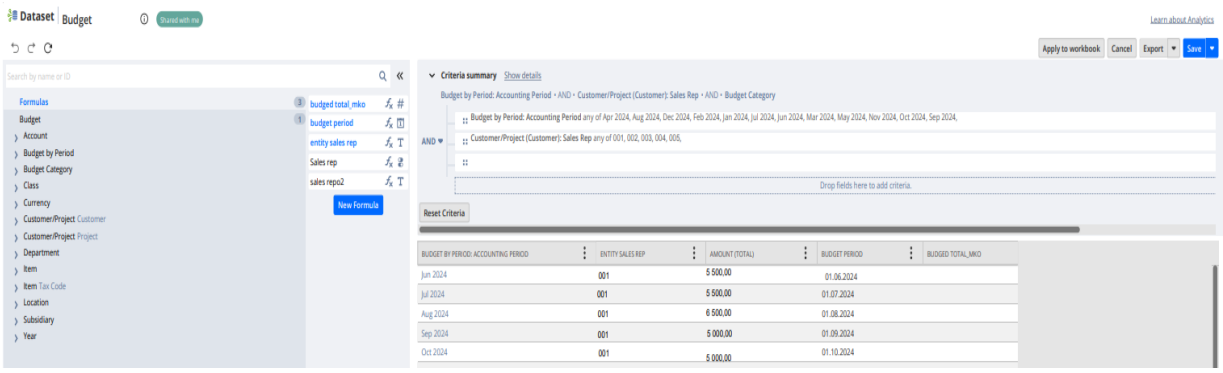


Picture 1. Example of transaction dataset. Modified and generalized from the commissioner company ERP system (Koivunen, 2024.)

To be able to have all the relevant data in one data set the researcher needed to create custom formula fields which were created by using the structured query language (SQL) expressions and formula functions. SQL language is a programming language for storing and processing information in the database and requires careful study of Oracle NetSuite instructions and testing. Picture 2 shows different formula options which were used to combine data.

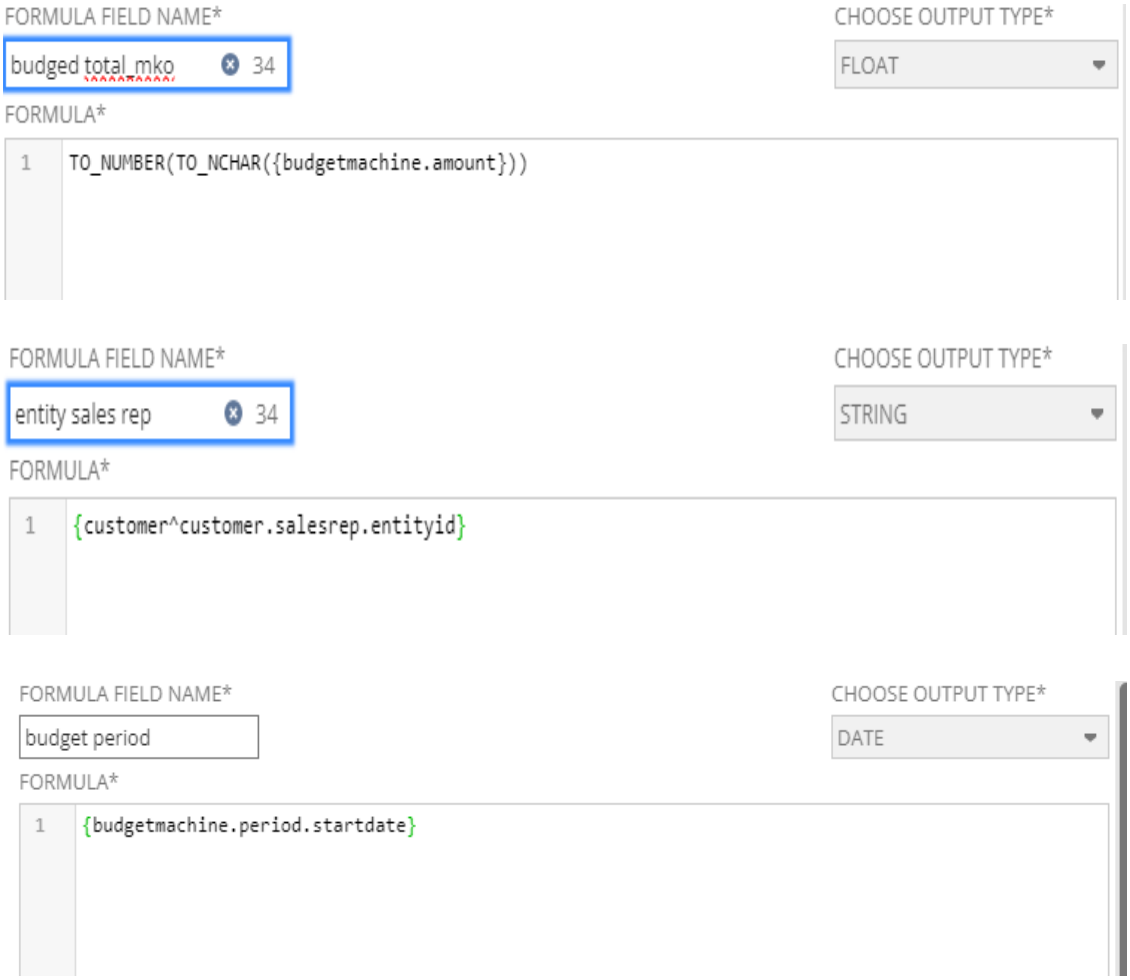
Picture 2. Example of SQL formula functions in sales dataset. Modified and generalized from the commissioner company ERP system (Koivunen, 2024.)

Where the first dataset collected data on sales, the second dataset collected data on sales targets and budgets. After inserting the sales budget figures into the NetSuite system, the researcher could create the second dataset, which contained data on budget period, sales representative, customer, and amount.



Picture 3. Example of budget dataset. Modified and generalized from the commissioner company ERP system (Koivunen, 2024.)

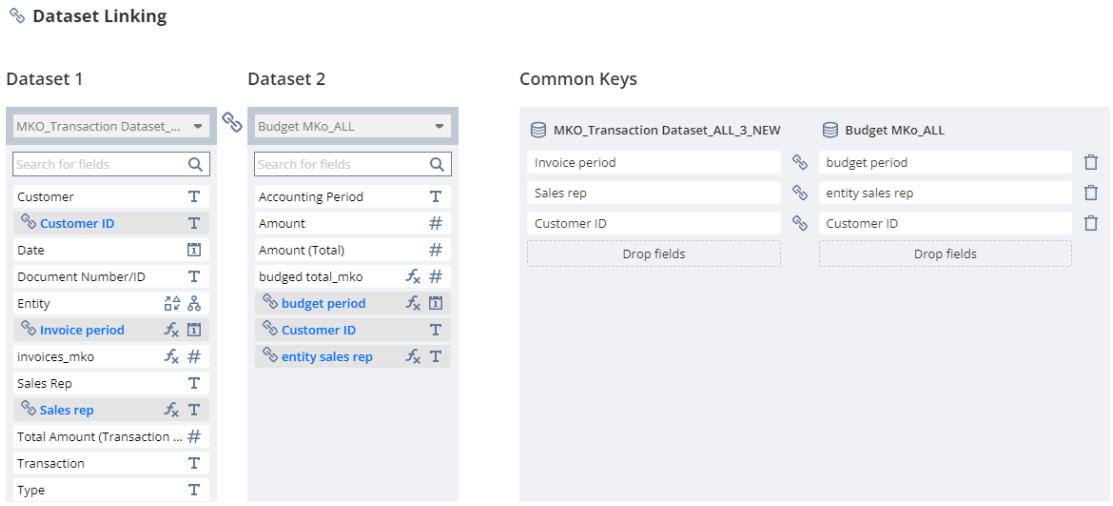
The budget dataset required also custom formula fields which were created by using the SQL expressions and formula functions. During the project, there were changes in the sales team which were updated in the NetSuite system. This influenced the NetSuite analytics, and the links did not work. It required additional SQL formulas. Picture 4 demonstrates different types of used formulas; budget figures and period and sales representative link.



Picture 4. Example of SQL formula functions in the budget dataset. Modified and generalized from the commissioner company ERP system (Koivunen, 2024.)

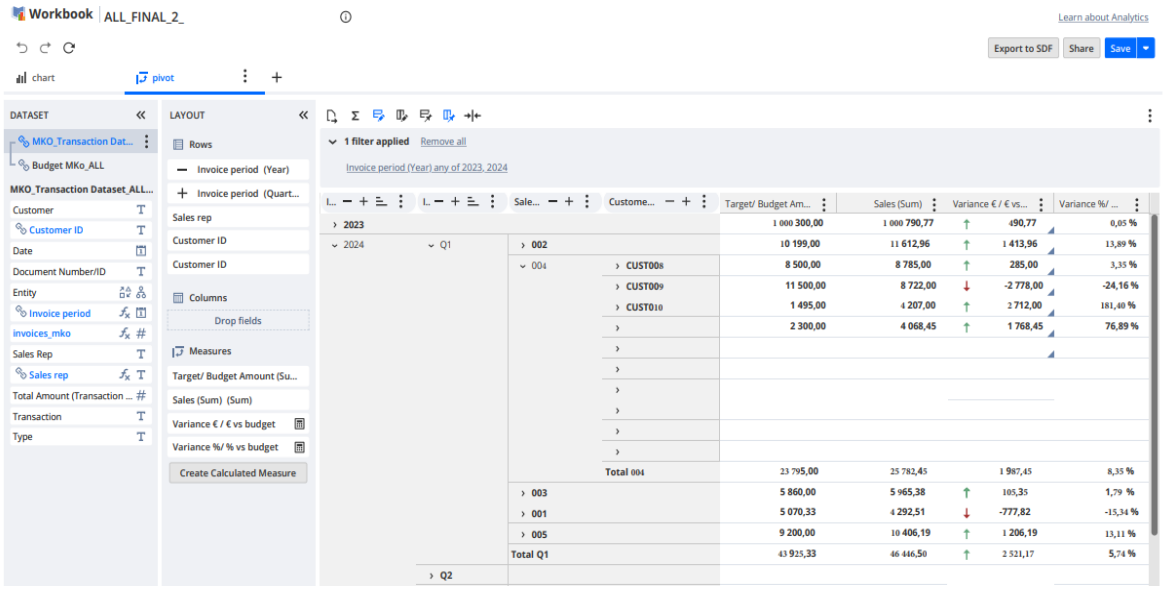
After creating the datasets, the researcher needed to integrate and link them into a single report. Before doing so, it was crucial to identify fields with shared

data. In this case, the common keys were invoice and budget periods, sales representatives, and customer IDs, which are illustrated in Picture 5.



Picture 5. Example of dataset linking in NetSuite Analytics. Modified and generalized from the commissioner company ERP system (Koivunen, 2024.)

This link was completed in the NetSuite Analytics Pivot table, and after that, the table was built, as presented in Picture 6. The report was also extended to a chart that presented the data visually and could be used for quick check-ups when one needed to see the total situation.



Picture 6. Example of pivot reporting table in NetSuite Analytics. Modified and generalized from the commissioner company ERP system (Koivunen, 2024.)

4.3 Observe

Once the report was built in NetSuite Analytics, the researcher shared it with the sales and management teams. Presented as a real-time Sales Analytics Dashboard, it provided comprehensive visibility across accounting, sales, fulfillment, and invoicing. Additionally, the report was designed to serve as a key performance indicator (KPI) for measuring the sales team's business performance.

The report was introduced in the sales team's meeting, in April 2024. The researcher trained the team on how to use the report. The team tested the new reporting tool and reported possible errors and discrepancies to the researcher. The researcher was part of the testing and acted as a participant observer. Helakorpi (1999), explains that by participating and observing the researcher can get deeper information, which cannot be received from other sources, and this is a typical feature of practical action research. (Helakorpi, 1999, 55-57).

According to Heikkinen & Kaukko (2023), the main feature of action research is that it aims to change. Change intervention aims to change ways of working but

at the same time, it produces new knowledge by changing practices. (Heikkinen & Kaukko, 2023, 13-14). This can be explained by an example; In this action research, the method of reporting has been done for several years in Excel. With the change intervention, the researcher gives new aspects to the sales team and their way of working. The research enables a change where the way of working is automatized. This minimizes the number of errors in reporting and gives more time for salespeople to concentrate on their sales work. Additionally, the new way of reporting is always up to date.

Action research always aims for a better and more advanced change. In this research, the researcher has been part of the research by creating the change intervention. The researcher acted as a listener and collected data. Based on the collected data and the help of participants who have participated in the research, the researcher has built a reporting tool, which has been introduced to the team. After introducing and testing the research aimed to get feedback from the users who used the new reporting tool. The researcher aimed to receive at least eight pieces of feedback, but in the end received five.

> *"As a new employee, who has recently started this tool is great. One does not need to go through several Excel files and figure out which one is the latest. One does not need to spend a lot of time learning to use new systems and can concentrate on the sales process and building better relationships with customers."*
>
> *"Very good tool! I do not know why we have done the whole process manually in the past."*
>
> *"Perfect tool, which we have been missing. It is great to follow the figures, daily in real-time – or even hour by hour."*
>
> *"Nice to update the way of working to this century, and to have all the data in one place. There are some minor detail discrepancies in the figures, such as freight costs and VAT should not be calculated - but I suppose they can be fixed."*

> *“The tool is very good and eases the work. Is there a possibility to add different rows, lines, or figures? Can we also measure the sales forecast if it varies from budget? Can we somehow add the rolling sales or rolling sales forecast to this report, for example in addition workbook?”*

Based on the observation and feedback received the researcher has made observations regarding the new way of working and reporting sales; Salespeople use the report and are very pleased that they do not have to fill every figure manually. Additionally, they are happy that their targets and budgets are filled out by the customer service department, and they do not need to stress the usability of the system. They are satisfied that the report is up to date and easy to follow one's progress and targets. In some cases, salespeople did not even need to report their progress when the sales director could follow the progress from NetSuite. The report was also well received by management, who sought to track the sales team’s progress and goals. These metrics were planned to be used as a key performance indicator (KPI) for determining the sales team’s bonuses.

4.4 Reflect

The progress of action research was at some points very challenging. During the research, the researcher needed to accept that change interventions cannot be planned much ahead. This was realized when the researchers planned the report and started to build it into the system. The fact that there was not much knowledge or experience of the system NetSuite made the progress difficult. The researcher did not have much previous experience in the NetSuite system, or NetSuite Suite Analytics. There were not many people who could advise, as no one had used this before. Additionally, much of the learning was done by testing. One example of this was that the researcher did not know how one change made in the system would affect the report. It required a lot of testing of different modes and coding. The researcher studied a lot of NetSuite guides on how to use SQL formulas and how to combine them in the Analytic workbook.

At the beginning of the research, there were a lot of opinions on how the reporting tool should look like and what data should be included. During the interviews, the research group managed to have some common opinions, which were a good basis for the workshop which was done with the business development manager.

Due to limited time resources, it was not easy to schedule group meetings or workshops. Workshops between the researcher and the business manager were done based on one- or two-person opinions. Additionally, it was hard for the researcher not to express one's own opinions or suggestions. The observations and feedback after the test period were needed so that every person had the chance to express their opinion of the usability of the report.

The whole action research is a very good basis for the next one. Figure 8 shows how, after the first action research cycle is completed, the next one can start. The next cycle is already planned to begin at the beginning of the year 2025 and it is based on the feedback received. The researcher has already found the problem points and is familiar with how to proceed with them. This needs studies of SQL formulas on how to structure the datasheets so that the data would report only pure sales figures, without value-added tax (VAT), freight costs, or discounts.

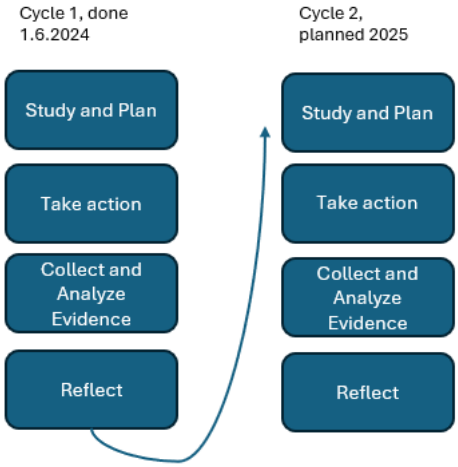


Figure 8. Action cycles in the commissioner company adopted from Lindholm (2022)

The action circles and the spirals are related to the hermeneutic cycle, which was introduced in chapter three, in Figure 5. In the research process, the researcher's knowledge gets deeper and deeper. In action research, the researcher's understanding of the problem deepens within every cycle. (Lindholm, 2022.)

In the first action research cycle, it was decided that sales budget figures would also serve as sales forecasts. If the commissioner company wishes to separate sales budget and sales forecast figures or address discrepancies between sales budgets and sales forecasts, additional columns would need to be added to the reporting tool. This could be achieved by incorporating a column linked to data labeled as "opportunities" in NetSuite. However, this approach may pose challenges, as it would require sales representatives to input and regularly update sales forecast figures for each customer individually. On the positive side, this process demonstrates how participants can actively engage in action research and how action cycles foster continuous improvements.

5 CONCLUSION

The thesis aimed to answer how sales managers report sales results in the commissionaire company and what reporting tools they want to use for reporting the sales results. The research aimed to design and create a reporting tool for the commissioner company's sales representatives but at the same time, it needed to be sufficient for the company's management so that they could follow the sales performance of the sales managers.

The interview results show that salespeople want to use to report straightforward systems, that are up-to-date and do not require additional or manual updates. The required data needed to be found easily, and it needed to be transparent. The theoretical framework covered topics such as sales budgeting, sales forecast, sales performance, and business intelligence which served as the foundation for designing and developing the reporting tool.

The research was conducted as action research, where the researcher approached the research through practical action, where one focuses on the development and improvement of a problem. It is presented as a process where people participate, interact, try to understand, and find a solution to the problem. (Heikkinen & Kaukko, 2023, 6-7.)

The research concludes that action research is a highly effective method and can be utilized in companies to improve various problems. The researcher became familiar with the structure of the action research and was able to complete successfully one whole action research cycle. Based on the research findings it was possible to create a reporting tool by using business intelligence tools, NetSuite Analytics.

Following the development phase, the reporting tool functioned smoothly without issues. It allowed sales representatives to focus on their tasks without spending time on manual updates in Excel files. Additionally, the action research established a foundation for further action research, enabling

continuous improvement by deepening understanding and moving into the next action research cycle.

5.1 Limitations of the research

The researcher has a non-disclosure agreement with the commissioner company. Customer and sales representative data were used in the study, but all analyses were conducted anonymously. This was achieved by excluding any names, business names, or system ID numbers that could allow identification. Additionally, fictional numbers were used in the report demonstration to comply with confidentiality agreements and protect trade secrets. All data analysis and report building were conducted on the researcher’s company computer.

The research was conducted as action research, with semi-structured interviews and extensive discussions and opinions surrounding the topic. This required the researcher to draw heavily on the researcher’s own experience with the ERP system and BI platform and to exclude some features that were not viable. Additionally, the research involved studying IT-related topics, such as coding and becoming familiar with SQL languages, to better understand and analyze the technical aspects of the systems involved.

This action research is specifically applicable to the commissioner's company. Similar studies conducted within the same industry or with the same ERP and CRM systems may produce different outcomes. However, the researcher hopes that this study will inspire new perspectives on automating reports and utilizing different systems effectively.

5.2 Recommendations for future research and actions

Previously, the commissioner company lacked a real-time system for management to monitor sales representatives' targets, progress, and performance. The newly developed reporting tool serves to track KPIs, measure goal achievement, and support motivational bonuses for sales representatives.

The NetSuite Analytics reporting tool has been in use for five months and is functioning seamlessly. However, as the researcher has gained deeper knowledge and experience, it has become evident that the reports need to be more precise. This has prompted a need for further action research focused on eliminating factors such as freight costs, discounts, and VAT amounts. To achieve this, additional studies on SQL formulas will be necessary to structure the datasheets in a way that ensures the reports reflect only pure sales figures.

The research indicates that the commissioner company holds a significant amount of data dispersed across various sources. Tähtinen (2005) emphasizes that, before implementing a business intelligence system, a company must identify, select, and design its data accordingly. This process is challenging, as different technologies and system integrations impact the outcome. (Tähtinen, 2005, 154-158.)

The NetSuite Analytics reporting tool is effective for tracking results and targets; however, it lacks contextual information behind the numbers. The commissioner company aims to conduct comprehensive analyses to gain better insights into decision-making while also enabling faster decisions. Hovi et al. (2009), emphasize that this can be achieved if a company integrates data from various sources (Hovi et al., 2009, 76).

During the research, it was found out that the commissioner company has many data sources that it may use for comprehensive analyses. The company can integrate data from various sources, including CRM, HubSpot, ERP, NetSuite, and NetSuite Analytics. One proposed solution is to consolidate actual sales and sales budget figures from NetSuite into HubSpot, allowing the creation of customizable, visual reports with in-depth sales analytics. This would provide real-time updates on sales representative pipelines, customer journeys, deal statuses, prospecting activities, conversations, and other critical metrics, facilitating a more comprehensive understanding of performance and outcomes. (HubSpot, n.d.)

Turban et al. (2011) bring attention to the complexity involved in implementing and integrating various BI systems. They emphasize that a company must perform a thorough cost-benefit analysis to justify the investment and address resistance to change. Additionally, the company must consider aspects that refer to integration, security, scalability, and effective management of the data warehouse, analytics, and dashboards. (Turban et al., 2011, 255.)

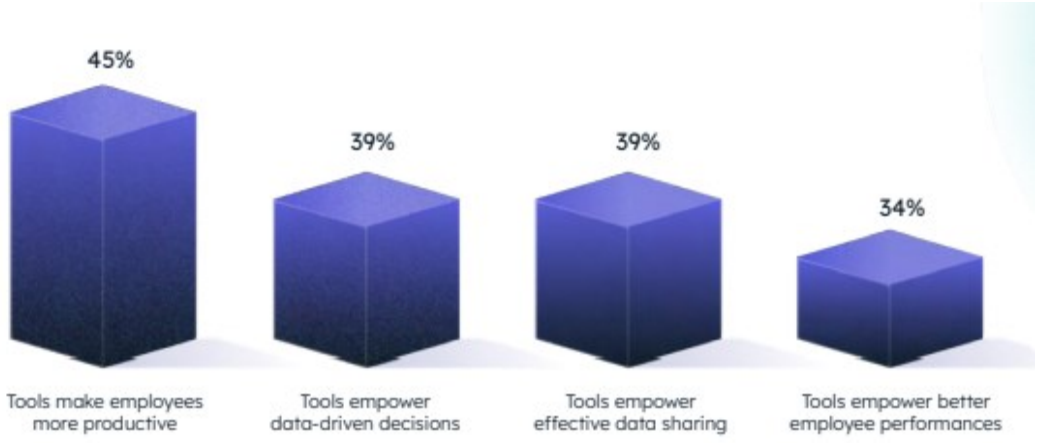
Turban et al. (2011) add that for several years ERP platforms had only transaction-processing capabilities and simple reporting and analysis features. Nonetheless, companies have observed that processes are executed more effectively when employees can perform analyses or access business intelligence in real-time, directly related to the tasks they are working on. ERP system providers have been integrating business analytics into their platforms to assist users in their work and enhance the quality of their decision-making. Today, advanced analysis requires combining data from various systems, such as supply chain management and manufacturing execution systems as well as customer relationship and product management. By using planning, forecasting, and scenario simulations, companies can achieve improved decision-making. (Turban et al., 2011, 261-262.)

Turban et al. (2011) point out that integrating various systems still requires significant investments of time, human resources, and financial capital. Full integration can take months or years, depending on the size of the organization and the complications of its operations and data. In many cases, system builders or external specialists are needed to set up dashboards, ensure data syntax accuracy, and maintain consistency across different applications. Additionally, the integration project may not have a finite timeline since it can turn out to be a never-ending process where users continuously want to optimize the system or make additional data types available for other users. (Turban et al., 2011, 261-262.)

While writing this thesis, the author became familiar with artificial intelligence (AI) and experimented with ChatGPT to structure the Conclusion chapter and English summary. It was also used to refine some sentences during the writing

process. Today, AI is a prominent topic among researchers and system providers and can be seen as another solution to perform comprehensive analyses. Bodnar (2024), explores in his AI trend report, how AI can be applied to everyday tasks across various systems, such as HubSpot. AI can support learning new skills, saving time, generating content, and tracking various KPIs. It can enhance work by automating routine tasks, reducing manual work time, boosting productivity and creativity, and supporting more effective data analysis. (Bodnar, 2024, 14-19.)

Thus, AI is still in its early stages, Bodnar (2024) points out that marketers and sales representatives are discovering that AI-powered tools can increase their efficiency, effectiveness, and productivity. Integrating AI into systems benefits employees who regularly perform data analytics by enabling faster, more comprehensive data processing and accelerating insights for decision-making. (Bodnar, 2024, 27-31.)



Picture 7. Marketing directors' view of AI’s value in an organization. Adapted from (Bodnar, 2024, 31.)

Bodnar (2024) continues that AI solutions allow marketing managers to empower their teams with advanced data analysis tools. Picture 7 demonstrates how marketing directors see AI’s value nowadays. Bodnar (2024) emphasizes that with data-driven strategies, marketing leaders can more effectively support

their decisions which have affection to company targets, strategic decisions, and strategy. (Bodnar, 2024, 32-34.)

Although AI technologies are relatively new and may not be immediately relevant, companies should keep in mind the rapid pace of technological advancement. ERP and CRM systems already integrate smoothly, enabling efficient data collection, analysis, and reporting. This action research has provided the commissioner company with a strong foundation for building diverse reports using existing data and business intelligence. The company can leverage this knowledge in future research, system integrations, and adopting new ways of working.

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Interview Questions

Interview questions for the commissioner company's salespersons

1. What is your role and responsibility?
2. What reporting systems do you use in your daily/ weekly/ monthly work?
3. What reporting system do you use to report sales and analyze the results?
4. How much time do you spend creating/ updating different reports? Is there such information, which is hard to find or takes time?
5. Improvement suggestions?