Implementing Business Strategies through Digitalization: Establishing a Trading Subsidiary in Switzerland

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Abstract

In a highly competitive landscape, companies in the agri-food industry must stay on top of the latest trends and events. Over the past few years, the sector has experienced significant growth, primarily driven by environmental concerns and economic instability. This dynamic environment presents both opportunities for businesses to thrive and a threat of falling behind. To flourish, enterprises must consider innovative strategies.

This dissertation comprises a comprehensive analysis of the implementation of a trading strategy in a multinational group within the agri-food sector. Various aspects were taken into account, including the potential to enhance client relationships, gaining a better view across the commodities trading industry, process standardization, and risk mitigation.

The implementation of the trading strategy required a decision on which trading hub would serve as the home for the new trading subsidiary. After considering several factors such as low tax levels, favorable legal and regulatory frameworks, location, and the overall business environment, Switzerland was selected as the ideal location.

As expected, most strategy implementations involve the need for technological integration. Considering that SAP S/4HANA was already being used by the agri-food sector, an implementation project was planned and executed, beginning with discussions on the project scope and the the team formation. Extensive workshops were conducted to understand the existing processes and develop an adapted version for the new trading subsidiary.

The solution came in the form of a triangular billing process. After a sales order is transmitted to the trading subsidiary's final client, a purchase order is issued to the manufacturing units, enabling the product to be directly transferred from the supplier to the final destination. This logistics strategy eliminates the need for the trading subsidiary to hold stock and facilitates transactions.

The implementation of the defined processes followed the SAP Activate methodology, involving multiple iterations of customization and testing. Several training sessions were conducted, accompanied by support documentation. After receiving final validation from the agri-food industry team, the desired output was integrated into the live system, allowing the trading subsidiary to commence its operations.

Following a thorough analysis, it was determined that the implemented processes were highly complex, posing a considerable risk of errors for the Swiss team. To address this, a proposal was made to automate two of the implemented processes. In addition to streamlining the lengthy learning process, these automations would enhance the efficiency of Swiss activities and reduce the likelihood of human errors.

In conclusion, the implementation of automations yielded highly positive results, benefiting the team's daily efficiency and overall process quality. While qualitative advantages are yet to be confirmed, the trading strategy has already demonstrated promising financial outcomes.

Keywords: SAP S/4HANA, Trading Strategy, Switzerland, Automatism

Resumo

Num contexto altamente competitivo, as empresas do setor agroalimentar devem estar na vanguarda das últimas tendências e eventos. Nos últimos anos, o setor tem apresentado um crescimento notável, em grande parte devido às preocupações ambientais e à instabilidade económica. Este ambiente em constante mutação cria oportunidades para que as empresas prosperem, pelo que estas devem considerar estratégias inovadoras.

A presente dissertação engloba uma análise aprofundada da implementação de uma estratégia de *trading* num grupo multinacional do setor agroalimentar. Para a definição da presente estratégia, foram tidos em conta diversos aspectos, como o potencial para aprimorar as relações com os clientes, uma visão mais abrangente da indústria de *trading* de *commodities*, a homogeneização dos processos e a mitigação de riscos.

A implementação da estratégia de *trading* implicou a necessidade de decisão sobre qual seria o centro de *trading* internacional com localização mais indicada. Após ponderação de vários fatores, designadamente a baixa carga fiscal, o enquadramento legal e regulamentar favorável, a localização e o ambiente global de negócios, a Suíça foi a escolha definida.

Em linha com o panorama atual, a maioria das implementações estratégicas requerem uma integração tecnológica. Tendo em conta que o SAP S/4HANA já era o sistema em uso pelo grupo do setor agroalimentar, foi delineado e executado um projeto de implementação deste mesmo sistema. O projeto teve início com a definição do seu âmbito e a formação da equipa. Realizaram-se vários *workshops* com o intuito de compreender os processos já em uso e delinear uma versão adaptada para a nova subsidiária.

A estratégia adotada consistiu num processo de faturação triangular. Após uma ordem de venda por parte da subsidiária de *trading* ao cliente final, é emitida uma ordem de compra às unidades de produção, permitindo que o produto seja transferido diretamente do fornecedor para o destino final. Esta estratégia logística evita que a subsidiária mantenha *stock* físico e facilita as transações.

A implementação dos processos definidos seguiu a metodologia SAP *Activate*, envolvendo múltiplas iterações de customização e testes. Foram realizadas diversas sessões de formação, complementadas com documentação de suporte. Após validação final, o resultado desejado foi transportado para o sistema operacional, permitindo que a subsidiária iniciasse as suas operações.

Após uma análise minuciosa, concluiu-se que a complexidade dos processos implementados acarretava um risco considerável de erros. Por conseguinte, uma proposta de melhoria foi sugerida, visando automatizar dois dos processos implementados. Além das melhorias decorrentes do longo processo de aprendizagem, estas automatizações permitiriam que os processos se tornassem mais eficientes e menos propensos a erros humanos.

Por fim, foi possível concluir que a implementação das automatizações resultou em resultados extremamente positivos, tanto no que diz respeito à eficiência diária da equipa como à qualidade global dos processos. Embora as vantagens qualitativas ainda estejam por confirmar, a estratégia de *trading* tem-se revelado extremamente bem-sucedida em termos financeiros.

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"It's how you deal with failure that determines how you achieve success."

David Feherty

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Acronyms and Symbols

ABAP Advanced Business Application Programming

B2B Business to Business

B2C Business to Consumer

BEPS Base Erosion and Profit Shifting

CIT Corporate Income Tax

ERP Entreprise Resource Planning

MDM Master Data Management

MNC Multinational Corporation

PMO Project Management Office

PwC PricewaterhouseCoopers

UAE United Arab Emirates

VAT Value-added Tax

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Chapter 1

Introduction

The present study comprises a dissertation conducted in a business environment, being part of the final step to conclude the Master's Degree in Industrial Engineering and Management.

The current chapter aims to introduce the context and motivation of this study, to present the company where this Master's Dissertation was performed, and the project objectives. Finally, the methodology followed and the structure of this document are introduced, to give a broader perspective of the topics that will be discussed later on in this study.

1.1 Context and Motivation

Concisely, this Master's Dissertation aims to tackle the benefits of a commodities trading strategy and to explore the different phases conducted to manage a successful SAP S/4HANA technology employment. In this case, the technology enables the trading strategy.

In today's fast-paced and dynamic business circumstances, companies face a highly competitive landscape. The increasing number of challenges leads to a strong need for businesses to be aware of the latest market trends and innovations. The aptitude to always be on top of the events concedes the companies the ability to meet the new customers' necessities promptly and stay ahead of the competition. Changes in regulation, corporate models, and trade flows are increasing the complexity of doing business (KPMG, 2015).

In order for a company to thrive and maintain a strong international presence in a competitive market, establishing a trading subsidiary proves to be a compelling strategy. The notable benefits encompass centralized sales operations, enhanced client relationships, improved market insight, efficient commodity logistics ensuring prompt delivery, optimized resource management, and robust risk monitoring mechanisms (Wyman, 2017).

Tax management is essential for the maturation and profitability of a company (Zhang et al., 2022). Taxation has been around for thousands of years and has played an essential role in the development of human society. Empires such as the Egyptian, Mesopotamian, Chinese, and Inca had the government and the religion represented by the same entity - paying tribute to this leader was both a spirituous contribution and a legal requirement (Samson, 2002).

The concept of tax optimization - the legal use of tax planning strategies to minimize tax liability - is a more recent development. This business strategy emerged in the early 20th century as tax codes became more complex and represented a huge weight on companies' economies (Zhang et al., 2022). In this sense, the commodity trading hubs came as a great exponential for the creation of exceptional business locations. This would allow offering not only greater financial efficiency and optimization but also legal and business environment conditions for international companies to thrive in challenging conditions (KPMG, 2015).

The development of trading strategies, as expected, must be supported by strong technology. Managers are expected to merge their corporate and technology strategies, seeking organizational scalability. As such, as stated by McKinsey (2023), 2023's Corporate Leaders are finding the opportunities in digital disruption, the economy, and geopolitical uncertainties, while addressing the necessary risks. Considering Digital Disruption, developing advanced analytics, contemplating cybersecurity, and automating work appears as the latest topics that can lead companies to create a powerful handbook in the market.

In recent years, Digital Transformation - the embedding of digital technologies across the organizations' operations - has emerged as a necessity for companies to continue to grow and be competitive in the market. This process represents a key component in any overall transformation strategy, and although it is not the only factor, it's critical for the success of the company in the future. The right combination of technology, people, processes, and operations gives organizations the possibility to easily adapt to disruption forces and to grow in innovative ways (SAP, 2023b).

The present curricular dissertation project, developed in a business environment, focuses on an international company from the agri-food industry. In fact, this company has production operations in three main areas: two European and one South American country; and distributes its products all over the world. The need to stay competitive in the market led to the necessity for the company to enhance client relationships, have a better market view, an ambitious cost structure, and have strong management of their activities and expenses. A new trading company came as a way to diminish the tax costs, to have tight control over the company's expenditures, and strengthen its presence in the market. To keep flourishing in a challenging market, the agri-food industry competitor decided to implement the invoicing process through a new subsidiary located in Switzerland.

In response to the actual world context of an Industrial Revolution (Industry 4.0) - placed in the total digitization of physical assets and their integration into digital ecosystems with the various suppliers in the value chain - most company strategies must be supported by a well-designed and scalable technological structure (PwC, 2023b). Therefore, the trading strategy must be sustained by an SAP implementation project that aims to connect several intermediaries in a complex sales and purchasing process where the company in Switzerland participates as a trading subsidiary.

1.2 Company Overview

PricewaterhouseCoopers (commonly known as PwC) is an international professional services provider, composed of numerous firms that operate as partnerships under the global brand. It is the second-largest professional services network in the world (Statista, 2023). The firm provides multinational services in advisory, tax, and assurance. The project described in the Master's Dissertation was carried out by the SAP Consulting Team, part of PricewaterhouseCoopers Digital Technology Consulting - a joint venture between PwC Portugal and PwC Germany.

Founded in 2022, PwC Digital is currently growing and aims to create a multidisciplinary team to enhance the technology position of PwC in the Portuguese and German markets. Pwc Digital focuses on delivering easier access to better and more relevant resources and skills for PwC, being able to respond to market challenges and demands, and ensuring a stable and consistent delivery. As a result, PwC is winning and delivering additional large-scale program opportunities, resulting in revenue recognition for the strong digital services delivered.

The project was conducted on a Portuguese multinational company from the agri-food sector, operating in multiple countries with yearly revenue in the order of 250 million euros.

1.3 Project Objectives

The current dissertation project will contribute towards a technology implementation project that aims to:

1. Design the necessary processes that will facilitate the triangulation between the trading company, the final customer, and the manufacturer. This will include the definition of sales and purchasing processes that will enable the selling of the products to the customer and the goods movement from the manufacturer to the final destination.

2. Successfully implement a SAP S/4HANA project, with the establishment of the new company on the system, and the customization of the required processes. This will include support to the client, with the final goal of ensuring the trading strategy employment.

1.4 Approaching Methodology

Technology projects excel the others in terms of risk, as they are characterized as high chance of failure and complexity (Rodriguez-Repiso et al., 2007). To mitigate and overcome the liabilities and, at the same time, assist in the organization of deliverables, resources, and deadlines, SAP has developed SAP Activate – an agile-based framework that aims to increase the quality and success of complex SAP projects, as illustrated in Figure 1.1. The Activate methodology is part of the SAP framework that is composed of three pillars: best practices, guided configurations, and the methodology itself (Singh, 2017).

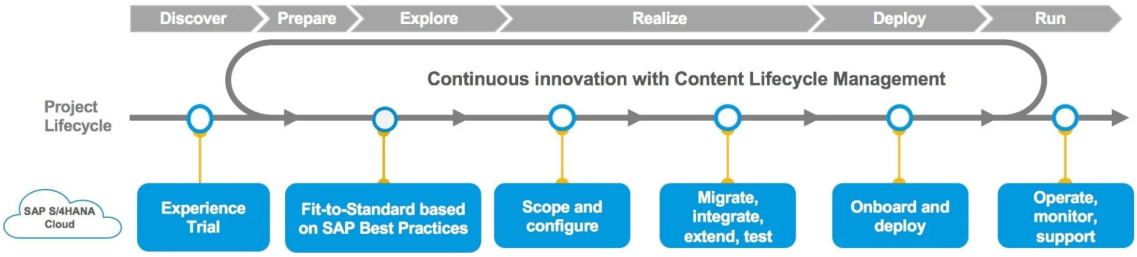


Figure 1.1: SAP Activate Methodology (Akhtar, 2022)

The methodology conducted on this project, the SAP Activate framework, provides advantages such as accelerated implementation, comprehensive methodology, flexibility, collaboration, best practices, continuous improvement, and improved user experience, enabling organizations to achieve successful SAP implementations and drive business value. The PwC Digital team gathers the most suitable characteristics from the Activate framework to better accommodate the project methodology to each client, which normally leads to an effective project deliverable. The project phases adapted to the project analysed in this Master's Dissertation are the following:

1. **Discover:** The SAP S/4HANA implementation project commences in the Discover phase, wherein the project scope is clarified based on the client's requirements, a cross-functional team is assembled, and roles and responsibilities are allocated (Singh, 2017). In the specific case examined in this Master's Dissertation, the agri-food group engaged with the PwC Digital team to elucidate the project scope and solicit a project proposal.

2. **Prepare:** During the Prepare phase of the SAP S/4HANA implementation project, meticulous planning was conducted, including the creation of system accounts to establish the essential prerequisites for initiating the project's functional phase. Furthermore, a kick-off meeting was held to introduce the PwC team to the client, align project plans, and establish communication with the client's project lead (Singh, 2017).

3. **Explore:** The third phase of the project involved close collaboration between the project and the agri-food group teams to comprehensively understand the corporation's requirements and align them with the SAP system. This phase encompasses participatory workshops, and process mapping (Singh, 2017).

4. **Realize:** The Realize phase in the SAP Activate methodology is a crucial stage where the project team diligently configures and customizes the SAP system based on the predefined processes. This phase also involves developing necessary enhancements or extensions to cater specific business requirements. After a well-defined solution proposal, tests are performed until the quality setup for the tests implementation phase. End-users' training and documentation are also planned so that the relevant workforce can be engaged at the right time (Singh, 2017).

5. **Deploy:** During the Deploy phase, the SAP solution is prepared for production deployment through rigorous testing, user acceptance validation, and end-user training. Configurations and automations are transported to the live environment, while master data is extended for smooth production system operation, enabling the trading strategy's execution and contributing to desired outcomes (Singh, 2017).

6. **Run:** Last but not least, the project ends with the Run phase, focusing on maintaining the functionality and performance of the implemented SAP solution during day-to-day trading operations. This phase involves user support, issue resolution, system maintenance, system improvements, and ensuring the stability and usability of the solution for seamless business operations (Singh, 2017).

Apart from the project phases, Project Management (PMO) and Change Management are two essential dimensions that represent an important role in project development. Firstly, as stated by Aubry et al. (2007), Project Management can be defined as "[...] a new sphere of management where dynamic structures in the firm are articulated as means to implement corporate objectives through projects to maximize value". More specifically, Project management is the commencement, preparation, and management of a range of tasks required to deliver this SAP technology implementation (Association for Project Management, 2023). Consequently, Project Management is one of the main pillars for an SAP project to be implemented.

On the other hand, to secure lasting results, Change Management works in collaboration with Project Management activities to handle the human dynamic component of managing programs and initiatives and deal with "people" impediments (PwC, 2023a). Integrating Project Management and Change Management pillars together can lead to achieving successful transformations. The combination of these two areas represents a key lever for a smooth journey for all parties involved in an SAP implementation project (PwC, 2023a).

1.5 Dissertation Structure

This dissertation is divided into six chapters. In this first Chapter, a general overview of the dissertation was presented, including a brief presentation of the company where the project was conducted, the main objectives, and an overall analysis of the methodology.

Moving forward, Chapter 2 further analyses the theoretical base to understand the benefits of having a multinational trading company, considering legal and regulatory forces, tax advantages, and business-environment considerations that may impact the upcoming strategy. In addition, a more complex description of the SAP program and its modules is explored. A deeper understanding of considered methodologies is also given. Finally, an analysis of the automations advantages is explored.

Chapter 3 provides a more detailed analysis of the company at hand and the agri-food market state around the world. After an overview of the current state of the company, a trading strategy in Switzerland is further analysed, which leads to a better understanding of the logistics and financial

implications of having a trading company, the overall benefits, and the obstacles that are needed to overcome. This chapter is concluded with a future state analysis.

Chapter 4 is structured by the SAP Activate methodology, and represents a SAP S/4 HANA implementation. This section is composed of a series of sub-sections that represent the main steps to turn a trading strategy into a real set of technological processes for the company. A deeper analysis of the Run phase is essential to understand the need for continuous improvement. Finally, an analysis of the palpable benefits of having a triangulation process implemented in a multinational group are presented.

System enhancements are presented on Chapter 5, where automatic processes implementation are evaluated thoroughly. The Chapter is concluded with an analysis of the overall benefits of the system improvements implementation.

The Master's Dissertation is concluded with an overview of the main topics discussed, and a future work proposal to be further analysed, related to the trading strategy and implementation topics.

Chapter 2

State of the Art

In this State of Art chapter, the latest trends and developments in key areas that contribute to the elaboration of this Master's Dissertation are analysed. It is essential to understand the world-wide spread of the trading strategies, discussing how businesses can leverage their logistics performance, remain compliant with regulations, and gain a competitive edge. This section allows to understand the potential benefits of the trading strategy, the commodities market around the world, and a deeper analysis into the several possible locations to set-up the trading subsidiary. This theoretical information is applied in Chapter 3.

SAP System is then presented to shed light on the structure behind the company's current operations. This section aims to present an overall view of SAP technology, presenting the modules implemented in this Master's Dissertation project with more detail. This theoretical information is applied in Chapters 4 and 5.

Considering a fast-paced and technological business environment, the Methodologies subsection aims to understand the need to conduct a new strategy in a technologically effective way. Several frameworks are analysed to explain the most suitable way to move forward on the current project. SAP Activate is demonstrated to be the most suitable one for the project at hand, being the methodology followed in Chapter 4. However, for Chapter 5, considering that an improvement short-duration project is administered, an adaptation of the SAP Activate methodology is conducted.

Finally, Processes Automation comes as a theoretical base to support the advantages of automating technological processes, further analysed in Chapter 5.

2.1 Trading Strategy

Globalization refers to the increasing interconnection and interdependence of the world through trade and technology (National Geographic, 2022). It encompasses economic interdependence, cultural impact, the advantages of information technology, and geopolitical shifts that integrate

people into a global system. International business involves planned transactions that extend beyond national borders to fulfill the needs of individuals, firms, and other organizations (Grozdanovska et al., 2017).

As the world becomes more globalized, trading strategies have emerged. Globalization facilitates international trade, which involves the exchange of goods and services across national boundaries, enabling the acquisition of products that are not locally produced or available at a lower cost elsewhere (World Trade Organization, 2022). The extent of nations' reliance on natural resource trade has significant implications for international relationships, as it affects countries' vulnerability to market instability and the potential losses incurred from imposing trade barriers or severing important trading partnerships (Fally and Sayre, 2018).

2.1.1 Commodities Trading

One of the oldest types of economic activity - Commodities Trading - is responsible for the transactions of basic goods used in commerce that are interchangeable with other goods of the same type. It enables products to be transformed into the foods we eat, the energy that powers our vehicles and lights our houses, and the metals that are present in the many objects we use in our daily lives (Pirrong, 2014).

According to Franke et al. (2023), in 2022, the commodity trading business hit an all-time high for gross margin, reaching $100 billion. However, commodities are rarely produced and consumed in the same place or at the same time; instead, a complicated value chain involving refining, processing, storage, and shipping is usually necessary to bring them to the proper spot. Commodity trade connects these value chain elements - it allows commodities to be transferred from the mine or field gate to the factory door and end customer. It guarantees that the correct product arrives at the right place, at the right time, and at the lowest possible cost (Wyman, 2017).

All in all, commodity trading corporations play an important role in these transformations (Pirrong, 2014). These corporations operate in a highly competitive and dynamic world where one of the few constants is volatility. Changes in regulation, corporate models, and trade flows are increasing the complexity of doing business. In truth, this requirement is not confined to businesses - it is equally applicable to the countries in which the traders operate. Countries battle to attract companies and job opportunities, mostly through appealing tax rates, strong legal systems, and adequate infrastructure, as well as through labor prices and living standards (KPMG, 2015).

Above all, commodity trading hubs are countries or regional centers that provide a participant network where buyers and sellers can form close business relationships and trades can take place. Access to the appropriate participant network is sometimes the most significant factor for businesses when deciding where to place their commodity trading units. Trading hubs often offer specialized infrastructure, technology, legal frameworks, and market expertise, making them attractive and efficient centers for conducting trade and facilitating market liquidity (Wyman, 2017).

2.1.1.1 Commodities Trading Hubs

Several countries have flourished as huge commodities hubs due to their attractive business environment, as stated in Figure 2.1. Commodity trading centers can be found all over the world, including UAE, Switzerland, London, Singapore, and more (Wyman, 2017). They provide vital access to a participant-network of commodity-related enterprises, allowing for the formation of business partnerships and the initiation of transactions, as well as to the sophisticated financial and legal infrastructure required for trading (KPMG, 2015). Furthermore, they act as a magnet for people with commodity trading expertise, particularly those with the necessary education and global language skills (Wyman, 2017).



Figure 2.1: Map with Commodities Hubs

Switzerland's significant involvement in global commodities trading can be attributed to a stable and predictable political, economic, and legal environment, a competitive corporate taxation structure, and a business-friendly regulatory atmosphere (KPMG, 2015). Aside from other factors that contribute to Switzerland's attractiveness as a business location, such as the availability of qualified personnel and a generally high standard of living, the country's sophisticated and stable financial system, as well as the high density of leading companies in the freight business, trade finance, and inspection, verification, testing, and certification services, make it particularly appealing as a commodity trading center (State Secretariat for Economic Affairs SECO, 2021).

On the other hand, Singapore has been involved in commodity trading for many decades (Wyman, 2017). Singapore, located at the crossroads of numerous maritime lanes and supported by a natural deep-water harbor, has long aided Asia's growing need for commodities (KPMG, 2015). Its geographic location at the crossroads of Asian trade routes has long been an advantage, as has the participant-network that has grown in Singapore, with the majority of the world's major commodity producers, consumers, and merchants present (Wyman, 2017).

London distinguishes itself as a commodity trading center from other trading centers like

Switzerland and Singapore due to a significant concentration of the industry's important institutions, events, and individuals. The London Metal Exchange (LME) for metals and the London Bullion Market for gold and silver are worldwide commodities exchanges (Braunschweig et al., 2012). Every year, events like International Petroleum Week and London Metal Exchange Week bring together those from the industry (KPMG, 2015).

Considering the latest trends, as stated by HC Group (2022), the UAE is using targeted legal, tax, and infrastructure policies to develop a commodity trading center that can compete with Singapore, London, and Switzerland. The Dubai Multi Commodities Centre (DMCC) was formed in 2002 as a core strategic government initiative with the mandate to provide the physical, market, and financial infrastructure required to build up and maintain a vibrant commodities marketplace (KPMG, 2015).

All in all, commodity trading centers must be providers of a wide range of business facilitators characteristics in order to attract a huge number of companies and flourish:

Global Supply Chain: The physical supply chain is a vital component of the commodity trading industry. Transportation and complicated logistics are managed by global trading firms - commodities are sourced, stored, blended, and delivered to clients all over the world (Buchan and Errington, 2018). The capacity to mix and match supplies from numerous sources promotes supply chain stability, which can result in larger trade margins (KPMG, 2012). In some cases, storage is critical to the global supply chain. It works as a buffer, lowering total price volatility. When supply exceeds demand, inventories rise. When demand exceeds supply, stockpiles can be used to meet consumer demands (Buchan and Errington, 2018). In other cases, storage is not managed by the commodities trading - there can be a virtual trade somewhere, that triggers a material movement elsewhere. Evidently, the supply management role in the commodities trading business depends on the type of trading that is being held.

General Business Environment: Multicultural and multilingual environments attract a wide range of customers and sellers, expanding the size and resources of the participation network, and increasing price optimization (KPMG, 2015). In a participant-network, information can move swiftly between different buyers and sellers (e.g., knowledge about demand and supply, as well as other factors that can affect commodity prices). This allows the network to increase the fluidity, ease, and volume of trade (Wyman, 2017).

Tax & Financial Framework: The international tax system, which consists of a plethora of domestic legislation and a vast network of bilateral and multilateral tax treaties, governs multinational companies' (MNC) taxation. Because the framework is based largely on separate accounting, taxation of an MNC group occurs at the level of individual subsidiaries operating in different countries. Based on domestic law and tax treaty responsibilities, each country has the right to tax the assigned income (Beer et al., 2018). Given so, international trading hubs offer commodity traders a range of tax benefits that aims to attract them. Moreover, commodities trading centers' financial and trading infrastructure is crucial to commodities trading. Many transactions are conducted in foreign currencies, and commodity dealers require immediate access to global payment and clearing infrastructure. The inventory of commodity trading units is often most economically

funded utilizing commodity trade financing, and commodity traders require convenient access to the major providers. Country credit risk is a big consideration here; inventory housed in a lower-rated jurisdiction will be more expensive to fund than inventory held in a higher-rated jurisdiction. Commodity trading centers are often located in highly rated countries, although many commodities are produced in lower-ranked countries (Wyman, 2017).

Legal and regulatory considerations: Despite the numerous business advantages that international trading companies provide, tax authorities are frequently suspicious when companies relocate functions and risks to a specific location, particularly when that location imposes highly favorable tax rates. Countries have implemented numerous anti-avoidance legislation over the last few decades to combat MNC tax evasion. The G20 is an international forum consisting of 19 countries plus the European Union (EU), while OECD (Organization for Economic Co-operation and Development) is composed of 38 countries and serves as a forum for governments to discuss and collaborate on a wide range of economic and social issues. In light of the G20-OECD initiative on BEPS (Base Erosion and Profit Shifting) - an ambitious action plan comprising 15 areas believed to have the highest potential for misuse by international corporations (KPMG, 2015) - tax avoidance activities have attracted a lot of attention. The European Union has also passed an anti-avoidance regulation, which requires its member countries to establish a standard set of rules to combat tax evasion (Beer et al., 2018). Many tax authorities recognize the importance of centralizing certain functions for global multinational corporations. Other jurisdictions are wary of profit movements associated with national resources. Because some tax authorities may regard the transaction as artificial or abusive, international trading companies must be prepared to defend against such challenges (KPMG, 2012).

2.2 SAP System

An ERP system is an enterprise-wide package that integrates all necessary business functions into a single system with a shared database (Sadrzadehrafiei et al., 2013). As benefits, it aims to connect the different business areas and facilitate the spread of essential information throughout the organization. Externally, an ERP's implementation can increase the relationship support between the company and its clients and suppliers (Madanhire and Mbohwa, 2016). All in all, it is a software system that helps organizations run the entire business, supporting automation and processes in finance, human resources, supply chain, manufacturing, services, procurement, and more (SAP, 2023c).

In 1972, Programmentwicklung GbR was formed as a private partnership between five IBM former employees that had a vision of developing a high-security information system (Leimbach, 2008). This software would be capable of integrating several business processes and share real-time data (SAP, 2023a). It is not until 1981 that the first SAP's ERP system enters the market as SAP R/2 which is capable of integrating several business functions (SAP, 2023a). An evolution of the previous version came across around 1990. This upgrade - SAP R/3 - was followed by the company's internationalization, a new range of partnerships, and consolidation of SAP's

competitiveness in the market. In 2003, SAP launches SAP Business Suite, the most comprehensive system up to the date (SAP, 2023a). This system was divided into several components, such as Customer Relationship Management (CRM), Supply Chain Management (SCM), Product Lifecycle Management (PLM), and more.

Around 2014, SAP unveils its next generation of enterprise software with a new business suite, SAP Business Suite 4 SAP HANA (commonly known as SAP S/4HANA). This new system was developed on top of SAP Business Suite and HANA, a real-time database able to provide data analysis instantly. In addition, SAP Fiori user experience for mobile devices reflects the latest business need to offer a positive customer experience and a pleasant design for customers. In addition to the benefits of SAP HANA outlined above, SAP Fiori offers business users far greater flexibility and responsiveness with real-time and contextual information that can be accessible on many devices (Saueressig et al., 2020).

The initial launch was soon followed by SAP S/4HANA - Cloud Edition, giving customers the choice of combining on-premise and cloud solutions in a hybrid scenario. Since the SAP S/4HANA entered the market, SAP is now focusing more on the latest technological trends with the purpose of turning businesses into intelligent hubs, considering innovations such as Internet of Things, Big Data, Artificial Intelligence, and more (SAP, 2023a). An overview of these latest SAP products is illustrated in Figure 2.2.

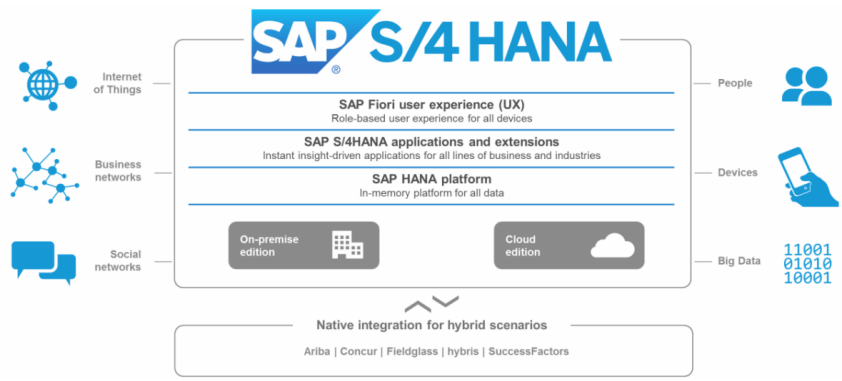


Figure 2.2: SAP S/4HANA (Eursap, 2023)

As the new digital era demands even more speed and scalability, SAP S/4HANA comes as one of the biggest worldwide ERP market player (SAP, 2023e). Considering this need to have instant access to real-time information, the elimination of aggregate tables and indexes and the implementation of insert only models led to a significantly reduced processing time and a considerable increase on accuracy. In fact, a huge cost decrease and productivity gains arise from the ability to run online transaction processing (OLTP) and online analytical processing (OLAP) applications on the same SAP HANA system without replication (Saueressig et al., 2020).

SAP S/4 HANA, as explained, is an ERP that aims to materialize all the company's core activities into a single software. Being responsible to manage the most important key processes of a company, SAP S/4HANA is composed of several business areas (Saueressig et al., 2020), as it can be visualized in Figure 2.3:



Figure 2.3: SAP Architecture (Eursap, 2023)

- **Asset Management:** It includes Maintenance Management - planning, scheduling, and carrying out maintenance tasks (Saueressig et al., 2020); and Resource Scheduling (SAP, 2022).
- **Human Resources:** Organizational management, personnel administration, payroll, personal development, and time management are all considered to be part of human capital management, which is the process of managing the people who work for an organization (Saueressig et al., 2020).
- **Sourcing and Procurement:** Purchases of external goods and services are made through sourcing and procurement in order to maintain an organization's operations. This involves monitoring purchase orders and contracts, supporting strategic buying decision-making, and confirming incoming invoices (Saueressig et al., 2020).
- **Sales:** This business module aims to manage the relationship between the company and the final client. It encompasses all business operations involved in the sale of goods and services, from managing sales inquiries and quotations to processing sales orders and sales contracts to handling returns, refunds, and billing (Saueressig et al., 2020).
- **Supply Chain Management:** Supply chain management includes warehouse and transportation management, as well as the planning, execution, control, and tracking of supply chain activities (Saueressig et al., 2020).
- **Finance:** For financial accounting, payables and receivables management, as well as monetary planning and analysis. Finance keeps track of, organizes, and summarizes a company's financial activities. To maintain optimum cash flow and liquidity, it also offers treasury functions (Saueressig et al., 2020).
- **Manufacturing:** Manufacturing enables production planning and execution (Saueressig et al., 2020). It includes functionalities for Production Engineering, Planning and Operations; Production Planning and Scheduling; Quality Management; and Environment, Health, and Safety (SAP, 2022).

- **Research and Development:** When developing new goods, research and development assist project management and product life-cycle management (Saueressig et al., 2020).

- **Service:** The service facilitates the establishment and execution of functions and processes pertaining to the business capabilities: Service Contract, Order and Request Management, and Customer Engagement (SAP, 2022).

- **Country/Region-specific functions:** The SAP S/4HANA system provides an extensive selection of localized versions, each meticulously designed to enable seamless business operations within specific countries/regions (SAP, 2022).

In general, the relationship between SAP master data and SAP modules is symbiotic, with master data serving as the foundation for the modules' proper operation and the modules contributing to the production, preservation, and exploitation of master data within the organization's business operations.

In the context of this Master's Dissertation, there will be a higher focus on the logistics functionalities of the SAP S/4HANA implementation project, as the sales and sourcing, and procurement processes are the most relevant for the practical part of the trading strategy employment.

It is important to underline that the sales and sourcing and procurement streamlines presented below are the standard processes presented by SAP S/4HANA that should be adapted to the specific client necessities. This may include the obliteration of some parts of the process that are not suitable for the organization in question.

2.2.1 Master Data

Master Data is the core business data of a company, being mostly divided into three main pillars: people (customers, employees, and suppliers), places (offices and locations), and things (products and assets) (SAP, 2023d). An organization typically interacts with a variety of stakeholders while providing services to its clients. These stakeholders may include sales partners or suppliers, permanent or contract personnel, manufacturing partners, or consulting firms. All contribute in some way to the activities of the business. By doing this, the company is able to buy, produce, and market a wide range of goods and services. The SAP S/4HANA Materials Master Data and Business Partner Master Data represent this core, which is the hub around which all business is performed (Saueressig et al., 2020).

Master Data Management (MDM) is the process of creating and maintaining the essential data of a company (Loser et al., 2004). Through this process, businesses increase key data reputability that allows it to be shared across the organization and used for better reporting, decision-making, and process efficiency. MDM aims to offer a higher data fidelity, by decreasing the number of errors and inconsistencies. A highly structured data system increases the level of transparency and compliance, offering organizations the possibility to have a better overview of the company's numerical performance (SAP, 2023d).

Product Master Data has always been considered a key element of SAP's ERP software - it includes all the information about the materials that can be sold, purchased, or stored by an organization. Product Master Data may store information about how a material is used in various processes, such as sales, procurement, planning, storage, accounting, and more (Saueressig et al., 2020).

As stated by Saueressig et al. (2020), "[...] business partner is a person, organization, group of persons or group of organizations in which a company has a business interest.". A business partner may have distinct roles in a company, used for classification from a business perspective. As an extension of the business partner's central data, the customer and supplier represent specific roles that a business partner may represent and participate in the daily basis processes of a company. (Sarferaz, 2022).

In summary, SAP master data and SAP modules are inextricably linked. The master data serves as the foundation for module functionality, allowing for efficient business activities. Proper master data management and governance within each module are critical for maintaining data integrity and optimizing SAP implementation.

2.2.2 Sourcing and Procurement

As explained above, the sourcing and procurement module is responsible for the purchasing activities of a company, and managing the relationship between the company and the suppliers. Minimizing purchase costs while maintaining a steady supply and compliance with enterprise-wide purchasing standards is one of the main tasks of the SAP S/4HANA procurement feature (Saueressig et al., 2020).

In a high-level analysis, the sourcing and procurement process in SAP is characterized by the organizations' analysis of their procurement needs, identification of potential suppliers, contract negotiation, purchase order creation, goods receipt, and invoice verification. This process can be analysed through Figure 2.4.

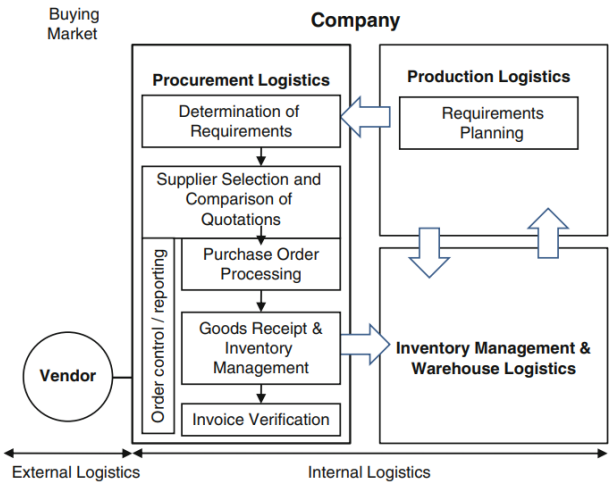


Figure 2.4: Materials Management Process (Lauterbach et al., 2011)

The typical purchasing process begins with the determination of materials requirements. In technical terms, this part of the purchasing process aims to inform the organization's purchasing department that there is a need to acquire a certain product or service (Saueressig et al., 2020). This process may happen automatically - being the outcome of requirements planning - or manually (by a department). In the latter scenario, if the proposed material is to be purchased from a third party, a so-called purchase requisition is typically generated. For internal purchases, the SAP system generates a production order to direct the production of the necessary quantities (Lauterbach et al., 2011).

Moving forward to the supplier selection and comparison of quotations phase, the goal is to find the most affordable and effective terms for purchase, especially when the product is being purchased for the first time. The process often entails requesting vendor quotations and evaluating various offers (Lauterbach et al., 2011). Once a source is selected, in the case when a purchasing contract was not yet created, the next step is to define the purchasing quotas for the various products and services with the selected supplier. Contracts are produced and commercial conditions are negotiated in the framework of Procurement Contract Management (Sarferaz, 2022).

After the vendor selection, order processing comprises all activities that turn a purchase requisition and an existing quotation into an external procurement in the form of a purchase order. A purchase order is a request to provide the products in accordance with specified requirements, as soon as it is issued to an outside vendor or another department of the business (Lauterbach et al., 2011).

Receiving the requested products is the final step in the goods movement process. It is important to clarify that receiving goods and services are handled differently: products are kept in warehouses while services are delivered instantly. Depending on the company's manufacturing strategy and capacity, arriving goods may also be handled right away (Sarferaz, 2022). This process interferes with inventory management and warehouse logistics.

Both the products receipt and the purchase order/scheduling agreement serve as the foundation for invoice verification, which ensures that the vendor's invoice is reliable. The vendor's invoice must be inserted into the system. If the verification was successful, SAP S/4HANA Financials' payables management triggers the payment to be sent to the vendor (Saueressig et al., 2020), concluding the purchasing process.

2.2.3 Sales

The sales module is responsible for the sales activities of a company, managing the relationship between the organization and the clients. To ensure that customers receive what they have asked for - reliable processing and delivery of goods and services as agreed upon in the sales order or contract - the sales process entails numerous individual steps, involves users from various organizational areas, and calls for seamless integration and monitoring capabilities (Saueressig et al., 2020).

In a high-level analysis, as it can be perceived from Figure 2.5, the sales module in SAP handles the end-to-end sales process, including inquiry creation, quotation, sales order creation,

delivery, goods issue, and billing. It allows organizations to streamline sales operations, track customer interactions, and analyse sales performance for better decision-making.

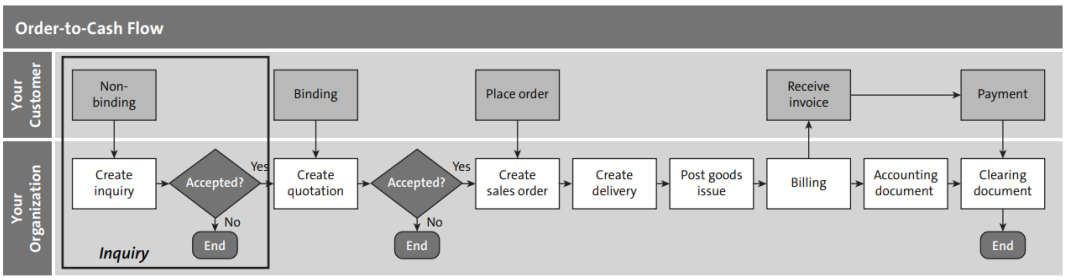


Figure 2.5: Sales Process (Olcott and Simmonds, 2021)

In a low-level approach, within SAP S/4HANA, customers who want specific products or services can submit sales inquiries, usually made by an internal sales representative. Customers' requests for quotes are then addressed by sales quotations. This consists on enforceable offers to customers regarding the provision of products or services subject to certain requirements (Saueressig et al., 2020).

Long-term agreements like sales contracts or scheduling agreements can also serve as the basis for the creation of sales orders. Sales contracts are general agreements to provide products within a specified time frame or in a specified quantity, while scheduling agreements specify the regular delivery of a product in a specific quantity. Processing sales orders includes determining prices using the pricing component and using the available-to-promise (ATP) check to determine whether the ordered products are in stock (Saueressig et al., 2020).

In order to fulfill the shipment of goods to the buyer in accordance with the details outlined in the sales order, a series of outbound deliveries are executed. This process ensures the timely and accurate delivery of the requested products to the intended recipient (Saueressig et al., 2020). The goods are then issued while leaving the manufacturing unit.

The last stage of the sales process is typically billing which generates formal documents that is used to invoice clients for goods or services that have been purchased. In addition to billing for deliveries related to sales orders, there are alternative billing situations. As a final step, billing papers are finally posted to financial accounting (Saueressig et al., 2020), so that they can then be paid by the final client.

2.3 Methodologies

Businesses are under increased pressure to adapt to digitalization as a result of globalization in recent decades. In order for firms to not only survive but also flourish in hostile settings, effective integration is necessary - and only digital processes and collaboration technologies can manage to provide the necessary conditions (Kraus et al., 2021). In fact, Digital Transformation can be different for every company, as the technology integration into the business processes depends on the value chain of the company itself (SAP, 2023b).

As a matter of fact, Digital Transformation implies a cultural shift that necessitates a constant status quo challenge, frequent experimentation, and comfort with failure on the part of organizations (The Entreprisers Project, 2020). This frequently entails discarding conventional business methods, which can result in disruptions in patterns or behaviors that might cause loss of continuity, as well as the replacement of traditional social structures and familiar relationships (Delaney and D'Agostino, 2015).

Change Management comes as a response to the cultural side of every digital implementation project. As stated by Hayes (2014), managing change should be a well-defined process, including phases such as recognizing the need for change and starting the change process, diagnosing what needs to be changed and formulating a vision of a preferred future state, and planning how to intervene in order to achieve the desired change. After implementing plans and reviewing progress, the change must be sustained, while taking into consideration the need to lead and manage the people issues.

Furthermore, project delivery models are also changing and speeding up as a result of digital transformation. With the fast pace at which businesses must function, organizations' share of project work is increasing, as is the demand for project management expertise (Doherty, 2018). Project management entails the planning, organization, timing, resourcing, and scheduling that determine the start and finish of the implementation (Mary M. Dunaway, 2011). To remain competitive, project managers must adjust their techniques to how projects are managed. As technology improved, an unlimited number of increasingly sophisticated tools for project planning, budgeting, monitoring, and controlling have emerged (Doherty, 2018).

Both project management and change management aim to increase the prospect that projects will produce the desired goals and outcomes. Although each discipline can function separately, integrating change management and project management to provide a holistic strategy to achieving change on both fronts is the most effective way (Doherty, 2018)

Understanding the strengths and shortcomings of both the waterfall and agile approaches in order to select and blend the qualities that best align to fulfill the goals of a project is critical to project success (Quist, 2015).

As shown in Figure 2.6, waterfall is a traditional software development methodology that is a linear approach to development that has distinct project life cycle phases completed in sequence. This methodology assumes events affecting the project are predictable, all the processes and tools are understood and emphasizes the importance of upfront requirements gathering (Hass, 2007). However, when applied to the actual software engineering process, the waterfall method is inefficient, expensive, and inflexible due to several constraints (Altexsoft, 2016).



Figure 2.6: Waterfall Methodology (Altexsoft, 2016)

In contrast to established techniques, the agile methodology has been adopted in an effort to make software engineering more adaptable and efficient. As shown in Figure 2.7, agile projects, as opposed to a simple linear waterfall approach, are made up of a series of smaller cycles known as sprints. Each one is a mini-project with a backlog and stages of design, development, testing, and deployment within a pre-defined scope of work (Altexsoft, 2016). Overall, agile methodologies can show a higher level of adeptness in changing environments, ensure customer satisfaction, diminish the need for documentation, and reduce the amount of development (Sharma et al., 2012).

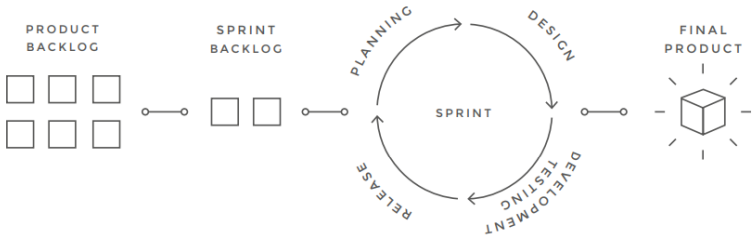


Figure 2.7: Agile Methodology (Altexsoft, 2016)

SAP Activate, the company's project management primarily agile methodology approach, extends SAP's earlier approaches, including SAP ASAP for on-premise projects and SAP Launch for cloud initiatives (Denecken et al., 2022), examples of waterfall-based methodologies. ASAP Methodology (Accelerated SAP) is a standard SAP-related project preparation and system implementation process created and updated by consultants participating in SAP software product deployment (Mendes, 2020). Furthermore, the SAP Launch methodology is an SAP ASAP adaptation for cloud implementation projects (Singh, 2017).

The SAP ASAP (Accelerated SAP) methodology is mostly waterfall-based (Kraljić and Kraljić, 2018). It follows an organized and sequential process with discrete phases such as project preparation, business blueprint, realization, final preparation, and go-live support (Supriyono and Sutiah, 2020). The technique strives to provide effective planning, documentation, and governance throughout the project lifetime, with defined deliverables and milestones for each phase (Mendes, 2020).

On the other hand, SAP Activate, the most recent SAP project management methodology development, attempts to increase the prior methods' beneficial traits while correcting their shortcomings. With SAP Activate, a methodical approach to project management for a SAP S/4HANA deployment is taken. The technique adheres to the Project Management Institute's best practices, assisting to minimize risk, streamline and expedite the implementation project, and decrease the total cost of deployment (Denecken et al., 2022).

SAP Activate is built on an agile methodology. It adheres to agile project management concepts, stressing iterative development, collaboration, and customer interaction. SAP Activate encourages the use of agile principles like Scrum, Kanban, and Lean to produce value quickly and regularly. It promotes continuous feedback, adapting to changing requirements, and providing minimum viable products (MVPs) in short iterations (Kraljić and Kraljić, 2018). Additionally,

SAP Activate combines some waterfall components, such as specified project stages and milestones, to enable adequate planning, governance, and control throughout the project lifetime. Overall, SAP Activate is an agile methodology with certain waterfall aspects built into its architecture (Hanson, 2020).

All in all, in comparison to the SAP ASAP methodology, the SAP Activate methodology provides enterprises with a more agile and business-focused approach to SAP solution implementation, which allows for faster iterations, frequent feedback, and a shorter time to value (Kraljić and Kraljić, 2018). Moreover, it encourages communication between business stakeholders and the implementation team, ensuring organizational goals are met (Mendes, 2020). Additionally, emphasizes a "fit-to-standard" approach, with minimal customisation and reliance on standard functions (Kraljić and Kraljić, 2018). Overall, the SAP Activate methodology allows enterprises to be more responsive to change, deliver value faster, and constantly improve their SAP solutions, making it a better choice than the SAP ASAP methodology.

However, project management methodologies should be adapted to the specific implementation case. Agile methodologies, such as SAP Activate, have gained widespread adoption and usage globally. Selecting and adapting the most suitable approach depends on various factors, including project types, organizational context, and the characteristics of the employees involved. In this context, for a short-duration improvement project, some phases of the Activate methodology should be shortened in order to satisfy tight deadlines (Rasnacis and Berzisa, 2017).

2.4 Processes Automation

Processes automation offers several advantages for organizations. Firstly, it enhances operational efficiency by automating repetitive and time-consuming tasks, allowing staff to focus on more strategic and complex activities (Breton and Bossé, 2003). This leads to increased productivity, reduced human errors, and faster turnaround times (Ping Fung, 2014). Secondly, it improves consistency and compliance by ensuring standardized processes and procedures are followed consistently across the organization (Breton and Bossé, 2003).

Additionally, technological processes automation enhances scalability and agility by enabling the rapid provisioning of resources and the ability to adapt to changing business needs. It streamlines workflows, improves collaboration between teams, and provides real-time visibility into IT operations (Ping Fung, 2014). Overall, IT process automation drives cost savings, enhances productivity, ensures compliance, and enables organizations to respond efficiently to evolving business demands (Breton and Bossé, 2003).

Chapter 3

Business Overview

This chapter presents the scope of this dissertation and the related business, starting with a general description of the company in question and the sector in which it is inserted. The examination of the current state of corporate affairs is followed by the focal point of this chapter - the upcoming trading strategy in Switzerland, including a deeper analysis of the commodities sector, and the overall benefits and barriers. A proposal for future operations is then presented, finalizing the chapter.

3.1 Company Presentation

The corporation presented in the current dissertation project is a multinational agri-food industry enterprise created in the mid-twentieth century. Being one of the market's largest rival in its field, it now has five manufacturing units spread across three distinct countries: two in Europe and one in South America. Its team comprises approximately 500 employees, distributed across both continents. In the year 2022, the multinational corporation achieved total revenue of more than 250 million euros.

Due to the arrangement of the factories, the international group is able to undertake two separate harvests per year, resulting in a production horizon of around six months yearly, represented by the Agricultural division. The presented organization comprises primarily two types of client segments, starting with B2B (business-to-business) represented by the Industrial business unit; and B2C (business-to-consumer) by the Retail and Food Services business units. In this sense, the organization is primarily divided into four business units: Agricultural, Industrial, Food Services, and Retail.

3.2 Agri-food Industry

The agri-food industry, where the company in question currently operates, can be defined as the sector which involves the handling, processing, preservation, setup, and packaging of agricultural and food products in industrial production units (Treball, 2013). Agri-food systems and markets

are currently facing an unprecedented convergence of many forces. Indeed, they are at the crossroads of global environmental, economic, and social issues, and they are crucial in dealing with diverse sustainability challenges. Climate change, population expansion, food insecurity and malnutrition, environmental degradation, and biodiversity loss are all factors to consider (Borsellino et al., 2020).

According to Castellano (2020), it has been projected that the global population will reach 9.7 billion by the year 2050. This population growth is expected to give rise to various challenges in the coming years. The process of urbanization and the surge in disposable incomes worldwide will lead to an increased demand for high-value animal protein in diets (Borsellino et al., 2020). Consequently, these trends will inevitably put a strain on the availability of natural resources. In fact, predictions for 2050 indicate that there will be a growing scarcity of agricultural land. Climate change also plays a significant role in this context. Adverse natural events such as prolonged droughts and floods result in substantial damage or loss to crop and livestock output within the agricultural sector (Castellano, 2020).

Considering these latest trends, agri-food businesses need to evolve to be able to fight the global population growth, and the intrinsic consequences of this matter. In fact, technology plays an essential role in this transformation, as it allows the industry to become more efficient, and to accomplish a more sustainable and productive agriculture. The agri-food industry is addressing these challenges through advancements in precision agriculture and farming, as well as the implementation of smart food processing, driven by the increasing digitization and adoption of modern technologies. Transformations within the agri-food sector are also shaped by consumer preferences for enhanced food safety, security, traceability, and improved quality, along with a focus on the value of food products (Van de Velde and Kretz, 2020).

In this regard, companies from the agri-food industry must consider these external factors as a lever to keep growing and staying competitive in the market, as the industry itself will present an intrinsic need to expand and meet the world population needs. In the context of the company presented in this dissertation, new strategies must be considered in order to expand enterprise's current operations and invest in new innovative practices.

3.3 Current State Analysis

The Agricultural business unit participates in farming operations (growing crops) or collaborates with farmers to maintain a steady supply of agricultural raw materials. This process includes finding the appropriate fields for the harvest, both from external suppliers and internal sources, purchasing the seeds, producing the raw material, and collecting the final product.

Moving on, these raw materials are utilised in the Industrial business unit, where the product from the Agricultural business unit serves as the primary matter. The Industrial business unit is involved in the creation of a processed agricultural product, in which the raw material is transformed into a value-added concentrated commodity that is convenient for customers. This new

type of product can be offered straight to other clients, providing a pre-processed raw material that reduces storage space and simplifies the trading procedure.

Concerning the group's sales process for the B2B channel, a contact is normally initiated by the client when a purchase is raised. The creation of a sales order initiates the logistics process, followed by a load request. The ordered batch is prepared for delivery after meticulous cargo planning, while transportation is handled by external providers. The physical issue of products is the final step in the logistics process, considering that the load can be delivered to a port or straight to the customer facility.

Additionally, the concentrate form can be used as inbound material for the last two business units: Retail and Food Services. These business units undergo a production process where the final product is ready for human consumption. While the Retail business unit aspires to bring the product to the final client through designated areas such as supermarkets and hypermarkets, the Food Services business unit's primary customer group is hotels and restaurants. Even though the final product and the customer groups are different from the Industrial business unit, the sales process is similar.

3.4 Trading Strategy - Switzerland

The company described in this Master's Dissertation aims to open a trading subsidiary, in order to centralize the sales operations in a specific unit for this purpose. First and foremost, the considered trading strategy aims to facilitate relationships with clients and understand their specific demands. Moreover, it is critical for the multinational company to gather knowledge on flows and understand market demand and supply in order to arrange transactions to fulfill the demands of clients (Wyman, 2017). This can be facilitated through a specific billing company as it allows the company to be in a trading environment closer to its stakeholders.

In addition to the statements previously explained, commodity movements must be regulated to ensure timely delivery (Wyman, 2017). This means that the trading company will allow the group to better manage its resources to ensure high-quality customer service. Finally, the relevant legal documents must be arranged, and all actions must be closely monitored to ensure that risk levels do not exceed acceptable levels (Wyman, 2017). Being the trading sector characterized by a high level of legal risks, the location of the trading company is crucial for efficient strategy development. In this sense, the Switzerland commodities trading hub comes as a valuable option for the agri-food industry player.

Switzerland has become a major hub in the international trade of commodities, in part due to its stability, and prominence as a financial center (Swiss Academies of Art and Sciences, 2016). Being among the largest trading hubs for oil and petroleum, metals, minerals, and agricultural products (soft commodities) (Swiss Federal Council, 2018), Switzerland counts with about 900 companies in the market and 10000 employees in 2023 (Swiss Federal Council, 2023). Companies in Switzerland also manage a significant portion (30 to 35 percent) of the trade in agricultural commodities around the world (Swiss Federal Council, 2018).

The commodities market in Switzerland is incredibly diverse. Small businesses and massive, global organizations with staff numbers in the hundreds are both listed as trading entities in Switzerland (Swiss Federal Council, 2018). Swiss traders typically engage in the practice of procuring commodities from international suppliers and subsequently selling them to clients who are also located outside of Switzerland. As a result, the goods involved in these transactions do not physically enter Swiss territory (Swiss Academies of Art and Sciences, 2016).

Tax Environment

Regarding the tax environment, Swiss corporate income tax (CIT) is levied on taxable profits made in Switzerland by resident corporations. CIT is imposed at three levels: federal, cantonal, and community. At the federal level, Switzerland levies a direct federal corporate income tax of 8.5% on a corporation's after-tax profit. However, because the CIT is deductible, the effective tax rate on a corporation's pre-tax profits is around 7.83%. Furthermore, the federal government does not impose a company capital tax. In addition to the direct federal CIT, each canton has its own tax code and imposes varied rates of cantonal and communal corporate income and capital taxes (PwC, 2023c). The Canton of Zug, where the billing subsidiary will be located, presents a rate of 11.8% (Weber, 2023). This represents a total corporate income tax of approximately 20.4%. Moreover, Switzerland has by far the lowest rate of value-added tax (VAT) in Europe - the standard VAT rate is 8%, whereas necessities/convenience items are taxed at only 2.5% (Startups.ch, 2021).

These Swiss low levels of tax contrast with the tax paradigm in the European Union, as can be perceived in Figure 3.1. In 2022, Portugal had the highest statutory corporate income tax rate among European OECD countries, at 31.5% when both central and subcentral taxes are considered, followed by Germany and Italy. The lowest statutory corporate income tax rates were in Hungary (9%), Ireland (12.5%), and Lithuania (15%) (OECD.Stat, 2023). The average statutory corporate income tax rate in European OECD countries is currently 21.5% (OECD, 2022). In addition, the average standard VAT rate in the EU is 21%, which is six percentage points greater than the minimum allowed by the European Union's regulations (Enache, 2023). More information about tax considerations in Europe can be analysed in Appendix A.

In reality, a significant reduction in the amount paid in taxes represents a significant potential benefit for the agri-food sector enterprise. A higher amount of income would allow the company to make internal investments and grow as a group, potentially having a stronger impact on the commodities sector's inevitable growth. Given the future projections for population expansion, there is an inherent requirement for investment in order to meet the human race' agricultural and food needs.

Political and Economic Stability

Switzerland is known for its political stability and has a long history of neutrality. The country has a stable political system, a strong rule of law, and a democratically functioning government. This stability creates a beneficial economic climate by lowering the risks associated with political

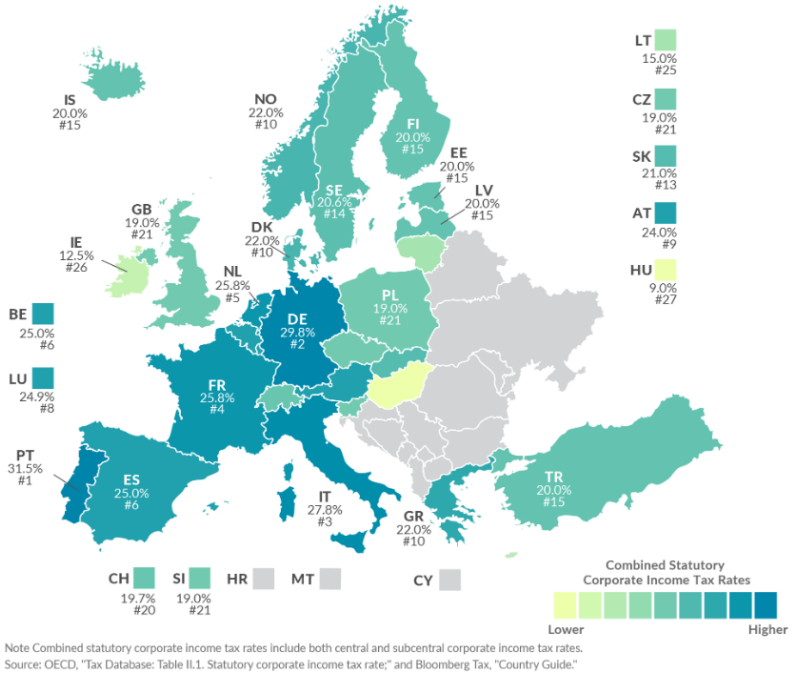


Figure 3.1: 2023 Corporate Income Tax Rates in Europe (Bray, 2023)

instability and policy changes (CT Corporation Staff, 2020). Even during times of global economic instability, Switzerland has exhibited exceptional economic resilience. This variety helps Switzerland weather economic downturns and creates possibilities for enterprises in several areas (Deloitte, 2023). In this sense, the stable political environment and resilient economy make Switzerland a safe bet for the agri-food industry group to undergo the trading strategy.

Legal and Regulatory Considerations

Moreover, related to the legal and regulatory considerations, it is important to notice that Switzerland is a member of the Organization for Economic Co-operation and Development (OECD), and complies with all the given regulations (EY Global, 2022). The OECD's proposed approach to addressing the tax challenges posed by economic digitalization, in October 2021, consists of two pillars (Two-Pillar Solution): a reallocation of taxing rights with a new profit allocation and nexus rule for market jurisdictions (Pillar One) and global minimum tax rules of at least 15% for enterprises with more than 750M€ in turnover (Federal Department of Finance, 2023). Switzerland is aiming to implement the OECD's proposed minimum tax rate by making a constitutional change, requiring a public vote in June 2023. If approved, the Federal Council will issue a temporary ordinance to initiate the implementation of the minimum tax rate starting from January 1, 2024 (EY Global, 2022). Additionally, individual cantons will independently determine location-related measures to maintain Switzerland's attractiveness as a commercial hub, which represents a sign of reliability for the multinational corporation in question.

High Level of Talent

Additionally to the advantageous legal, economic, and tax environment presented by Switzerland, there is a high volume of talent, offering a positive level of education and promoting the ability to attract and retain foreign talent.

Business Friendly Framework

In addition, Switzerland is considered one of the commodities hubs with the most business-friendly environment and with one of the easiest access to financing. More specifically, the country enables low-bureaucracy processes for enterprises in order to facilitate business processes. Due to this business-friendly framework, Switzerland is able to attract high-value corporations that foment a business environment favorable for the agri-food industry company (IMD World Competitiveness Center, 2016).

All in all, establishing a new trading business in Switzerland offers major benefits to companies in the agri-food industry. Switzerland's low tax rates in comparison to the European Union create an advantageous tax environment, allowing businesses to keep more of their earnings for internal investments and growth. Even during times of global economic uncertainty, the country's stable political environment, sturdy economy, and adherence to OECD norms maintain a reliable business climate. Furthermore, the high volume of talent, business-friendly environment, easy access to funding, and role as a commodities center make Switzerland an appealing place for agri-food industry enterprises looking to create a new trading company. Overall, Switzerland provides a compelling combination of tax incentives, stability, and attractive economic circumstances for the expansion of the agri-food industry enterprise.

3.5 Future State Analysis

The suggested future process attempts to carry out a trading strategy within the agri-food industry group by billing the complete Industrial sales process through a new subsidiary firm in Switzerland. In this regard, the ongoing procedures must be modified in order to capitalize on the numerous benefits that this strategy will offer to the organization.

As stated in the previous sections, the considered group has five manufacturing units, distributed by three different countries and two continents. These production facilities undergo several processes in order to produce the desired final product, dependent on the business units that the company is producing for. In the case of the new billing subsidiary in Switzerland, as it will only participate in the B2B Industrial process, the five plants serve as the manufacturers of the pre-processed commodity.

As it can be analysed through Figure 3.2, in addition to the sales process already performed by the multinational group, there must be an additional purchasing process from the new subsidiary

in Switzerland to the manufacturing units. This happens because the new trading unit will only carry on the billing operations, not having physical stock of the materials.

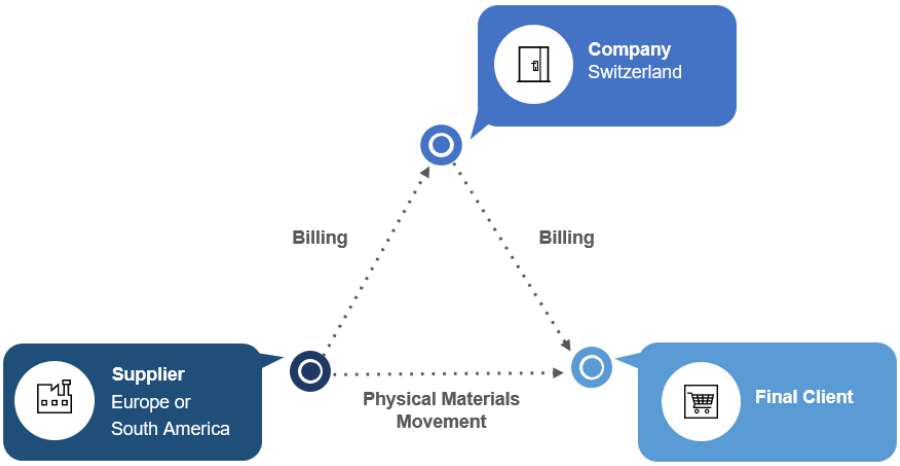


Figure 3.2: To-be process

In this view, the process begins with the client's request to make a purchase. In order to serve the exchange, after this sales order from the trading firm to the ultimate client, there must be a purchasing activity between the new subsidiary and one of the manufacturing units. This purchasing procedure between the billing subsidiary and the supplier, on the other hand, does not contain a materials movement between the two parties, but rather a delivery to the final client.

This complex process is required by the accounting activities within the group, as it enables the company to have track of the monetary advantages of the new trading strategies. The multinational group has the possibility to account for the profits made from each of the manufacturing units through the Swiss company.

To facilitate the establishment of a new trading company in Switzerland, the technological implementation of business processes is crucial. Therefore, a thorough analysis of an SAP project implementation is conducted. This analysis aims to evaluate the suitability of integrating the SAP technology to enhance operational efficiency, data management, decision-making, and collaboration within the company.

Chapter 4

Technology Implementation

The goal of this chapter is to provide a thorough overview of an SAP S/4HANA implementation project. The SAP Activate methodology was used for the completion of the project, and the distinct steps of the methodology are explained in separate sections. The requirements are analysed first, followed by a predetermined plan specification. The process design workshops are explained to achieve the required configuration. Following the completion of the client's unitary testing and the delivery of the documentation, the intended outcome is implemented, while the team offers the necessary assistance. Furthermore, areas of improvement are analysed thoroughly. Finally, there is an overall analysis of the trading strategy.

4.1 Discover

The project initiates in the Discover phase of the SAP S/4HANA implementation. In this phase, the project scope is defined according to the client's needs, a functional team is gathered, and the roles and responsibilities are distributed. In the case presented in this Master's Dissertation, the agri-food group contacted the PwC Digital team to clarify the project scope and ask for a project proposal.

The client clarified that they were on the lookout for a new trading company SAP implementation and the several SAP modules that they were looking for to have implemented in SAP S/4HANA. The most important desirable modules were Sales, Sourcing and Procurement, and Finance. For this purpose, a project team was gathered, composed essentially of six members: four members for the logistics team (responsible for the Sales and Sourcing and Procurement modules), and two members for the finance team. In each team, there was a team manager, responsible for overseeing the productivity, performance, and well-being of the team, while ensuring the achievement of project goals.

The functional team previously defined had the purpose of implementing all the SAP standard processes. However, every client requirement that does not comply with the SAP standard processes and functionalities was customized by a programming team, specifically gathered for

the current project. The process of changing or expanding the functionality of SAP systems using the Advanced Business Application Programming (ABAP) programming language is referred to as SAP ABAP customization. ABAP is the major programming language used to design and customize business applications in the SAP system. In this sense, there was a programming team responsible for implementing all the non-standard client requirements.

4.2 Prepare

In the second phase of the SAP S/4HANA implementation project, the Prepare phase, detailed planning was made, and system accounts were created, to ensure that there were the necessary conditions for the project's functional phase to begin. Additionally, a kick-off meeting was conducted to present the PwC team to the client, align the project planning, and meet the client's project responsible.

In the SAP S/4HANA landscape, there are three different systems environments that the team should be given access to: the Development, Quality, and Production environments, each one with a specific purpose. The Development environment is where the new configurations are first made, before being transferred to the other systems. In this environment, new functionalities often undergo several changes and enhancements. Moving on to the Quality environment, this is where the quality issues are tackled, accompanied by user unitary testing. When the new functionalities are tested exhaustively, and there is enough confidence in the quality of the customization, these are transported to the Production environment. This system is the live environment where the real processes are conducted. It contains real-time data and is used by end-users to perform daily transactions, generate reports, and manage business processes.

Detailed planning regarding the SAP S/4HANA implementation project was conducted, to anticipate and minimize potential risks, properly allocate resources, and set clear targets and timetables, resulting in smoother project execution and higher chances of success. It provides a road map for decision-making, promotes team cooperation, and boosts overall efficiency and production. The planning is presented in Figure 4.1.

				February				March				April - June			
Phase	**Module**	**Task**	**Description**	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
Explore	All	Workshops	Understand processes												
	All	Process Design	Define the triangulation process												
Realize	MM	Configurations	**Configurate Purchasing module** Pricing and Purchasing Documents												
	SD		**Configurate Sales module** Pricing and Sales Documents Credit Management												
	LOG/ABAP	Programming	Functional Specifications Layouts												
Deploy	All	Unitary Testing Acceptance Testing Corrections	Unitary Process Testing Global Testing. Acceptance. Processes Corrections												
Run	All	Go-Live / CutOver Support / Improvement	Define Go-Live phase and specific actions Support to the Team												

Figure 4.1: SAP S/4HANA Implementation Planning

4.3 Explore

The Explore phase of the project is a collaborative step in which the project team and agri-food group team cooperate closely. Its purpose is to understand the requirements of the corporation and align them with the SAP system. To design the solution, this step includes participatory workshops and process mapping.

Given that the current SAP S/4HANA implementation project is based on an agri-food group with several years of experience in the industry and well-defined processes in the SAP system, the new functionalities were implemented while taking into account the processes carried out in the other business units. In this sense, and given that the new functionalities are only relevant within the scope of the trading company, the already defined logistics processes are not subject of this dissertation, and the process design considers the importance of process standardization across the entire group.

Several workshops were held in this regard with the aim of better understanding the requirements of the consumer, increasing familiarity with the group's previously established operations, and adjusting the SAP S/4HANA business processes to the client's demands. The process design, which emerged from multiple workshops and discussions, is thoroughly examined in an effort to understand the defined configurations later on.

4.3.1 Process Design

As it can be perceived in Figure 4.2, the proposed to-be process can be described as a billing triangular process through a trading company that facilitates the transaction and coordinates the movement of products from the supplier to the customer. Profit is made by the trading company by charging a markup or fee on the transaction between both parties.

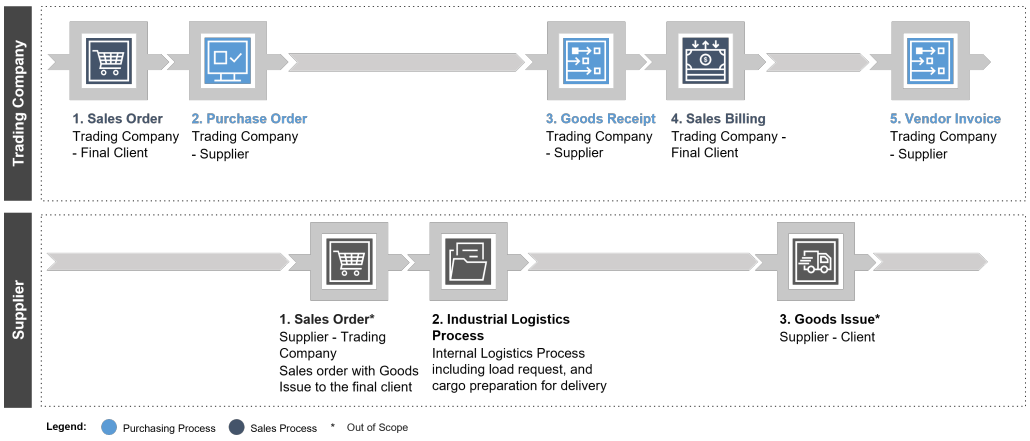


Figure 4.2: Process Design

Considering the process complexity, it is essential to clarify that both Sales and Sourcing and Procurement processes are intercalated, as the triangular process implies that purchasing needs to be made with the intention to provide for the sales order. This happens because the trading

company in Switzerland does not hold stock, which means that to serve a sales order, the product must be bought instantly from a manufacturer, that then ships the commodity directly to the final destination.

Sales and Purchasing Contracts

For a sales process to occur through the trading company, there must always be a sales contract between the new subsidiary in Switzerland and the final client. A sales contract outlines the terms and conditions for the sale of the pre-processed commodity. Similarly, there is also a purchasing contract between the trading subsidiary and each supplier, as can be perceived through Figure 4.3.

Every document in SAP is composed of the header data and the item data. In the sales contract header data, there is essential data such as the contract type, the sales organization, the distribution channel, the division, the validity dates, and the client itself. For the purpose of the new trading company, a new sales contract type was created, with a specific serial number. The client information is divided into two entities: Ship-to-Party, the one that receives the goods, and Sold-to-Party, the one responsible for the billing activities. These can be the same entity or distinct ones. A specialized sales organization, the entity in charge of product sales, was also established. The group had previously settled four divisions: Industrial, Retail, Food Services, and Central Structure. As previously stated, trading will only occur for the B2B channel in the framework of the trading company, implying that only the Industrial division will be considered. In terms of distribution channels, among the already defined options - Direct sales, Agents, Brokers, Distributors, and Traders - the latter one is the most suitable match for the company at present.

Furthermore, it is imperative to characterize the Crop identification - which pertains to the timeframe of agricultural product cultivation and harvesting, as well as the methods of transportation employed and the specific delivery conditions. These delivery conditions should encompass the Incoterms field, which serves to establish the designated delivery location for the product. In addition, the sales contract header data should incorporate a clear definition of the payment terms.

The information about each contractual commodity is contained in the contract's item data. For each sales contract line, which corresponds to a certain material number and description, the desired contractual quantity and price, the plant linked with the specific product, the delivery date, and shipping information can be characterized. Contact with third-party delivery providers is the duty of the manufacturing units, which later submit the shipping price to the trading company so that it can be included in the sales contract.

Finally, the valuation type at the item level endeavors to determine the material year of production, the specific manufacturing unit responsible for the product's fabrication, and the type of product at hand. In this sense, a typical valuation type is represented by 11112024PA, being 1111 the plant, 2024 the year of production, and PA means final product. This approach is crucial in discerning the distinctive attributes of the product, given that each harvest is distinct, thereby resulting in diverse commodity compositions corresponding to each valuation type.

In order to understand the context of the purchase contracts, it is necessary to comprehend the relationship between the trading company and the three suppliers (one for each country) with

production facilities. As detailed in Chapter 3, the agri-food group has five manufacturing units spread across three countries, each representing a subsidiary company within the global group. Because the trading activity covers the purchase of goods for the three manufacturing enterprises, three suppliers were established. All in all, there will be three purchase contracts created, one for each supplier.

A purchase contract is a legal agreement between the trading subsidiary (buyer) and the supplier (seller) for the purchase of products on predetermined terms and conditions. The above-mentioned document specifies the terms of supply, quantity, price, and time period for delivery of the items. As the purchasing process is only relevant between subsidiaries from the same multinational group, the price conditions are defined accordingly to an average cost from the manufacturing units for each supplier.

In the purchase contract header data, there is information about the supplier, the purchase contract type, the purchasing organization, the purchasing group, the validity date, and the contractual value. A specific purchase contract type and a purchasing organization were created for the purpose of the trading company in Switzerland. Concerning the purchasing group, the client will use the already defined ones. The contractual value must be filled accordingly.

The item data within the contract provides details regarding each specific product covered by the agreement. In a manner similar to the sales contract, each line of the purchase contract corresponds to a distinct material number and description. Furthermore, it is necessary to specify the desired quantity, purchasing price, and the designated plant for procurement. In the case of the trading company, only one plant is applicable due to the streamlined nature of the new trading strategy. Additionally, it is crucial to define the general ledger account and the valuation type, following the same guidelines as outlined in the explanation for the sales contract.

Primary Process

The primary process is composed of the sales order, purchase order, goods receipt, sales billing, and vendor's invoice, as represented through Figure 4.3.

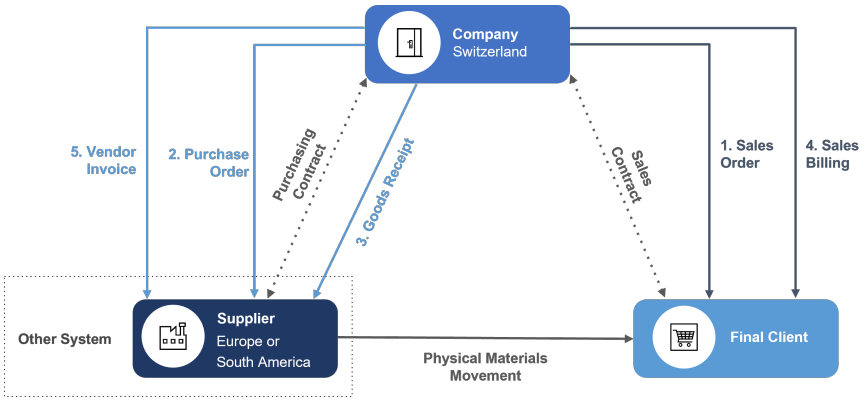


Figure 4.3: Primary Process

Sales Order

The actual process will initiate with the creation of a sales order from the trading company to the final client. In fact, this sales order must always be referenced to a sales contract, that represents a binding agreement between both parties. When there is a contact made by a client that has not yet a contractual agreement, one must be made in order to proceed with the exchange. A specific sales order type was created in the context of the new trading company in Switzerland.

A sales order contains all of the items which the client wants to acquire at that time, as well as the required quantity for each. Additionally, the commercial team must indicate the expected loading date, and the expected date for delivery. Most information from the sales order is already specified in the sales contract and, therefore, is completed automatically. Even so, the circumstance of the sale must be evaluated by the commercial employee and, if necessary, adjusted in the contract so that it can be updated in the sales order.

Purchase Order

The second step of the process should be the purchase order, as the trading company works on a purchase-to-order basis. This means that because the trading company does not hold physical stock, it must purchase the goods in order to serve the sales orders.

Similarly to what happens with the sales order, the purchase order must be created with reference to a purchase contract. Concerning the header data, for the purpose of the trading company in Switzerland, a specific type of purchase order was created. Adding to this, the purchase organization, the purchasing group, and the supplier are all information that is obtained automatically from the purchase contract.

Regarding the purchase items, it is essential to input the desired purchasing quantity, which should precisely match the quantity specified in the sales order. The purchase price conditions, as elucidated earlier, are determined based on the average cost across manufacturing units and have already been established in the purchase contract. As for the valuation type, it is customary for the commercial team, responsible for creating the sales order, to lack information regarding the specific supplier plant from which the purchased product will be sourced. Consequently, this information needs to be updated at a later stage in the process, once the relevant data regarding the manufacturing unit fulfilling the sales requirements becomes available.

Given that this purchase order has been specifically generated to fulfill a sales order, it is imperative to record the corresponding sales order number and item numbers at the purchase order item level. Additionally, the customer object from the sales order must be retained in the purchase order. Since the products will not be directly shipped to the trading firm, but rather to the client's designated delivery address, it is crucial that the location specified in the purchase order aligns with the location specified in the Incoterms field of the sales order, which outlines the designated delivery destination for the product.

Also concerning the delivery conditions, the trading company does not define the delivery circumstances, which are the duty of the manufacturing units. In this sense, the delivery service must also be purchased by the supplier, as it is in charge of purchasing transportation services. As

a result, for each product line on the purchase order, a delivery service line representing the cost of transportation services must be included. This delivery service line will have the same quantity as the related normal item, as well as the net delivery price specified in the sales order. It will also be linked to the same sales order, have the same client information, and delivery address.

In summary, there must be double the number of items that were present in the sales order, as this will allow the delivery accounting to be well-defined.

Goods Receipt

Subsequent to its creation, the purchase order is dispatched to the manufacturing units, which in turn initiates the logistics process to facilitate product provision. It is worth noting that this logistics process falls outside the purview of the trading company and is thus not a subject of discussion within this Master's Dissertation. However, it is crucial to acknowledge that this logistics process has been operational for several years, and suppliers are expected to adhere to the established procedures to maintain the same commendable standards of efficiency and customer service. As such, the physical delivery of products represents the final stage in the logistics process, and this information is communicated to the billing subsidiary to facilitate the manual issuance of the goods receipt.

As part of the purchasing process, the goods receipt for cost represents the indication that the product left the manufacturing unit for delivery, and must be accounted for the trading company costs. Usually, the goods receipt aims to record the physical movement of goods and update the inventory data in the SAP system. However, as the trading company does not hold stock, this materials movement will only count to update the financial data.

In this purchasing process phase, the manually performed transaction is specified as a goods receipt with reference to a purchase order. Because the properties of pre-processed commodities vary depending on harvest and manufacturing conditions, product concentration fluctuates from batch to batch. In this regard, the weight shown in the sales and purchase orders is merely suggestive. As a result, the real weight is only measured after the given product departs the manufacturing units.

The goods receipt transaction requires the precise gross and net weights of the pre-processed product, followed by the date of manufacture information. Furthermore, the number of containers must be completed. The materials document can then be created, and the consequent accounting movements may be verified. At this stage of the process, the valuation type must be corrected to indicate the correct manufacturing unit from which the product was provided.

Sales Billing

The most important step in the process is the sales billing, which will enable the multinational business to achieve the targeted earnings. The sales invoice is an accounting document that the agri-food group must send to the final client in order to register the sales and request payment.

In fact, this sales billing document is done with reference to the sales order. As explained previously, the sales order quantity is merely indicative, as the net and gross quantities are only

measured when the goods are physically issued from the manufacturing units. Accordingly, the sales order quantity must be modified, so that only the received quantity is billed to the final client.

A sales billing document type was specifically created for the new trading company in Switzerland. Moreover, for the invoice to be issued, the sales order number must be referenced, and all the necessary fields are transferred directly from the sales order.

When a billing document needs to be invalidated or undone due to various reasons, such as errors, changes in the sales order, or customer requests, there is a specific procedure - billing voiding. When a billing document is voided in SAP, the system reverses the financial postings and updates the relevant accounting entries, ensuring that the financial impact of the original billing document is nullified. For this purpose, a billing void document type was created.

Vendor Invoice

In this purchase process step, the trading company in Switzerland receives the vendor's invoice and, if all the information is qualified accordingly to what was actually received, the supplier's invoice must be filled into the system, so that the payment can then be facilitated. As this purchasing process happens within the same multinational group, usually there is no urge to complete this part of the process.

The vendor's invoice is created with reference to the purchase order. After the invoice verification, this document must be inserted into the agri-food trading company SAP system. Through a specific transaction, it is necessary to fill in the document date, and the purchase order number that this vendor invoice is referring to. Moving forward, the total amount and the tax codes must be filled accordingly.

As an internal process, this vendor's invoice stays pendant for payment until it is verified by a destined entity for this purpose. After invoice approval, it is posted for payment processing based on the agreed payment terms.

4.3.2 Additional Requirements

In addition to the already described sales and purchasing process, some extra functionalities were implemented for the system to become efficient and take into account external variables that may be used to diminish the trading company risks.

Sales - Credit Management

SAP credit management assists the agri-food group in properly managing their credit and collections processes. It allows the company to assess and regulate credit risks connected with clients, as well as set credit limits for them.

Concerning the trading company in Switzerland, SAP credit management was implemented in order to define credit limits for the clients, and ensure that it is not possible to keep selling products to certain clients when they still represent a source of debt for the multinational group. This development allows the company to settle a credit limit for each client, which limits the

creation of sales orders whenever the limit is exceeded. This requirement aims to minimize credit risks, improve cash flow, and maintain healthier customer relationships.

Credit and Debit Notes

In SAP, the credit and debit notes processes are integral components of financial management, facilitating the handling of adjustments within sales and purchase transactions. When it is necessary to fix or change the financial parts of a transaction, such as correcting invoicing errors, offering refunds or credits, or charging additional amounts, these processes are employed.

In relation to the credit memo process, the first step is to create a credit memo requisition. A credit memo requisition is a request for a credit memo, which is a document sent by the trading company to a buyer providing credit for returned products, discounts, or other modifications. It represents a formal document that aims to initiate the credit memo process. The second phase of the process is the credit memo itself, also known as a credit note. In the context of the trading company in Switzerland, specific credit note requisition and credit memo types were created.

Similarly, within the debit memo process, a debit memo requisition is a request for the issuance of a debit memo, which is a document used to charge a client for additional goods, services, or pricing revisions. Following the debit memo requisition comes the debit memo itself. To meet the distinct transactional needs of the trading company in Switzerland, this comprehensive set of specific debit document types were meticulously created and implemented.

By employing the credit and debit notes processes in SAP successfully, the agri-food group can streamline the administration of financial adjustments, keep accurate records, and assure appropriate adjustments to client accounts or vendor payments.

4.4 Realize

The Realize phase in the SAP Activate methodology represents a pivotal stage in the implementation process, characterized by the execution of the designed solution. During this phase, the project team meticulously configures and customizes the SAP system according to the previously defined processes. In addition, any necessary enhancements or extensions are developed to address unique business needs.

During this project phase, the functional team diligently focused on finalizing the customizations as outlined earlier. Initially, the team carried out the necessary configurations pertaining to the enterprise structure. This involved the creation of relevant components such as plants (or manufacturing units), sales, and purchasing organizations, along with establishing the appropriate assignments and associations between them.

Regarding the fundamental functionalities of the system, the pricing scheme was meticulously configured. Shifting the focus to the sales configurations, tailored sales documents and billing documents were created, accompanied by their respective number intervals. Furthermore, copy control between various sales documents was established to ensure seamless data transfer. In alignment with the Sourcing and Procurement process, specific purchasing document types were

generated, each with its own distinct number intervals. Additionally, the pricing structure for purchasing documents was defined, enabling accurate cost calculations and pricing determinations. Finally, the credit management configurations were performed.

As previously explained, customized requirements that do not comply with the standard SAP processes must be customized by the ABAP team. SAP ABAP customization involves adjusting the SAP system to satisfy the specific business requirements and to comply with the trading company's unique operations.

Furthermore, as for the practical development of the customizations, the functional team is responsible for strict contact with the ABAP team, in order to ensure a collaborative process. Functional specifications represent the formal document that outlines the expected system behavior in detail. These specifications serve as a guide for the ABAP team to understand the functional requirements and develop the necessary customizations.

After the functional specifications delivery, strict contact should be maintained in order to discuss the functional specifications, address any clarifications or questions, and ensure a shared understanding of the requirements. Following the completion of development, the ABAP team collaborates closely with the functional team to conduct extensive testing. The functional team tests the changes to ensure that they fit the defined criteria and function as intended.

The agri-food industry group, as previously explained, had as requirements to modify all the documents' layouts specifically for the trading enterprise. Consequently, several functional specifications were produced.

Layouts

In adherence to the requirements set forth by the agri-food group, it is vital to undertake the customization of several document layouts to effectively portray the desired information while maintaining a visually clear and organized presentation. Given the intricacy inherent in the Sales and Sourcing and Procurement processes, each step within these processes necessitates a distinct document layout tailored specifically to meet the unique needs of the respective company in question.

In light of this, it was deemed necessary to customize the document layouts, namely the sales contract, the credit note, the debit note, the purchase order, and the sales billing document. To fulfill this requirement, dedicated functional specifications were prepared for each of these documents, encompassing the specific modifications requested by the agri-food group team.

After all the configurations and customizations were entirely tested in the Development environment by the functional and ABAP teams, the result was transported to the Quality environment, so that tests could be conducted by the end-users during the Deploy phase.

Lastly, training programs and comprehensive documentation were prepared to equip end-users and key stakeholders with the necessary knowledge and understanding of the implemented SAP

system, facilitating a smooth transition and optimal utilization of the solution. Furthermore, manuals were prepared in order to support potential errors in the process, that could imply voiding documents, credit notes, and debit notes.

4.5 Deploy

The Deploy phase in the SAP Activate methodology represents a critical stage in the implementation process, focused on preparing the SAP solution for production deployment.

During this phase, the project team undertakes the final steps required to ensure a seamless transition to the Production environment. In this sense, a series of online testing sessions were conducted with both the client's and the functional team's presence, followed by unitary testing performed by the trading company team. User acceptance testing is performed to validate the solution against predefined criteria and ensure that it meets the expectations and requirements of the end users. For this purpose, testing scenarios were prepared and can be analysed in Appendix B. The rigorous testing regimen ensures the proper functioning and alignment of the SAP solution with the intended objectives.

Key activities within the Deploy phase include end-user training programs to equip individuals with the necessary skills and knowledge to effectively utilize the SAP system. In this sense, several sessions were conducted in order to assist the new trading company team, alongside the delivery of several manuals that describe the program's usage. Through careful execution of the Deploy phase, the project team ensures that the SAP solution is ready for full-scale deployment, delivering tangible business benefits and meeting the operational needs of the organization.

Following the successful completion of user training and the delivery of comprehensive manuals and trainings, a critical step was taken in the implementation process. The configurations that were meticulously developed and tested were transported to the Production environment, thereby enabling the trading strategy to become operational. This transportation of configurations to the live environment assumes significant importance as it serves as a vital catalyst for the realization and activation of the trading strategy.

Additionally, the materials and business partners were extended to the Swiss plant of the new trading company, while valuation types were created and extended. These modifications provide the necessary master data for the smooth operation of the production environment.

By ensuring a seamless and controlled transition to the Production environment, the trading strategy is able to be executed and effectively contribute to the desired outcomes, fostering efficiency and effectiveness within the trading operations.

4.6 Run

The Run phase in the SAP Activate methodology represents the operational and support phase of the implemented SAP solution. This phase is characterized by activities aimed at maintaining the system's functionality and ensuring smooth day-to-day trading operations. After business

activities going live, any issues, errors, or incorrect entries that may have occurred during the first few days of the solution being implemented are quickly corrected.

Once the system is live and stable, efforts are made to identify areas for continuous improvement. Feedback from users and stakeholders is collected, and any necessary enhancements or optimizations are implemented to further align the SAP system with business requirements.

In the course of supporting the Go-live phase, multiple workshops were conducted with the objective of providing assistance to the Swiss trading subsidiary team and ensuring proficient training for the seamless execution of processes. Moreover, PwC maintained constant availability for the Swiss team, serving as a point of contact to address any uncertainties and clarify doubts as needed. These efforts were undertaken to guarantee effective and efficient operations during this critical phase, as part of the change management considerations of the project. It is important to notice that the Swiss team is responsible to complete all the process steps, excluding the vendor and the sales invoices that are the responsibility of the agri-food group accounting team.

4.6.1 Results and Improvement Project Presentation

Throughout the initial month of the Go-live phase, PwC's team found that the agri-food trading company encountered challenges that impeded the efficient progression of processes. These challenges included numerous uncertainties regarding the accurate completion of essential fields, resulting in prolonged durations for each process completed. Specifically, during the first month period, the Swiss team required, on average, sixty-seven minutes to finalize a process, a considerably long duration for the particular process at hand.

The situation was analysed by the PwC team, who reached the conclusion that the significant amount of time involved in this matter could be attributed primarily to two factors. Firstly, the Swiss team was in a learning phase, which means that naturally time was required to reach peak productivity. Secondly, the process itself was highly complex, resulting in not only prolonged completion time but also an increased likelihood of human errors.

Considering these circumstances, it was anticipated that the completion time would likely decrease over time, accompanied by an increase in the Swiss team's confidence. However, this increased confidence may potentially result in a higher occurrence of errors during the process. Therefore, in alignment with the agri-food group's objectives, it was decided to automate two of the processes described earlier:

1. Create the purchase order from the Swiss subsidiary to the supplier automatically after the sales order to the final client;

2. After the goods receipt for costs, automatically modify the sales order quantities and create the sales billing document.

The primary objective behind implementing these automations was to effectively mitigate the occurrence of human errors. Additionally, they aimed to minimize the stress induced by the new process, as the Swiss team had the pressure to adapt rapidly to the new strategy and processes.

Furthermore, the automations aimed to alleviate fatigue factors, and enhance the overall stability of the process (Breton and Bossé, 2003). By achieving these goals, the agri-food trading company sought to optimize operational efficiency and ensure reliable outcomes. The decision to implement these modifications lead to the necessity to create a short-duration project for this purpose.

In this context, prior to the implementation of the automations, a thorough analysis was conducted to evaluate the durations of the processes over the course of several months. Specifically, the following time intervals were measured: the duration between sales order and purchase order creation (SO-PO), and the duration between purchase order creation, and the goods receipt (PO-GR). As illustrated in Figure 4.4, there was a significant reduction in the duration of both processes, indicating the learning curve demonstrated by the Swiss team. Remarkably, the team successfully achieved a 68% decrease in the time interval between April and May, reducing the average process completion time from 73 minutes to a mere 23 minutes. More information about these calculations can be analysed in Appendix C.

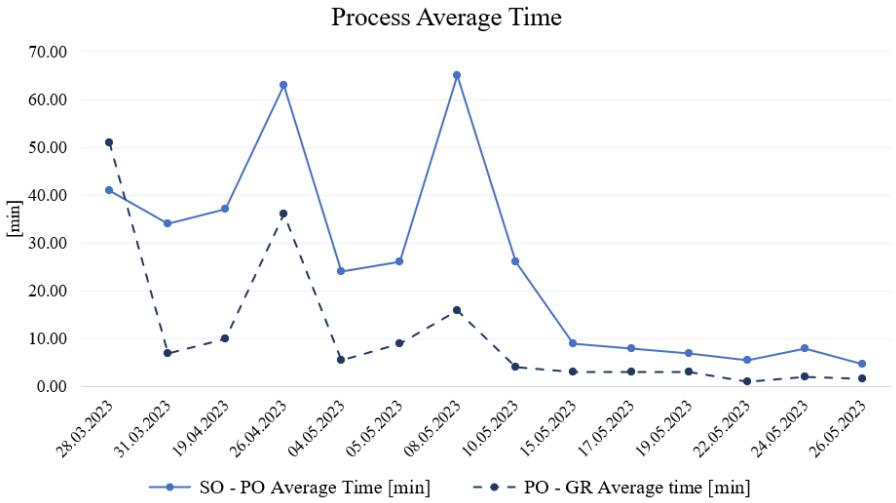


Figure 4.4: Average Time of Completion of Sales Order - Purchase Order and Purchase Order - Goods Receipt

For the automations design and implementation, a small improvement project was conducted. This small project is analysed thoroughly in Chapter 5. Through this in-depth examination, a comprehensive understanding of the project's methodology, outcomes, and implications is presented.

4.6.2 Trading Strategy Implementation Analysis

Taking into account the comprehensive trading strategy, numerous factors necessitate careful consideration when assessing the advantages and disadvantages of establishing a subsidiary in Switzerland. The primary anticipation revolves around the subsidiary's potential to enhance client relations and provide a better understanding of their unique requirements within the agri-food group. Furthermore, proximity to other participants in the commodities trading sector is a key

objective for the multinational group, as it seeks to capitalize on the insights into current market trends and dynamics.

Indeed, consolidating all sales functions within a singular unit has the potential to streamline processes, thereby facilitating trading activities between clients. This consolidation also enables improved resource management, as the Swiss team can effectively distribute workloads among suppliers. From a financial standpoint, concentrating these functions can contribute to a reduced level of risk, as it empowers the team to stay abreast of the latest developments in legal and regulatory requirements.

Certainly, given that the trading strategy has recently been implemented, the scope of available data concerning the aforementioned matter is quite limited. Consequently, a comprehensive assessment of the overall benefits can only be conducted at a later stage of the implementation process. It is crucial to surpass the initial learning phase and accumulate a sufficient number of transactions to effectively compare the previously outlined factors with the performance observed prior to the implementation of this strategy.

However, it is possible to make an estimate of the overall financial benefits of the trading strategy implementation. As analysed in Appendix D, for an illustrative example of fifty million euros in taxable profit, this new location in Switzerland can diminish the overall corporate income tax by around 30.5%. For the example at hand, this represents a value of around €4.3 million. Concerning the VAT advantages, even though these calculations were not considered, it is expected that there is a decrease in the amount of VAT with the trading strategy implementation.

Chapter 5

System Improvements

The objective of this chapter is to outline the system improvements implemented with the intention of mitigating risks and further enhancing the efficiency of the already established system implementation. This particular improvement initiative involved the creation of a concise, time-bound project, specifically designed to address these goals. A meticulous planning strategy was formulated for this purpose, including increased engagement from the programming team. After several tests sessions, and delivery of trainings and documentation to the end-user, the system enhancements were thoroughly implemented. Subsequently, a comprehensive analysis is conducted to evaluate the advantages and limitations of the automation implementation.

5.1 Project Planning

The first step in the system improvement short-duration project was to align the project scope and objectives with the client. The proposed enhancement, as explained in Chapter 4, was to automate the purchase order creation after the sales order, and to modify the sales order and create the sales billing, triggered by the goods receipt. These automatisms can be better described through Figure 5.1.

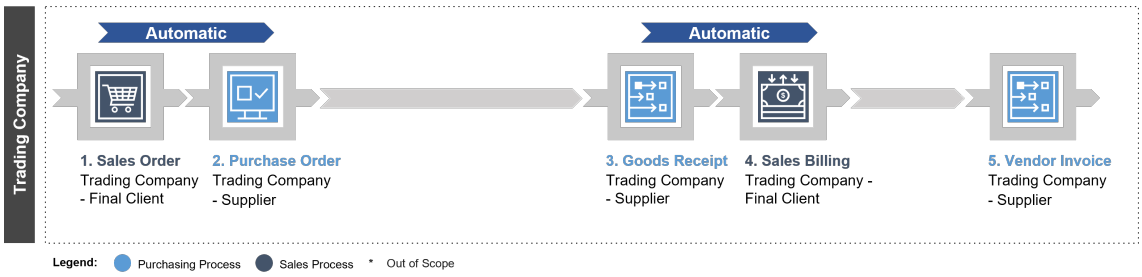


Figure 5.1: Process Design

As mentioned earlier, when encountering customized requirements that do not align with standard SAP processes, the ABAP programming team is tasked with the responsibility of making the necessary adjustments. SAP ABAP customization involves modifying the SAP system to meet

specific business requirements and align with the unique operations of the trading company, including the implementation of desired automation mechanisms. Additionally, the functional team takes charge of maintaining close communication with the ABAP team to ensure a collaborative process throughout the development of these customizations.

In consequence, to ensure the synchronization of the automated processes and advance with the project proposal, a kick-off meeting was convened. Subsequently, a project planning was devised to establish priorities and allocate the necessary tasks over a specific time frame, as presented in Figure 5.2.

				April				May				June			
Phase	Module	Task	Description	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
Programming	LOG	Functional Specifications	First Automatism Second Automatism												
	ABAP	Programming	Develop First Automatism Develop Second Automatism												
	LOG/ABAP	Testing / Corrections	First Automatism Second Automatism												
Testing	All	Unitary Testing Acceptance Testing Corrections	Unitary Process Testing Global Testing. Acceptance. Processes Corrections												
Go-Live	All	Go-Live / CutOver Support / Improvement	First Automatism Second Automatism Support to the Team												

Figure 5.2: Improvement Project Planning

5.2 Programming

For the development of the desired automations, two functional specifications were prepared - one for each process step to be automated. After the functional specifications delivery, close contact was maintained in order to discuss the functional specifications, address any clarifications or questions, and ensure a shared understanding of the requirements. By following this structured approach, the team ensured the successful integration of automated processes while maintaining consistency with established programming standards.

5.2.1 Automatic Purchase Order

The first essential automation was to automatically generate a purchase order following the sales order. As expected, the information required to produce the purchase order must be gathered solely from the sales order fields, even though some of the required information cannot be retrieved directly.

It is important to notice that this automatic process must only be triggered when a set of conditions are met, in order to prevent the automatic procedure affects other processes within the SAP system. Accordingly, an automatic purchase order should only be generated for the specific trading company sales organization, the Traders distribution channel, and the Industrial division.

As previously explained, the purchase order must always be created with reference to a purchase contract. Considering that while creating the sales order the program can only obtain the

information that is stored directly in that transaction, the purchase contract information must be obtained indirectly through a Mapping Rule - an indirect set of rules that aims to obtain the purchase contract number from information present in the sales order.

There is a table in SAP that stores all the information about the purchase contract. Firstly, the table should be filtered according to the purchase contract type, as one was created specifically for the trading company. Furthermore, the validity date of the contract must be after the date when the transaction is being established. Finally, to obtain the vendor associated with a sales order, it is crucial to ascertain the manufacturing unit responsible for providing the product.

However, during the creation of the sales order, the commercial team lacks precise knowledge regarding the exact manufacturing unit. Nonetheless, they possess information about the vendor, which is conveyed through the valuation type field. Consequently, in order to determine the vendor, they select a valuation type that corresponds to the most probable manufacturing unit for the sales order. This selection enables the establishment of a linkage between vendors and manufacturing units, with the relevant associations being stored in a customized table, as exemplified through Table 5.1.

Table 5.1: Customized Table - Linkage between Vendors and Manufacturing Units

Manufacturing Unit	Supplier
Plant 1.1	Vendor A
Plant 1.2	Vendor A
Plant 2.1	Vendor B
Plant 4.1	Vendor C
Plant 4.2	Vendor C

Finally, the material number filters which of the items from the purchase contract corresponds to the desired item from the sales order. This purchase contract information enables the program to obtain the contractual price and other relevant information.

Additionally, for each material item that comes from the sales order, there must be created a new freight item with its respective delivery cost. This freight item must have the same information as the correspondent product, except for the net price, which should be drawn directly from the freight price condition present in the sales order.

The delivery address should be retrieved from the sales order Incoterms. Additionally, the client must be also derived from the sales order Sold-to-Party field. This information can be accessed directly from the sales order.

The functional specification document was delivered to the ABAP team, and several meetings were conducted in order to clarify the logic behind the requirement and understand the most effective way to put the specification into practice.

5.2.2 Automatic Sales Billing

The second required automation was to automatically generate a sales billing document after the goods receipt for costs, including the sales order modification. Even though part of the essential

information cannot be collected directly, the information required to generate the sales billing document must be gathered purely from the goods receipt fields, as intended.

Similarly to the previously explained automation, this automatic process must only be initiated when a set of circumstances are met in order to avoid the automatic procedure interfering with other processes in the SAP system. As a result, the automatic sales billing after the goods receipt must only occur for the trading company, and if the referenced purchase order type is the one created for this purpose.

In order to enable the modification of the sales order and subsequent creation of the sales billing document, it is imperative to have access to the sales order number. It should be noted that the goods receipt is executed with reference to a purchase order, and the sales order number is specifically stored in a designated field within the purchase order for this purpose. Therefore, it is crucial for the program to utilize this logical process to retrieve the required information.

As part of the automation process, the initial step involves the modification of the sales order. Once the sales order number is obtained, the software is required to update the sales order amount with the precise value entered in the goods receipt, along with the corresponding net and gross values. Additionally, the software should store the number of containers in a designated field, allowing it to be subsequently incorporated into the billing document layout. Finally, after the sales order modification, the sales billing document must be created.

5.3 Testing and Go-Live

Following the completion of the first version of the development of the first automatism, the ABAP team collaborated closely with the functional team to conduct extensive testing. The functional team tested the changes to ensure that they fit the defined criteria and function as intended and made all the necessary corrections. This iterative process was conducted to ensure the automatic process meets the testing standards set by the agri-food group team.

Following a preliminary verification conducted by the functional and ABAP teams, the purchase order automatism was transferred to the Quality environment for the purpose of carrying out a formal testing session alongside the agri-food group's team. Furthermore, test scenarios were meticulously prepared to facilitate the validation of the automation development by the Swiss team. The project's documentation was duly revised to incorporate the most recent advancements. Subsequent to rigorous testing (Appendix B) and the client's ultimate validation, the automated procedure was deployed to the live environment.

Regarding the automation of sales order modification and creation of sales billing after goods receipt, it is important to note that this procedure has not been finalized within the timeframe of the dissertation project due to insufficient coordination between the programming and functional teams. As a result, the results have not been established at this stage, so an analysis of the expected results will be presented.

The final phase of the improvement project encompasses the analysis of errors and the implementation of minor improvements. Consequently, there was ongoing communication between

PwC and the Swiss team to provide assistance during the execution of processes, address any potential uncertainties, and identify necessary corrections. Subsequently, these identified correction requirements are relayed to the ABAP team for development.

5.3.1 Results

Firstly, with regards to the implementation of the automatic procedure, as depicted in Figure 5.3, a significant 85% reduction in the time required for the Swiss team to complete a purchase order is evident. This calculation only considered the last six days prior and the five days after to the implementation of the automation, aiming to minimize the impact of the team's learning curve on the results of the automation. Additionally, it is evident that the automatic procedure brings standardization to the overall process, as the time required to create a purchase order remains constant at approximately one minute per transaction.

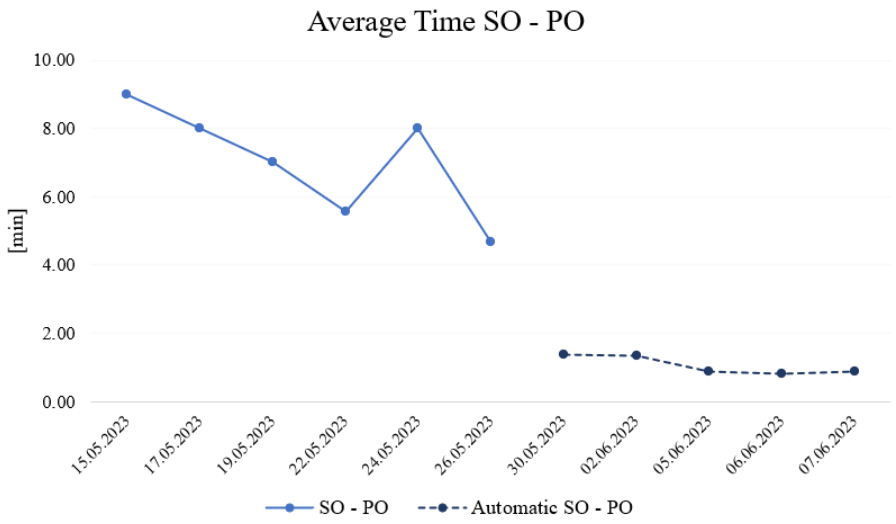


Figure 5.3: Average Time of Completion of Sales Order - Purchase Order

Concerning the time of completion of the goods receipt, as it can be analysed through Figure 5.4, there was a considerable decrease in the amount of time that the Swiss team takes to complete this process. As this process is and will continue to be performed manually, this analysis can clearly show the learning curve of the team, that managed to complete a goods receipt in around two minutes. A deeper analysis into all the above calculations can be found in Appendix C.

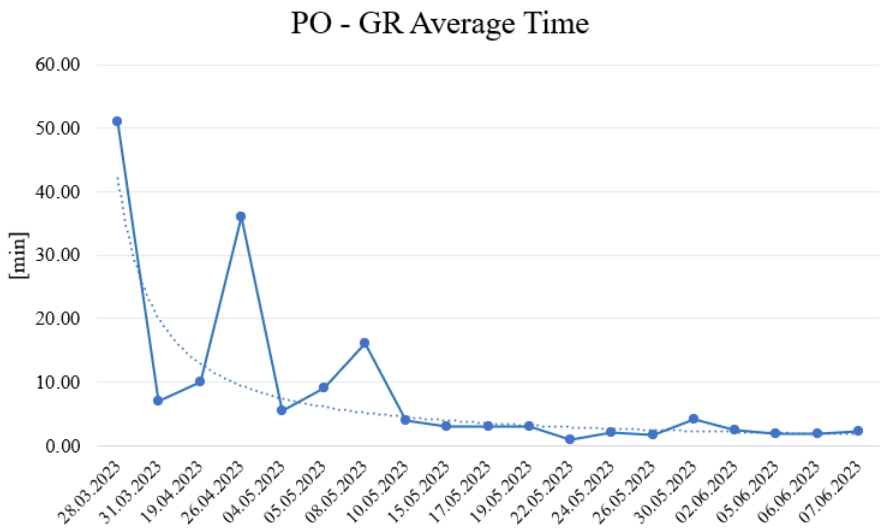


Figure 5.4: Average Time of Completion of Goods Receipt

While definitive conclusions cannot be drawn regarding the decrease in time for the sales order modification and sales billing process, it is anticipated that this improvement will reduce the likelihood of human errors and alleviate the workload burden on the accounting team, who are responsible for issuing the billing documents.

Chapter 6

Conclusion and Future Work

This Master's Dissertation focuses on two main subjects. Firstly, the agri-food industry faces significant external pressures, which necessitate companies to maintain competitiveness within the sector. As a strategic move to enhance the multinational group's position in the global market, the establishment of a trading subsidiary in Switzerland was pursued. Secondly, implementing the trading strategy involved integrating essential processes into the existing SAP S/4HANA system. This complex project highlighted the crucial role of technology in daily operations for companies today. Despite various challenges and the need for a short-term improvement project, the overall outcome successfully reinforced the group's strong market position. In the course of this project, several conclusions can be taken considering areas of improvement and limitations of the current studies. The short-comes detection allows future areas of work to be thoroughly analysed.

6.1 Main Conclusions

This dissertation provides a comprehensive analysis of implementing a trading strategy within a multinational agri-food group. The implementation took into account various factors, including improving client relationships, gaining insights into the commodities trading industry, standardizing processes, and mitigating risks.

With the decision to establish a trading subsidiary, it became necessary to analyse different potential locations, considering the relevant aspects of the business and industry at hand. Switzerland emerged as the most suitable location for implementing this strategy due to its central geographic position, favorable tax regulations, streamlined regulatory procedures, stable economic and political conditions, and the availability of a highly skilled workforce.

As anticipated, the integration of the strategy required technological alignment. Since the agri-food sector already utilized SAP S/4HANA, the project proposal aimed to adapt the agri-food group's activities to the trading strategy context, incorporating the standard processes defined in SAP S/4HANA. The project commenced with scoping discussions and team formation, followed by extensive workshops to comprehend the existing processes and develop customized versions for the new trading subsidiary.

The solution involved implementing a triangular billing process, where a sales order from the trading subsidiary's client triggered a purchase order to the manufacturing units, facilitating direct product transfer from the supplier to the final destination. The implementation process underwent multiple iterations of customization and testing. Extensive training sessions were conducted, accompanied by comprehensive support documentation. After receiving final validation from the agri-food industry team, the desired output was integrated into the live system, enabling the trading subsidiary to commence operations.

By implementing SAP S/4HANA, the multinational group could harness a multitude of advantages. Firstly, processes streamline, optimizing operations and minimizing inefficiencies. Secondly, standardization ensured uniformity and consistency across different departments, promoting seamless collaboration. Moreover, accessibility was enhanced, enabling employees to access critical information from anywhere, anytime, fostering agility and remote work capabilities. Lastly, information centralization consolidated data, providing a single source of truth, empowering data-driven decision-making and driving overall organizational success.

In-depth analysis revealed the complexity of the implemented processes, posing a significant risk of errors for the Swiss team. To address this, a proposal was made to automate two of the implemented processes. Although the second automation, involving automatic modification of the sales order and creation of sales billing after goods receipt, could not be implemented within the given timeframe due to insufficient coordination between the programming and functional teams, the first automation, which involved automatically generating a purchase order after a sales order, was successfully implemented. This automation not only streamlined the learning process but also improved efficiency and reduced the likelihood of human errors in Swiss activities.

The implementation of these automations yielded highly positive results by enhancing daily efficiency and overall process quality for the team. However, non-standard processes may pose challenges, and continuous reviews are necessary to adapt to evolving business needs. While the qualitative advantages of the trading strategy are yet to be confirmed, it has already demonstrated promising financial outcomes.

6.2 Future Work

The current business strategy represents a significant improvement in the group's financial performance and has the potential to enhance the company's position in the sector. However, it is important to note that this dissertation does not provide a comprehensive analysis of all possible business strategies that the company could pursue to remain competitive in the market. Consequently, conclusions regarding the efficiency of resource allocation and the opportunity costs incurred by the multinational group cannot be drawn from this analysis alone.

Although a detailed analysis was carried out on the potential advantages of establishing a trading subsidiary in Switzerland, many of these benefits can only be fully realized in the long term. Improving business relationships with clients and gaining a better understanding of the overall market dynamics requires time to take root within the company.

In the context of the Literature Review, particularly in the area of methodologies, the analysis of technology implementation frameworks focused primarily on SAP-specific methodologies, which are often the most suitable for SAP system implementation projects. However, for future projects, it is recommended to explore other methodologies to incorporate the best project management practices outlined in the literature.

While this trading strategy can be applied to other multinational corporations, it is crucial to consider the specific industry context, as well as the size and stage of growth of the business. The analysis presented in this dissertation must be carefully evaluated within the agri-food industry and the group's position within it. Therefore, the overall benefits should be thoroughly assessed for each individual case, and the decision to create a trading subsidiary should be legally reviewed by professionals.

Regarding the choice of location for the trading subsidiary, the analysis conducted in this dissertation was not exhaustive, and market conditions may change in the future. Therefore, before finalizing the location of a trading subsidiary, it is recommended to perform a new extensive analysis to capture the most up-to-date market dynamics and regulations.

Considering that the current strategy analysis was conducted within a well-established multinational group with clearly defined processes, an optimization analysis was not performed. Future work should include a comprehensive analysis of the existing processes to enhance team efficiency and optimize resource utilization. On the other hand, the team was able to automate the defined processes, in order to increase efficiency.

Furthermore, the newly implemented processes were tailored to fit the existing system used by the group. A limitation of this study is the lack of analysis of potential alternative systems. In future work, the multinational group should remain attentive to potential alternative systems that could automate processes with lower complexity and effort, ultimately leading to more suitable and efficient daily procedures.

During the project's improvement phase, some barriers were encountered in the communication between the functional and ABAP teams, which resulted in delays in project delivery. The benefits of the second automatic process could not be quantified within the scope of this dissertation project, as it was not implemented within this dissertation project timeframe. Future work should focus on capturing the advantages of this second automatic procedure and conducting an extensive analysis in this regard.

In the highly competitive agri-food industry, companies must stay abreast of the most widely adopted business strategies and emerging innovative trends. Recent advancements in various fields can impact the way businesses operate and provide competitive advantages to those who are observant and responsive to these developments. Therefore, it is crucial for the multinational enterprise considered in this dissertation to have a well-defined overall business strategy, enabling it to stay informed about the latest discoveries in the industry and enhance the most critical aspects its value chain. The ultimate goal should be to deliver maximum value through initiatives that yield a favorable return on investment.

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Appendix A

Corporate Taxes in Europe

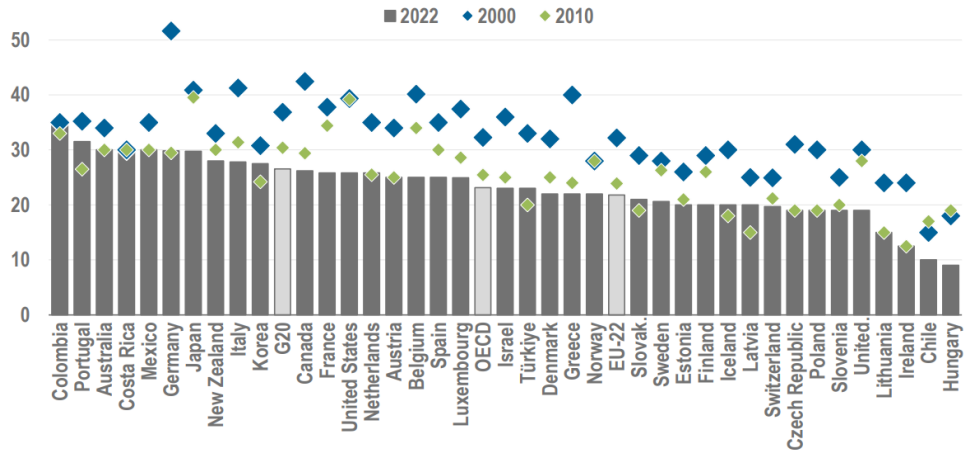


Figure A.1: Corporate Income Taxes in Europe (OECD.Stat, 2023)

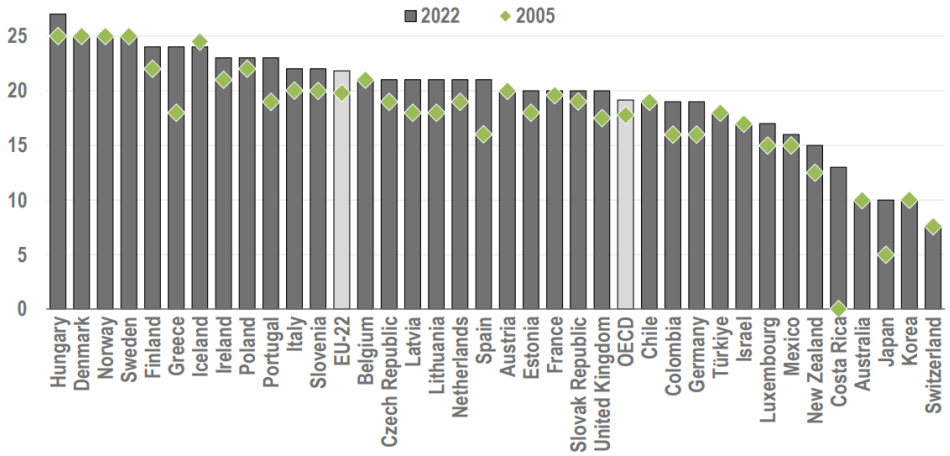


Figure A.2: Value-Added Taxes in Europe (OECD.Stat, 2023)

Appendix B

Unitary Test Scenarios

ID	Process Description	Area
SD1.0	Sales Contract	SD

User	USERNAME
Date	XX/XX/XXXX

Test steps	Description	Tester	Test Date	Status	Observations	Evidence	Re-test Date	Re-test Status	Re-test observations
1	Transaction VA41								
2	Fill the Order Type, Sales Org, Distribution Channel, and Division								
3	Fill the Sold-to-Party, Ship-to-Party, Customer Reference and the Customer Reference Date								
4	Fill the Delivery Time and Currency: USD								
5	Fill the Contract Start and End dates								
6	Fill the means of transportation								
7	Fill the Incoterms								
8	Fill the CROP								
9	Fill for each item: - Material - Unit of Measure: TO - Item category: ZKM - Plant: 5101 - Order quantity - Valuation Type - Price Conditions (PR00; ZFRE)								
10	Save the document								

	Data
2	Order Type - ZC09 Sales Organization - 5001 Distribution Channel - 05 Traders Division - 01 Industrial
3	Sold-to-Pary - 5109506 Ship-to-Party - 5109506 Customer Ref - 123456 Customer Ref Date - 23/03/2023
4	Delivery Time - Z9 30 days
5	Start Date - 26/05/2023 End Date - 29/05/2023
6	Means of transportation: 0011 Dry 20"
7	Incoterms: DAP
8	CROP: Crop 23
9	Fill for each item: - Material: 17000228 - Order quantity: 1000000 - Valuation Type: 41102023PA - PR00: 1200 - ZFRE: 120

Figure B.1: Unitary Testing - Sales Contract

ID	Process Description	Area
SD2.0	Sales Order	SD

User	USERNAME
Date	XX/XX/XXXX

Test steps	Description	Tester	Test Date	Status	Observations	Evidence	Re-test Date	Re-test Status	Re-test observations
1	Transaction VA01								
2	Fill the Order Type, Sales Org, Distribution Channel, and Division								
3	Fill the Sales Contract								
4	Fill the Customer Reference and the Customer Reference Date								
5	Fill the expected loading date and expected date for delivery								
6	Fill the materials quantity								
7	Save the Sales Order								

	Data
2	Order Type - ZOCH Sales Organization - 5001 Distribution Channel - 05 Traders Division - 01 Industrial
3	Sales Contract - 14000056
4	Customer Ref - 123456 Customer Ref Date - 23/03/2023
5	Expected loading date - 26/05/2023 Expected date for delivery - 29/05/2023
6	Quantity - 34 TO

Figure B.2: Unitary Testing - Sales Order

ID	Process Description	Area
MM1.0	Purchase Contract	MM

User	USERNAME
Date	XX/XX/XXXX

Test steps	Description	Tester	Test Date	Status	Observations	Evidence	Re-test Date	Re-test Status	Re-test observations
1	Transaction ME31K								
2	Fill the Vendor, Agreement Type, Purch Organization, Purch Group								
3	Fill the Validity Start, Validity End and the Target Value								
4	Fill the Account Assignment Category, Material, Target Quantity, Net Price, Plant								
5	Fill the G/L Account								
6	Fill the Valuation Type								
7	Save the Sales Order								

	Data
2	Vendor - 5200033 Agreement Type - ZAC Purchasing Organization - CH10 Purchasing Group - A08
3	Validity Start - 01.01.2023 Validity End - 31.12.2023 Target Value - 999999999
4	Account Assignment Category - X Material - 17000228 Target Quantity - 100000 KG Net Price - 1000 Plant - 5101
5	G/L Account - 4000050
6	Valuation Type - 41012023PA

Figure B.3: Unitary Testing - Purchasing Contract

ID	Process Description	Area
MM2.0	Purchase Order	MM

User	USERNAME
Date	XX/XX/XXXX

Test steps	Description	Tester	Test Date	Status	Observations	Evidence	Re-test Date	Re-test Status	Re-test observations
1	Transaction ME21N								
2	Fill the Document Type - ZNAC								
3	Select the item								
4	Fill the Quantity and the Requisitioner								
5	Fill the Valuation Type								
6	Fill the Sales Order number and the item								
7	Fill the Profit Segment - Customer								
8	Fill Customer Data - Sales Order and item								
9	Fill the Freight Item								
9.1	Fill the Account Assignement Category, Short Text, Net Price, Quantity and Material Group								
9.2	Fill the Customer Data Tab								
9.3	Fill the ClC Tab								
10	Fill the Delivery Address								
11	Save the Document								

	Data
2	Purchasing Contract - 34000000020
3	Item - 17000228
4	Quantity - 34000 KG Requisitioner - 1020
5	Valuation Type - 41012023PA
6	Sales Order - 14000020 Item - 10
7	Customer - 5109506
8	Sales Order - 14000020 Item - 10
9.1	Item - 20 Account Assigment Category - X Short Text - FREIGHT COST Quantity - 34000 KG Net Price - 120 USD Material Group - SG-TR
9.2	Sales Order - 14000020 Item - 10
9.3	G/L Account - 4635882 Customer - 5109506 Material - 17000228
10	Adress XYZ

Figure B.4: Unitary Testing - Purchase Order

ID	Process Description	Area
AUT1.0	Sales Order and Automatic Purchase Order	SD / MM

User	USERNAME
Date	XX/XX/XXXX

Test steps	Description	Tester	Test Date	Status	Observations	Evidence	Re-test Date	Re-test Status	Re-test observations
1	Create Sales Order								
1.1	Transaction VA01								
1.2	Fill the Order Type, Sales Org, Distribution Channel, and Division								
1.3	Fill the Sales Contract								
1.4	Fill the Customer Reference and the Customer Reference Date								
1.5	Fill the expected loading date and expected date for delivery								
1.6	Fill the materials quantity								
1.7	Save the Sales Order								
2	Verify Purchase Order								
2.1	Transaction VA03 - Document Flow - Display document								
2.2	Verify for each line: - Material - Order Quantities - Order Units: KG - Delivery Date - Net Price - Price Unit: 1000 KG - Material Group - Plant - Requisitioner: 1020								
2.3	Verify for freight line: - Material Description - Order Quantities - Net Price - Material Group - G/L Account - Plant								
2.4	Verify tab CLC:- Sales Order number and Item- Material- Client								
2.5	Verify Delivery Address								
2.6	Verify Client Data								
2.7	View Purchase Order PDF								

	Data
1.2	Order Type - ZOCH Sales Organization - 5001 Distribution Channel - 05 Traders Division - 01 Industrial
1.3	Sales Contract - 14000056
1.4	Customer Ref - 123456Customer Ref Date - 23/03/2023
1.5	Expected loading date - 26/05/2023 Expected date for delivery - 29/05/2023
1.6	Quantity - 34 TO

Figure B.5: Unitary Testing - Automatic Purchase Order after Sales Order

Appendix C

Processes Duration Data Analysis - Pre and Post Automations

The purpose of this Appendix is to provide a comprehensive analysis of the durations taken by the Swiss team to undergo various processes. This analysis and the corresponding calculations are categorized into two phases: the period prior to the implementation of automations (Pre-Automations) and the period subsequent to this implementation (Post-Automations).

C.1 Pre-Automations

The Table C.1 represents the average time per day that the Swiss team took to complete the processes. Additionally, the total average time was also calculated for each day. It is important to notice that the calculations depend on the existence of observations, i.e, processes completed by the team.

Table C.1: Initial Average Times per Day Calculations [min]

Date	SO - PO Average Time	PO - GR Average time	Total Average Time
28.03.2023	41.00	51.00	92.00
31.03.2023	34.00	7.00	41.00
19.04.2023	37.00	10.00	47.00
26.04.2023	63.00	36.00	99.00
04.05.2023	24.00	5.50	29.50
05.05.2023	26.00	9.00	35.00
08.05.2023	65.00	16.00	81.00
10.05.2023	26.00	4.00	30.00
15.05.2023	9.00	3.00	12.00
17.05.2023	8.00	3.00	11.00
19.05.2023	7.00	3.00	10.00
22.05.2023	5.56	1.00	6.56
24.05.2023	8.00	2.00	10.00
26.05.2023	4.67	1.67	6.33

As it can be perceived through Figure C.1, the total average time per day decreased over time, which represents the considerable learning curve showed by the Swiss team, mainly due to trainings and documentation given by the PwC Functional team.

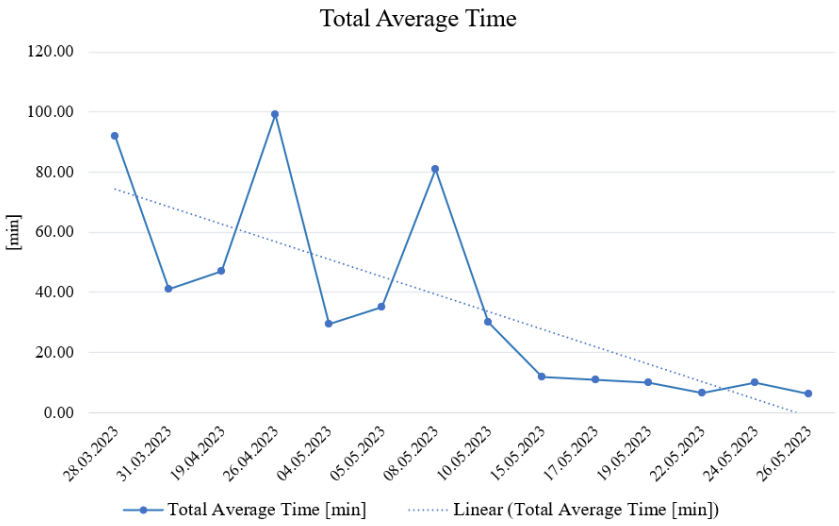


Figure C.1: Initial Total Average Time per Day of Completion of the Process

The Table C.2 represents the average time per month that the Swiss team took to complete the processes. Even with an increase of 10% between March and April, there was a decrease of 68% of the average time between April and May.

Table C.2: Initial Variations between Months [%]

Month	Average Time [min]	Variation [%]
March	66.50	-
April	73.00	9.77%
May	23.14	-68.33%

C.2 Post-Automations

Figures **??** and C.3, and Table C.3 represent the average time per day to complete the processes by the Swiss team.

Table C.3: Total Average Times per Day Calculations [min]

Date	SO - PO Average Time	PO - GR Average time	Total Average Time
30.05.2023	1.38	4.14	5.52
02.06.2023	1.33	2.46	3.79
05.06.2023	0.90	1.94	2.83
06.06.2023	0.82	1.77	2.58
07.06.2023	0.89	2.22	3.10

As it can be perceived through Figure C.3, the total time to complete the purchase order after the sales order became constant and much inferior to the time that it took to complete the goods receipt after the purchase order, mainly due to the automatic process implementation.

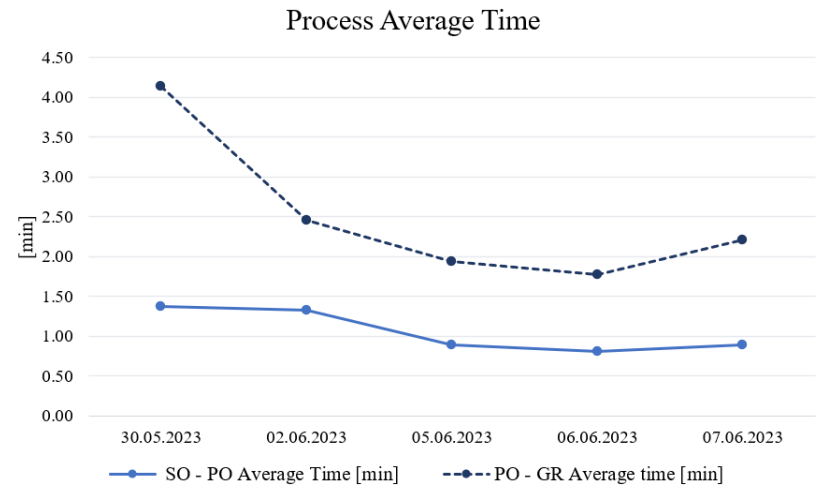


Figure C.2: Average Times per Day of Completion of the Process

In an overall, the total average time per day to complete the process suffered a major decrease, as represented through Figure C.3.

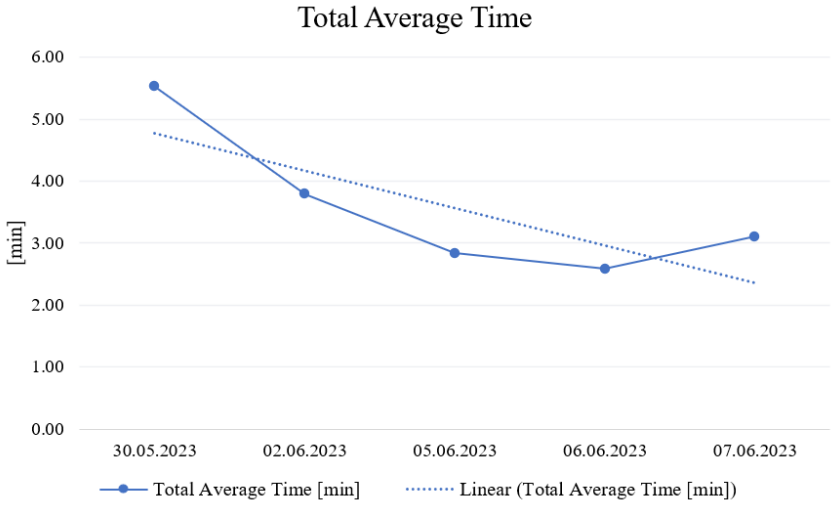


Figure C.3: Total Average Time per Day of Completion of the Process

All in all, the Table C.4 represents the average time per month that the Swiss team took to complete the processes. There was a decrease of 44.3% of the average time between May and June, mainly due to the automatic process implementation.

Table C.4: Variations between Months [%]

Month	Average Time [min]	Variation [%]
May	5.52	-
June	3.08	-44.25%

Appendix D

Trading Strategy Financial Benefits

For an estimate of the trading strategy monetary advantages, a reference value of five million dollars in taxable profit is considered.

Considering a first scenario of the amount of tax that should be payed for a company located in Portugal, there is a flat CIT tax of 21%. In addition to the flat tax rate, there is a municipal surtax in several counties. Considering that the Enterprise in question is located in Lisbon, there is an additional municipal surtax of 1.5%. Finally, for companies with more than 1.5 million euros of profit, and considering that this is the case of the multinational company in question, there are additional state surtaxes, as presented in Table D.1.

Table D.1: State Surtax in Portugal

Profit Lower Limit	Profit Upper Limit	Surtax
1.5€ million	7.5€ million	3%
7.5€ million	35€ million	5%
35€ million	-	9%

All in all, for a taxable profit of fifty million, in Portugal, the amount due in tax is around 14.1€ million, which represents an effective tax rate of 28.31%. These calculations are described in Figure D.1.

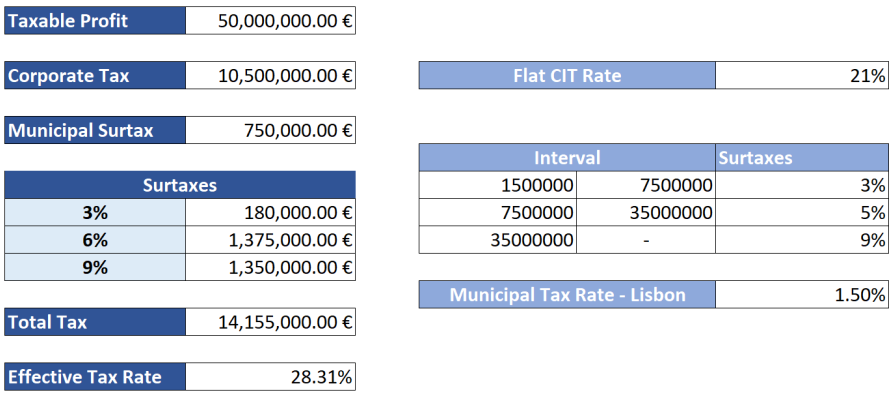


Figure D.1: Financial Benefits in Portugal Sources: PwC (2023c), OECD.Stat (2023)

Considering a second scenario of an enterprise located in Switzerland, for the same fifty million euros in taxable profit, there is a flat CIT rate of 8.5% on the federal level. Additionally, there

is a communal tax that depends on the location of the trading subsidiary. Considering that the company is located in Zug, a cantonal rate of 11.9% is applied (PwC, 2023c). This results in a total amount of tax of 9.8€ million, which represents an effective tax rate of 19.7%. Calculations on this matter are better described in Figure D.2.

Taxable Profit	50,000,000.00 €
Corporate Tax	3,888,750.00 €
Cantoonal Tax	5,950,000.00 €
Total Tax	9,838,750.00 €
Effective Tax Rate	19.68%
Variations	4,316,250.00 €
	-30.49%

Flat CIT Rate	8.5%
Cantoonal Tax Rate in ZUG	11.90%

Figure D.2: Financial Benefits in Switzerland Sources: PwC (2023c), OECD.Stat (2023)

All in all, this new location in Switzerland can diminish the overall tax corporate tax income by around 30.5%, which represents a decrease of around 4.6€ million in the amount paid in taxes.

It is important to clarify that this calculation assumes a straightforward scenario that only takes into consideration the corporate income tax and does not take into account any additional factors or deductions that may apply in specific jurisdictions. It is always recommended to consult with a qualified tax professional or refer to the official tax authorities for accurate and up-to-date information regarding the specific situation.