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SAP FICO IN RELATION WITH ORDER DELIVERY PROCESS IN ENTERPRISE RESOURCE PLANNING

– A case study on SAP S/4HANA system environment as a practical platform



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- A case study on SAP S/4HANA system environment as a practical platform

The goal of the thesis is to identify the relations between SAP FICO and order delivery process. Financial Accounting (FI) and Management Accounting (CO) are referred to as FICO (Magal & Word 2012). SAP S/4HANA system environment - was used as the practical platform of the study. The main purpose is - to show how this identified relation helps in generating accurate stock valuation and financial reports. As an integral part, accounting is maintained in several particular steps in order delivery process but if accounting is kept as unrecorded, business does not get appropriate picture of -its assets and liabilities. The research configured the integration process along with the integration points that can be use to make flawless financial reports.

Enterprise Resource Planning (ERP) -is defined briefly in the first phase of the theoretical part. SAP S/4HANA as the central subject matter of the study is discussed in the next phase. A general overview on order delivery process and the process in S/4HANA is presented subsequently. Theoretical discussion concludes by presenting FICO as the tool of managing and creating financial data & financial reports.

The practical phase includes several SAP system screenshots showing the process, where and when accounting entry should be recorded. The author - participated in a training on SAP S/4HANA and –the above screenshots were collected there.

The study - identifies three integration points while analyzing the relations between order delivery process & FICO. To get an actual financial state of a company, accounting should be recorded after goods receipt, goods Issue and Customer Payment. The results are displayed as the desired outcome of the study and it can be used as a study material for the students.

KEYWORDS:

SAP S/4HANA, Order Delivery Process, FICO, ERP

Md. Aminul Islam

SAP FICO LIITTYEN TILAUKSEN TOIMITUSPROSESSIIN YRITYKSEN RESURSSISUUNNITTELUSSA

- Tapaus: SAP S / 4HANA -järjestelmäympäristö käytännön alustana

Tämän opinnäytetyön tavoitteena oli tutkia SAP FICO:n ja tilauksen toimitusprosessin välistä suhdetta. FICO viittaa taloushallinnon kirjanpitoon (FI) ja hallintolaskentaan (CO) (Magal & Word 2012). SAP S/4HANA -järjestelmäympäristöä on käytetty tutkimuksen alustana. Pää tarkoituksena on näyttää, kuinka tämä tunnistettu suhde auttaa tuottamaan tarkkoja osakearvioita ja taloudellisia raportteja. Kirjanpito on olennainen osa monessa vaiheessa tilauksen toimitusprosessissa, mutta jos kirjanpidosta ei pidetä kirjaa, yritys ei saa asianmukaista kuvaa heidän varoistaan ja veloistaan. Tämä tutkimus on määritellyt integraatioprosessin ja integrointipisteet, joita voidaan käyttää virheettömien taloudellisten raporttien laatimiseen.

Yritystoiminnan resurssisuunnittelu (ERP) on määritelty lyhyesti teoreettisen osan ensimmäisessä vaiheessa. Teoreettisen osan toisessa vaiheessa käsitellään SAP S/4HANA:ta, joka on tutkimuksen keskeinen aihe. Sen jälkeen on yleiskatsaus tilauksen toimitusprosessista ja prosessista S/4HANA:ssa. Teoreettinen osio päättyy FICO:n kuvailulla työvälineenä taloudellisen datan ja taloudellisten raporttien hallinnassa ja luomisessa.

Empiirinen osa sisältää useita kuvakaappauksia SAP-järjestelmästä, jotka osoittavat prosessin, missä ja milloin tapahtuneet merkinnät tulisi tallentaa. Tämän opinnäytetyön kirjoittaja osallistui SAP S/4HANA -harjoitteluun, ja tässä tutkimuksessa käytetyt kuvakaappaukset on koottu harjoittelupaikasta.

Tutkimuksessa on tunnistettu kolme integraatiopistettä analysoitaessa tilauksen toimitusprosessin ja FICO:n välistä suhdetta. Yrityksen todellisen taloudellisen tilan selvittämiseksi kirjanpito tulisi kirjata tavaroiden vastaanoton, tavaroiden liikkeeseenlaskun ja asiakasmaksun jälkeen. Opinnäytetyön tulokset vastaavat tutkimuksen alussa asetettuihin haluttuihin tuloksiin.

ASIASANAT:

SAP S / 4HANA, tilaus-lähetys-prosessi, FICO, Toininnanohjaus, ERP

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LIST OF ABBREVIATIONS (OR) SYMBOLS

Abbreviation	Explanation of abbreviation (Source)
AP	Account Payable
AR	Account Receivable
ATP	Available-to-promise
BOM	Bill of Material
CO	Controlling
CRM	Customer Relationship Management
ERP	Enterprise Resource Planning
FI	Financial Accountig
GAAP	Generally Accepted Accounting Principles
G/L	General Ledger
HCM	Human Capital Manaement
HRM	Human Resources Management
IAS	International Accounting Standard
MM	Material Management
MRP	Material Requirements Planning
PP	Production Planning
S/4	Fourth Generation Suite
SCM	Supply-Chain Management
SD	Sales & Distribution
R/3	Real-time 3 (R/3)

1 INTRODUCTION

Businesses that generate either goods or services follow order-delivery processes in their transactions. Inventory management is considered as an integral part of the order-delivery process. On the other hand, accounting transactions are mandatory for any kind of business organizations no matter how large or small the enterprise is. If inventory valuation in the order-delivery process is kept unrecorded or unobserved or any delay occurs in keeping track, it causes deviation in the financial reports. Inaccurate inventory balance causes the reported value of assets and owner's equity on the balance sheet to be wrong. In this perspective, this study will identify the relation between order-delivery process and FICO using SAP S/4HANA System environment as a practical platform. The study intends to recognize the integration points between order-delivery process & FICO, that can be used as a guideline to generate accurate financial reports as a result.

1.1 Background

There is no accounting entry into the general ledger when an order is received. It needs to wait to the sales revenues and account receivable. These two do not come even if the goods are yet to be shipped or delivered. Process shows that accounting and order delivery are similarly important to a business enterprise (Averkamp n.d). Generally, these processes are complex in nature. It needs more time & labor to complete the process. Companies use Enterprise Resource Planning (ERP) to manage their operations. As a fourth-generation ERP, SAP S/4HANA is more compatible to identify integration areas between order-delivery process and FICO. By following the connection points, business enterprise can generate accurate inventory as well as financial statements.

1.2 Research Problem

Accounting and inventory are the integral part of business transactions. Assets and liabilities can not be determined without maintaining accounting and inventory. So, if these two are kept unrecorded business can not generate actual picture of their asset & liabilities. It can be either overstated or understated as a result. In order to resolve this

inconvenience, bringing accuracy in financial reports and stock valuation are set as the prime objectives of this study. As a core business events, order Delivery Process is being connected with everything including accounting. Accounting and inventory does not integrated with all the steps of the order delivery process. But if they are observed as missing or delayed while necessary, It creates an adverse affects on the quality of the information provided through the financial statements. Since all the functions are highly integrated in the SAP S/4HANA system environment it can be difficult to locate and understand which actions influence another. So it is very important to know the connection points and the way of connection to have accurate financial statements.

The research problem resulted into two main questions. To identify the way of the unification and the place of unification between order delivery and accounting are the prime concern of this study. Specifically, they are as follows:

How FICO are integrated with order-delivery proces in SAP S/4 HANA?

In what points FICO is unified with order-delivery process and how to get them?

The objectives of the study is to use the desired results to have proper inventory valuation subsequently generating accurate financial reports. The study intends to provide knowledge base to the larger variety of students as well as financial professionals. In the contemporary world, though accounting softwares can automatically diagnosis the errors in most of the cases but this outcomes can be considered as a foundation knowledge to academic and professional area.

1.3 Approach and Method

This research is conducted using qualitative research methods. It consist of a theoretical analysis and a practical part. Theoretical analysis is used to widen the background information on the subject and for strengthening the legibility of the study. It illustrates the detail on SAP S/4HANA and explores the orientation of order delivery process in this new system. Theoretical part investigates that how Sales & Distribution (SD), Material

Management (MM) and Production Planning (PP) are accommodated together to complete the process. The practical part including several SAP system screenshots to identify desired outcome. As the study does not have a real case, these screenshots are presented to justify the outcome and answer the research questions.

1.4 Structure of the study

The thesis begins with an introduction including background of the study, followed by research problem, objectives, questions and methodology. Section two describes different concepts related to ERP and order-delivery process. Next chapter presents a brief discussion on SAP ERP and S/4 HANA. Chapter four designates the theoretical analysis of the study. General overview of order-delivery process and the process in S/4 HANA are described here. FICO is discussed as the last part of the theoretical analysis. Section five presents the practical part followed by results, discussion and conclusion.

2 ERP PROCESS MODELS AND CONCEPTS

Enterprise resource planning (ERP) is used to generate precise information, develop the capability of in-house operations, deliver better quality of service for buyers and vendors, and improve the competitiveness of enterprises, qualifying them respond swiftly to the quickly shifting business market. It is a tool for a company to manage its financial, human and material resource transactions.

Earlier studies have worked on ERP implementation models from distinct perspectives, such as the six-phase model grounded on innovation diffusion theory and the five-stage Accelerated SAP (ASAP) system using quick execution and a business-process orientation. Recently, von der Weth and Starker (2010) recommended the Motivation-Emotion-Support-Strategy approach that is grounded on employee knowledge. Nevertheless, the above-mentioned models do not consider ERP executions from the perspective of dynamic capability (Mohammad 2018, 1-12).

In recent years, several intellectuals have confirmed that ERP executions typically consume a substantial quantity of resources, that can have important effects on the consequence of the projects. Inappropriate use of human resources and insufficient budget makes the project likely to fail. Point to be noted that successful execution of ERP depends on the accurate and effective use of resources.

2.1 Dynamic capabilities

Dynamic capabilities theory focuses on combining commercial resources and reconfiguring them to reach operational targets and to retain business competitiveness. Dynamic capability is the ability of an organization to purposefully adapt an organization's resource base. The idea was defined by David Teece, Gary Pisano and Amy Shuen, in their 1997 paper *Dynamic Capabilities and Strategic Management*, as “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments”. The term, dynamic capabilities, highlighting that the capacity to

respond effectively and timely to exterior changes needs a combination of multiple capabilities. Thus, dynamic capabilities theory can explain how an enterprise can best implement ERP (Mohammad 2018, 1-12).

2.2 Agency Theory

Agency theory originates from the difficulties of risk distributing between principal and agents. The agency theory attributed to Stephen Ross and Barry M. Mitnick (Mitnick, 2006) is concerned with the nature of principal-agent affiliation, the privileges and responsibilities of each party, the agency problems and how to minimize them via numerous corporate governance practices and observations aimed at controlling.



Figure 1. Agency Theory (Kaplan Financial Knowledge Bank 2012)

Agency theory is a management and economic theory that tries to describe relationships and self-interest in business organizations. It illustrates the relationship between principals/agents and delegation of control. It clarifies how best to form relationships in which one party (principal) controls the work and which another party (agent) makes decisions on behalf of the principal (Mitnick, 2006).

Agency theory is a suitable framework for designing governance and controls in organizations. The thought suggests a solid overview to the subject by evaluating its strengths and weaknesses and uses case study evidence to reveal how the theory has been applied in diverse industries and circumstances. Measures and success factors are also provided.

2.3 Business Action concept

Business action theory is presented by Goldkuhl (1996). The Business Action theory emphasizes that there are certain business actions; offer, order, delivery promise, contract, which always have to be performed when doing business. Such actions always have to be performed in principal, but in simple business situations, some of these actions can be integrated with other actions. It also emphasizes that there is a certain principal order between different groups of actions within a business process. The different phases constitute such groups of actions. The purpose of Business Action theory is of course to describe and explain business interaction. But the purpose is also that it can be used as a theoretical lens in organizational change when developing business processes.

The theoretical framework includes couple of major roles as supplier and customer roles. It includes different generic actions of interactive character such as offer, express purchase interest, order, confirm order, delivery and pay. The business process is divided into six different phases. Business identification phase, Exposure and contact search phase, contact establishment & negotiation phase, Contractual phase, Fulfilment phase and Completion phase.

2.4 Value Chain Model

In 1985, Michael Porter released his influential book named "Competitive Advantage." He introduced value chain concept for the first time in this book. According to Porter, A value chain is a set of activities that an organization conveys to create value for its partners. Porter proposes a general-purpose value chain that companies can use to examine all of their actions and see how they are integrated. The way in which value

chain activities are done determines costs and affects revenues, so this tool can assist you understand the sources of value for an organization (Partti, 2015).

Elements in Porter's value chain: Rather than looking at departments or accounting cost types, Porter's Value Chain focuses on systems, and how inputs are changed into the outcomes purchased by consumers. Using this viewpoint, Porter described a chain of activities common to all businesses, and he divided them into primary and support activities, as shown below.



Figure 2. Porter's Generic Value Chain (MindTools)

Primary Activities: Primary activities relate directly to the physical creation, sale, maintenance and support of a product or service. Among all of them, Inbound logistics is presented as first activity. Receiving, storing and distributing inputs internally here. Supplier relationships are a key factor in creating value here. Operations are the transformation activities that change inputs to outcomes that are sold to customers and generate value. Outbound logistics deliver products or services through collection, storage and distribution to the customer (Partti, 2015). In addition, Marketing and sales activities persuade customers to purchase from you instead of your competitors. Finally, services are the maintaining activity to satisfy clients, once it's been purchased.

Support Activities: Support activities lead primary functions to add value for the organization. For example, purchasing supports operations as well as marketing and sales with particular activities. Organization gets its operational resources by purchasing. Getting vendors and negotiating suitable prices are included with purchasing tasks. Human resource management is a significant source of value so that businesses can create a comparative advantage with better HR practices which includes recruiting, hiring, training, motivating and rewarding its workers. In addition, Technological resource base relate to manage and process information to have lower IT costs and maintain technical excellence as the source of value creation. Finally, Company's support functions as infrastructure consist of daily operations such as accounting, legal, administrative and general management helps business to achieve competitive advantages.

Companies use these primary and support activities as building "blocks" to create a valuable product or service. Porter's value chain is a useful strategic management tool. It works by breaking an organization's activities down into strategically relevant pieces, so that one can see a fuller picture of the cost drivers and sources of differentiation, and then make changes appropriately.

3 SAP SYSTEM ENVIRONMENT

SAP system environment includes multiple solutions in broader sense. This study will use only one among them. SAP S/4HANA is the main subject area here in this study. A brief historical evolution to S/4HANA is presented here. SAP Enterprise Resource Planning (ERP) is also discussed as a relevant aspects and it would provide a better understanding of the study.

Enterprise Resource Planning (ERP) and more precisely Enterprise Resource Planning System, is a tool for a company to manage its financial, human and material resource transactions. ERP can be defined as an order-delivery process, to be precise, plan and control its different tasks and operations. However, it can be understood as a production tool only, but it is not. Other functions are needed as well, in order to operate the company's processes. ERP can cover functions from many operations; sales, distribution, product planning and procurement controlling (Wagner ym. 2009).

SAP S/4HANA integrates eight different business modules together in the cloud. It is very important to a company to understand these modules efficiently to be succeeded. As a fourth-generation business suite it is yet to be familiar as SAP ERP. Though all functions are highly integrated in the system, it is still difficult to locate and understand the interdependency of the modules. SAP S/4HANA is conceivably the prime innovation by SAP since SAP R/3. It carries the main SAP business suites (ERP, CRM, SCM, etc.) on the SAP HANA platform. The S in S/4 stands for suite and 4 stands for fourth generation. The full name of SAP S/4HANA is SAP fourth generation Business Suite HANA (Bardhan ym 2018, 389-403).

SAP starts its journey in 1972 introducing Real-time (R/1) ERP software. Financial accounting system RF was widely used before R/1 innovation. SAP R/2 in 1979 and R/3 in 1992 comes as the successor of the R/1 technology. Later part of the nineteenth century, internet starts influencing global economy. In the new millennium, Internet has

firmly established itself as the most popular network in the business. Better integration in business and among businesses have become an important issue to work on.

As a gradual development, SAP R/3 is being replaced by SAP ERP in 2004. ERP has a great deal influence on the business enterprise over the decade. As the technology never stops, new wave of innovation arises as SAP S/4HANA from 2015 onwards. It is offering the complete SAP Business Suite on the new and fast in-memory database (Riches ym 2018, 40-44).

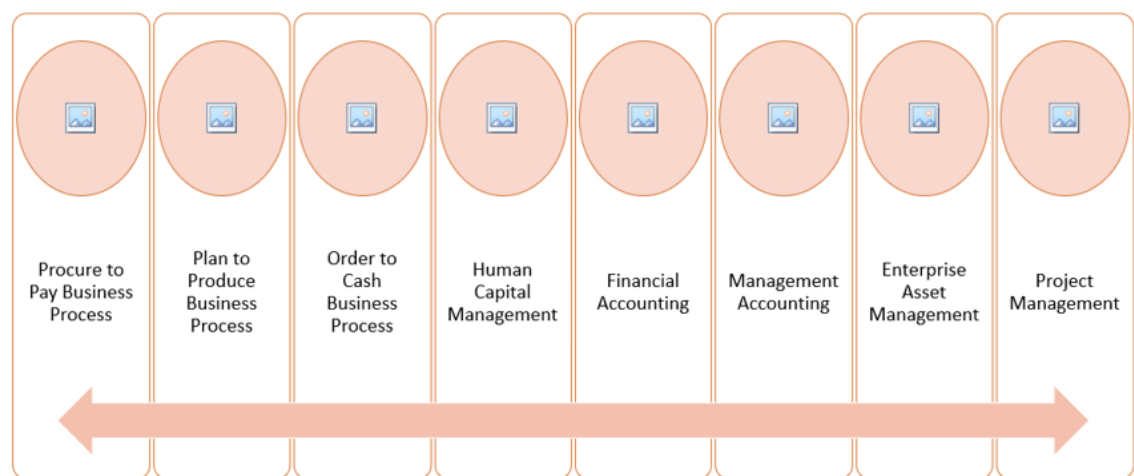


Figure 3. SAP S/4 HANA Business Integration

The Figure illustrates SAP S/4HANA business integration. It is assembled to an entire business suite consist of eight different modules. It supports all core business processes include Order-to-Cash, Procure-to-Pay, Plan-to-produce, Accounting, HCM, Enterprise Asset and Project Management. In terms of functional scope and simplification, SAP S/4HANA is better compared to SAP ERP. As a next generation business solution, S/4HANA Enterprise Management component is enhanced by Line-of-Business (LoB) Solutions and connected to SAP Business Networks (Bardhan ym 2018, 389-403).

Therefore, SAP S/4HANA can be natively integrated with the existing SAP Cloud solutions, such as Ariba, Concur, Hybris etc. It comprises a new code base Fiori user experience (UX) which is out of traditional software installations process. This simplified application is flawlessly integrated to offer one solution for every business problem. It is

an innovative approach – with a new database, new data management, new technology, and new front-end – that overcomes many limitations of traditional ERP-systems (including SAP ERP)

3.1 Order Delivery Process

The term “Order delivery process” refers to the procedure of filling buyer orders, opening with the step of inquiry first, all the way to the delivery of the products, and getting the buyer’s payment. Sales functions, material management and financial operations are needed to complete the process. Traditionally, buyer makes an order, but it can be done by the vendor as well. ERP using vendor can follow-up the customer needs and deliver products on their own (Kurbel, K 2013).

The order deliver procedure does not start with the buyer order but with an inquiry of the required products. Customer asks the prices, dispatchment dates, terms and conditions of the products or the services by the inquiry. Quotation is created with the reference to the inquiry and send it to the customer. A quotation includes amount, prices, sales tax, validity period, terms and conditions of the delivery. If the customer agreed upon the quotation, an order is placed as a result but if not so, customer may decline the offer or negotiations continues to reach an agreement (Kurbel 2013).

If the negotiation becomes successful, customer order is received and being checked with the earlier orders to make the process faster. Availability checking needs to be done in this phase. Supplier company might check the availability at the time of inquiry or quotation. After getting the positive availability check, order confirmation is sent to the customer with the delivery date. Next is the shipment processing contains documentation such as picking and packing lists and a delivery slip attach with the shipment to the buyer. After receiving the goods, customer go through a checking whether it is received as ordered or not. This part is not included but very important to the order delivery process (Kurbel 2013).

The last step of the order delivery process is issuing invoice to the customer. Customer is invoiced after sending the shipment. Then the payment is received to fulfill the process. Vendor system can send the bill regarding the order or both parties together can do it using their automatically generated system. Payment checking can be done in the same automatic way as well.

3.2 Order-delivery process in SAP S/4HANA

The process of order delivery in S/4HANA accommodates three different modules together. Order to cash in the Sales & Distribution (SD) application, purchase to pay in the Material Management (MM) and Plan to produce in the Production Planning (PP) application together completes the process. The following Figure illustrates the process of order delivery in SAP S/4HANA.



Figure 4. Order-delivery process in S/4 HANA

3.2.1 Order to Cash Business Process

Order to cash business process shows the accomplishment procedure of sales and distribution (SD) processes. It unified various application areas of SAP SD. Different organizational units and master data that are related to SAP SD are described here. Unification among other SAP application are illustrated here as well. It incorporates relevant master data such as Material master data, Customer master data, Condition

master data and output master data. This application permits for a unified approach to sales order management that permits several applications and functions of the SAP system. To complete sales orders efficiently according to the customer requirements, it is necessary to follow a series of processes in this module (Maghal & word 2011, 127-170). The Order-to-Cash business process consists of several steps, is presented by the following figure:



Figure 5. Order to Cash Business Process

Pre-sales Activities: Order to cash business process starts after getting order from a customer. Getting sales order is not an effortless job. Several steps should be taken that are considered as pre-sales activities. Marketing comes as first to maintain customer relationships. Marketing includes commercial, campaigns and creating customers databases. Sales support intends to identify potential customers and creating new business deals. These leads can be transferred to opportunities. Sales personals is being supported by the sales methodology with the finest practice to close the deals. When the relations become mature, it can be transported customer inquiries to the sales orders following customer quotations (Wong, Step by Step. n.d).

Sales Order Processing: Creating sales documents are the central phase of the sales order processing in the SAP system. Sales documents such as Inquiries, quotations or sales orders are the diverse sales documents in S/4 HANA. These documents originate all information required for processing the purchaser's demand for a product from the suitable master data in the system. If the customer admits the quotation, the quotation document is moved into a sales order document. A sales order, e.g., copies the purchaser data, product data, the pricing data, etc., from the preceding document (the quotation). All documents created with the entire procedure are connected to each other and facilitate the transfer of data. Within the sales order product availability checks (ATP) are performed (Bhattacharjee 2019, 239-290).

Purchase-to-Pay or Make-to-Order/Plan-to-Produce: After getting the customer order, sales department checks the inventory as the first step. If there are no sufficient goods in the inventory, it needs to be either procured from a third party or produce by own. Sales order of the SAP SD application creates purchaser requirement in the demand and material management. Order to cash accelerates the process integrating purchase to pay and plan to produce business process (Isco 2017).

Delivery: Once a product is prepared to be delivered to the clients, shipping of the goods must be organized. Shipping process includes organization and processing of outbound deliveries. Thus, the information (materials, quantities) from schedule lines of the sales order are copied to the outbound delivery document. It controls, supports, and checks many subprocesses, such as generating transfer order, picking, packing, and goods issues. When the shipping process is done, the goods can be delivered, and the goods issue can be posted. With the goods issue posting a material document is created, which decreases the material amount on stock, and an accounting document, which posts the material value to the balance sheet accounts in Financial Accounting (Isco 2017).

Billing: The billing procedure often starts when the product that has been ordered by the purchaser has been delivered. In the billing element, a billing document is created with reference to the delivery or sales order document. Thereby, delivery items and order

items are copied into the billing document. It depicts the SD document that works as the origin for creating Clint invoices. It also serves as an information source for Financial Accounting and permits monitoring and dealing out customer payments. Once a billing document is created, the G/L accounts are usually determined automatically, and the related accounting data is posted to those accounts in FI.

Payment: Part of dealing payments is the check of open items and the updating of incoming payments. Updating incoming payments of a buyer is part of the Financial Accounting (SAP FI) and it is carried out, outside of the Sales and Distribution application (SAP SD). When the buyer pays the invoice, the customer account is cleared (Bhattacharjee 2019, 239).

3.2.2 Purchase to Pay Business Process

Purchase to pay business process shows the accomplishment of organizational Purchasing. It unifies various application areas of SAP Material Management (MM). Different organizational units and master data that are relevant to SAP MM are explained here. The process of Purchasing implementation is core focus area of this module. Unification among other SAP applications are illustrated here as well. It incorporates relevant master data such as Material master data, Vendor master data and purchasing info records and conditions as well (Riches ym 2019, 150-170). The following Figure illustrates the process of purchasing of SAP system for better understanding.

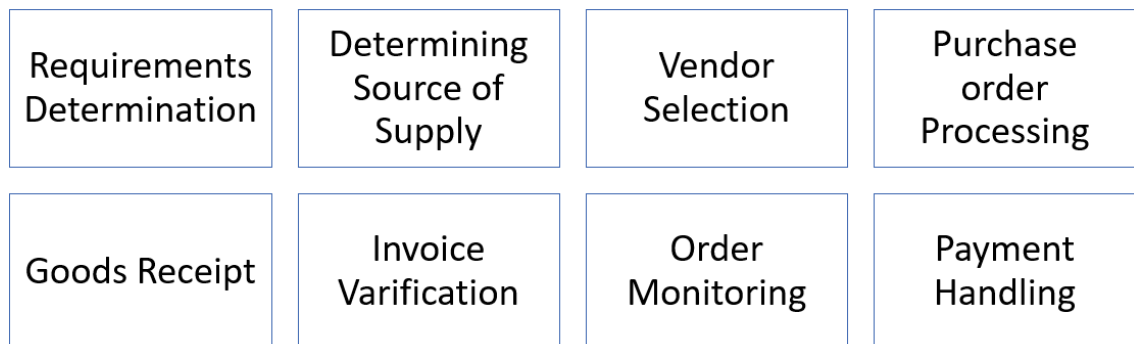


Figure 6. Purchase to Pay Business Process

Purchase Requisitions: The first step towards organizational purchasing is to determine the requirements. This is done by the departments individually within the company. In the SAP system, the Purchase-to-Pay business process is started by documenting purchase requisition. It is a demand from the departments towards the purchasing department. Manufacturing department usually uses the material requirements planning (MRP) to create purchase requisitions whereas service department creates the purchase requisitions manually (Riches ym 2019, 150-170).

Determining the source of supply: This is a very important step in the purchase to pay business process. A successful purchasing badly depends on the source of supply determination. The SAP system supports the procurement authority with the determination sources of supply in many ways as requests for quotation that are sent to different vendors and subsequently create the quotation (Heimo n.d, 7-95)

Vendor selection: The SAP system consents for price assessments and, thus, eases the vendor selection. A comparison of bids may, for example, unveil the cheapest vendor or the vendor with the finest overall conditions. Once vendors are identified and evaluated, the purchase order processing has been started (Heimo n.d, 7-95).

Purchase order processing: A purchase order is a document that encompasses all information essential to process of purchasing activities. It generally consists of the vendor, prices, quantities, terms, and other relevant information. When the purchase order is created, the involved vendor is informed by the document output derived from the purchase order. It can be created either manually or using the system. Purchasing history can helps to facilitate the process, reduce manual data entry and save the time and labor.

Goods receipt: The subsequent step is the shipment of the procured material by the vendor. When the materials arrive, a goods receipt must be posted. Thus, a goods receipt along with reference to the associated purchase order. As earlier, this reduces the volume of entries that need to be made and permits inspection whether the goods

and numbers delivered match the quantities stated in the purchase order. In case of deviations, the system can automatically issue cautions for the corresponding division. Once the goods receipt is set aside, the system updates the purchase order history in the purchase order document by conveying the material document number of the goods receipt to the involved purchase order items (Maghal & word 2011, 83-119).

Invoice verification: Vendor invoice is created if the delivered materials pass potential quality inspections. By an invoice, the supplier bills the delivered goods or services. Therefore, the invoice document is, again, created with a reference to the purchase order.

Order monitoring: Order monitoring is a superordinate process element and refers to the monitoring of the process steps purchase order processing, goods receipt, and invoice verification. Order monitoring is done directly within the purchase order document. The purchase order document, therefore, encompasses two different components as status tab and purchase order history tab that allow monitoring the status of a purchase process. The status tab on the header level of the purchase order document displays the overall status of the material positions (items) in the purchase order. Three numbers as order quantity, delivered quantity and invoiced quantity are monitored here. The purchase order history is available for each item in the purchase order as soon as the invoice or goods receipt is posted for that item.

Payment handling: Finally, the supplier debts are paid by generating a payment manually or using the system. The payment refers to the supplier account company-code-specific part of the vendor master data and the exposed amounts stated there. The payment can reference a precise invoice but does not have to. It can also settle several invoice amounts dispatched to the vendor account (Maghal & word 2011, 83-119).

3.2.3 Plan to Produce

Plan to produce business process shows the accomplishment procedure of production planning and scheduling processes. It integrates various application areas of SAP Production Planning (PP). Different organizational units and master data that are relevant to SAP PP are explained here. The process of manufacturing implementation is another focus area of this module. Unification among other SAP application are illustrated here as well. In the production planning and manufacturing, several organizational units are being used as Client, Company, Plant and storage location. It incorporates relevant master data such as Bill of Material (BoM), Routing, Work Center and product group as well (Kurbel 2013, 61-93).

The production planning process incorporates sales forecasts, sales policy, and manufacture design creation as well as shifting the resulting demand plan to the material requirements planning (MRP). It determines the elements required for production and therefore initiate planned orders, purchase orders, and purchase requisitions (Riches ym 2019, 178-191).

Perform Production Planning: Before the production of materials can be carried out, this must be planned. First, the production costs must be fixed to determine the production unit costs. Then a sales plan can be fixed based on different anticipating methods and shifted to the program planning in the form of individual requirements. Once the independent necessities have been determined, material requirements planning can be accepted to determine the material requirements at all levels of the bill of material. The production planning is then accomplished with the capacity planning on the involved work centers (Riches ym 2019, 178-191).

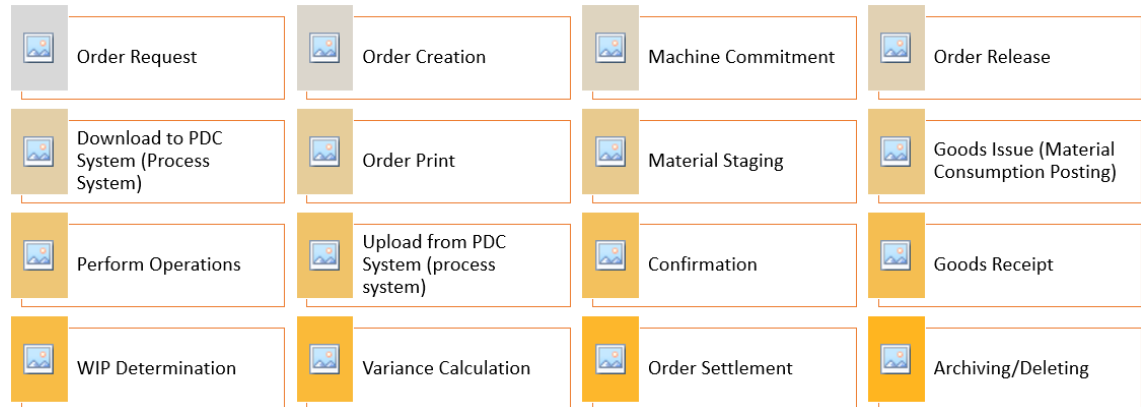


Figure 7. Manufacturing Process

The Table illustrates the overview of the manufacturing process. It encompasses multiple steps such as order creation, scheduling, release, printing papers, material withdrawal, execution, confirmation, goods receipt and settlement. These functions are integrated with other areas in the company, such as controlling and warehouse management. For this reason, it is mandatory to consider the extensive integration relationships of production orders during implementation.

3.3 FICO

Financial accounting (FI) and management accounting (CO) are jointly called as FICO. It is a core practical element in SAP ERP that permits an organization to manage all of its financial data. The aim of FICO is to cooperate companies to create and manage financial reports for analysis and and to help with efficient business planning and decision-making. FICO is the two most largely unified applications in the SAP system and have very close real-time synchronization with each other. In SAP S/4HANA, for example, all accounts of the chart of accounts in SAP FI are cost elements (primary and secondary cost elements) in SAP CO at the identical time. All placements in a company code, whether they refer to in-house (CO) or external (FI) value movements, are kept in the same database table (ACDOCA)(Mehta ym 2019, 57, 83).

Financial Accounting (SAP FI) is an integral part of general accounting that works with the external accounting. It is prescribed by law in (perhaps) every country and assists as data source for stakeholders about the financial state of the company. Financial Accounting is accountable for maintaining all international necessities to the company's bookkeeping. Therefore, it deals with all financial data and keep track all business dealings according to the document code, which generates an uninterrupted audit trail from the financial statements to the individual documents (Mahboob 2012, 52).

The main components of Financial Accounting are the ledgers. The General Ledger is the core ledger of the FI application and is identified on company code level. The full unification of SAP FI with all other functional SAP applications promise the accomplishments and precision of accounting data. Accordingly, the main objective of Financial Accounting is to gather all these financial info that is created along with business transactions in a company and use them as basis for generating the standard financial reports (Riches ym 2018, 249-272). Generally, these reports are initially, but not exclusively, directed at external parties and are obligatory by law (Mahboob 2012, 53). The standard reports that each company must deliver are: Balance Sheet, Income Statement and Statement of Cash Flows.

The main objectives of Financial Accounting (SAP FI) are to dealing with the company-external financial procedures and external financial reporting. The targeted audiences for FI are outside the companies, it includes vendors, banks, financial/tax authorities and external stockholders. Company-external accounting activities deal with fiscal values flowing into and out of the company. External activities works with financial reports such as balance sheets and P&L statements as required by legal consideration and govern by general accounting standards such as IAS (International Accounting Standard), US GAAP (Generally Accepted Accounting Principles). Accordingly, legal reporting is dissimilar for each country (Riches ym 2018, 249-272).

Precisely, but not exclusively, to fulfill the legal requirements, Financial Accounting needs to deliver all financial transactions, revenues, and expenditures must be recorded to the right accounts as they occur. All financial entries must be kept unchanged in the system for control and reporting purposes. It must permit setting up of a profit and loss statement and a balance sheet to accomplish the legal necessities of a country or of a financial reporting standard (Mehta ym 2019, 75-120).

Management Accounting application also stated as Controlling – SAP CO (Maghal & Word 2012). The main purposes of Management Accounting are the company-inside accounting procedures and in-house management reporting. The targeted audiences for Management Accounting are in-house the company, and consist of executives, senior management, department managers, controllers, or cost accountants. To attain these goals, Management Accounting delivers Controlling (CO) substances, which can signify areas of responsibilities such as cost centers, profit centers at which costs and revenues which generally origin from FI incur. The company can then identify and examine the collected financial info by segments of responsibility or across nation borders (Mahboob 2012, 54-56). For instance, the company could investigate costs for all manufacture divisions globally or costs incurred in a particular division for an investment scheme.

The outcome in Management Accounting can be associated with the finding in FI settlement. The core tasks of this in-house controlling and reporting tool are presenting costs and revenue condition in the company. Examining cost changes and incompetencies in the company and in manufacture and service processes.

Providing outcomes for specific cost items, e.g., cost centers, cost elements, and market sections. Supplying data for cost center managers, project managers, and other workers to accomplish their tasks (Riches ym 2018, 287-303).

Since Controlling is an inner instrument, diverse assessments and values can be used than in FI. Cost categories such as imputed costs can also be used. Cost categories as neutral costs can be omitted various prices can be used to valuate costs of procured products or costs of manufactured products differently.

The Controlling application gives all information, functions and instruments to accomplish an effective controlling of expenditures and revenues and to facilitate decision-making for the administration of a company. Thereby, it permits the harmonization, nursing, and optimization of all costing related processes in a company, as it documented all costing-related business activities including the consumption of manufacture factors and the services given by a company. The transactional info such as material costs for production, workforce activity costs incurred during production, etc gives the foundation

for making internal reports that assist decision-making in the company (Riches ym 2018, 287-303). Point to be noted that these reports are exclusively for the use in the company and it include:

- Cost center performance
- Profit center performance
- Budgets analyses

Besides recording actual costing-related measures, the core duty of controlling is planning. It permits determining changes by comparing real costing info with planned costing data or issuing income statements as contribution margin accounting. Thus, it assists controlling the cost effectiveness of individual divisions of an organization, as well as the whole organization (Mehta ym 2019, 123-140). Accordingly, SAP CO is fully unified with other SAP applications including:

- Financial Accounting (FI)
- Materials Management (MM)
- Production Planning and Execution (PP)
- Sales and Distribution (SD)
- Human Resource Management (HR)

4 PRACTICAL PRESENTATION

In the practical phase, Order delivery process of an existing company will be presented here. FICO will come as a relevant aspect in a practical manner. Due to the copyright obligation, the author cannot use the name of the company and product here. Suppose the company is 'X' and it has a sales order from the customer asking for the product 'SPEED'. Sales department is informed by the system that they have shortage of this product in the inventory. Now they need to either procure the product from the vendor or produce by their own. The second options, manufacturing is chosen here. Before starting the process, Production Planning department is notified that there is a shortage of raw material that is named as 'GEAR' needs to procure from the vendor. The process starts with the sales order from the buyer, followed by purchasing & production and finally ends by the customer payment. Point to be Noted that no consecutive similarities are maintained between the quantities of the product and the value of them in the figures.

The process starts with ordering raw material from the vendor. Before getting the product from the vendor, the stock status check is done and obviously, no stock for this material has been posted yet. It is shown in the Picture as following:

The screenshot shows the SAP Stock Overview for material GEAR. The material type is ROH (Raw materials) and the unit of measure is PC. The stock overview table is as follows:

Client/Company Code/Plant/Storage Location/Batch/Special Stock	Unrestricted use	Qual. inspection	Reserved	Rcpt reservation	On-Order Stock
Full	0	0	0	0	0
US	0	0	0	0	0
DL	0	0	0	0	0
FG	0	0	0	0	0

Picture 1. Stock Overview Of Plant DL before the goods receipt (No Stock as Unrestricted use). SAP system screenshot

Purchase requisition consist of product details and delivery time is done here. Material Requirements Planning (MRP) does change the stock to purchase request followed by purchase order which conveys change in the stock. After processing the order, the seller shipped the goods to the company. The goods are received following by inspection. As the next step, goods receipt has appeared in the SAP system and there is a change by 100 unit observed in the stock as in the following picture:

Client/Company Code/Plant/Storage Location/Batch/Special Stock	Unrestricted use	Qual. inspection
Full	100,000	
US	100,000	
DL	100,000	
FG	100,000	

Picture 2. Stock 100 unit appeared in the Plant after goods receipt. SAP system screenshot

The goods receipt for the buying order has generated two accounting documents. Every valuated goods movement create the financial accounting. The goods receipt is noted as a growth in stock value and as a debit entry at the management accounting. It is created if the goods movement encompasses the posting of costs to a specific costing object. Here we have two costing objects for the stock material. Cost elements 72000 and 74000 that were debited with (5000\$ and 3\$) are recorded in the controlling document as showing in the following picture.

Accounting Document							
Document Number: 5000000028		Company Code: US		Fiscal Year: 2017		General Ledger View	
Document Date: 03.08.2017		Posting Date: 03.08.2017		Period: 8			
Reference:		Cross-Comp.No.:		Texts Exist:			
Currency: USD							
Co.	Item	Key	Account	Description	Amount	Curr.	Tx
US	1	89	200000	Inv-RM	50.000,00	USD	
	2	96	310000	GR/IR Account	50.000,00-	USD	
	3	81	720000	RM Consumpt Expense	5.000,00	USD	
	4	96	310000	GR/IR Account	5.000,00-	USD	
	5	81	740000	Supplies Expense	3,00	USD	
	6	96	310000	GR/IR Account	3,00-	USD	

Controlling Document							
Layout: 15AP		Primary cost posting		Costing Objects (project/cost center) and cost elements debited with costs of consumption			
COArea currency: USD		USD					
Valuation View/Group: 0		Legal Valuation					
DocumentNo	Doc.	Date	Document Header Text	RT	RefDocNo	User Name	Rev RvD
PRw	OTy	Object	CO Object Name	Cost Elem.	Cost Element Name	Val/COArea	Crcy
A000005w00		03.08.2017		R	5000000057	WIP9-	
1	CTR	NAPR1000	Production Costs	720000	RM Consumpt Expense	5.000,00	
2	WBS	A-19990-1	Entwicklung Festpreis 9990	740000	Supplies Expense	3,00	

Picture 3. FICO situations after Goods Receipt. SAP system screenshot

As it is shown in the Picture that 100 pieces of gear were booked to account number 200000 and 10 pieces were posted directly as consumable materials. Per unit Gear is priced for 500 dollars (\$) so that amount 50.000\$ and 5000\$ are documented in the general ledger. For the later ones, the creating division was stated as account assignment object. In doing so, consumption is not posted to material, i.e., to the stock of materials but to the cost center NAPM1000. Costs of cost center NAPM1000 were posted to account 720000. The account 310000 is an offset account type.

Posting vendor Invoice: The vendor sends an invoice in this phase with reference to a purchase order and amounted 55.000 USD where 110 items are multiplied by per unit cost 500 USD. Posting of vendor invoice creates accounting document along with invoice document. The accounting document of receiving invoice leads to the financial accounting entries in the SAP system. Goods receipt/invoice receipt account comes as a debit posting whereas vendor account as credit posting. Account payable as a liability in the general ledger comes as a credit posting has shown in the following picture.

Co...	Item Key	Account	Description	Amount	Curr.	Tx
US0	1 31	12502		55.000,00-	USD	XI
	2 86	310000	GR/IR Account	50.000,00	USD	XI
	3 86	310000	GR/IR Account	5.000,00	USD	XI

Vendor Account **GR/IR Account**

Picture 4. Vendor Account & Goods Receipt Account. SAP system screenshot

As stated earlier, liabilities towards vendor is posted to the vendor account (12502). On the other hand, goods receipt account (310000) has the correct balances posted as debit entry.

Vendor Payment: After getting and verifying the vendor invoice, Payment has done to settle company's credits and vendor account. As stated earlier, the vendor invoice leads to the following Financial Accounting in the SAP system as a debit entry to GR/IR account and a credit posting on the vendor. The later creates an open item in SAP FI-AP and that needs to be cleared with the vendor payment. At this point, note that payments of a vendor can be posted against the vendor account or against individual open items on the vendor account. To pay a certain purchase order with a payment, it is mandatory to enter the corresponding invoice number as reference into the payment transaction.

Supplier	Company ...	Clearing...	Assignment	Journal Entry Date	Journal Entry	Jou	Amount (CoCd Cur.)	Clearing Entry
12502	US00	<input type="checkbox"/>	51056001422017	28.09.2017	5105600142	RE	-55.000,00 USD	2000000005
12502	US00	<input type="checkbox"/>	20000000052017	28.09.2017	2000000005	ZP	55.000,00 USD	2000000005
							0,00 USD	

Balance of the vendor is zero again since all bills have been paid

Picture 5. Cleared Vendor Account. SAP system screenshot

As all bills have been paid off, the balance of the vendor account (12502) is Zero. No unpaid is left alone.

Production: In the previous section, it is discussed about the procurement process of a raw material. Now there is enough raw material in the company stock to produce 'SPEED'. Manufacturing process follows several steps to have finished goods. In this process, Goods issue of the apparatuses to the production order 'SPEED' is followed by approval of the production order and goods receipt for the manufacture order.

As the first step, Goods issue is posted for the production order. Required materials are already in the production center shown in the following figure: **No consecutive similarities are maintained for the quantities of the product in the Picture as earlier.**

Line	Mat. Short Text	...	OK	Qty in UnE	EUn	SLoc	Order
1	Frame	<input type="checkbox"/>	<input type="checkbox"/>	500	EA	Finished Goods	1000043
2	Gear	<input type="checkbox"/>	<input checked="" type="checkbox"/>	500	EA	Finished Goods	1000043

Line	Mat. Short Text	...	OK	Qty in UnE	EUn	SLoc
1	Basis-	<input type="checkbox"/>	<input type="checkbox"/>	500	EA	Finished Goods

Picture 6. Available raw materials in the production center. SAP system screenshot

Goods Issue for 'SPEED' Production Order: As the next step, production order is done. Manufacturing runs here in this step. Once production is done, a check is executed and available finished good is appeared in the stock. Goods receipt is posted in the storage location subsequently.

Stock Transfer: Now there is 500-unit product 'SPEED' in the production center DL. As the next step, goods need to deliver to the customer. However, the distribution center is called SD who will receive the goods for the customer delivery. So, the goods will go to storage location SD from DL. A stock transfer order needs to create to do the job done. Warehouse management system assists this internal transportation. You can see that plant DL has an unrestricted-use stock of 500 units that need to be transported to the storage location SD in the following picture.

Material: SPEED
Speed
Material Type: FERT
Unit of Measure: EA
Finished Product
Base Unit of Measure

Stock Overview

Detailed Display

Client/Company Code/Plant/Storage Location/Batch/Special Stock	Unrestricted use
Full	500,000
US	500,000
DL	500,000
Receiving Valuated Stock in Tr	
FG	500,000
SD	
Receiving Valuated Stock in Tr	
FG Finished Goods	

Picture 7. Current Storage Situation in Plant DL. SAP-System-Screenshot

Create Stock Transport Order: In this phase, 500 units of the product Speed, that the buyer ordered from the unrestricted-use stock in DL to SD. Therefore, a Stock Transportation Order in plant SD is created. As it is learned from the theory, one advantage of using Stock Transport Orders is that "receiving plant can plan on goods receipt accordingly". Without the Stock Transport Order, a goods issue must have been generated in DL and the colleagues in SD would have no opportunity to start this process.

Stock Transp. Order

Supplying Plant: DL

Doc. The Supplying plant is the plant that issues the goods.

Further organizational data

Purch. Org.: US
Purch. Group: N00 North
Company Code: US

Item	A	I	Material	Short Text	PO Quantity	OUr	Deliv. Date	Matl Group	Plant	Stor. Location
10			SPEED	Speed	500	EA	20.10.2017			Finished Goods

Picture 8. Created Stock Transfer order. SAP-System-Screenshot

Post Goods Issue: Now, 500 units of the material Speed is posted as goods issue from plant DL to storage location FG. Stock Transfer Order is created in SD as reference. After that, it is shown that plant DL has now an unrestricted-use stock of 0 units since the goods issue posting is the concluding step of the material departing plant DL 500 units of 'Speed' are still displayed in stock category *On-order Stock* for SD, since you have not yet posted any goods receipt in SD. After the goods receipt, storage location SD will show 500 units product as unrestricted use no in on-order stock.

You have now 0 units in Unrestricted use stock in plant DL storage location FG

Client/Company Code/Plant/Storage Location/Batch/Special Stock	Unrestricted use	Qual. inspection	Reserved	Rcpt reservation	On-Order Stock
Full					500,000
US					500,000
DL					
Receiving Valuated Stock in Tr					
FG Finished Goods					
SD					500,000
Receiving Valuated Stock in Tr					
FG					500,000

At the same time, you have 500 units still in On-Order Stock in plant SD storage location FG

Picture 9. Storage Situation after Goods Issue Posting. SAP-System-Screenshot

Post Goods Receipt: Now it is assumed that transportation of the product 'Speed' was carried out very rapidly. The goods reached at the plant SD and Posted the goods receipt for the Stock Transfer Order. It is displayed in the following Figure that plant DL has now an unrestricted-use stock of 0 units. On the other hand, 500 units of Speed are now appeared in stock category *Unrestricted-use* for SD, since it is posted the goods receipt in here.

Client/Company Code/Plant/Storage Location/Batch/Special Stock	Unrestricted use	Qual. inspecti...
DL Plant		
Receiving Valuated Stock in Tr		
FG Finished Goods		
SD	500,000	
Receiving Valuated Stock in Tr		
FG Finished Goods	500,000	

Picture 10. Storage Situation after Goods Receipt Posting from DL. SAP-System-Screenshot

The post of goods receiving document creates a change in the inventory. A stock is decreased in the plant DL of the storage location FG whereas, a growth observed by the same amount in the plant SD of the storage location FG. A value-based accounting is maintained as in the following Figure.

Co...	Item	Key	...	Account	Description	Amount	Curr.	Tx
US	1	99		200100	Inv-FG	570.000,00-	USD	
	2	89		200100	Inv-FG	570.000,00	USD	

Picture 11. Effects of Goods Movement on Stock and Accounting: SAP-System-Screen

As it is displayed in the Picture that amount 5.70.000 USD is debited and credited as well under the same company code US. Goods amount 500 multiplied by 1140 to have the result 5.7.000 USD. Comparatively, accounting calculation comes after the goods receipt, but it is not relevant here. The material document for the goods receipt do not contain any accounting calculation. The inter-plant transference affects financial

accounting and MRP if the plants are allocated to diverse valuation areas and company codes. In case the stock transference is entered in two different steps, the valuation is always carried out in the starting step. The stock transference is valued according to the valuation price for the goods in the issuing plant. Thus, valuation of the stock transferred is taken at the time of goods issue and the goods is posted to stock in transfer of the receiving plant.

Transfer order: As the plant SD is maintained by the SAP S/4HANA system's Warehouse Management, all goods transfers in this plant are relevant to the corresponding warehouse number. With the transfer order goods can be moved from one stock type to another in the warehouse. Confirmation means the transfer order to move the quantity of 500 Speed to the receiving storage location.

Shipping Processing: When the customer ordered materials are ready to be shipped to the customer, the freight process is started by creating an outbound delivery document with reference to the buyer sales order. This document manages, assists, and checks several sub-processes for shipping of which few of them are obligatory, and others are voluntary based on the settings of the system. The shipping process is unified with the Material Management (MM) and Financial Accounting (FI) applications.

Goods Issue: As already mentioned in the Goods Issue discussion phase, each goods issue posting (or any valued goods movement) generates an accounting entry along with the material document. The accounting document posts the changes in the value to the corresponding accounts in Financial Accounting (SAP FI). The accounting document of the goods issue guides to the subsequent Financial Accounting (SAP FI) entries in the SAP system as a debit posting to Costs of Goods Sold account, a credit posting on the General Ledger account for Inventory Finished Goods.

Display Document: Data Entry View

Document Number: 4900002056 Company Code: US Fiscal Year: 2017
 Document Date: 15.06.2017 Posting Date: 15.06.2017 Period: 6
 Reference: 0080000003 Cross-Comp.No.: Ledger Group:
 Currency: USD Texts Exist:

Co...	Item	Key	Account	Description	Amount	Curr.	Tx
US	1	99	200100	Inv-FG	570.000,00-	USD	
	2	81	780000	COGS	570.000,00	USD	

Picture 12. Accounting document after the Goods Issue; SAP system screenshot

As it is shown in the picture that the accounting document of the goods issue generates a debit item on the Costs of Goods Sold account (780000) with the value of 570.000\$. Here the order amount is 500 units and per unit price 1140\$. Amount 570.000 USD comes as a multiplication between 500 and 1140. After manufacture has been completed, the company processes the outbound dispatchment and post the goods issue.

The figure on the top displayed that, the goods issue posting with reference to the outbound dispatchment guides to the creation of a material document, and with the material document a separate accounting document is created as the above.

On the other hand, the accounting document of the goods issue generates a corresponding credit entry on the Inventory Finished Goods account (200100) with the same value. This credit entry documents that the value of the 'Speed' inventory in the company decreased by 570.000 \$ due to 500 'Speed' that left the stock.

Billing Processing: Once the goods issue posting is done, the shipping process are accomplished, and the customer can eventually be billed. When the goods issue is finalized, no further (substantial) activities can be executed in the outbound delivery

document. Billing is the concluding process step in the Order-to-Cash business process that is carried out in the Sales and Distribution application. It is used to create the customer invoice and will apprise the customer's credit status. Within the billing document, the following functions are available:

- Making of invoices grounded on dispatchments or services
- Issue of credit and debit memos
- Making of pro forma invoices
- Suspend billing transactions
- Inclusive pricing functions
- Issue rebates
- Transfer billing data to Financial Accounting (FI)

As already discussed previously, each billing posting generates an accounting document together with the billing document. The accounting document update the value fluctuations to the corresponding accounts in Financial Accounting (SAP FI). The accounting document of the billing document guides to the subsequent Financial Accounting (SAP FI) entries in the SAP system:

- A credit posting to Sales Revenue account. This posting document, the revenues, the company expects from this sales process and is documented in the Profit and Loss Statement.
- A debit posting on the customer account in the sub-ledger and at the same time on the General Ledger account for receivables (reconciliation account for accounts receivables). This relocation documents the amount of money the buyer owes to the company and illustrates an open item on the customer account that needs to be settled with the customer payment.

The top screenshot shows the SAP 'General Ledger' view for document 90000010. The document date is 23.10.2017, and the posting date is also 23.10.2017. The currency is USD. The ledger group is empty. The table below shows two entries:

Co...	Item	L.Item	Key	Account	Description	Amount	Curr.	Tx
US	1	000001	01	110000	Trade Receivables	1.100.000,00	USD	
	2	000002	50	600000	Sales Revenue	1.100.000,00-	USD	

The bottom screenshot shows the 'Data Entry View' for the same document. The document date is 23.10.2017, and the posting date is also 23.10.2017. The currency is USD. The ledger group is empty. The table below shows two entries:

Co...	Item	L.Item	Key	Account	Description	Amount	Curr.	Tx
US	1	000001	01	25015	T	1.100.000,00	USD	
	2	50		600000	Sales Revenue	1.100.000,00-	USD	

Picture 13. General Ledger and Sub-Ledger account after billing document: SAP system screenshot

As it is displayed in the picture that the accounting document of the billing process generates a credit item (Invoice: 1.100.000\$) on the Sales Revenue account (600000) in the Profit and Loss Statement. The accounting document of the billing process generates a debit entry (1.100.000\$) on the buyer account (25005) in the sub-ledger. The balance (1.100.000\$) of the customer account in the sub-ledger is coordinated with the reconciliation account for accounts receivables in the General Ledger (110000). These entries are done following the accomplishment of shipment according to the materials that the customer had ordered. A billing document is also sent to the customer (Invoice: 1.100.000\$). The invoice (billing document) results in the creation of an accounting document that reordered in the accounting processes.

Here there is a journal entry displayed here to better understand the customer account. Line item area shows the customer account where the reconciliation account 110000 is

debited by 1.100.000 USD whereas profit & loss account 600000 (sales Revenue) is credited.

Journal Entry (90000010) - Entry View

HEADER	0 ATTACHMENTS	0 NOTES	5 RELATED DOCUMENTS
Journal Entry...: 23.10.2017 Posting Date: 23.10.2017 Posting period: 10 / 2017 Journal Entry...: RV (Billing Doc.Transfer)	Company C...: US Transaction ...: USD	Reference -ORDER Ref. Transact...: VbRK (Billing document) Header Text: Created: by MASTER on 23.10.2017	

Line Items (2) | Standard

Journal Entry Item	G/L Account	Profit Center	Debit	Credit
000001	110000 (Trade Receivables)		1.100.000,00 USD	0,00 USD >
000002	600000 (Sales Revenue)		0,00 USD	1.100.000,00 USD >

Tax (0) | Standard

Tax Code	G/L Account	Tax Base Amount	Debit	Credit	Tax Rate
No data					

Picture 14. Journal entry: SAP system screenshot

The payment step is the last step of the Order-to-Cash process presented in this study. However, the payment is done in the Financial Accounting application and, thus, is not part of the Sales and Distribution application. As discussed in the previous part of the study, the customer invoice guides to the Financial Accounting (SAP FI) entries in the SAP system as:

- A credit entries to the sales revenue account
- A debit posting on the customer account in SAP FI-AR sub-ledger and the corresponding posting on the settlement account in the General Ledger (receivables). Later, it generates an open item in SAP and needs to be settled with the customer payment. Once receiving the customer payment and generating the payment document the system accomplishes the following postings that are documented in an accounting document:
 - a debit posting to the cash account (bank)
 - a credit memo to the customer (FI-AR)/receivables (FI-GL) account, which clears the formerly created open item on the customer account due to the billing document posting.

Again, the overview of the customer account is displayed. Now you can see that the customer payment posting has created a new item, which clears the original posting from the billing document. Thus, the customer account is balanced out (Total amount 0).

Display Document: **Data Entry View**

Data Entry View

Document Number: 1400000005 Company Code: US00 Fiscal Year: 2017
 Document Date: 24.10.2017 Posting Date: 24.10.2017 Period: 10
 Reference: Cross-Comp.No.: Ledger Group:
 Currency: USD Texts Exist:

Co...	Item	Key	Account	Description	Amount	Curr.	Tx
US00	40		100000	Bank	1.100.000,00	USD	
	2 15		25015	Taymaz Khatami	1.100.000,00-	USD	

Picture 15. Account receivable sul-ledger: SAP system screenshot

First, the Data Entry View is displayed. This is the point of view of the Accounts Receivable sub-ledger (FI-AR) on the accounting document from the payment. You can see that the customer account 25015 was credited with 1.100.000 USD while the Balance sheet account 100000 (Bank) was debited.

Display Document: **General Ledg.**

Data Entry View

Document Number: 1400000005 Company Code: US00 Fiscal Year: 2017
 Document Date: 24.10.2017 Posting Date: 24.10.2017 Period: 10
 Reference: Cross-Comp.No.: Ledger Group:
 Currency: USD Texts Exist:

Ledger 0L

FiscalYear: 2017 Period: 10

Co...	Item	L.Item	Key	Account	Description	Amount	Curr.	Tx
US00	1	000001	40	100000	Bank	1.100.000,00	USD	
	2	000002	15	110000	Trade Receivables	1.100.000,00-	USD	

Picture 16. Customer Account in General Ledger: SAP Screenshot

It is displayed here that the reconciliation account 110000 is credited with 1.100.000 USD where the Balance sheet account 100000 (Bank) is debited once the money is received on the bank account. After the billing document posting the customer account (and the reconciliation account) was debited with 1.100.000 USD.

Note that with this second posting, the amount from the billing document posting was cleared. That is, Thus, the accounts balance is again at 0.

St	Assignment	Document No	Typ	Doc. Date	S	DD	Local Crncy Amt	LCurr	Clrng doc.
<input type="checkbox"/>		1400000005	DZ	24.10.2017			1.100.000,00-	USD	1400000005
<input type="checkbox"/>	0090000014	90000010	RV	23.10.2017			1.100.000,00	USD	1400000005
*							0,00	USD	
**	Account 25015						0,00	USD	

Picture 17. Customer Account cleared: SAP screenshot

5 RESULTS & DISCUSSION

This chapter presents the answers of the questions as the finding of the study. It is analysed from two perspectives such as theoretical illustration and practical illustration. The results and objectives of this study have an important relations identified here.

5.1 Theoretical Illustration in Results

In this sub-chapter, the previously discussed models and concepts are presented again. This time, it is presented from a distinct perspective. This discussion will show how these various ERP concepts are implacable in this particular study.

5.1.1 Business Action & Value Chain Model

Business Action Theory illustrates an integrated process including six generic phases of business process that is quite similar procedure described in this study. As it is presented in this study that stock availability must be checked immediate after getting the customer order. This criterion coincides with the Business Action Theory. The supplier must have an ability to perform business by making offers and fulfilling contracts.

The second and third stages can together be viewed as a business interest stage. In the second phase both parties search for contact. The ability of the supplier is exposed and offered to the market. The lacks & needs of the customer give rise to desire and potential demand which guide a possible search for products or suppliers. Determination of requirements and pre-sales activities are described here which matches with the theory.

When supplier and customer find each other, they establish contact and perhaps start negotiating (phase three). The communication here can be described as proposal stating. Bids and counter bids are made. The desire and demand of the customer are expressed. The supplier can make different offers. Of course, in many cases there are

fixed (and standard) offers which have to be taken or rejected as such. The negotiation can be transferred into a contractual phase. This is the fourth phase.

The key word here is agreement. Customer and supplier come to an agreement concerning the business transaction. The contract is a mutual communicative action expressing the mutual 6 commitments made; i.e. commitments for future actions. This involves a delivery promise of the supplier. The order of the customer also includes an obligation of future payment. These different commitments must be fulfilled. Otherwise the contract is broken. The supplier must deliver, and the customer must pay (phase five).

If customer does not satisfy with the delivery, can make a claim. The supplier is requested to make some modification in the delivery. Correspondingly, the supplier can make payment claims towards the customer. This is sixth and last phase which involves assessments of the fulfilments leading to satisfaction or dissatisfaction.

Porter's value chain theory coincides in several points with the outcome of this study. It is shown in the study that business organization follows an integrated process of management that adds value to the organization and brings accuracy in reporting. In the value chain concept, there are two types of activity such as primary and support activity. Each of them has sub activities that create values as a result of integration. For example, a publication company uses calling to the bookstores, advertising and selling online as sales and marketing activity. Managing sales force and keeping customer records accelerate the process. Finally, proofreading and editing ads accomplish the process.

Human Resource Management, Technology development, Procurement and Accounting get added value depending on various sub activities. There are connections between all of the identified value activities. It is time consuming, but the links are key to increasing competitive advantages. For example, there are link between developing sales force and sales volumes, order turnaround times and service phone calls from delivery waiting customers and accounting and order delivery process.

5.1.2 Dynamic Capabilities & Agency Theory

ERP competences and organizational performance is basically theoretical. Scholars initiated several theory-based explanations and dynamic capabilities is one of them. It explains that how ERP functions within firms and how the implementation of ERP increases firm's performance. Dynamic capabilities theory clarifies that organizational performance reflects a firm's capacity to transform its resources. ERP enabled organizational benefits is based on dynamic capabilities for strategic management.

ERP combines a firm's processes and functions to ensure that business operations can be performed seamlessly, competently and more transparently. Dynamic capabilities refer to 'the firm's ability to assimilate, build, and reconfigure inner and outer capabilities to address a rapidly changing environment. Dynamic capabilities are useful for analyzing the affiliation between ERP and firm performance. Sustainable competitive advantage can be achieved when a firm has strong dynamic capabilities.

Dynamic capabilities and competitive advantage are likely to be important to the survival of firms for the long run. It is argued that local firms ought to stimulate their dynamic capabilities to compete in markets effectively".

Every organization, around the world is endlessly revising their performance, with the fast-changing economic circumstances. As the race is intense many companies look for ways to survive for which they are trying to enlarge to newer geographies and access innovative markets, develop and spread new products, offer attractive prices, boost customer satisfaction and experiences and develop newer approaches. To do so managers and executives evaluate the inner and outer costs of their products and services, gather market data, conduct market research to know the needs and wishes of their customers, work on their production costs, forecast and evaluate the organizational performance, and attain competitive advantage in their operational activities using ERP implementation based on dynamic capabilities.

ERP structures are becoming essential rapidly in order for big and medium sized business organizations to continue their operations. Consequently, administration requires to identify the factors that leads to effective ERP execution. **Agency theory** has been effectively used to describe associations between couple of parties looking for a common consequence. Agency theory illustrates the environment within a firm or between a set of firms by contracts in which one party (buyer) engages another party (the vendor) to provide a service on the buyer's behalf which comprises delegating part of the decision-making authority to the vendor. As in the ERP integration, one group of people delegates responsibility to another group according to the agency theory. Vendor relationship management is enormously significant for the customer to achieve both short- and long-term ERP project success and that is the core concept included in the agency theory (Basu & Lederer 2004)

5.2 Practical Illustration in Results

This chapter presents the answers of the two questions as a finding of the study. First question of the study was 'how FICO integrates order delivery process in SAP S/4HANA? To answer this question, after receiving goods from the vendor, it needs to input in the company accounts as follows:

The debit entry to the general ledger account for trading goods and credit record to general ledger account for goods receipt.

Secondly, Goods issue for delivery, causes entry in the company accounts. Goods reduced from the company inventory. It means the debit entry to general ledger account for goods inventory and credit record to general ledger for the trading goods.

Finally, Once the company got money from the customer as payment, accounts entry need to be recorded. Sales revenues and payable taxes comes as debit and customer payment and sales deduction comes as credit.

In the management accounting, when company get goods from the vendor, it increases the stock value. This transaction causes debit entry in the management accounting. When goods move from the inventory it recorded as credit entry in the management accounting.

Answering to the second question, the study got three different points of integration between order delivery process and FICO. These are as follows:

Goods receipt,

Goods issue

customer payment

It is mandatory to maintain accounts in those points otherwise the value of the inventory and the financial reports will be either overstates or understates at the end. This inconvenience might create an improper guidance to the policy makers.

5.2.1 Integration with FICO

It is already mentioned in the result section about the integration and exactly where they integrated. Now its time to show the illustration using figures, how order delivery process integrated with the FICO. Relations with Financial Accounting (FI) is analyzed first in the following figure.

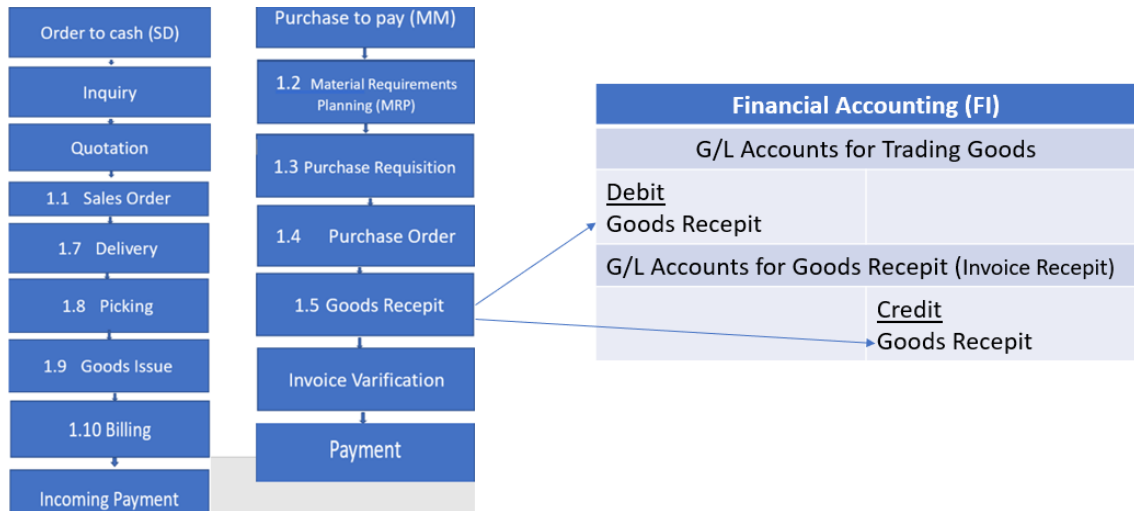


Figure 8. First connection in Financial Accounting

The Figure displayed its first connection between the order delivery process and Financial Accounting is in the step 1.5 Goods Receipt. In this step, inventory of the company gets goods from the vendor. Company's account is being affected by this business transaction. It means that entries are recorded in the accounting document. General Ledger is debited by the name of trading goods and credited by the name of goods receipt.

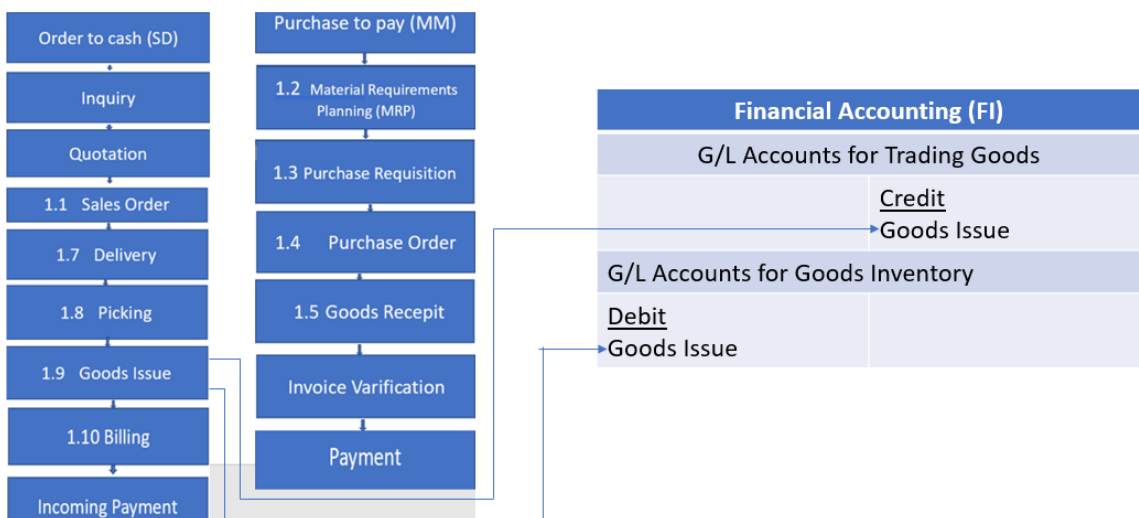


Figure 9. Second connection in Financial Accounting

Goods Issue in the step 1.9 is identified as the second connection. Company delivers the ordered goods to the buyer in this step. As a result, goods are documented off from the company's inventory. General Ledger again debited by the name of goods inventory and credited by trading goods.

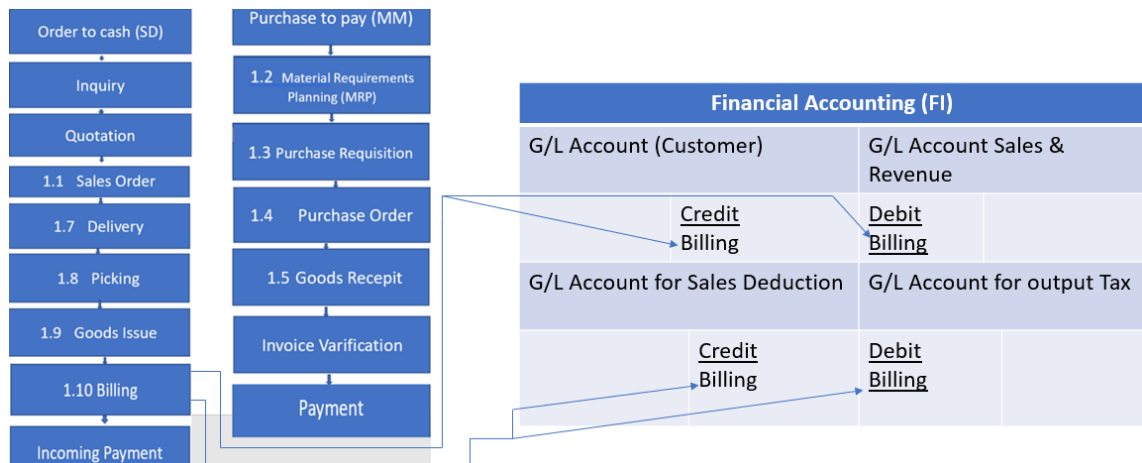


Figure 10. Third connection in Financial Accounting

The third link is identified at the Billing phase of the transaction in the step 1.10 of the figure. Once seller company forward invoice to the buyer, entries are recorded in the General Ledger. Payment from the customer and sales deduction are recorded as credit entry whereas sales revenue and output tax are marked with debit records.

Integration with Management Accounting: After the practical presentation there is a couple of integration point founded between Order Delivery Process and Management Accounting (CO). It is illustrated in the following Figure.

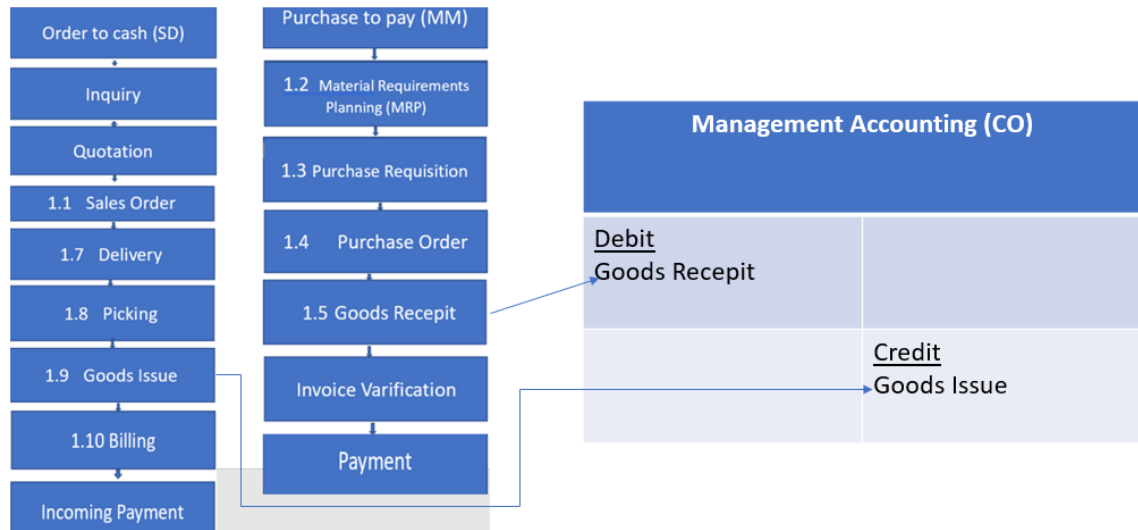


Figure 11. Connection in Management Accounting

In Management Accounting, Integration point is identified in the same step (1.5) as Financial Accounting. Goods Receipt means receiving goods from the vendor and that causes inventory value to change. Goods Receipt documented as Debit posting in the Management Accounting.

Goods Issue creates the second integration point and it is displayed at step 1.9. The company delivers ordered goods to the buyer and the goods are recorded off from company's stock. Goods Issue transaction is recorded as a credit entry to the management account.

5.2.2 Effects on Financial Reporting

An incorrect or unrecorded inventory balance causes an error to the Financial statement and Balance sheet. So that the identified integration points should be maintained accordingly. Since financial statement users depend upon precise statements, care must be taken to confirm that the inventory balance at the end of each accounting period is accurate. Effects on financial statement and balance sheet are presented by the following tables.

Error in Inventory	Cost of Goods Sold	Gross Profit	Net Income
Ending Inventory			
Understated	Overstated	Understated	Understated
Overstated	Understated	Overstated	Overstated
Beginning Inventory			
Understated	Understated	Overstated	Overstated
Overstated	Overstated	Understated	Understated

Figure 12. Effects on Financial statement

An inappropriate inventory balance causes an error in the calculation of cost of goods sold, gross profit and net income. As the closing balance of inventory become the beginning balance for the next fiscal year, the error causes an opposite consequence to the statement. Though the total cost of goods sold, gross profit and net income will remain correct but the allocation of these amounts between periods will be inappropriate.

Error in Inventory	Assets	Liabilities	Owner's Equity
Understated	Understated	No Effect	Understated
Overstated	Overstated	No Effect	Overstated

Figure 13. Effects on Balance Sheet

An incorrect inventory balance causes the reported value of assets and owner's equity on the balance sheet to be wrong but there is no effect on liabilities. As it is shown in the figure that if inventory is undervalued, assets and owner's equity become understated. On the other hand, if inventory become overvalued, assets and owner's equity become overstated.

6 CONCLUSION

The study was started to identify the relations between order-delivery process and FICO. SAP S/4HANA is used as a practical platform to display the connections. The main purpose of the thesis was to get flawless stock valuation as well as financial reports using identified integration points. Among the results, a single scenario can be taken into consideration here for better clarification. The result states that when a company delivers ordered goods to the buyer and the goods are recorded off from company's stock. If goods issue remain unrecorded, the ending inventory become overstated with gross profit and net income whereas cost of goods sold become understated as an outcome.

Theoretical phase provided the background information to the practical part by which the study meet the desired outcomes. SAP system screenshots that has been taken into consider to explain the connection in a practical manner. The study used independent sources to make the work valid and reliable. SAP ERP and SAP S/4 HANA is used as the most relevant material of the study. The findings of the study were quite clear accordings to the research question and it would be a guideline to financial professional as well as students.

Main focus of this study was only to concentrate on the integration between order-delivery process and FICO but there could be more opportunities to research using S/4HANA. There are different modules other than FICO and Order management in S/4HANA system environment. Configuring more connections among them could create the system more compatible generating accurate reports.

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