Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Information Technologies

Bachelor Thesis

Financial Accounting in ERP Systems

Jahedul Islam

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

BACHELOR THESIS ASSIGNMENT

Bc. Jahedul Islam

Economics Policy and Administration
Business Administration

Thesis title

Financial Accounting in ERP systems

Objectives of thesis

The main objective of the thesis is to compare options for implementation of a typical financial process in ERP in a selected company.

- to make a comprehensive literature review of ERP systems and their financial modules;
- to create a case study in order to allow deeper examination of aspects of implementation financial accounting processes;
- to summarize findings and discuss the results.

Methodology

The methodology of the thesis is based on study and analysis of the research on ERP and its role in Financial Accounting. The practical part will be based on a case study of Financial Accounting implementation aspects in a model company. Based on the theoretical findings and results of the practical part, the final conclusion and the recommendation will be formulated for a new user.

The proposed extent of the thesis

30 – 40 pages

Keywords

Financial Accounting, Management Accounting, ERP, SAP S/4HANA, Microsoft Dynamics.

Recommended information sources

ABDEL-KADER, Magdy G. (ed.). Review of management accounting research. Springer, 2011.

BARDHAN, Devraj, et al. SAP S/4HANA: An Introduction (SAP PRESS). SAP PRESS, 2017

CAETANO, Almeida a MG MAHESH. Introducing Production Planning and Detailed Scheduling (PP-DS) with SAP S/4HANA. 12th. Germany: SAP Press, 2017. ISBN 978-1-4932-1669-7.

CHEN, Hsueh-Ju, et al. The ERP system impact on the role of accountants. Industrial Management & Data Systems, 2012, 112.1: 83-101.

Expected date of thesis defence

2020/21 WS – FEM (February 2021)

The Bachelor Thesis Supervisor

Ing. Miloš Ulman, Ph.D.

Supervising department

Department of Information Technologies

Electronic approval: 26. 8. 2019

Ing. Jiří Vaněk, Ph.D.

Head of department

Electronic approval: 14. 10. 2019

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 28. 11. 2020

Declaration

I declare that I have worked on my bachelor thesis titled "**Financial Accounting in ERP Systems**" by myself and I have used only the sources which I mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on 30th November _____

Acknowledgement

I would like to thank **Ing. Miloš Ulman, Ph.D.** for his help, advice, support and patience during my work on the thesis. I would also like to thank all (anonymous and non-anonymous) respondents, for their time and honest answers.

Financial Accounting in ERP Systems

Abstract

The main objective of the thesis is to compare options for the implementation of a typical financial process in ERP in a selected company. The financial process of different ERP software and the comparison of this software in different aspects to select the optimal ERP software for a selected company. the literature review has conducted the describe the financial process and the activities of the module of SAP, Oracle, and Microsoft Dynamic. It also illustrates the market of ERP products and the market share of ERP in different industries. The number of accounting software used by the macro company is also introduced in the theoretical part. The comparison of different criteria of SAP, Oracle, and Microsoft Dynamic has converted into quantitative form and applied decision matrix analysis scoring method and Saaty's matrix. The weight of the criteria has selected according to the importance of the criteria that are needed to successfully implement optimal ERP software for the selected company. the has selected by an expert who has long-time experience working through SAP, Microsoft Dynamics, and Oracle. In the decision matrix, the weighted total for Microsoft Dynamics is 76 which is the highest among this three ERP software that indicates Microsoft Dynamic is the optimal ERP software for the company. besides this, according to Saaty's Matrix analysis, the weighted total of Microsoft Dynamic is 2.81 that also the highest among these three. It can conclude that Microsoft Dynamics is the optimal ERP for the company for Financial activities.

Keywords: Financial Accounting, Management Accounting, ERP, SAP S/4HANA, Microsoft Dynamics, Oracle, Cloud, On-premise, Implementation.

Table of content

List of pictures

List of tables

1 Introduction

An ERP system enables an organization to integrate all the primary business processes in order to enhance efficiency and maintain a competitive position. However, without the successful implementation of the system, the projected benefits of improved productivity and competitive advantage would not be forthcoming. In its basic definition, ERP is an enterprise-wide information system that integrates and controls all the business processes in the entire organization. The Enterprise Resource Planning (ERP) system is an enterprise information system designed to integrate and optimize the business processes and transactions in a corporation. The ERP is an industry-driven concept and system and is universally accepted by businesses and organizational industries as a practical solution to achieve an integrated enterprise information system solution.There are different modules of ERP software that serve the companies according to their needs for business operation. Among all the modules financial accounting is the most important one because it is integrated with all other modules. The ERP financial module usually maintains the Account Payable account, Account Receivable account, Asset account, Cash Management, Invoicing, and all the financial transactions of a business. The financial module of Enterprise Resource Planning (ERP) enables the companies to record all the financial transactions and the cash flow of the financial instrument of the company. In addition, there is much financial accounting software in the market, for example, QuickBooks, Wave, FreshBooks and so on. The problem with this accounting software is they are not integrable. By using this software, it not possible to integrate all the departments of the business. Thus, the large companies can't use this software. In the modern business world, ERP is playing a vital role to grow the business and help the company to connect with a different part of the business in real-time. There are many ERP product in the market now. The companies implement ERP software according to their needs and their industries. Different Industries implement different ERP software. SAP is the most popular ERP software in the world ERP market. Oracle is also a popular ERP software in the market that has some advantage over other ERP software. Besides this, Microsoft Dynamics, Infor, Sage, Workday are also the most uses ERP software in the world ERP market that are serving various companies around the world and make the business operation easier, comfortable, time-effective, and cost-friendly.

There are different deployment options for ERP software. Companies choose the deployment options according to their needs and number of users, Especially the big companies implement On-premise ERP software as big company has more users and a big data center. On the other hand, usually, the small enterprise implements the cloud ERP software because they can customize it according to their needs. Both cloud and on-premise ERP software have some advantages and drawbacks. The cost of cloud ERP increases with the increase in the number of users. As a result, the company can customize its cost according to their needs to operate the business. However, cloud-based ERP has problems with data security and lost control over data. On the other hand, on-premise ERP is more secure. With the difference of industries and number of users, companies chose different ERP software and deployment options for the business operations. SAP, Oracle, Microsoft Dynamics, and Infor are the most popular ERP software in the market in recent times.

2 Objectives and Methodology

2.1 Objectives

The main objective of the thesis is to compare options for implementation of a typical financial process in ERP in a selected company.

- to make a comprehensive literature review of ERP systems and their financial modules;
- to create a case study in order to allow a deeper examination of aspects of implementation financial accounting processes;
- to summarize findings and discuss the results.

2.2 Methodology

The methodology of the thesis is based on study and analysis of the research on ERP and its role in Financial Accounting. The practical part will be based on a case study of Financial Accounting implementation aspects in a model company. Based on the theoretical findings and results of the practical part, the conclusion and the recommendation will be formulated for a new user.

3 Literature Review

The literature review contains a brief description of ERP software, the advantage of using ERP software in the business, and how it plays a vital role in modern business activities. It also describes the evaluation of ERP software and its road to the success story. The theoretical analysis also about the analysing of the different strategy of implementation of ERP software in an organization especially for the small and middle-size enterprise and the factor of failure of implementation of ERP in an enterprise contains the discussion about a various ERP system and their Financial accounting process. It describes different deployment options such as an On-premise ERP solution and cloud ERP software. Financial process of difference ERP product for example Oracle, Sap Microsoft dynamic will also be included in the literature review discussion. The selection process and strategy of ERP product and option for a financial process for various industries.

3.1 About ERP

Enterprise resource planning (ERP) is a system of integrated software applications that standardizes, streamlines, and integrates business processes across finance, human resources, procurement, distribution, and other departments. Typically, ERP systems operate on an integrated software platform by using common data definitions operating on a single database. ERPs were originally designed for manufacturing companies but since they have been expanded to service industries, higher education, hospitality, health care, financial services, and government. The architecture of the software facilitates transparent integration of modules, providing a flow of information among all functions within the enterprise in a consistently visible manner. Corporate computing with ERPs allows companies to implement a single integrated system by replacing or re-engineering their mostly incompatible legacy information systems. Each industry has its own ERP peculiarities. For example, government ERP uses contract lifecycle management (CLM) rather than traditional purchasing and follows government accounting rules rather than GAAP. Banks have back-office settlement processes to re-conciliation checks, credit cards, debit cards, and other instruments. (Perkins, 2020)

It is integrated software that makes the modern business more comfortable, time-saving easy to operate and more profitable. An ERP software helps an organization by keeping many complex data in a signal database and operates it in real-time that reduces the complexity in work for different sections of the business. Enterprise Resource Planning software can be used to automate and simplify individual activities across a business or organization, such as accounting and procurement, project management, customer relationship management, risk management, compliance, and supply chain operations. Individual ERP applications can offer software as a service (SaaS), while a complete suite of ERP applications form an ERP system that can be used to effectively communicate and bring together business processes to enable a flow of data between the applications, typically through common databases either on-site/on-premise or in the cloud. ERPs connect every aspect of an enterprise. In ERP software employees do not have to force to maintain separate databases and spreadsheets that must be manually merged to generate reports and some aero solution allows staff to pull reports from the system. There different options deployment of ERP software in the company. On-premise ERP software is more effective for the company who needs to control a lot of operations and has a lot of users to use. On the other hand, the cloud ERP system is suitable for small and middle-size enterprises because it can control their cost according to the number of users and can maintain their work without any

complexity of maintaining database systems and IT infrastructure. There are many ERP products available that are suitable for different business perspective and for maintaining different types of industries business operation.

3.2 History and Evaluation of ERP

The evolution of ERP systems closely followed the spectacular developments in the field of computer hardware and software systems. In the 1960s, as the production in the modern factory increased and computing was born, there was a need to manage and balance the production of the organization and the demand of the customers. During this time most of the organizations designed, developed, and implemented a centralized computing system in their daily operations. Specially they implemented for automating their inventory control systems using inventory control packages (IC). (A. Rashid, Hossain, & Patrick, 2002)

The material Requirement planning software (MRP) was invented in the 1960s that helps computing programs in manufacturing, purchasing, and delivery. It helps companies to keep their stock level low, which in turn reduces the amount of money tied up in inventory. By The 1970s, MRP began to popular and MRP software was running in around 700 companies. MRP was only affordable for the large enterprise and ran on enormous mainframe computers that did not even have the computing power of present-day laptop. In the year of 1972, SAP was Established in Germany. In the year between 1980 and 1990, the biggest firms in the world used to hire many system analysts who were responsible for a generated a huge number of useful computer applications to do the business activity more efficiently and effectively. Following this route, new software systems called manufacturing resources planning (MRP II) were introduced in the 1980s with an emphasis on optimizing manufacturing processes by synchronizing the materials with production requirements. MRP II included different areas such as shop floor and distribution management, project management, finance, human resource, and engineering. Based on the technological foundation's ERP software developed in the mid-1990s. (A. Rashid, Hossain, & Patrick, 2002)

Different ERP software such as SAP, Oracle, JD Edwards, and Baan, addressing the core functions of the company during the mid-1990s. By 1998, NetSuite was founded, with the vision of creating a system that worked across a company and which was delivered over the internet and also ERP vendors added more modules and function as "add-ons" to the core modules giving birth to the Extended ERPs. During the early 2000s, ERP software evolved via mobile devices and different web-based functionality has added that make the ERP software easier and business-friendly to the users. Prior to 2000, ERP systems created very large firms that could afford the rather high cost of pursuing an ERP system. After the year 2000, the demand for ERP was starting to decrease in part because firms were often concerned with Y2K issues prior to 2000 which motivated many ERP system acquisitions. The vendors reacted in different ways. First, the market was affected by Oracle purchasing PeopleSoft. Then SAP advertises that they can serve small businesses too. However, it was clear that they had more value in the large market. Many countries, for example, China, India, and others have thriving markets for ERP systems designed especially for local conditions, all through SAP and Oracle have customers all over the world. Today, ERP software becomes more popular, user friendly, and advanced. People can use it in cloud-based, delivered via a software as a service (SaaS) model as well as they have remote, web-based access via advanced apps that run on mobile devices. Modern ERP provides a powerful real-time tool that runs a single, shared database of information for the entire enterprise.

3.3 ERP Features and Component

There are hundreds of ERP vendors on the market right now, but each choice offers different solutions and functionality. There are some basic components of an ERP system that might wish to have in companies' solution, but it is likely that there will be some add-ons or modules that could be implemented to streamline companies' specific day-to-day tasks as well. Before start looking for software, enterprises should create a list of tasks that are difficult for their business and that they would like to simplify. An ERP solution can help. the company should also look at the main components of ERP to see if any of the commonly included tools would be beneficial to your business. Each of these tools has capabilities that vary from vendor to vendor, but you should expect vendors to contain at least a handful of the main components available out of the box. There are usually six modules in ERP software. These are listed below:

- Human Resource Management
- Customer Relationship Management (CRM)
- Business Intelligence (BI)
- Supply Chain Management
- Inventory Management
- Financial Management

3.3.1 Human Resource Management

Managing your employees is typically priority number one. Without them, you don't have a company. The HR ERP module in your software solution should be able to handle employee management tasks such as onboarding, offboarding, timekeeping, and benefits administration. However, the most important feature to look for in an ERP component is payroll software. Manually submitting payroll and issuing direct deposits is incredibly time-consuming and isn't cost-effective. Instead, an HR component automates payments including tax and benefits deductions. With an integrated timekeeping feature, payments to your hourly workers can also be automated so you no longer must manually input their timesheets. One of the main benefits of an ERP solution is that many of your day-to-day business processes can be automated to reduce human error and time spent on monotonous tasks such as data entry. By using enterprise resource planning software with an integrated accounting system and human resources module, payments can be made automatically to employee bank accounts and compensation forms can be managed with little human input required. (Jenkins, 2020)

3.3.2 Customer Relationship Management (CRM)

Managing your customers and leads is another important facet of your business. Without them, your business can't survive, let alone grow. Customer relationship management (CRM) component stores and allows you to track the generated customer and lead data. This data can help with the development of insights that could improve sales and marketing processes.
One of the main uses of CRM is tracking customer buying habits. With this data available, you're able to see which products you may want to upsell and the best times to do it.

Additionally, you can use a CRM to track conversation history with leads. This way you know which sales personnel has talked to a customer when they talked and what they talked

about. Using this information, you can reduce redundancy in the sales process, minimize customer irritation, and ensure a successful sale.

If you run an eCommerce business, you might wish to integrate your CRM process so that you can accurately target ads and store customer payment information in order to make sure that customers have the most streamlined buying experience possible. This is just one example of how an integrated solution can positively benefit your customers. (Jenkins, 2020)

3.3.3 Business Intelligence (BI)

Business Intelligence (BI) has quickly become a standard in ERP management systems. The BI component of ERP collects data and performs an analysis that can provide actionable insights about business processes. As businesses start to rely more heavily on decisions backed by data, BI becomes indispensable. The best BI ERP components deliver insights into reports. A good reporting feature is very important in BI and enables you to make sense of the data being analysed. Some reports come in the form of numbers and tables. However, many prefer visual reports because they allow you to spot trends immediately. Make sure that whatever data format is best for your company is available in your ERP's reporting capabilities. These actionable insights can inform business decisions across departments and processes when you use an integrated solution. One huge pain point in companies that have yet to implement an ERP system is that data is siloed by the department. Therefore, it is easier to see a complete view of data and how various aspects of business affect factors such as profitability and customer retention when using ERP software.

3.3.4 Supply Chain Management

Creating an effective supply chain is never easy, especially when you don't have the best tools to oversee your operation. Ensuring that your ERP has a Supply Chain Management (SCM) component is crucial to staying competitive in this arena. Your SCM should optimize distribution and manufacturing processes to create a more efficient supply chain. This starts by collecting real-time data.

Real-time data allows you to find and fix issues as they happen, rather than waiting for a day or more after the fact. It also makes predictive analytics possible to help with demand planning. Real-time data can help you create an accurate and up-to-the-minute production plan so that you meet demand but don't exceed it.

The SCM component of enterprise resource planning can also assist in boosting profitability by measuring factors such as which inventory items are commonly purchased together and then using that information to optimize the best placement for items on the warehouse floor. SCM coupled with CRM can help keep customers updated as to the status of their purchase within the distribution process and estimate a delivery date.

3.3.5 Inventory Management

The inventory management component is highly collaborative. It works with the SCM component while also dipping its toes in other processes such as warehousing and sales. Some of the main features of this component include managing order fulfilment and maintaining a warehouse's stocking functions. Best-in-class inventory management

components include tracking features that can reduce manual inventory control. These features may include revision level tracking, multi-level serial number tracking, and multiple units of measure per product ID or SKU. This component is especially beneficial to manufacturers or companies with distribution centres because it assists in the profitability and functionality of inventory processes. An integrated solution could update your company website to say that an item is out of stock so that you don't get orders for items that you no longer have on-hand.

3.3.6 Financial management

The final main ERP component is financial management. Because every business process involves the flow of money, whether it's paying your employees or paying to ship goods, this tool works with all the other ERP system components. The financial management module analyses and keeps track of your financial data, including accounts receivable, accounts payable, budgets, and costs. Analysis of your data can reveal trends in your spending, helping you better understand how your profit is calculated and discover where you can reduce costs. You can also receive financial forecasts with data analysis, therefore allowing you to increase profit in the future. At the end of the day, profitability is the driving force of all businesses, so ERP software often seeks to maximize revenue by integrating with processes such as sales, customer relations, and distribution. The software ultimately increases productivity and frees up employee time to work on tasks that can't be automated.

3.4 Modules of Financial Accounting

Financial accounting modules are important to operate the financial activities of an organization. An ERP financial module is a software program that collects all the financial activities of an organization and helps the users to generate a financial report to make a conclusion about the financial position of the organization. The are many features and modules of ERP financial accounting.

What can the organization manage by using the Financial module in ERP?

- It can maintain communication between the organization and its suppliers, manufacturer, service provider.
- By using financial modules organization can manage all revenue received from the clients with the help of a general ledger. Management of all the transactions through the bank with the help of the cash management tier.
- Through the financial accounting module organizations can evaluate, record track, and manage the assets inside the whole organization by using the general ledger and assets management tiers.

The key functions of a financial module are as follows:

- GL - General Ledger with Accountant Management
- AP - Account payable
- AR - Account Receivables
- AM - Asset management
- CM - Cash Management
- Risk Management
- Reporting and multi-currency management
- Profit tracking and so on. (BARDHAN, 2017)

3.4.1 General Ledger management

General ledger intergrades all the financial activities and with all other modules of an organization. Ledger management is another fundamental function of the ERP financial system. A general ledger provides a thorough record of all financial transactions. Entries are usually made directly into the general ledger, but the system may allow making entries anywhere within the application. The user can view the entries from one central location. It is possible to track a variety of things. For example, assets, liabilities, capital accounts income as well as expenses. Having all your financial data in one place can make filing tax returns more manageable and help you stay on top of spending. You can quickly identify any odd transactions or fraud, and some systems will automatically notify you of these instances. General. ledger provides overall visibility in an organization's financial department and it shows the bigger picture of financial operation. (Skvoznikova, 2019)

3.4.2 Account Payable

Account payable account is related to the supplier and the vendors who provide goods or services to the company. By using an ERP system, the users can easily register all the new invoices within a short time, and they can track and authorize all the incoming invoices as well. Account payable use to manage all the funds that a company owes to the vendors and also other creditors from where the company pursues products or services during the financial period. An accounts payable feature integrates payable data with a purchasing system so the company can take control of your cash flows. In some ERP system allows customers to make the payment through the ERP system. Similarly, it also automates tasks such as sending payment reminders or account statements and generating recurring invoices. (BARDHAN, 2017)

3.4.3 Account Receivable

Account receivable shows the amounts or funds customers owe them. It usually tracks the customers payment as well as manage the invoices and cash of a business. By using Account Receivable function, a company or an organization can generate an invoice to their customers also can send the payment reminders to the customers about the due date of payment, and so on. A simple way to track invoices that are for customers that the company is waiting for payments from. Through Account-receivable function users will also have a classification of accounts. It has a credit management system that works in real-time. The users may add reports with the analysis, statements about the customers, and interest for postponed payments. A key moment here is reminders about the unpaid invoices. After getting the payment from the customers the users can match the amount that was unpaid, and they can close it after the confirmation that the comers have paid the same amount that they owe. Finally, the account can close after all transactions related to the account. (BARDHAN, 2017)

3.4.4 Asset Management

Asset management is one the key feature of a financial management module that manages the fixed asset, current asset, tangible assets, and intangible assets. In the asset function, users can register for the assets with all the transactions for a particular asset or an asset group. Through the financial module, the depreciation of long-term assets can calculate for the fiscal year report and asset revaluation. (Skvoznikova, 2019)

The key functions of the AM are investment and disposal, depreciation defined by the user methods, regular revaluations of the fixed assets, and insurance information. It calculated the depreciation different method for example user's defined depreciation method. Asset management helps an organization by providing better visibility in terms of utility costs and maintenance. For example, calculating and managing the depreciation of the assets can help the organization to forecast the expenditure create the budget to set the goal for the future. Tracking the assets will prevent an organization from paying taxes on items that the organization has eliminated or replaced, which is an easy mistake to make while trying to maintain their own records. The tool will also pick up on opportunities for sales tax savings some jurisdictions give tax breaks, or exemptions, to specific industries.

3.4.5 Cash Management

This component comprises processing and the analysis of all transactions via the banks, analysing the invoices and receipts, and other payments that are related to the cash flow. The users can see all the transactions for a specific period and see if the organization reach the financial goals or not. Through this module, the company get the report about the quantity of cash that is important to pay their short-term debt like salaries, interest, and so on.

3.4.6 Risk Management

Managing the risk of an organization is an important factor that provides the information in an organization about the possibility of being possible of investment by analysing the current data of the organization. Compliance regulations can be challenging to keep track of because they are ever-changing. In a food and beverage manufacturing setting, the risk management tool could notify the organization in the event of contamination or any other issues in the process. From a financial point of view, the risk management function works to identify how money is going out and get in the business and it also maintains the cash. It also ensures the company that the company does not have more inventory and has enough cash to pay the money to their payable and meet the requirement of short-term debt. (Carlton, 2019)

3.4.7 Reporting and Currency Management

On ERP, Analytics provides real-time access to financial data, which is crucial for maintaining your finances. The visibility helps you make data-driven predictions and decisions concerning your company's finances. The reporting function in financial accounting modules provides a report about all financial activities of the organization. It provides a report where the company is generating more revenue and where the revenue decreasing in its business operation. It shows the financial position of the company, the report about profit or loss, and expenses for a certain period. By using this function, the company can forecast the sales for future operations and can forecast the expense of business operations in a company. If organizations have global clients, the ability to manage multiple currencies is critical. Multi-currency management automates the process of both buying and selling in foreign currencies. Currency conversion capabilities allow organizations to complete transactions in numerous different currencies. The financial accounting module also maintains the hedging of currency to help the organization to take the advance of purchasing the product from other different countries in a different currency. (Skvoznikova, 2019)

3.5 Financial Processes in ERP

The financial process in the organization is an important part as it conducts the progress of the business for the organization. There are many tasks an organization has to do to maintain financial activities in a company. ERP makes it easy, efficient, and timesaving for the business. The financial process in an organization are Account payable, Account receivable, General Ledger process, cost allocation process, Cash Management process, Liquidity Planning, and forecasting process, Transaction and Risk Management Process, Entity closing process, Settlement and Assessment Process, Currency translation process and consolidated process. (BARDHAN, 2017)

3.5.1 General Ledger Accounting Process

In ERP software general ledger accounting deals with posting the journal entries, maintain the general ledger account master data as well as running the financial statement. It creates the master data also maintain the ledger account structure and provide the list of accounts to record all the financial transaction across the business. It records the business transaction and posts the document. Period ending activities also perfume to complete an overview of the financial position of the company for internal and external reporting purposes.

3.5.2 Account Payable Process

Maintaining the vendor's account including the vendor's master data as business partners for all entities that the company does business with for procuring goods or services. In the account payable section, create the purchase order based on the account payable transaction to pay a vendor for the goods and services that already delivered. It also processes the account payable invoices and approves them to pay the vendors in various payment methods as a part of a scheduled or an ad-hoc payment run. Each invoice document has a clearing status that is first open, and then subsequent documents payments are posted, can be matched, and cleared. This example, looking at the Supplier Line Items Fiori app, all these items with red are open invoices with due dates, days outstanding to be paid. The ones in green have already been paid, so they are matched and cleared. This is a way it can easily manage which vendor invoices are open for payment. And this is a core task of Accounts Payable. If we look at the AP process to manage supplier payments all up, there is an automatic payment program in SAP that is used to process mass outgoing payments to suppliers on a regular cadence and to optimize payment terms. The way the payment program works is AP open items are selected according to criteria, for instance, the due date and the payment method, and then the idea is that you first look at the open items, then a payment proposal is prepared. If it is not approved, it can then redo and recreate the proposal. Once a payment proposal is approved, it can then perform a payment run. But before performing a payment run there should be good SOX and audit controls around this process, as the result of this payment run, is cash going out of the company and going to a supplier. Once the payment run is done, the open item invoices are then cleared so that you're only ever managing items that you need to pay. This is a core part of the managing automatic payments program in SAP for Accounts Payable. The payment run in a bit more detail. A proposal can be run and deleted and rerun many times, and this really should be reviewed and approved before final payment. This is an example using the Manage Automatic Payments Fiori app. These screens show how you can look at the payment run itself, you can see which payments will be made, which payments are exceptions, and get the full

analysis. The payments can only be processed once because payments are also country-specific whether you're using ACH or SWIFT or electronic funds transfer, and these are different configuration settings. (BARDHAN, 2017)

3.5.3 Account Receivable Process

In terms of posting invoices and integration to the general ledger, any posting to the accounts receivable sub-ledger automatically updates the general ledger. So, the two main scenarios are starting and posting directly to the account receivable sub-ledger, so it's a manual AR invoice and this will directly update the GL or accounts receivable invoices that are posted with reference to the sales order. In this case, the sales order customer invoice will update accounts receivable that then updates the general ledger. The result in accounts receivable is the same but it is a much stronger order and control trail when you link to a preceding sales order. So, the general ledger or the AR detail is the same but here user can see the strong order control in the back end here of all the other logistic processes that make up the transaction with a real live drill-down back and forth between the two. So, in terms of monitoring customer open items, which is the other main task, show here the Manage Customer Line Items Fury app or tile. It's like the vendor accounts payable side, the AR sub-ledger is managed on an open item basis. Each invoice has a clearing status, initially open. Subsequent documents like cash received posted to the same account can be matched and cleared. So here users can see for this customer balance, these items at the top here are all open, waiting for cash to come in, these three items at the bottom have already been matched and cleared. So, the user no longer must worry about these items. But these are the ones that need to be actively managed. So, this is looking at customer line items through the Fury Manage Customer Line Items app. And here user can see the data overdue as well. In SAP for AR users also manage close integration between the AR and the bank modules to process cash receipts. But for large volumes and the more efficient users can also integrate with their bank to electronically process bank statements like the lockbox, et cetera. And AR open items are generally selected according to a criterion. For instance, invoice reference number, invoice date, et cetera to be able to match the cash. In the general process, customer payments are first sent to the bank. The bank will create a payment file. And then users can then import that bank statement into SAP or process it manually. In this first step, the cash will be unallocated in a bank clearing account. Then users can manually match items or matching invoices to cash. If there's a match, then users can match and clear the AR open items. (BARDHAN, 2017)

3.5.4 Asset Management Process

By using the Asset Transactions app and at any point in time users can list all the assets and they can see what the acquisition posting was, whether it was an external acquisition or construction, the Cost Center to assign to put appreciation, the Profit Center, and segment to define too. So, lots of rich detail through the Asset Transactions Fiori app. Asset accounting can also be deeply integrated with logistics. It's also integrated with the general ledger. The most common logistic module would be the Materials Management module, so any inbound logistics or purchase order, or receipt or invoice, that is then for an asset purchase order would automatically post to the asset sub-ledger and the asset recon accounts. As the purchase orders are created and they reference asset master records, this is how the financial postings to AP and asset accounting, as well as the G/L, are all automated. ERP also supports an Asset Under Construction process. Asset under construction assets is managed as a separate asset class until they are ready to capitalize. For instance, constructing a building or

a plant. So, assets can be manufactured using the SAP Production Planning module or they could be built up as a project using Project System. This is just showing how if a company procure something through MM or manufacturing through the PP module, they could first go to an asset under construction, so no depreciation will start at this point, at a point in time the costs can be capitalized as the final asset is placed in service, and this can be tracked as a project, and then only start depreciation. So, this capability is also available. And, just one extra piece. There's also a Plant Maintenance module that can monitor the individual equipment of the asset, like the engine, the pump, the cooling, et cetera. If any plant maintenance is needed here, things like the service schedule or the warranty dates can automatically kick into a procurement process for parts and services, and all these transactions will automatically also integrate back to the general ledger. This is just to create some awareness of how, through the integrated nature of ERP, there are additional modules that can hook onto assets.

3.6 Small Business Accounting Software

Accounting software, as the name indicates, is primarily used for managing accounts of a company. Practically, accounting software takes responsibility to manage financial aspects of the business while making a perfect track of all business transactions, journal entries, AR/AP, and general ledger utilization. It also includes details about balance sheets and income statements. Accounting software is the most reliable tool to maintain the financial health of an organization. Accounting software reduces the amount of time spent on data entry by allowing users to sync their business bank accounts and credit cards with the software. Small business accounting websites certainly aren’t a panacea, but if users use one religiously, they should feel more in control of their finances and be able to make better decisions. It helps to get an overview of the current income and expenses that helps the owner to take the smart decision for the organization or their business. A good small business accounting website can provide information in seconds that will help owners answer these questions, based on the input they supply. Once the owner populates a site with information about their financial accounts; their customers and vendors; and the products or services they sell, they can use that data to create transactions that the site can, in turn, use to create insights. Instant search tools and customizable reports help the owners track down the smallest details and see overviews of how the business is performing. Android and iOS apps for the sites give access to their finances from mobile devices. One of the most interesting things about Small Business Accounting Software is that it can reduce repetitive data entry. If the user fills the customer record once they do not have to look up the zip code again. If the users need to reference the customer for any other transaction, it automatically appears in the list. The same happens for the vendors as well. If they once keep the data of the customer, it recorded automatically in the system and appears in the future when they need for any transaction. By using this accounting software owner can manage accounts payable, Account receivable, invoicing, payroll management, customer payment management, and banking. However, this software is not able to integrate all the processes of the business, for example, sales activities, asset management, production management, and many other things. Small business owners have many options to choose business accounting software as different small business software are available in the market.

3.7 Popular Small Business Accounting Software

Among several small business accounting software in the market, QuickBooks Online, Xero, FreshBooks, QuickBooks Self-Employed and Wave. These software's have their individual criteria and options. The criteria are describing below:

3.7.1 QuickBooks Online

QuickBooks Online is one of the best accounting software for small and the middle size organization. This is the commonly used software for small businesses used by accounting, bookkeeping, and tax professionals. This software is easy to use. This software is cloud-based. It can be accessed through the web version as well as it can browse through mobile applications. Company trial the software for free in their business for 30 days and then they must choose their subscription plan from four subscription options. After 30 days free trial period the four options for subscription plans must subscribe to get access for use. Four subscription options are including: - Simple Start at $25 per month, Essentials at $40 per month, Plus at $70 per month, and Advanced at $150 per month. The monthly subscription for this software can be upgraded as a business grows, and there are many customization options with the mobile app that can be used to receive payments, review reports, capture an image of a receipt, and track business mileage. For businesses looking for a payroll solution, QuickBooks Payroll fully integrates with QuickBooks Online. For different kinds of businesses, QuickBooks offers different subscription options for users with advanced features and functionality. For example, a product-based small & middle-size business needs the inventory and customization option to operate the business.

3.7.2 Xero

For the micro-business organization Xero is the option for accounting software to maintain financial activities.it has a clean interface and it is integrated with a third-party payroll service. By using this software businesses can collect payment from customers online with the integration stripe and GoCardless. This is also cloud base software. It has access to using it through the mobile application as well. Xero was founded in New Zealand in 2006 and it has more than two million users and three thousand employees all over the world. Xero offers three monthly subscription options and a full-service payroll add-on: Early at $9 per month, growing at $30 per month, and Established at $60 per month. The full-service payroll option is offered through Gusto and is an additional $39 per month, plus $6 per employee. The company offers a 30-day free trial and a promotion of 50% off for two months. The early plan of Xero subscription allows entry for five invoices, five bills, and reconciliation of twenty business transactions in a month. As a result, it is mainly suitable for the micro-business organization. However, the growing and established plans offer access to enter the unlimited invoice, bills, and transactions. The main difference between the growth plan and the established plan is established plan has some advanced plans like project costing, multi-currency management, and expense management.

3.7.3 FreshBooks

Comparing with small business accounting software FreshBooks offers more customizations for invoicing. The main task of this accounting software is to send, receive, print, and pay invoices, but it can also take care of a business' basic bookkeeping needs as well. It is a cloud base business accounting software as well. FreshBooks was founded in the

USA, Tonto in 2003 as an invoicing software that was popular for small business activities. By the passes of time, it has added more features and FreshBooks has about 300 employees now. There are four different plans, and businesses can get a 10% discount if they choose to pay yearly, rather than monthly. The four plans are- Lite at $15 per month, plus at$25 per month, Premium at $50 per month, and Select, which is a custom service with custom pricing. There are many differences among the four plans in FreshBooks accounting software. The main difference is the number of clients that are allowed to pay the bill in a month. In the Lite plan, up to five clients can be billed per month. In the Plus plan, up to 50 clients can be billed per month. In the Premium plan, up to 500 clients can be billed per month. The Select plan does not have a limitation on the number of clients that can be billed per month. By paying additional 20 dollars users can get access to work with multiple teams as well as get some advanced feature and functionality to budgeting out projects, sending estimate and proposal, and collecting customer payment.

3.7.4 Wave

Wave is ideal accounting software for the service-based small business that sends a simple invoice and does not need to track inventory or run payroll. At the end of the year, the accountant can collect the necessary report from the Wave, and it helps to prepare the business tax return. It can run can multiple businesses in one account and unlimited users can operate it. It has the access to users through the mobile application. The Wave was founded in 2010 in Toronto. There are 250 employees are working in this company now. Recently this company has been purchased by H&R Block. All the important fundamentals and features that small companies need, for example, income and expense tracking, financial reporting, scanning is all included in this software. Customer payment processing and payroll are considered premium services that cost extra, but all the bookkeeping, invoicing and reporting features are completely free. To process payment from a customer, Wave charges 2.9% plus 30¢ per transaction for Visa, Mastercard, and Discover, and 3.4% plus 30¢ per transaction for American Express. These fees are slightly higher than other accounting software. Additionally, to process an ACH payment, rather than a credit card, Wave charges 1% per transaction with a $1 minimum fee. This is unique to Wave, as most of the accounting software does not charge a fee for ACH payment processing. (FREEDMAN, 2020)

3.8 Difference between Small Business Accounting software and ERP

Every business to maintain their accounting system. For small business purposes, different accounting software is enough for maintaining financial and accounting activities. However, large enterprises who must deal with a different function in their business must need ERP software to integrate all the business activities. Both ERP and small business Accounting software can maintain the accounting and financial activities of the business but there is some difference between this software. Small business accounting software usually manages financial tasks such as payroll and timesheet, account receivable, account payable, trial balance, purchase orders, general ledger, and financial reporting. Over time, as the business grows and the number of employees and business activities expands, the organization needs more advanced packages to maintain other facets of the business asset management, project management, IT support, Human resource management, capital management, and supply chain management. The difference between accounting software and ERP are listed below:

- **Accounting software only deals with accounting activities**: Accounting applications deal with accounting arrangements like payroll, accounts receivable, accounts receivable, and trial accounts. Where ERP does not deal with only accounting related activities. ERP applications is a resource management system, monitoring tangible and intangible resources, materials, human resources, and operations. ERP applications cover a selection of performance not generally provided by bookkeeping applications, which includes intangibles elements such as human labour hours, product lifecycle, performance components, and customer relationship management. In one-word Accounting software is a subset of ERP software. (Teoh, 2019)
- **Stand-alone Accounting Software is not built for industry-specific needs:** For example, stand-alone accounting software has a limited capability to track inventory for manufacturing and distribution businesses, relying on unwieldy third-party add-ons. While an ERP solution delivers genuine, feature-rich inventory management tools for manufacturers and distributors. With a manufacturing ERP on the other hand, you can proactively manage inventory to reduce stock carrying costs, make faster and more accurate decisions and lower labour costs. (Davidson, 2020)
- **Accounting Software does not include sales or customer relationship management:** ERP Software provides the sales management service as well as the customer service management service. ERP can save the customer data and can forecast the sales according to the behaviours of the customer's interest. On the other hand, accounting software only keeps data for financial activities.
- **Accounting Software is limited in providing real-time data and mobility:** Accounting software has limitations in working with real-time data. However, ERP can integrate all business data in one database that makes the business faster and timesaving. By using the integrated solution for many business processes, ERP makes all the tasks under one department. Furthermore, ERP has a cloud software system. It accesses the users to operate the system from any place. (Davidson, 2020)

3.9 Market of ERP Software

Among the lots of ERP software in the market SAP, Oracle, Infor, Microsoft Dynamic, Workday, Sage have the most market share in the market. These ERP systems have around 51% of the total ERP market now. In 2018, around 23% of the total share of ERP was to SAP, and revenue from ERP was 7,709 million USD. Where the second-highest revenue was from Oracle. It was 3,901 million USD. Besides this, the revenue from workday Sage and Infor were 2,325 million USD, 2,048 million USD and 1,720 million USD, respectively. In SAP, the highest revenue was from the Financial management system. That it was around 2,978 million USD that was more than workday's total revenue in a year. In addition, for oracle and Workday, the highest revenue was from the Human Capital Management module. The revenue of Oracle in 2018 was 77 million USD from Enterprise Asset management, 1,430 million USD from the Financial Management system, 1,899 million USD from Human capital management, and 495 million USD from manufacturing and operations. On the other hand, for SAP, 244 million revenue was earned from Enterprise Asset management, 2978 million USD from the Financial management system, 2698 million USD from Human capital management, and 1788 million USD from the Manufacturing and operation module. Finally, though most the customer of the ERP is from the Manufacturing industry, the revenue earned by ERP are most from the financial management system module. (Wilson, 2019)

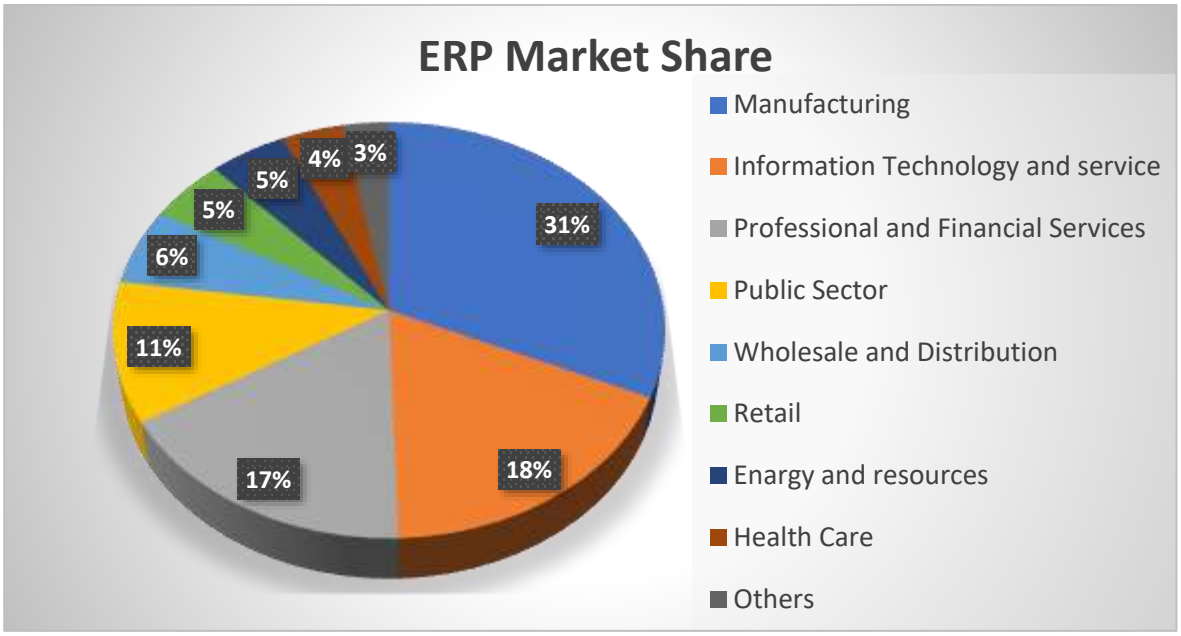

Figure 1: ERP Market Share (Panorama S. C., 2019)

The ERP software market has been around for more than 40 years and is still thriving today. By constantly leveraging technological developments and providing opportunities for business innovation, the ERP market has grown alongside the industries that it serves for decades — and is projected to continue this pattern. This article analyses the ERP market in 2020 and beyond, including a list of the software vendors that are dominating the ERP market share today. In the year 2018, the ERP market was 35.81 billion USD. In 2020 it is expected to be around 49 billion USD. According to the SAP reports, 31% of ERP software are used by the Manufacturing industries that is the highest in the ERP market. (Panorama S. C., 2019) Manufacturing industry is big market of ERP. In addition, around 17% of ERP markets customers are professionals and financial services. However, the percentage of the customers of ERP is 18% in information technology and service. Around 11% of the total sales of ERP is in Public sectors and this percentage is lower by 5% in wholesale and distribution sectors, that's 6%. Both in Retail and Energy sectors ERP sales around 5% of their total revenue. So, the highest market of ERP is the Manufacturing sector.

3.9.1 Categorize the ERP Vendors

- **Tier 1 ERP Software**: These enterprise resource planning (ERP) systems are designed for enterprises with more than $750 million in annual revenue. Most enterprises of this size are complex, either due to complex operational processes or complexity in their entity structure and consolidation needs. Tier I applications address multiple industries and scalability. Ex- *Oracle, SAP, Microsoft, Infor* etc.
- **Tier 2 ERP Software**: These systems typically serve small to midsized organizations with $10 million to $750 million in annual revenue. These organizations may encompass multiple industries and multiple business units, or they may represent only one industry and have a single entity to manage. Ex- *ABSA ERP, Aptean, BatchMaster, Cetec ERP, Deacom* etc.
- **Tier 3 ERP Software**: There are hundreds of ERP vendors in this tier serving mostly smaller organizations. However, there are also some very robust point solutions with niche functionality that are often used to supplement a larger ERP system. Ex- *Abel, ADEXA, Bluebee, Blue Link, Datatex* etc. (Panorama, 2020)

3.9.2 Cloud (ERP as a Service)

Cloud (also called Software as a Service, or SaaS) computing is the delivery of different services through the internet for solving the different problems in an organization. This cloud service can be applications like data storage, servers, databases, networking, and software. By using cloud software information or data of the company can find in the cloud or in the virtual space. The vendors who provide the cloud service give them access to store files and applications on a remote server on remote servers and the user can use the data through the internet. This means the user is not required to be in a specific place to gain access to it, allowing the user to work remotely. Cloud computing services can be public and private. The public cloud service provides their service through the internet for a certain amount of fee. On the other hand, private cloud service is for a certain number of people. There is another option of providing service called Hybrid that is the combination of both public and private service. (FRANKENFIELD, 2020)

ERP cloud software provides different services and functionality. The types of modules or application that an organization chooses or agree to implement depend on the industries. Different industries need a different module and the users, or the companies are flexible to choose their needs. There are several modules in the cloud ERP system. Available ERP modules are, Financials and Accounting module, Human capital management (HCM) module or Human Resource Management Software (HRMS), Customer Relationship Management (CRM) module, Inventory Management module, Order Management module, Procurement module, Supply chain management, Project Management, and Material Requirement planning modules. The vendors usually provide service of these modules and the users can choose according to their needs.

3.9.3 Benefits of Cloud ERP Solution

Cloud ERP solution makes the business easier to use, cost-friendly, and affordable for small and middle-size enterprises (SMEs). All the advantage of using the ERP cloud solution are listed below:

- **Lower Up-front cost**: Comparing with on-premise ERP software cloud ERP system has a lower up-front cost. If a company deploys on-premise ERP for the business operation they must pay for the software once by way of a license. Only the license cost is not enough to deploy mentation of On-premise ERP software but also the company needs to pay for server maintenance, purchases, and ongoing maintenance, database creation, IT support, and so on. On the other hand, for cloud ERP software company only pay less upfront and your overall ongoing operating costs are much lower because the vendor takes care of updates, maintenance, and security for the company. (Beaver, 2020)
- **Customization and agility**: Cloud ERP is easy to customize. use as cloud-based ERP can scale with an organization, it can also be more easily customized to fit business needs—from the start or over time, as a business grows and evolves. On-premise ERP system also can possible to customize but it is expensive to change everything and implement again the new version. Furthermore, the cloud ERP version can easily integrate with other cloud-based ERP products as well as new ERP module can add without adding any hardware.
- **Accessibility**: Cloud ERP software has access to use anytime from anywhere through the internet on any device. It has real-time data accessibility as well.

- **Implementation speed**: Comparing with on-premise ERP software cloud the solution needs less time to implement. A business can normally get up and running more quickly on a cloud-based ERP system than on-premises as it does not require selecting and setting up hardware or hiring and training IT staff.
- **Rapid updates and upgrades**: For cloud ERP software the company does not have to think to update the version of the system and they do not have to spend any money on that. The vendors always do it for them.

3.9.4 Challenges of Implementing Cloud ERP Software

- **Limited control:** When the companies will move services to the cloud, are handing over the data and information. For companies who have in-house IT staff, they will be unable to handle issues on their own. As result, the information and the other stuff may become unveil to others, and the company loses control over their data and privacy. (Lavinski, 2019)
- **May not get all the feature: W**hen the company will choose the package of service for the company, sometimes they find it hard to get the feature and functions according to their needs or company hardly get all their necessary feature in one package.
- **Security and privacy: S**ecurity is the main concern for a cloud ERP solution. All the information about the data becomes disclose to the vendor. although cloud service providers implement the best security standards and industry certifications, storing data and important files on external service providers always opens risks. Any discussion involving data must address security and privacy, especially when it comes to managing sensitive data.
- **Downtime:** The Cloud ERP software works through the internet. The power loss of electricity, bad internet connection sometimes can disturb the cloud service is an important time that can be a big loss for the company. An outage on Amazon Web Services in 2017 cost publicly traded companies up to $150 million dollars. Unfortunately, no organization is immune, especially when critical business processes cannot afford to be interrupted. (LARKIN, 2019)

3.9.5 On-Premise ERP Software

On-premise ERP software is enterprise resource planning software that runs on in-house servers at your own location, or at locations under your control. On-premise isn't accessed through the internet and cannot be used outside of a physical workspace but can be used on different mobile and handheld devices. An on-premise solution offers the security and control of using your own IT infrastructure to connect your people, processes, and systems. On-premise ERP software is important to ensure the security of the organization and getting the control of data storage to their own. (Hale, 2019)

3.9.6 Advantage of On-Premise ERP Solution

Though On-premise Enterprise resource planning (ERP) software is costly and complicated to manage, middle size and the large organization have a significant gain to implement the on-premise ERP system. The on-premise ERP has huge benefits from a business perspective, and these are listed below:

- **Data control**: An organization work with a huge number of organizational data and information that is very important to keep secure. The data for financial planning of

the organization, for sales and revenue, asset controlling data and are important for an organization that are kept secure in on-premise ERP system because the otherization of data control is on the company.

- **Less vendor dependency**: By hosting an On-premise software company do to depend on the vendor policy rather than the company can easily operate the system according to their own interest and needs. In long term, if the vendors go out of business or they cut off the similar service that a customer needs will be the cause of the big problem for the cloud subscriber. In this perspective, on-premise is safe from a problem in the long-term.
- **Easier customization**: While cloud solutions are excellent at integrating with popular third-party applications and software, they aren't so good at providing you with flexibility when you have your own customized solutions. Instead of throwing away useful applications tailored to your business, an on-premise system provides you with customization options for working these apps into your workflow.
- **Security**: comparing with cloud ERP system on-premise ERP software is securer. The organization that has implemented a premise ERP system doesn't have to get access from the vendors and the user can use their data without any restriction. Moreover, no one out of the organization can control the data. As a result, the policy and the plan of the business become more secure comparing with the cloud-based ERP solution. (Hale, 2019)

3.9.7 Drawbacks of On-premise ERP Solutions

On-premise servers for ERP are physical systems that are maintained within the company's location. They must be maintained internally to optimize performance and operation. The drawbacks of implementation of On-premise ERP solutions are discussing below:

- **Increased implementation cost:** The cost of implementation of On-premise ERP software is much higher than cloud ERP software. To implement the On-premise ERP solutions company needs to spend money on hardware, software, for maintaining the database and must bear the cost of IT management. It is also costly to update and advance the system to adding new features to the system.
- **Not perfect for the small and middle-size company:** On-premise ERP software is not suitable for small and middle-size company. The installation of the infrastructure of the on-premise ERP software is very costly that is difficult to bear for the small and middle-size enterprise. On the other hand, on cloud ERP solution company can choose the package of service according to their needs and can maintain their cost according to their ability.
- **Maintenance and Software Upgrade: C**ompanies must spend a lot of money to update and advance the software to an addicting new feature for the company. However, in the cloud the update process is done by the vendors and the company can avoid that cost.
- **Skillsets**: For small manufacturers who do not produce highly technical products or who have limited resources for hiring, the skills required to set up an On-premise system may be limited or non-existent. It may also be outside the manufacturer's salary budget to hire those with the skills to set it up. (Biswas, 2020)
- **Data security:** unless the organizations are maintaining strong data security management, the system can experience data breach not minding the presence of the IT department. When the data is not configured properly and is not locked properly

it can be breached and attacked internally and externally. That can be big trouble for the companies. (Karl, 2019)

4 Practical Part

The main finding of the research is to find out the optimal ERP software for maintaining the Financial accounting activates for Mahindra Accelo company. The finding will conduct the importance of implementing ERP Financial module for Mahindra Accelo company also choosing the optimal ERP software for Financial Account in Mahindra Accelo company by comparing with other ERP products like Oracle, Microsoft Dynamic, Infor, Sage, and workday. The comparison will be according to the evaluation of different criteria that has a vital effect on the company to grow its profit. To find the optimal product of ERP for Mahindra Accelo company scoring method, Satay's method, and multi-criteria decision-making analysis (MCDMA) will be applied. The partial findings of the case study are to discuss the various importance of using or implementing the ERP Financial module in the Mahindra Accelo company. Finally, the recommendation is formulated for the macro and middle-size enterprise to implement the optimal ERP software in their business and also discuss how the Mahindra Accelo company can expand its profit, business and reduce the cost by using recommended ERP product in the business by using ERP software.

4.1 Mahindra Accelo

Mahindra Accelo is an Indian successful middle size company in India. It was awarded the most successful middle-size company in India. It is a steel manufacturing and recycling company that was founded in 1983 in India. (Mahindra Accelo, 2019) It has around 270 employees who are work for this company in various roles. The headquarter of this company is in Pune in India. Mahindra is a big company in India. However, Mahindra Accelo is one of the subsidiary companies of Mahindra Manufacturing. Mahindra Accelo is an organized vehicles recycler in India as well as the first organized steel service center in India. The chief executive officer of this company is Bharat Doshi. The annual revenue of this company is around 450 crore INR. Over the years, Mahindra Intertrade has setup various subsidiary companies in joint ventures with global steel mills and trading conglomerates. For Example, Mahindra Steel Service Centre Ltd.: JV with Metal One Corp., Japan. Mahindra Middle East Electrical Steel Service Centre FZC: JV with Nippon Steel & Sumitomo Metal Corp., Japan. However, Mahindra Accelo is the most Successful company in India who has earned a huge reputation over the years.

4.1.1 Selecting the Optimal Financial ERP software for Mahindra Accelo

As Mahindra Accelo is a subsidiary company of Mahindra group Financial Accounting is a very important part of this company because it has a relation of consolidation with its parents' company. As a result, selecting the optimal ERP product for the financial accounting system of this company is essential to avoid the complexity of financial calculation with other Subsidiary companies. Among the various ERP software SAP, Microsoft Dynamic, Oracle, Infor, and Sage are the most popular in the current ERP market. However, the choosing of the ERP software sometimes depends on the industries, and indifferent criteria. For example, the cost is a very important factor to implement ERP for a company. The comparison among SAP, Microsoft Dynamic and Oracle have illustrated to find the optimal ERP software for the financial module in Table 1. The comparison has conducted according to the various criteria that are very important for Mahindra Accelo to consider to successfully implement ERP financial software in their company and to ensure success in the future. From a cost perspective, Microsoft Dynamic is the most reasonable ERP software that Mahindra

Accelo can implement for their financial accounting solution. In addition, Mahindra Accelo needs to spend more money than SAP and Microsoft Dynamic to implement Oracle. The basic layout of modules is simple in Microsoft Dynamics comparing with SAP and Oracle; therefore, the learning curve is the shortest, and training costs the least in Microsoft Dynamic. In terms of the payback period, Microsoft takes less time to get the return on their investment of ERP software. In this case, SAP takes the longest time for return on investment compared with Oracle and Microsoft Dynamics. Microsoft Dynamic is easily scalable where Oracle has some difficulties for scalability. (Synoptek, 2019) Another important criterion that should consider seriously for Mahindra Accelo is the implementation time of ERP. Due to the customization of the module Oracle takes a longer time to implement where Microsoft Dynamics is faster than the other two software to implement.

ERP / Criteria	Microsoft Dynamics	SAP	Oracle
Cost	Lower cost	Comparatively higher cost	Higher among three
Payback Period	Shortest payback time	Longest Payback time	Comparatively short
Scalability	Easily scalable	Comparatively easy to scale	Not easily scalable
Ease of use	Exceptionally easy to use.	Complex	Slightly complex
Implementation Time	Shortest	Comparatively short	Longest
Customization	Easy to customize	Comparatively difficult	Easy to customize
Integration	Complex	Easy	Comparatively easy

Table 1: Comparison among SAP, Oracle, and Microsoft Dynamic (Synoptek, 2019)

Less Suitable=1	Suitable=2	More Suitable=3

Besides this, the solution of Microsoft Dynamics is customizable and can be easily integrated with other systems in the Microsoft suite, as well as with third-party systems using the Common Data Model. The customization is easy in both Microsoft Dynamics and Oracle as well where SAP has complexity for customization. However, software and functionality integration are most difficult in Microsoft Dynamics and SAP is the best software integration. It has fully integrated modules across manufacturing, retail, and others that help organizations in supporting accounts as well as day-to-day operations. As it is a manufacturing company, an integration cloud very important for this company. As a result, in terms of integration Mahindra Accelo can choose SAP over Microsoft Dynamic and Oracle. As a subsidiary company of the Mahindra group, it can easily integrate its functionality with the parent's company that will help to reduce the complexity of the business. The Microsoft Dynamic solution is mainly user-friendly; the familiar Microsoft interface makes adoption easy and widespread. However, SAP has some complexity to use comparing with Microsoft Dynamics and Oracle. (CHEN, 2012)

4.2 Decision Matrix Analysis

Decision matrix analysis is the way to find the best options from the lots of alternatives and their score. Decision Matrix analysis the method that can find the find optimal option according to the importance of the criteria that is assigned by the authority. For Example, the first Decision Matrix Analysis Showing Unweighted Assessment of How Each option Satisfies each factor. Then, Decision Matrix Analysis Showing Weighted Assessment of how each factor (criteria) satisfies each option. If you have 7 criteria, then the weight will be 0 to 7 where 7 is the most important factor that the company or the authority will consider taking their decision under uncertainty. Then add all the weight according to the importance of the criteria and apply the sum-product for each option. After applying the sum-product for each option by applying the weight and the score of the options the weighted total will become out for each option. The highest weighted total is the optimal option for all the alternatives. (MindTools, 2020)

Criteria	Microsoft Dynamic	SAP	Oracle	Weight
Cost	3	2	1	7
Payback Period	3	1	2	6
Implementation time	3	2	1	5
Integration	1	3	2	4
Ease of use	3	1	2	3
Scalability	3	2	1	2
Customization	3	2	3	1
Total (weighted)	**76**	**51**	**43**	

Table 2: Choosing optimal ERP for Financial Accounting (MindTools, 2020)

In Table 2, the optimal ERP software has found out according to the scoring method. Table 1 was a qualitative form of the criteria that was closely considered for implementation of ERP on Mahindra Accelo. Comparison of SAP, Microsoft Dynamic, and Oracle is grated from 1 to 3. The grading has added according to the effectiveness of the criteria and the software for the company. For example, in terms of cost, Microsoft Dynamic has less cost comparing with SAP and Oracle. As a result, Microsoft has the highest grading of 3. However, SAP is more reasonable than Oracle and more expensive than Microsoft Dynamics. As a result, gradings for SAP is less than Microsoft Dynamics and greater than Oracle that is 2 where the Grading for Oracle is 1 as it is the worse in cost perspective among Sap, Oracle, and Microsoft Dynamics. Besides this, in case of implementation time, Microsoft Dynamics need less time among this three ERP software. Thus, Microsoft Dynamics is marked as 3 where SAP is grated 2 because it takes less time than Oracle for implementation. On the other hand, Microsoft Dynamics cannot integrate different modules as SAP and Oracle can. As a result, for integration purpose, Microsoft has given 1 point and for 3 has added for SAP as it more ability to integrate more module than others and 2 has added for Oracle for the same criteria. In addition, both Oracle and Microsoft Dynamics have the ability to customization ability. Thus, each software is given 3 points for customization purposes whereas SAP has given 2. Comparing with SAP and Oracle, Microsoft Dynamic easier to use and is less complex to use its functionality. As a result, Microsoft Dynamics is graded with 3, and Oracle is graded by 1 because Oracle is easier than SAP to use.

Now, it is time to measure the importance of the criteria to the company. For the implementation of ERP software for the financial accounting module, the cost is considered as the most important criterion or Mahindra. As cost is the most important factor, the weight of cost is 7 which is the highest among all criteria. Furthermore, the payback period is the second important criterion among all the criteria, thus the payback period has the second-highest weight, and it is 6. Similarly, according to the necessity of the company and the importance of the criteria, the weight of criteria Implementation time is 5, integration is 4, Ease of use is 3, Scalability is 2, and customization 1. All the weight for each criterion, indicate the importance of these criteria that Mahindra Accelo considers implementing ERP software in their company.

To find the optimal ERP software for Mahindra Accelo, a scoring method has been applied. The result of the scoring method for each ERP software is the sum product of the Grade point of the criteria and relevant weight according to company consideration. The weighed total for Microsoft Dynamics is the sum product of the graded point of the criteria and the weight. Besides this, the weighted total of SAP and Oracle are the sum product of their Grated point and weight. For example, in the case of Microsoft Dynamic, the weighted total is (3*7+3*6+3*2+3*3+3*5+3*1+1*4) = 76. The same calculation has done for SAP and Oracle as well and their weighted total is 51 and 43 respectively. The weight total of Microsoft Dynamic 76 is the highest among the three ERP software that indicates that Microsoft Dynamic is the optimal ERP product for Mahindra Accelo and SAP can be their second choice as SAP has the second-highest weighted total among the three ERP software.

4.3 Finding Optimal ERP Software for Mahindra Accelo

4.3.1 Saaty's Method

The decision matrix Saaty's Method is important for making optimal decisions. This can be defined as a method of normalized arithmetic averages. The prepared pairwise comparison matrix is normalized. As a result of the normalization, matrix A= [a ij] is transformed into matrix B= [b ij]. (Chen & Hengjie, 2016) This is the pairwise comparison of the importance of each criterion. By doing the pairwise comparison the weight of the criteria can be identified. This comparison is calculated according to the difference between the two criteria. It defines, how much one criteria or factors is different than another one or how big one product than another one. For example, someone has 3 types of apple. The big one is 600g, the middle one is 300g and the smallest one is 200g each. According to the pairwise comparison, it can say the middle type apple is 2 times smaller than the big one or we can say the middle apple is half of the big one. This is the pairwise comparison according to Saaty's method.

4.3.2 Measuring the weight of the criteria applying Saaty's Matrix

The pairwise comparison of Saaty's method has illustrated in Table 3. The weight has been calculated according to the importance of the criteria of the company to implement ERP software in Mahindra Accelo. Cost is the most important factor for the company to implement ERP software. As a result, the cost is grading by one. Secondly, the cost is two times important than the payback period, 3 times important than implementation time, 4 times important than integration, 5 times important than customization, 6 times important than scalability, and 7 times important than Ease of use according to the company. On the other hand, in the third row, the second row has divided by the importance of the payback period. It means that the importance of the payback period is one half of the cost to the

company. Besides this, it also indicates that the payback period is 3/2 times important than duration of implementation, 2/1 times more important integration 5/2 times important than customizations, 3/1 times important by scalability and 7/2times important than ease of use to the company. According to this every row has divided by the constant criteria and find the importance of comparing with other criteria. On the fourth row, the first row is divided by the graded score of implementation time, which means the first row is divided by 3 and the result is on row four. Accordingly, on the 5th, 6th, 7th, and the 8th-row are divided by 4, 5, 6, and 7 to get the comparative importance of every criterion.

Criteria	Cost	Payback Period	Implement time	Integration	Ease of use	Scalability	Customization	Weight
Cost	1	2	3	4	5	6	7	**0.39**
Payback Period	1/2	1	3/2	2/1	5/2	3/1	7/2	**0.19**
Implement time	1/3	2/3	1	4/3	5/3	2/1	7/3	**0.13**
Integration	1/4	1/2	3/4	1	5/4	3/2	7/4	**0.10**
Ease of use	1/5	2/5	3/5	4/5	1	6/5	7/5	**0.08**
Scalability	1/6	1/3	1/2	2/3	5/6	1	7/6	**0.06**
Customization	1/7	2/7	3/7	4/7	5/7	6/7	1	**0.06**

Table 3: Pairwise Matrix table of Saaty's Method (Hlavatý, 2014)

Finally, after completing the comparison in each row, then time to find the weight of each criterion. It can be chosen in any column to calculate the weight of the criteria. The last row is taken to calculate the weight. At first, make the sum of the entire column and then divided the column competitive grade by the result of the sum on this column. For example, to find the weight of cost, at first make the sum of all the normalized value of column eight (7 + 7/2 + 7/3 + 7/4 + 7/5 + 7/6 + 1) = 17.85 than divided every column normalized value by the total sum value (7/17.85) = 0..39. Accordingly, {(7/2)/17.85} = 0.19, {(7/3)/17.85} = 0.13, {(7/4)/17.85} = 0.10, {(7/5)/17.85} = .08, {(7/6)/17.85} = .06, and (1/17.85) = .06. After the calculation of Saaty's Metrix, the weight for very criteria is find out. The weight of the cost is 0.39 as it has the greater importance of the company, the weight is also highest after the calculation. Finally, the calculated weight for cost is 0.39, payback period is 0.19, implementation time is 0.13, integration is 0.10, customization is 0.08, scalability is 0.06, and is of use is 0.06.

4.4 Finding the optimal ERP software using the weight

The evaluation of SAP, Microsoft Dynamic and oracle has shown in Table 4. The evaluation has conducted according to the weight that is calculated in Table 4 for each criterion and the graded value that has taken from Table 2. The graded value 3 for cost in Microsoft Dynamics means Microsoft Dynamics is less expensive among the three ERP software and the graded point 2 in SAP column and cost row means Microsoft Dynamics are more expensive than Microsoft and less expensive than Oracle. Besides this, the graded value 1 means Oracle is the most Expensive ERP software among these three. In addition, in terms of the payback period SAP takes a long time to get back the investment and Microsoft Dynamic has a shortage payback period. Thus, the grade value for the payback period of Microsoft Dynamic is 3, SAP is 1 and Oracle is 2.

Criteria	Microsoft Dynamic	SAP	Oracle	Weight
Cost	3	2	1	0.39
Payback Period	3	1	2	0.19
Implementation time	3	2	1	0.13
Integration	1	3	2	0.10
Ease of use	3	1	2	0.08
Scalability	3	2	1	0.06
Customization	3	2	3	0.06
Total (weighted)	**2.81**	**1.83**	**1.48**	**1**

Table 4: Matrix table of Saaty's Method (Synoptek, 2019)

The weighted total of Microsoft Dynamic, SAP, and Oracle is the sum product of the weight of criteria and the grade value of the criteria. The weighted total of Microsoft Dynamic is the sum product of the weight column and the weight column. For example, (3*0.39) + (3*0.19) + (3*0.13) + (3*0.10) + (3*0.08) + (3*0.06) + (1*0.06) = 2.81 is the weighted total for Microsoft Dynamic. In addition, the weighted total for SAP is (2*0.39) + (1*0.19) + (2*0.13) + (1*0.10) + (2*.0.08) + (2*0.06) + (3*0.06) = 1.83. On the other hand, (1*0.39) + (2*0.19) + (1*0.13) + (2*0.10) + (3*.0.08) + (2*0.06) + (2*0.06) = 1.48 is the weighted total for Oracle. the summery of the Table 4 for inform us that Microsoft dynamic is the suitable ERP product for financial Accounting in Mahindra Accelo after evaluating the different criteria of SAP, Oracle, and Microsoft Dynamics.

5 Results and Discussion

5.1 Result of Study

After the evaluation of all the criteria of Microsoft Dynamics, SAP, and Oracle by applying decision matrixes analysis, the optimal ERP product for Mahindra Accelo is Microsoft Dynamic. Besides this, the result of the evaluation by applying Satay's matrixes, the weighted total of Microsoft Dynamics is 2.81 which is the highest among SAP, Microsoft Dynamics, and Oracle. The evaluation of Table 2 shows that Microsoft Dynamic is the optimal ERP software for implementation of ERP in Mahindra Accelo in every aspect. According to the importance of different criteria of implementation ERP, the company has shown that the most important is the cost, as the cost has the highest weight among all the criteria in Table 2. Comparing with other ERP systems Microsoft Dynamics is cost-effective. Thus, for cost purposes company can easily choose Microsoft Dynamic over SAP and Oracle. In addition, the second priority to implement ERP in Mahindra Accelo is the Payback period. In this case, Microsoft Dynamic takes less time than other ERP software for implementation. Microsoft Dynamic is also more customizable than SAP and Oracle. Microsoft Dynamic is also easier to use for the user. It helps the company to spend less money to train their staff to cope up with a complex operating system.

Moreover, comparing with other ERP solutions, Microsoft Dynamics takes less time to implement, ERP in that helps the company to grow faster than other ERP system. Finally, after evaluation of decision matrixes analysis the weighted total for Microsoft Dynamic is 76, for SAP is 52 and for Oracle, the weighted total is 43. As a result, the optimal ERP software for Mahindra is Microsoft Dynamic that will be more cost-effective, easier to customize, has a short return of investment period, and so on. On the other hand, according to Saaty's matrixes, the optimal ERP software is Microsoft Dynamic as well. This evaluation has done according to the importance of the criteria. The criteria that play a more important role for the company have given the most priority among all. For example, the cost is the most important and following the payback period.

In table 3, the pairwise comparison has applied and calculates the weight of the criteria. The weight of the cost is around 0.39 and the weight for the payback period is around 0.19 that illustrates that cost has the most important to the company to implement ERP software in their company. This data also indicates that the importance of cost is 2 times more important than the Payback period. The weight that has been calculated in table 3 has collected from Table 2 and multicriteria decision-Making analysis has applied to find the optimal product for the Mahindra Accelo. After the calculation of multicriteria decision making analysis for every ERP software and criteria, the weighted total for Microsoft Dynamic is 2.81, for SAP 1.83, and for Oracle, the weighted total is around 1.48. It is clear from the evolution of Table 4 that Microsoft Dynamic is far better than SAP and Oracle ERP software to implement in Mahindra Accelo. For financial accounting, Microsoft Dynamic is the suitable ERP software that is more cost-effective, scalable, easier to customize, and it also takes less time to get back the investment on the software for implementation according to the evaluation of both decision matrixes and Saaty's matrixes.

According to Table 1, for every criterion, Microsoft has more advantage over SAP and Oracle except for integration Microsoft Dynamic is better than both SAP and Oracle. However, integration is not that much important as cost, payback period, ease of use, time of implementation, and scalability. Finally, it can conclude that, according to the decision Metrix analysis and Saaty's matrix, the highest weighted total for Microsoft Dynamic is

more than SAP and oracle. Thus, Microsoft Dynamic is chosen as the suitable ERP software for Mahindra Accelo. Implementation of Microsoft Dynamic in Mahindra Accelo will be more cost-effective, helpful to implement the financial accounting in the company information system within a short time and take short time to get back the investment on ERP.

5.2 SWOT Analysis of Microsoft Dynamic for Mahindra Accelo

The SWOT analysis of Microsoft Dynamic for Mahindra Accelo describe the strength of using Microsoft for Mahindra Accelo, the weakness of using Microsoft Dynamic in the company, the opportunities that the company can achieve by implementing Microsoft Dynamic on Mahindra and the theatre of implementation of Microsoft Dynamic in Mahindra Accelo. These are describing below:

5.2.1 Strength

- Microsoft Dynamic provides cloud service for small and middle-size companies. As Mahindra Accelo is a middle size organization, they can use the cloud service of Microsoft Dynamics like Microsoft Azure, office 365 commercial, and Microsoft Dynamic 365 and can customize their cost according to users and avoid the cost of IT service, Unfractured and developing cost. (Parker, 2019)
- Comparing with other ERP software, Microsoft is easy to use and not much complex. As a result, the company does not have to spend more money on the tanning of the users.
- Microsoft has 1.2 billion Office users and 60 million Office 365 commercial customers. It has undoubtedly the greatest loyal customer base. As Microsoft has a huge customer base it will help Mahindra to integrate the business activity with the partner of the business who is using Microsoft Dynamic as well.

5.2.2 Weakness

- Lacking innovation of Microsoft dynamic is the main drawbacks Microsoft Dynamics that can be the problem for Mahindra Accelo to cope with the advance business world.
- Comparing with other ERP software's Microsoft Dynamics has a lack of ability of integration. As a result, Mahindra Accelo will find it hard to integrate the different processes of the business. (Parker, 2019)
- Microsoft Dynamics does not have the share point, payment options, multicurrency management that can be a big threat for the business of Mahindra to doing business internationally. (Plourde, 2017)

5.2.3 Opportunity

- By using production planning and project management module of Microsoft dynamic can increase in production than before.
- The steel and automate markets are growing fast. That is the big opportunity to expand the business all over the world by operating their business activities through Microsoft dynamics.
- The short time of return on investment (ROI) in Microsoft Dynamic will help Mahindra Accelo to grow fast.

5.2.4 Threats

- Intense competition from global automobile brands
- Managing the Sales and distribution process by using is better than Microsoft Dynamic. That can be the key factors for Mahindra Accelo to maintain the sale and distribute through Microsoft dynamics ERP software in the future. (Team, 2020)
- The possibility of implementation failure of ERP, can be a big threat for Mahindra Accelo as a new user of ERP. (Panorama C. S., 2016)

5.3 Recommendation

By applying both methods of decision-making analysis, it can conclude that comparing with SAP and Oracle, Microsoft Dynamics is more suitable for Mahindra Accelo. As a result, every middle-size manufacturing company is recommended to implement Microsoft dynamic for their Financial activities in their company. Microsoft Dynamic will be more reasonable for companies who are willing to implement ERP. Thus, for the small and middle-size enterprise who has limited capital to invest for advance software and technology will find it easy to adopt new business software for their business operation comparing with SAP and oracle. Microsoft Dynamic is easier than SAP and Oracle to operate. As a result, the employees of the companies who will implement this software can easily adapt with the system and company do not need to spend more money for training of their employee to cope up with this information system. Furthermore, As Microsoft Dynamic has a short payback period comparing with SAP and Oracle, the new company can get their investment back in a short time. Microsoft Dynamic is also easily customizable for the new user it can be a big advantage. The solution is customizable and can be easily integrated with other systems in the Microsoft suite, as well as with third-party systems using the Common Data Model that will help the new company to be successful. Microsoft Dynamics for Finance and Operations is the most economical ERP solution; the architecture is straightforward, and the implementation is simple than other ERP solutions that will reduce the chance of complexity to implement ERP for the new user. Every ERP deployment takes time and requires careful planning, but cloud ERP offers clear advantages when companies consider the speed of deployment. Since cloud ERP requires no additional hardware, the new business doesn't have to waste time procuring and installing IT infrastructure. According to the Panorama research cloud, ERP Software can reduce the implementation cost by 20% which is a greater advantage for the new users. (Panorama C. S., 2016) With cloud ERP, the new companies can easily roll it out across multiple regions, subsidiaries, and divisions, avoiding the cost associated with those rollouts. If you chose a cloud-based ERP system, these differences could add up to significant time savings: Cloud ERP deployments usually take 3-6 months compared to the 12 months that it typically takes to implement an on-premise solution. (Schwarz, 2016)

Besides this, the companies who do not include ERP in their business are extremely recommended to implement ERP to business for their daily business operations because by using ERP companies can improve performance by 15% to 17% comparing with the companies who are not using ERP on their business. It also increase the satisfaction of customer service by 8% which important for a business. (Panorama C. S., 2017) Finally, to reduce the cost of business operation, increase the performance of the business and increase the customer support company should implement Microsoft Dynamic according to their needs and business plan so that they can successfully operate their business and it helps to meet the business goal easily.

6 Conclusion

The main objective of the thesis is to find the optimal options of ERP software for the typical financial process by comparing different ERP software for a selected company. The partial objective of the thesis is to make a suitable literature review about the different ERP software and the different activities of their financial modules that will help the company to make the financial process easier. Creating a case study to allow a deeper examination of aspects of implementation financial accounting process also the part of the research. The research has conduct according to the evaluation of different criteria of implementation of ERP software in Mahindra Accelo company which is a steel manufacturing company situated in India. It is a middle size growing company. Around 270 employees are working in this company. To find the optimal ERP software that suits the needs of the company two mathematical methods were applied. Decision matrix analysis was applied to evaluate the criteria according to the score of the importance of them and Saaty's method was implemented to find the weight for the criteria to select the best ERP software for the company. Multicriteria decision making analysing method has applied in the table for by doing the sum product of each ERP graded point and the weight that has inserted from Saaty's matrix. After calculation, the weighted total for Microsoft Dynamic is 2.81, for SAP the weighted total is 1.83 that summarizes that for Mahindra Accelo Microsoft Dynamics ERP software is suitable comparing with other ERP solutions.

By applying both methods of decision-making analysis, it can be concluded that comparing with SAP and Oracle, Microsoft Dynamics is more suitable for Mahindra Accelo. As a result, every middle-size manufacturing company is recommended to implement Microsoft dynamic for their Financial activities in their company. Microsoft Dynamic will be more reasonable for companies who are willing to implement ERP. Microsoft Dynamic is easier than SAP and Oracle to operate. As a result, the employees of the companies who will implement this software can be easily adapted to the system and company need to spend less money on training of their employee to cope up with this information system. Furthermore, As Microsoft Dynamic has a short payback period comparing with SAP and Oracle, the new company can get their investment back in a short time. Microsoft Dynamic is also easily customizable for the new user it can be a big advantage. The solution is customizable and can be easily integrated with other systems in the Microsoft suite as well as with third-party systems using the Common Data Model that will help the new company to be successful. Microsoft Dynamics for Finance and Operations is the most economical ERP solution; the architecture is straightforward, and the implementation is simpler than other ERP solutions that will reduce the chance of complexity to implement ERP for the new users.

The limitation of the study is managing quantitative data of the criteria for each ERP software as a result in the study has conducted with qualitative data by measuring grading point according to the satisfaction level of each criterion. The author hopes to write more case studies about why small and middle-size enterprises should implement ERP software for financial accounting rather than using normal financial accounting software for their business. (Beaver, 2020)

7 References

A. Rashid, M., Hossain, L., & Patrick, J. D. (2002). The Evolution of ERP Systems: A Historical Perspective. Idea Group Publishing. Retrieved from https://faculty.biu.ac.il/~shnaidh/zooloo/nihul/evolution.pdf

BARDHAN, D. (2017). *SAP S/4HANA: An Introduction.* Germany: SAP PRESS.

Beaver, S. (2020). *Oracle Netsuite*. Retrieved from www.netsuite.com: https://www.netsuite.com/portal/resource/articles/erp/cloud-erp.shtml

Biswas, N. (2020). *Cloud ERP vs On-Premise ERP - A Complete Comparison.* Retrieved from https://www.focussoftnet.com/mena/erp-systems/blogs/cloud-erp-vs-on-premise-erp

Carlton, R. (2019). *A guide to ERP finance module features and what they do.* Retrieved from https://www.erpfocus.com/erp-finance-module-features.html

CHEN, H.-J. (2012). *The ERP system impact on the role of accountants. Industrial Management & Data Systems.*

Chen, X., & Hengjie, Z. (2016). Retrieved from https://link.springer.com/article/10.1007/s00500-016-2454-x

Davidson, R. (2020). *Differences Between ERP vs Accounting Software Explained*. Retrieved from Software Connect: https://softwareconnect.com/erp/erp-vs-accounting/

FRANKENFIELD, J. (2020). *Investopedia*. Retrieved from www.investopedia.com: https://www.investopedia.com/terms/c/cloud-computing.asp

FREEDMAN, R. (2020). *Investopedia*. Retrieved from www.investopedia.com: https://www.investopedia.com/best-accounting-software-for-small-business-5069679

Hale, Z. (2019). *Software Advice*. Retrieved from www.softwareadvice.com: https://www.softwareadvice.com/resources/cloud-erp-vs-on-premise/

Hlavatý, R. (2014). Saaty‘s matrix revisited: Securing the consistency of pairwise comparisons. *ResearchGate GmbH*. Retrieved from https://www.researchgate.net/publication/272729784_Saaty's_matrix_revisited_Securing_the_consistency_of_pairwise_comparisons

Jenkins, L. (2020). ERP Components: Core Parts to Enterprise Resource Planning. *Select Hub*.

Karl. (2019). *Cloud-based ERP vs. On-Premise ERP for Small Manufacturing Business.* Retrieved from https://manufacturing-software-blog.mrpeasy.com/cloud-based-erp-vs-on-premise-erp-for-small-manufacturing-business/

LARKIN, A. (2019). Retrieved from https://cloudacademy.com/blog/disadvantages-of-cloud-computing/

Lavinski, S. (2019). *10 Disadvantages & Risks of Cloud Computing.* Retrieved from https://medium.com/faun/10-disadvantages-risks-of-cloud-computing-35111de75611

Mahindra Accelo, I. L. (2019). *Mahindra Intertrade Limited*. Retrieved from www.mahindraaccelo.com: https://www.mahindraaccelo.com/our-companies.php

MindTools. (2020). *MindTools*. Retrieved from www.mindtools.com: https://www.mindtools.com/pages/article/newTED_03.htm

Panorama. (2020). *Panorama Consulting*. Retrieved from www.panorama-consulting.com: https://www.panorama-consulting.com/resource-center/erp-database/

Panorama, C. S. (2016). *Report on ERP Systems and Enterprise Software.* Retrieved from https://www.panorama-consulting.com/wp-content/uploads/2016/07/2016-ERP-Report-2.pdf

Panorama, C. S. (2017). *Report on ERP Systems and Enterprise Software.* Retrieved from https://www.panorama-consulting.com/wp-content/uploads/2017/07/2017-ERP-Report.pdf

Panorama, S. C. (2019). *2019 ERP Report : People, Process & Technology*. Panorama Consulting Solutions. Retrieved from https://cdn2.hubspot.net/hubfs/4439340/2019-ERP-Report-3.pdf?fbclid=IwAR3_cFIeUBs1tyRdhFHEgK3iI53Men6NSlfBHzzRDpJDRV43bKo_mT43QUw

Parker, B. (2019). *Microsoft SWOT Analysis 2019 | SWOT Analysis of Microsoft.* Retrieved from https://bstrategyhub.com/swot-analysis-of-microsoft/

Perkins, B. (2020). *What is ERP? Key features of top enterprise resource planning systems.* Retrieved from https://www.cio.com/article/2439502/what-is-erp-key-features-of-top-enterprise-resource-planning-systems.html

Plourde, R. (2017). Microsoft Dynamics 365 Portal – Strengths and Weaknesses Review. *CEM SoftwareBlog*. Retrieved from https://www.crmsoftwareblog.com/2017/07/microsoft-dynamics-365-portal-strengths-weaknesses-review/

Schwarz, L. (2016). *Oracle*. Retrieved from www.netsuite.com: https://www.netsuite.com/portal/resource/articles/on-premise-cloud-erp.shtml

Skvoznikova, I. (2019). *Diceus*. Retrieved from https://diceus.com: https://diceus.com/what-does-erp-stand-for-in-finance/

Synoptek. (2019). *ERP Software Blog*. Retrieved from www.erpsoftwareblog.com: https://www.erpsoftwareblog.com/2019/06/making-the-big-erp-decision-choosing-the-best-from-microsoft-dynamics-365-for-finance-and-operations-scores-over-sap-s-4-hana-and-oracle-erp-cloud/

Team, M. S. (2020). *Mahindra & Mahindra SWOT Analysis.* Retrieved from https://www.mbaskool.com/brandguide/automobiles/1298-mahindra-a-mahindra.html

Teoh, P. (2019). *The Difference Between an ERP vs. Accounting Software.* Axxis Consulting. Retrieved from https://axxis-consulting.com/differences-erp-accounting-solution/

Wilson, D. (2019). *he ERP Software Market: $35 billion+, 40 years in the making, but still growing nicely!" by Chris Pang.* Retrieved from https://blogs.gartner.com/debbie_wilson/2019/04/19/erp-software-market-35-billion-40-years-making-still-growing-nicely-chris-pang/