ASSIGNMENT 1 FRONT SHEET

Qualification	**BTEC Level 5 HND Diploma in Computing**		
Unit number and title	Unit 14: Business Intelligence		
Submission date		**Date Received 1st submission**	
Re-submission Date		**Date Received 2nd submission**	
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Class	IT0503	**Assessor name**	Dinh Van Dong
Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	Bui Nguyen Ngoc Han

Grading grid

P1	P2	M1	M2	D1	D2

❒ **Summative Feedback:**		❒ **Resubmission Feedback:**
Grade:	**Assessor Signature:**	**Date:**
IV Signature:		

Table of Contents

List of Figures

I. INTRODUCTION

Our company has been working in an FPT shop for 2 years. FPT shop is an online sales platform. For a new, young company, the competition in the market is very high. Therefore, the Board of Directors has decided to apply Business Intelligence to improve the company business process by making better decisions.

The Board of Directors tasked us with researching business processes and decision support processes within the company and identifying data types (unstructured, semi-structured or structured). We will also study current software used in business or decision support processes and evaluate these uses (including benefits and drawbacks).

Next we will understand the types of support for decision-making at different levels (operational, tactical and strategic) within the company and study which business intelligence features can help on that type of support. Study the information systems or technologies (of BI) that can be used in this case, compare and contrast them to conclude which should be used.

II. TABLE OF CONTENTS

P1 Examine, using examples, the terms "Business Process" and "Supporting Processes"

Here is the intro slide and table of contents:

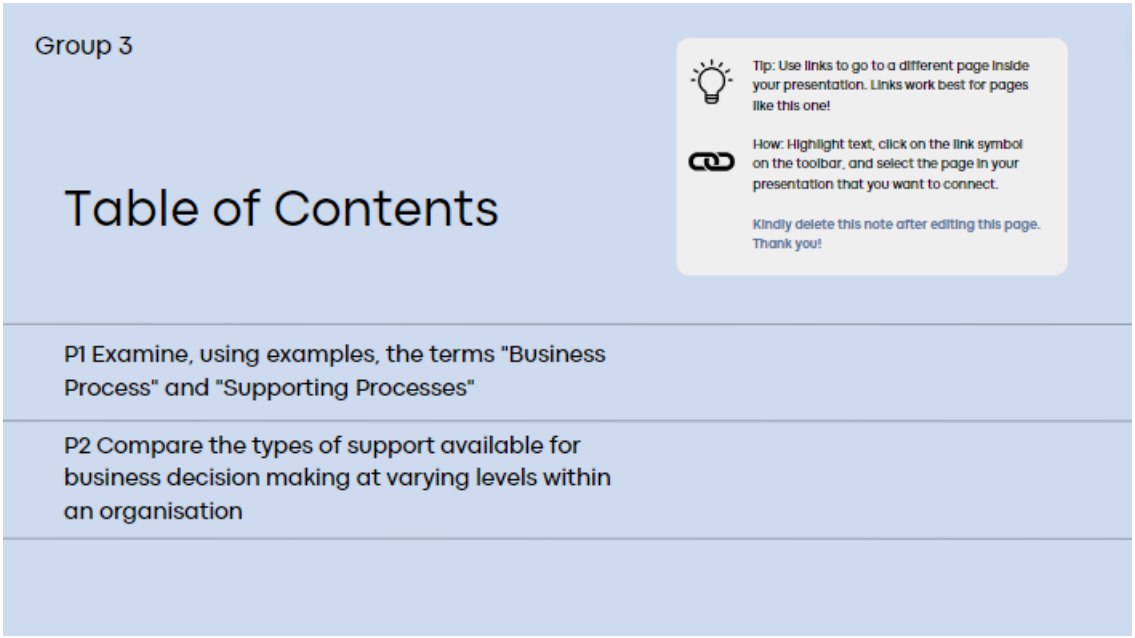

Figure 1: Slide 1

1. What is BI?

1.1. Definition of BI

Business Intelligence refers to the process of collecting, analyzing, and transforming raw data into meaningful insights and actionable information for businesses to make informed decisions. It involves the use of technology, tools, and methodologies to gather data from various sources, organize it, and present it in a format that can be easily understood and utilized by decision-makers.

The primary goal of business intelligence is to support data-driven decision-making at all levels of an organization, from operational to strategic. By leveraging BI, companies can gain a comprehensive understanding of their business operations, identify trends, patterns, and correlations in data, and uncover valuable insights that can drive improvements, optimize performance, and achieve competitive advantage.

Business Intelligence encompasses a range of activities and processes, including data collection, data integration, data modeling, data analysis, and data visualization. It involves the use of advanced analytics techniques, such as data mining, statistical analysis, predictive modeling, and machine learning, to extract insights and discover meaningful patterns from large and complex datasets.


BUSINESS
INTELLIGENCE
1
BUSINESS
PERFORMENCE
MANAGEMENT
2
DATA
GOVERNANCE
3
BUSINESS
INTELLIGENCE
PROGRAM
4
DATA
ARCHITECTURE
5
DATA
WAREHOUSING
& LAKING
6
DATA
INTEGRATION

Figure 2: BI

Here are the slides in P1:

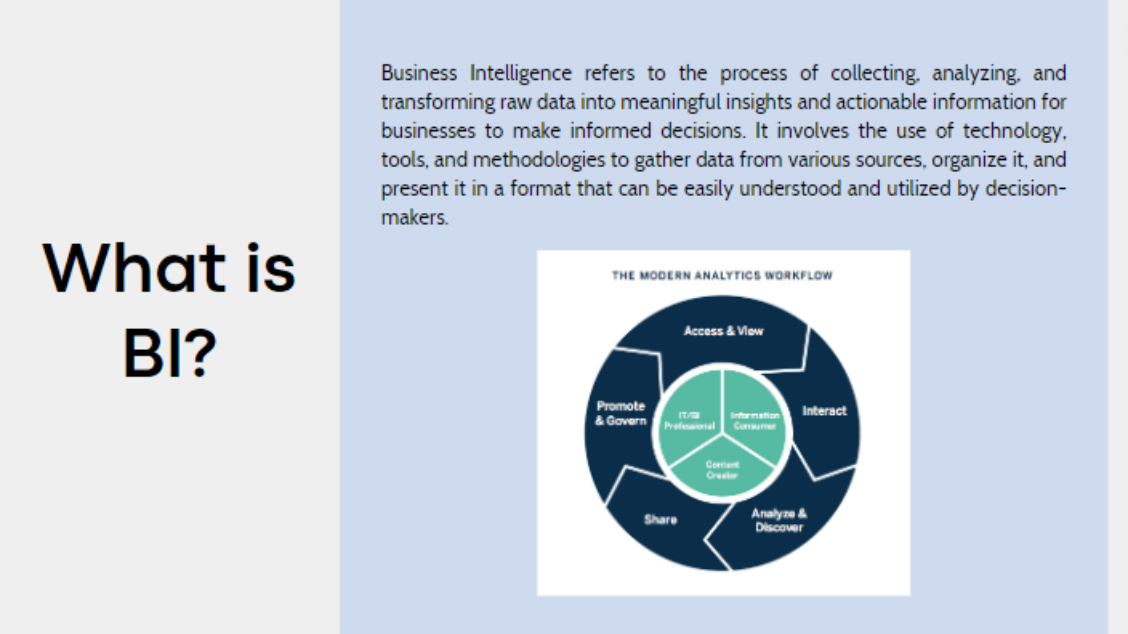

Figure 3: Slide 4

1.2. Explain

The role of business intelligence is to improve an organization's business through the use of relevant data. Companies that effectively use BI tools and techniques can translate their collected data into valuable insights into their business processes and strategies. Such insights can then be used to make better business decisions that increase productivity and revenue, leading to faster business growth and higher profits.

Without BI, organizations cannot easily take advantage of data-driven decision making. Instead, executives and workers are essentially making key business decisions based on other factors, such as accumulated knowledge, previous experience, intuition, and feelings. flesh contact. Although such methods can lead to sound decisions, they are also prone to errors and confusion due to lack of data on which to base them.

Figure 4: Slide 5

1.3. Benefits of Business Intelligence

A successful BI program generates many business benefits within an organization. Analyzing customer data makes marketing, sales, and customer service efforts more effective. Supply chain, manufacturing, and distribution bottlenecks can be detected before they cause financial damage. HR managers can better track employee productivity, labor costs, and other workforce data.

Key benefits businesses can derive from BI applications include the ability to:

- Accelerate and improve decision making
- Internal business process optimization
- Increase operational efficiency and productivity
- Uncover business problems that need to be solved
- Identify business trends and emerging markets
- Develop stronger business strategies
- Drive higher sales and new revenue
- Gain a competitive advantage over rival companies.

BI initiatives also offer narrower business benefits - among them, making it easier for project managers to track the health of business projects and helping organizations gather status information and competitive reports about their competitors.

In addition, the BI, data management, and IT teams themselves also benefit from business intelligence, using it to analyze different aspects of technology and analytics.

Figure 5: Slide 6

Example of Business Intelligence

Example 1:

A hotel owner uses BI analytical applications to gather statistical information regarding average occupancy and room rate. It helps to find aggregate revenue generated per room.It also collects statistics on market share and data from customer surveys from each hotel to decide its competitive position in various markets.By analyzing these trends year by year, month by month and day by day helps management to offer discounts on room rentals.

Example in company:

Applying Business Intelligence (BI) on an online sales platform can bring many benefits and provide important information to optimize business operations. Here is an example of applying BI on an online sales platform:

- User Behavior Analysis: Using BI tools, you can collect, analyze, and better understand customer behavior on an online sales platform. By tracking data like visits, time on site, frequency of purchases, and other activities, you can identify buying trends, preferred products, and target audiences.
- Website Routing and Optimization: Based on collected data, BI can help identify areas for improvement on an online sales website. For example, by analyzing the steps in the buying process and identifying drop points, you can optimize your web masquerade to improve conversion rates and user experience.

- Inventory management and forecasting: Using BI, you can effectively track and manage your inventory online. By analyzing information about inventory levels, sales trends, and forecasting models, you can make decisions about inventory loading, manage orders, and optimize delivery processes.
- Customer and interaction analysis: BI provides detailed analysis of customers and interactions with them on the online sales platform. By reviewing purchase history, customer information, and customer feedback, you can create personalized marketing campaigns, increase customer engagement, and enhance customer engagement your branded goods.

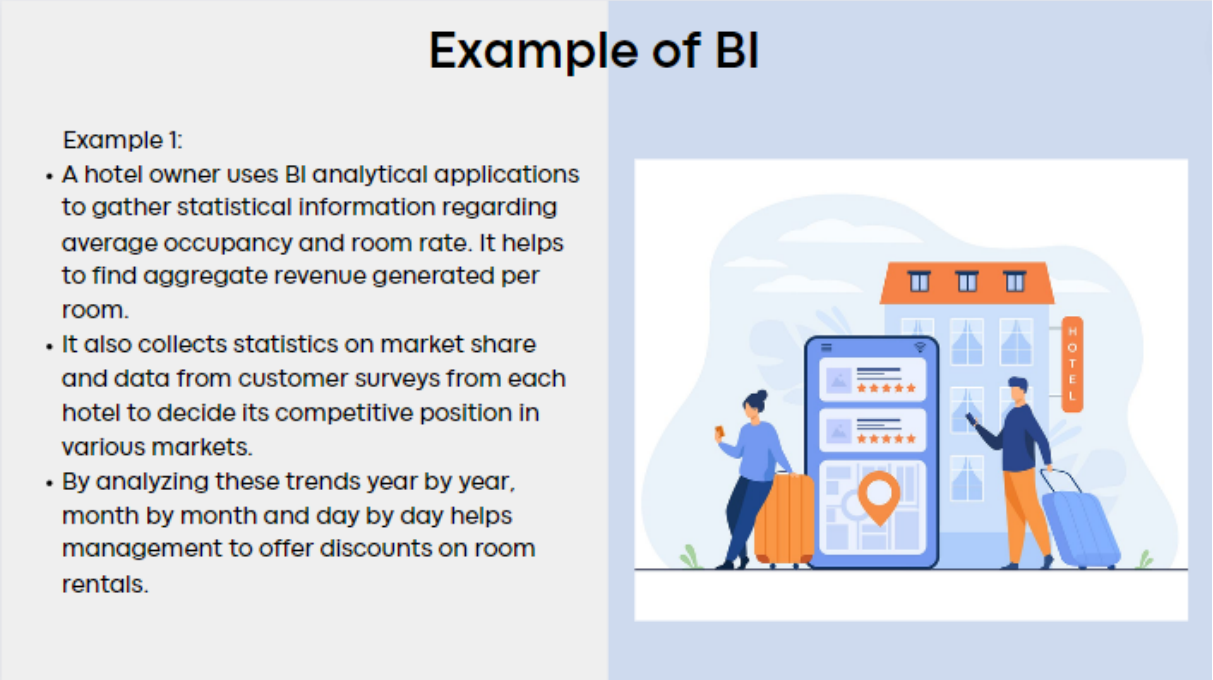

Figure 6: Slide 7

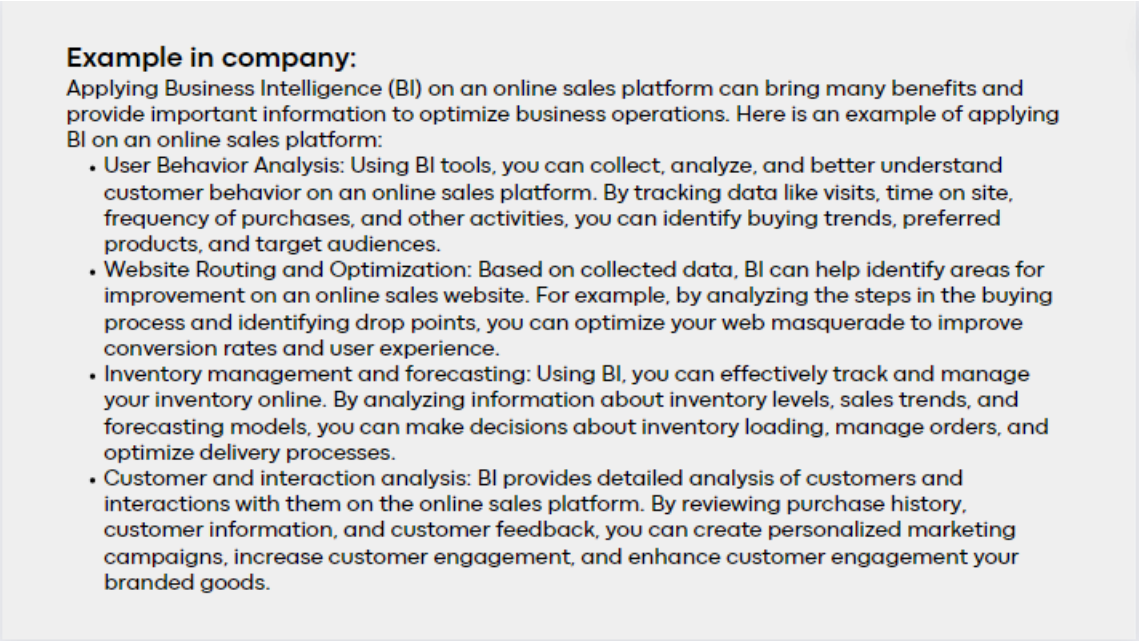

Figure 7: Slide 8

2. Business processes

2.1. Business processes definition

A business process is a sequence of actions taken by a group of stakeholders to accomplish a certain goal. Each stage of a business process represents a task assigned to a participant. It serves as the foundation for other related concepts such as business process management and process automation, etc. A business process includes at least one of, but not limited to, the following elements:

- Task/ Activity
- System
- Employee(s)
- Workflow
- Data

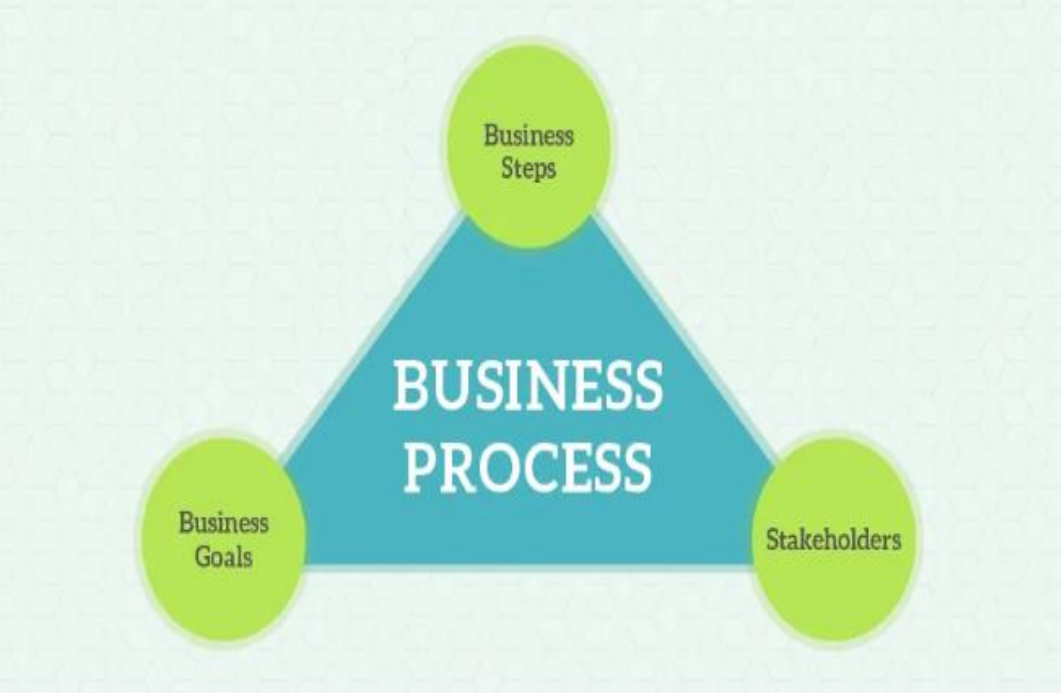

Figure 8: Business process

Business procedures are created to help organizations achieve their goals. The consistent and repetitive execution of business processes is critical to the success of corporate operations and growth. Depending on the factors included in the process, business process structures can be simple or complicated. A company seeks to attain particular objectives with each business process.

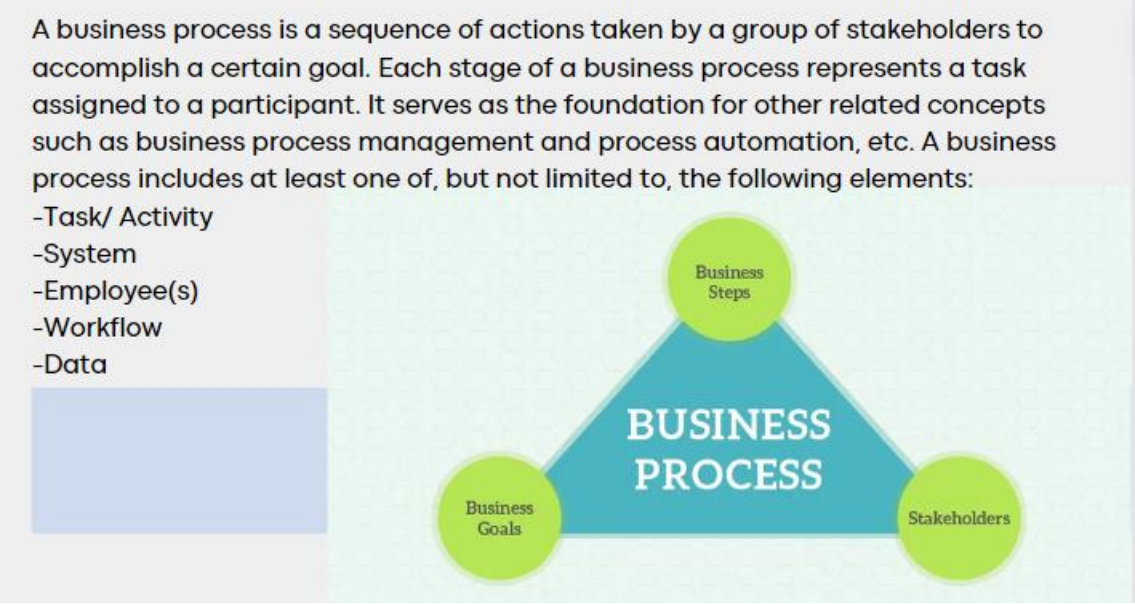

Figure 9: Slide 9

The 7 Steps of the Business Process Lifecycle:

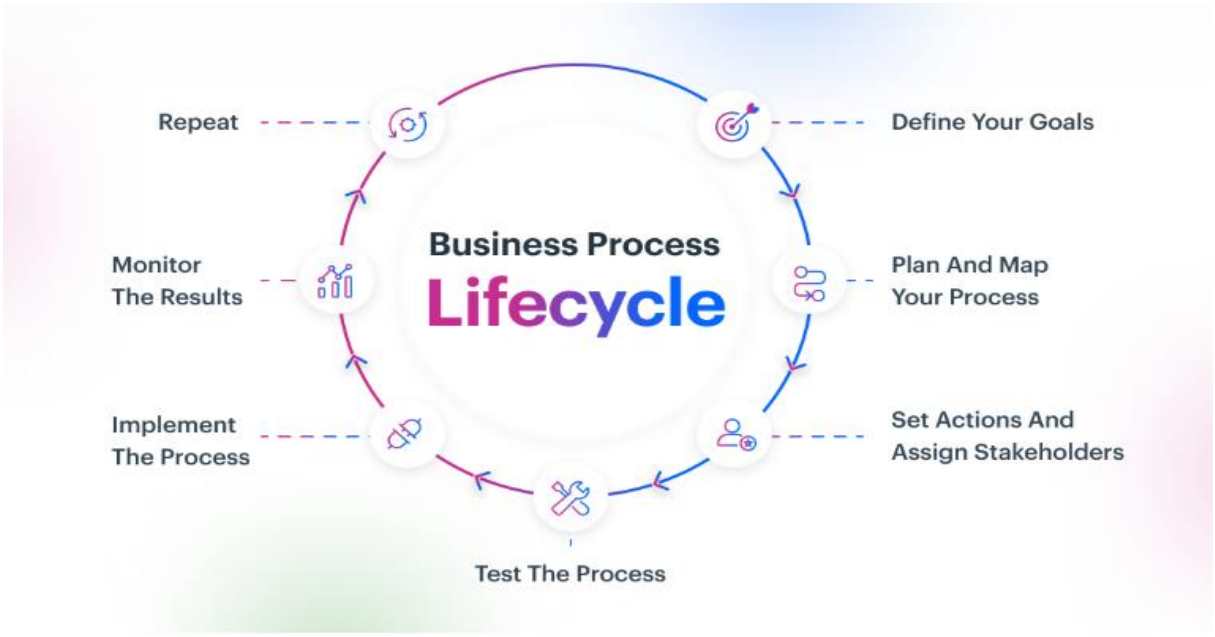

Figure 10: Business Process Lifecycle

Step 1 - Define Your Goals: What is the purpose of the process? Why was it created? How will you know if it is successful?

Step 2 - Plan and Map Your Process: What are the strategies needed to achieve the goals? This is the broad roadmap for the process.

Step 3 - Set Actions and Assign Stakeholders: Identify the individual tasks your teams and machines need to do in order to execute the plan.

Step 4 - Test the Process: Run the process on a small scale to see how it performs. Observe any gaps and make adjustments.

Step 5 - Implement the Process: Start running the process in a live environment. Properly communicate and train all stakeholders.

Step 6 - Monitor the Results: Review the process and analyze its patterns. Document the process history.

Step 7 – Repeat: If the process is able to achieve the goals set for it, replicate it for future processes.

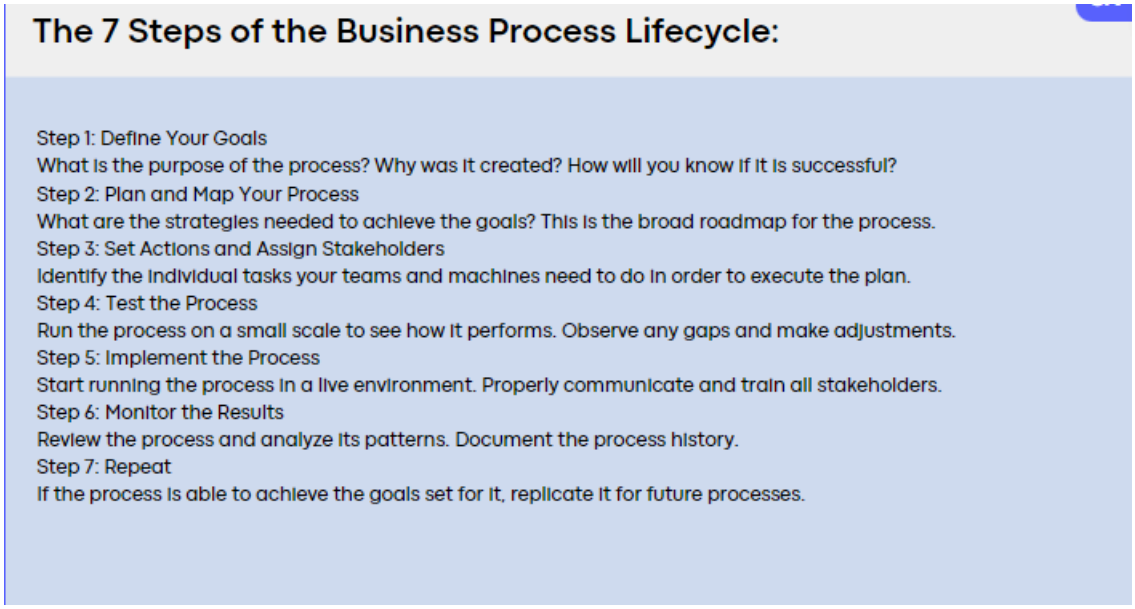

Figure 11: Slide 10

2.2. Business processes explanation

Business processes refer to a series of interrelated activities and tasks performed within an organization to achieve a specific goal or outcome. They represent the systematic way in which work is carried out to deliver products, services, or achieve desired results. Business processes typically involve the flow of inputs, information, and resources through various stages or steps, leading to the production of outputs.

Business processes can vary widely depending on the nature of the organization and its industry. They can be simple or complex, involving a few steps or spanning across multiple departments or functions. Examples of business processes include sales and marketing processes, customer support processes, procurement processes, financial processes, and production processes.

Here are some key elements that characterize business processes:

- Inputs: Business processes start with inputs, which can be physical materials, data, information, or resources required to initiate and execute the process. Inputs serve as the starting point for the process.
- Activities and Tasks: Business processes consist of a series of activities and tasks that need to be performed in a specific sequence to achieve the desired outcome. These activities can be manual, automated, or a combination of both.
- Workflow and Sequencing: The activities within a business process are typically organized in a logical sequence or workflow. Each activity may depend on the completion of previous activities and contribute to the successful completion of subsequent activities.

- Roles and Responsibilities: Business processes involve the participation of individuals or roles responsible for performing specific tasks. Each role has defined responsibilities and contributes to the overall execution of the process.
- Outputs: The outputs of a business process are the desired results or deliverables produced as a result of completing the process. Outputs can be physical products, services, reports, documents, or any other tangible or intangible outcomes.
- Performance Measurement: Business processes are often measured and evaluated to assess their effectiveness, efficiency, and quality. Key performance indicators (KPIs) are used to monitor and evaluate process performance and identify areas for improvement.
- Continuous Improvement: Business processes are subject to continuous improvement efforts to optimize efficiency, reduce waste, and enhance overall performance. Techniques such as process mapping, analysis, and reengineering are commonly employed to identify bottlenecks, streamline operations, and enhance process effectiveness.

By effectively managing and improving business processes, organizations can enhance operational efficiency, customer satisfaction, and overall performance. Various methodologies and frameworks, such as Business Process Management (BPM) and Lean Six Sigma, are used to analyze, design, implement, and optimize business processes to drive organizational success.

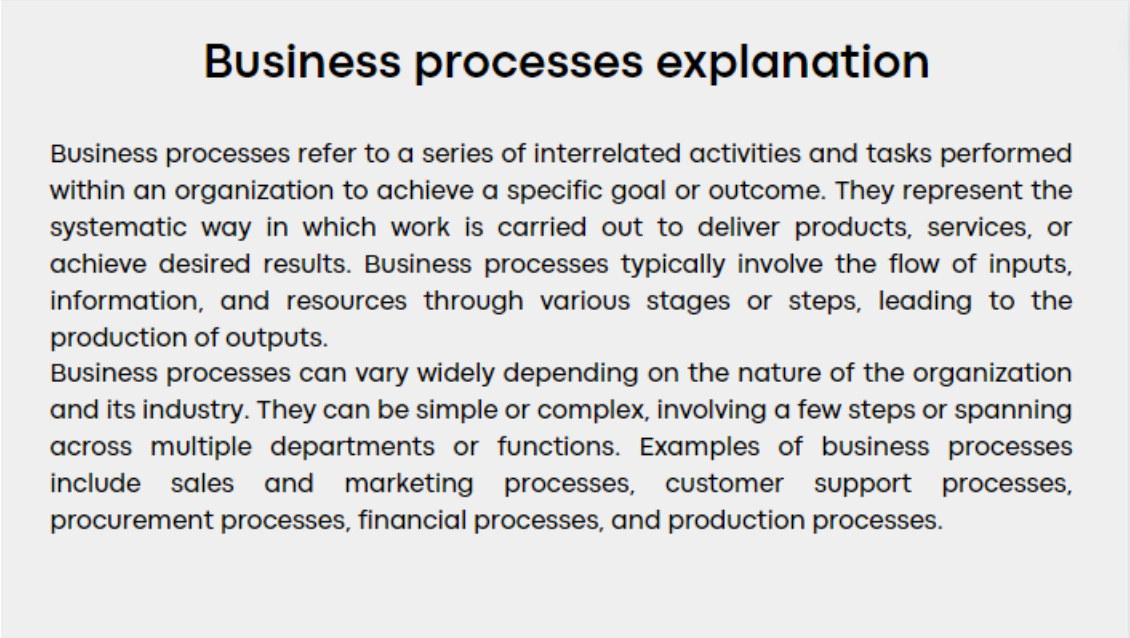

Figure 12:Slide 11

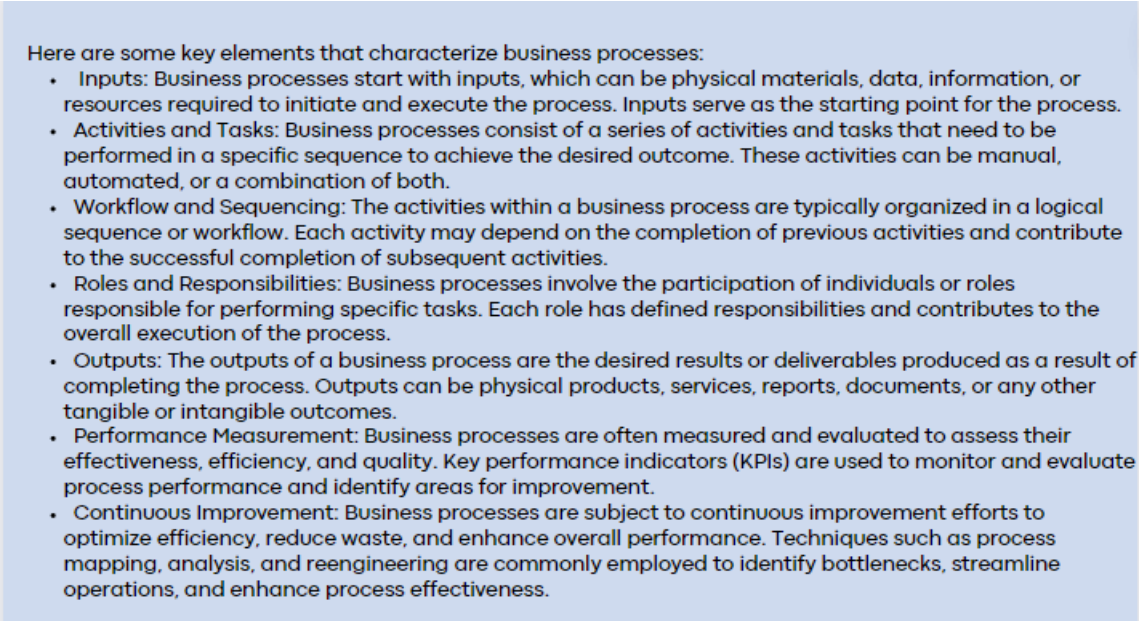

Figure 13:Slide 12

2.3. Business processes examples.

Processes vary depending on the kind, industry, location, and so on of a business, however there are a handful that are applied globally across all of these business divisions. To assist you comprehend, we shall look at examples of such operations.

a. The sales process:

Selling is a fundamental commercial activity that applies to a wide variety of industries, services, and other domains. The following are the stages that most businesses experience:

- Sharing the sales proposal
- Sending quotes
- Negotiations
- Receiving orders for product/service
- Updating records of sales
- Delivery of product/service
- Billing
- Payment

These are repeating steps, and the workflow and structure of the process are business-dependent.

b. Customer care:

Customer service is another critical component of global business operations. It entails the following steps:

- Receive customer complaints/issues through CRM
- Acknowledge the customer concern
- Login details of the issue in the CRM system
- Resolve the issue
- Communicate status to customer

A few more examples of business processes are:

- Recruitment process
- Invoicing process
- Order processing
- Customer onboarding process
- Accounting process

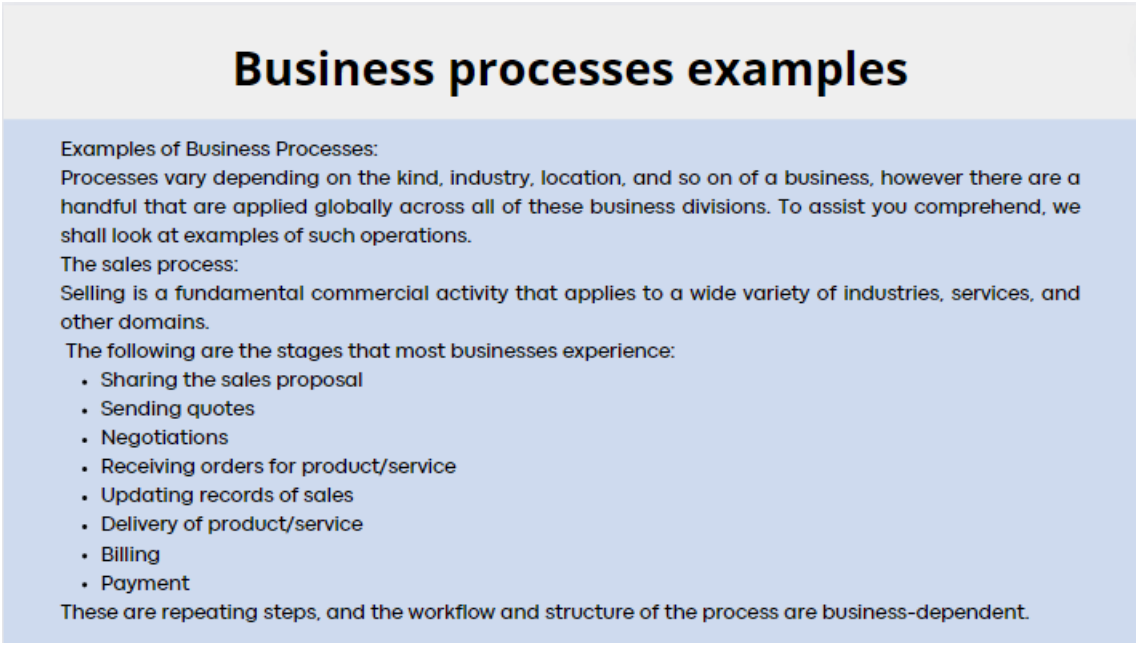

Figure 14:Slide 13

3. Decision support processes

Figure 15: Decision support process

A decision making process is a series of steps taken by an individual to determine the best option or course of action to meet their needs. In a business context, it is a set of steps taken by managers in an enterprise to determine the planned path for business initiatives and to set specific actions in motion. Ideally, business decisions are based on an analysis of objective facts, aided by the use of business intelligence (BI) and analytics tools. Managers usually make decisions by following a four-step process (a.k.a. the scientific approach), which includes:

- Step 1: Define the problem (or opportunity)
- Step 2: Construct a model that describes the real-world problem
- Step 3: Identify possible solutions to the modeled problem and evaluate the solutions
- Step 4: Compare, choose, and recommend a potential solution to the problem

A decision support system is a software system that interacts and collects all relevant information from a variety of sources such as operations, income, costs, markets, trends, business models. Then, DSS sifts and analyzes this data, synthesizing it into comprehensive information that can be used to aid in decision making. DSS can be controlled manually by humans or fully computerized. In some cases, DSS may combine both methods. The ideal DSS system will analyze data and synthesize information to increase accuracy and speed in decision making. The three common components in decision support systems are database, models and UI:

Database: The database is usually the primary aspect of the decision support system that makes it useful for an organization, as the program can examine large stores of data when supporting decisions

much faster than a single person or team could. The database's information depends on the category of system and industry the system is for. Some databases may contain statistics, while others may be more document-focused.
Models: Decision support systems also create models to support professionals in taking action that positively affects their situation. The models within the decision support system are the predictions or trajectories the program determines are plausible. These models inform the professionals about how their decisions can impact their situation, client or organization. The decision support system relies on the database to produce accurate models. These models can represent variables within the organization's business plan, competitor's actions or professional relationships.
User interface: The user interface is the access point for those who use the decision support system. Successful decision support systems use flexible and intuitive user interfaces that allow professionals to access the information they need and operate the system without extensive technological knowledge.

Here are some of the main characteristics of decision support systems:

- Industry: Organizations specialize their decision support systems to support their specific standards and operations. Example: For the healthcare industry, this may mean accessing previous medical records to examine the results of previous decisions, and for marketing, it may mean creating predictions based on current market trends.
- Support: Depending on the needs of the company, decision support systems can offer varying levels of support. Some decision support systems offer predictions and trajectories, while others provide specific details for decisions, planning and implementation.
- Intelligence: The information within a decision support system varies in structure depending on the company using it. In some industries, a decision support system relies on document and case files, while in others, vast databases of individual figures are more useful.
- Category: There are many types of decision support systems, from communication systems to model-focused versions. The specific structure of the system depends on the company using it.

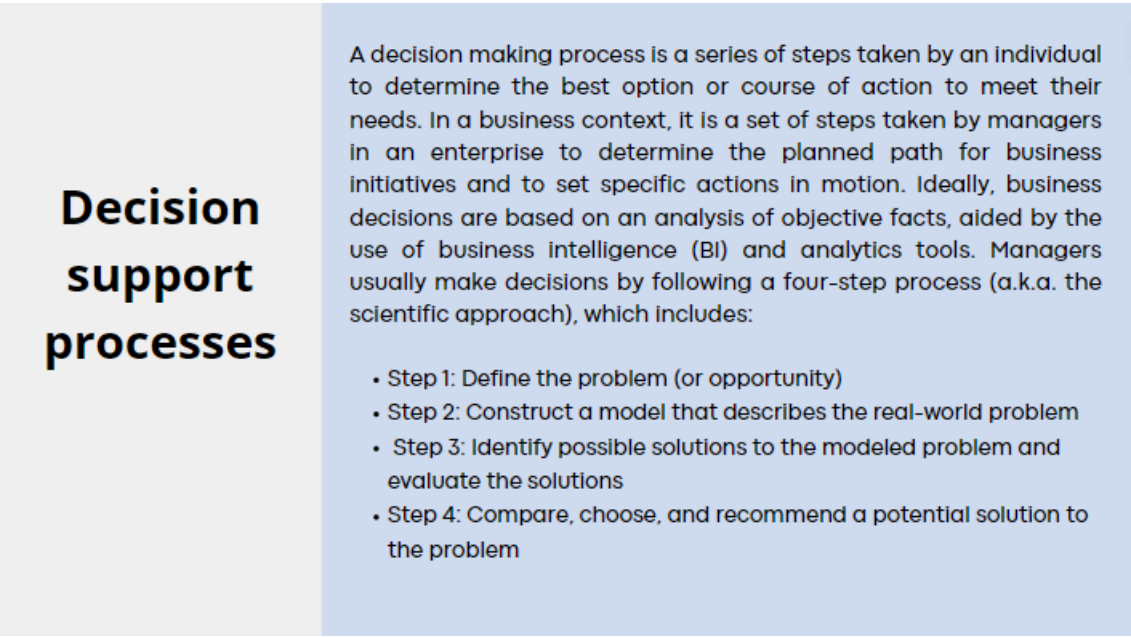

Figure 16:Slide 14

P2 Compare the types of support available for business decision making at varying levels within an organisation

1. **Some tools for BI**

Business intelligence tools collect, process, and analyze large amounts of structured and unstructured data from both internal and external systems. Data sources might include documents, images, email, videos, journals, books, social media posts, files, and more. BI tools employ queries to retrieve this data, which can then be shown as reports, dashboards, charts, and graphs for ease of use.

The tools are capable of carrying out many different tasks, including text mining, predictive analytics, performance management, analytics, and reporting. So that employees can harness this information to make better decisions based on predictions, market trends, and key performance indicators.

Currently, there are many BI tools aimed at assisting people in many activities. Here, I will mention 3 BI tools: Microsoft Power BI, Tableau and Dundas BI.

1.1. Microsoft Power BI

Figure 17: Microsoft Power BI

Power BI is a product of Microsoft's home office application segment. It belongs to the business intelligence group with the main task of minimizing and improving the quality of data representation on financial reports, sales,...Microsoft Power BI includes 4 main components including: The first is Power BI Desktop. This is a software on Windows operating system that plays the role of processing, collecting and building data models. This will help visualize data for reports. The second is Power BI Apps. This is Power BI in the form of an app that can be used on platforms like Android or iOS. Next is the Power BI Service (Power BI Online) Cloud Service. This data storage service will allow users to store reports and dashboards anywhere, anytime. Finally, Power BI Report Server. Users can publish the report after completion to the company's Power BI Server system.

Some functions of Power BI:

- Users can access data from multiple sources and automate data processing
- Support connection, transformation of large data analysis: This application can work with 8-10 million lines of data at a time
- Enhance data visualization
- Use Analytical Expressions (DAX) to analyze data with fast, efficient processing speed
- Build data models to combine data from multiple sources

Advantages of Microsoft Power BI:

- Power BI is an application built from the foundation of AI and Machine Learning, so it is very responsive in data processing
- Provide ready-made reports, dashboards and dashboards that are always updated in real-time.
- High security, easy connection of data sources and high security

- Natural language queries in data mining
- Enhance visualization by integrating Python and R code
- Make it easier for users to use and compact data
- Easily create schedules to update data automatically instead of wasting time manually

Disadvantages of Microsoft Power BI:

- Although connected in real-time, the data source with reports and dashboards is quite small.
- Files larger than 250MB or compressed data will not be accepted.
- To be able to share dashboards and reports with each other you must use the same email domain.

1.2. Tableau:

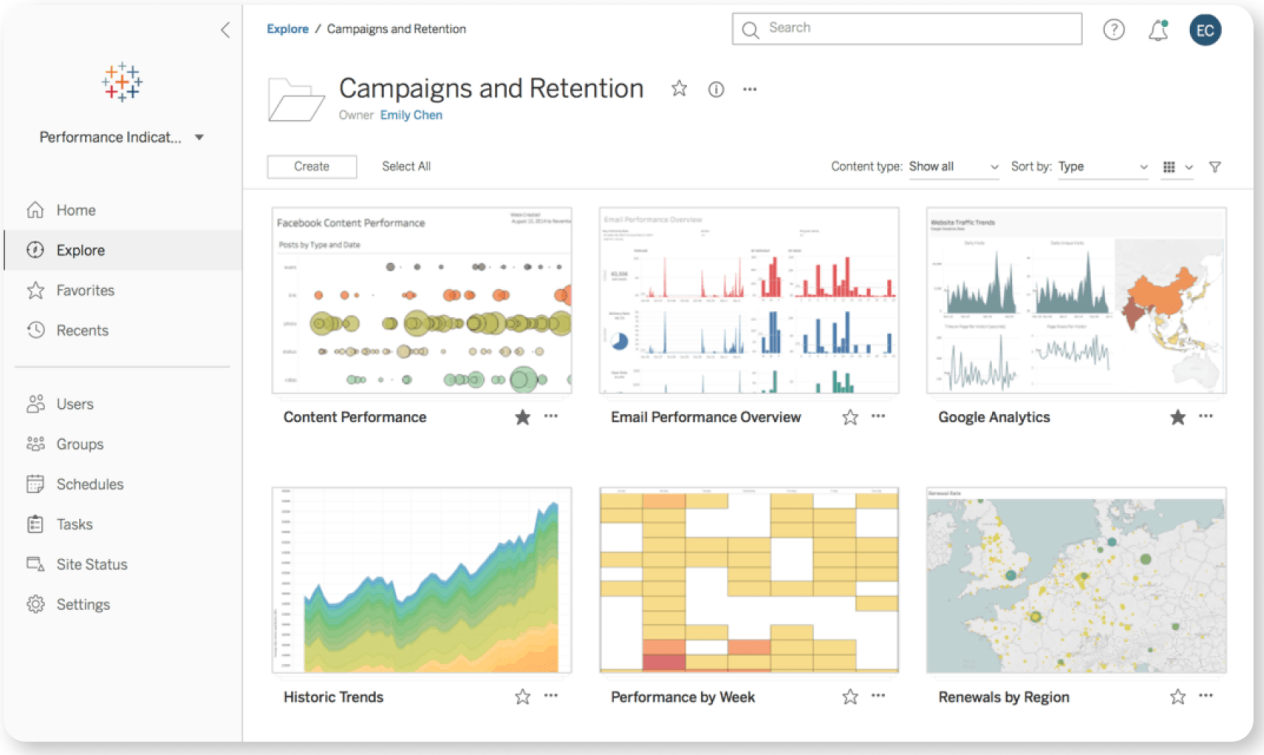

Figure 18: Tableau

Tableau is a software that supports Data Analyst and Data Visualization. Tableau is based on a combination of business analytics, data mining, data analytics, and the tools and infrastructure to help organizations make decisions based on real data. It helps synthesize data from a series of numbers into visual images, charts, build dashboards and analytics.

Some salient features of Tableau:

- Manage metadata
- Support data analysis with Big Data

- Easily build Business Dashboards
- Build operational data documents (Data Stories)
- Data visualization feature
- Social network data analysis
- Integration with the R language

Advantages of Tableau:

- Easily manipulate and build eye-catching dashboards and analytics
- Can be used for all departments and employees in any industry
- Extremely fast data processing speed with In-memory technology
- Database scalability and complexity for a fast-growing businessCapable of managing all tasks, sharing and high level of security
- Ability to connect and work with multiple types of data at the same time
- Meet powerful technologies such as Big Data, AI and high integration ability
- Data can be shared with each other and put in the hands of those who need it for them to process on their own
- Create a data-driven work environment and data analysis
- Always have data and analytics wherever you are

Disadvantages of Tableau:

- Limited advanced SQL query support
- The price of service packages is quite high

1.3. Sisense

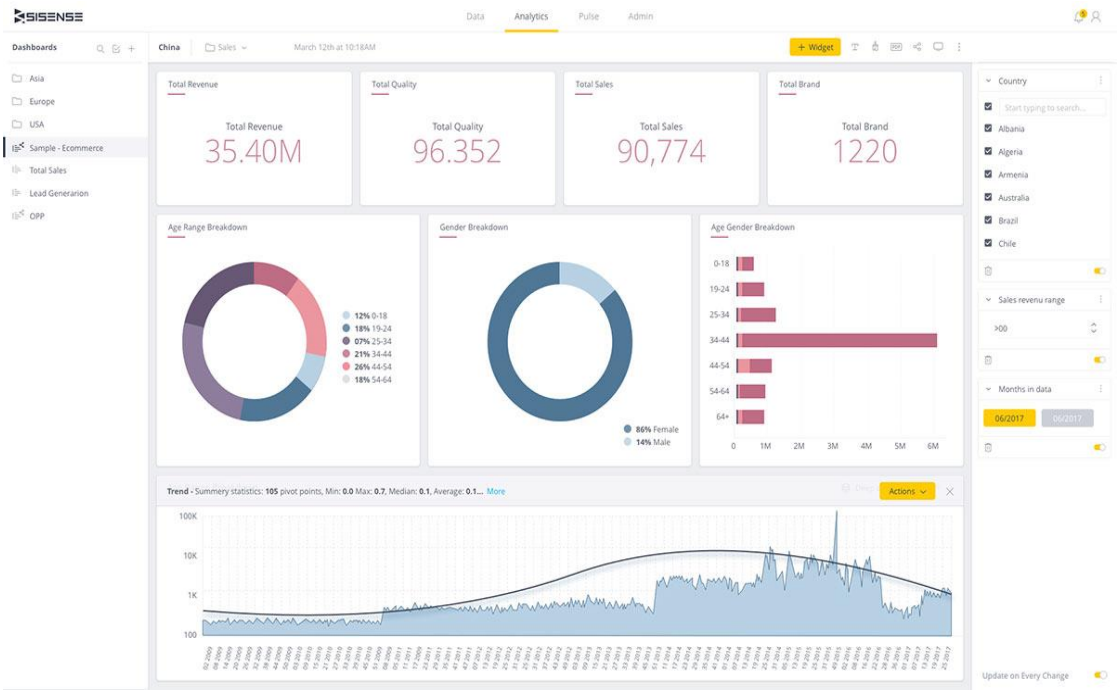

Figure 19: Sisense

Sisense has an intuitive interface, operating according to the drag-and-drop mechanism. The online community is large, although not as crowded as Tableau, the resources here are enough for newcomers to get acquainted and use.

Advantages of Sisense:

- Fast Speed: Ask any question and get instant answers without going back to the drawing board for new queries thanks to the in-chip engine software
- Flexible Integration: Easily integrates with third-party applications such as Google Adwords, Excel, Zendesk, and Salesforce.

Disadvantages of Sisense:

- Limited number of charts: The reporting and visualization features are somewhat basic compared to other tools
- Inconvenience for teamwork: Admins cannot currently edit dashboards, only the owners of the folders and dashboards can publish changes.

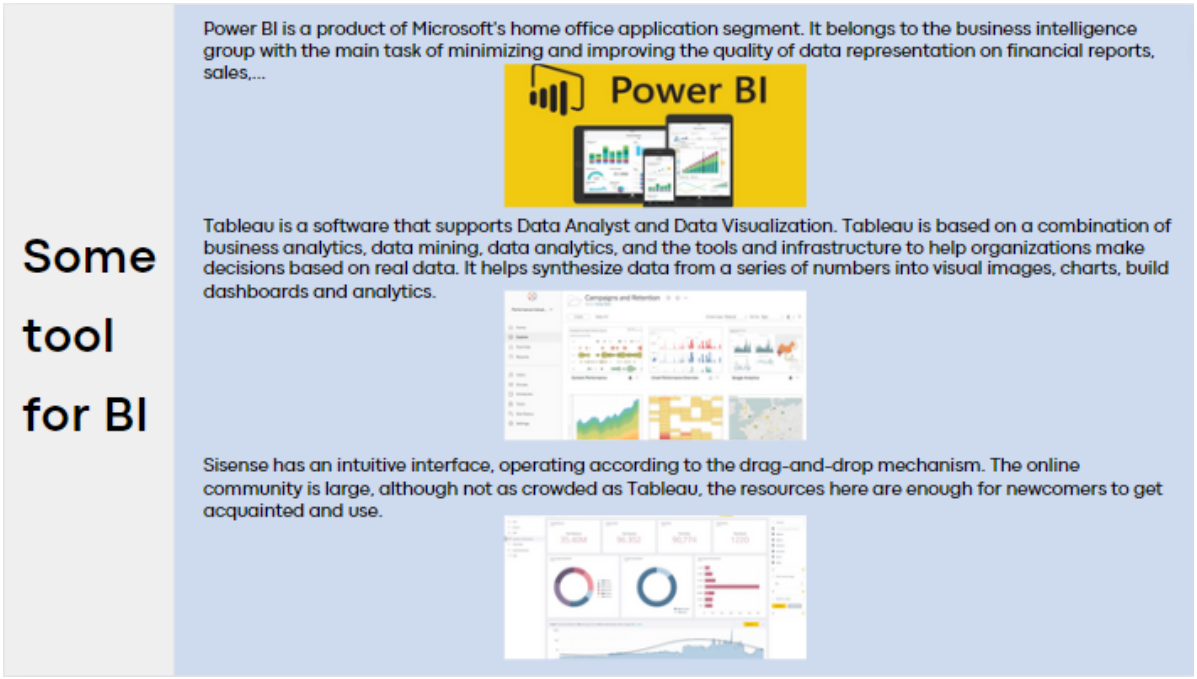

Figure 20: Slide 16

2. Data visualization

2.1. Definition of Data visualization

Data Visualization is translated as data visualization, which is a way of representing data under visual images, charts, and tables.

Data visualization also presents data to the general public or specific audience without technical knowledge in an accessible manner. For example, a health agency within a government (in the US, that would be the CDC) can provide a histogram of the population with the highest number of COVID-19 cases or a map of a country colored in different colors. vaccinated area.

Figure 21: Data visualization

Figure 22: Slide 17

2.2. Benefits of data visualization

Figure 23: Benefits of data visualization

Data visualization can be used in many contexts in nearly every field, like public policy, finance, marketing, retail, education, sports, history, and more. Here are the benefits of data visualization:

- Storytelling: People are drawn to colors and patterns in clothing, arts and culture, architecture, and more. Data is no different—colors and patterns allow us to visualize the story within the data.
- Accessibility: Information is shared in an accessible, easy-to-understand manner for a variety of audiences.
- Visualize relationships: It's easier to spot the relationships and patterns within a data set when the information is presented in a graph or chart.
- Exploration: More accessible data means more opportunities to explore, collaborate, and inform actionable decisions.

2.3. Tools for visualizing data

There are plenty of data visualization tools out there to suit your needs. Before committing to one, consider researching whether you need an open source site or simply to create a graph using Excel or Google Charts. The following are common data visualization tools that could suit your needs.

- Tableau:

Tableau is an excellent data visualization and business intelligence tool used for reporting and analyzing vast volumes of data. It is an American company that started in 2003—in June 2019, Salesforce acquired Tableau. It helps users create different charts, graphs, maps, dashboards, and stories for visualizing and analyzing data, to help in making business decisions.

Tableau Features: Firstly, Tableau supports powerful data discovery and exploration that enables users to answer important questions in seconds. Next, no prior programming knowledge is needed; users without relevant experience can start immediately with creating visualizations using Tableau. Thirdly, it can connect to several data sources that other BI tools do not support. Tableau enables users to create reports by joining and blending different datasets. Finally, Tableau Server supports a centralized location to manage all published data sources within an organization.

- Google Charts

Google Charts is a pure JavaScript based charting library meant to enhance web applications by adding interactive charting capability. It supports a wide range of charts. Charts are drawn using SVG in standard browsers like Chrome, Firefox, Safari, Internet Explorer (IE). In legacy IE 6, VML is used to draw the graphics. Following are the salient features of Google Charts library:

+ Compatability − Works seemlessly on all major browsers and mobile platforms like android and iOS.
+ Multitouch Support − Supports multitouch on touch screen based platforms like android and iOS. Ideal for iPhone/iPad and android based smart phones/ tablets.
+ Free to Use − Open source and is free to use for non-commercial purpose.
+ Lightweight − loader.js core library, is extremely lightweight library.

+ Simple Configurations – Uses json to define various configuration of the charts and very easy to learn and use.
+ Dynamic – Allows to modify chart even after chart generation.
+ Multiple axes – Not restricted to x, y axis. Supports multiple axis on the charts.
+ Configurable tooltips – Tooltip comes when a user hover over any point on a charts. Googlecharts provides tooltip inbuilt formatter or callback formatter to control the tooltip programmatically.

In addition to the tools mentioned above, there are some other useful tools that can be mentioned are:

- Dundas BI
- Power BI
- JupyteR
- Infogram
- ChartBlocks
- D3.js
- FusionCharts
- Grafana

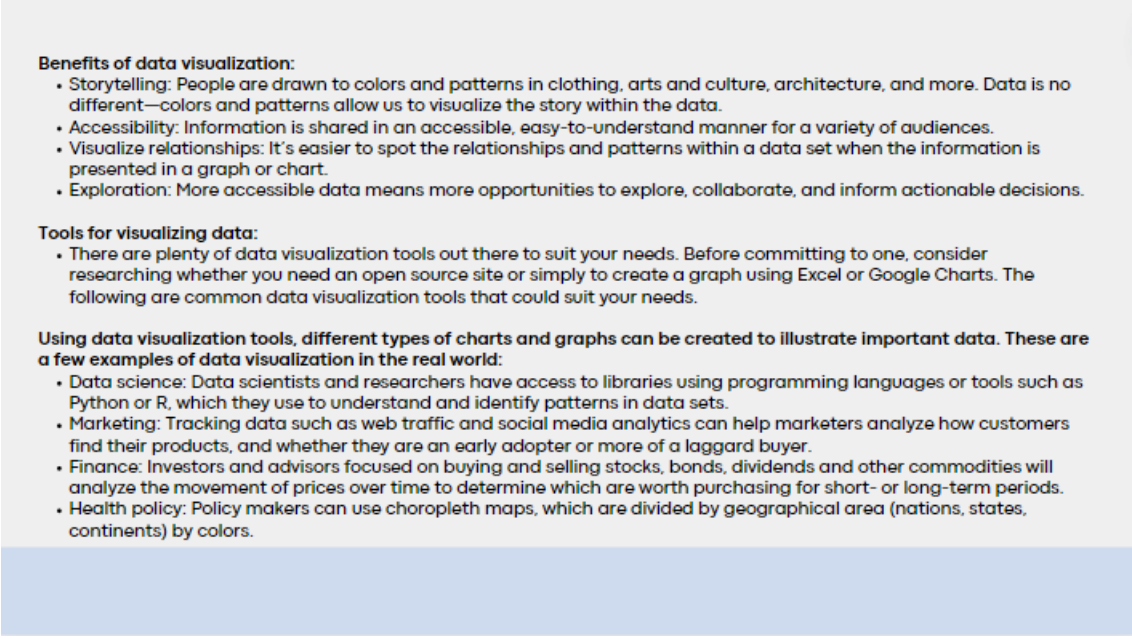

Figure 24: Slide 18

2.4. Data visualization examples

Using data visualization tools, different types of charts and graphs can be created to illustrate important data. These are a few examples of data visualization in the real world:

Data science: Data scientists and researchers have access to libraries using programming languages or tools such as Python or R, which they use to understand and identify patterns in data sets. Tools help these data professionals work more efficiently by coding research with colors, plots, lines, and shapes.

Marketing: Tracking data such as web traffic and social media analytics can help marketers analyze how customers find their products, and whether they are an early adopter or more of a laggard buyer. Charts and graphs can synthesize data for marketers and stakeholders to better understand these trends.

Finance: Investors and advisors focused on buying and selling stocks, bonds, dividends and other commodities will analyze the movement of prices over time to determine which are worth purchasing for short- or long-term periods. Line graphs help financial analysts visualize this data, toggling between months, years, and even decades.

Health policy: Policy makers can use choropleth maps, which are divided by geographical area (nations, states, continents) by colors. They can, for example, use these maps to demonstrate the mortality rates of cancer or ebola in different parts of the world.

2.5. Types of data visualization

Visualizing data can be as simple as a bar graph or scatter plot but become powerful when analyzing, for example, the median age of the United States Congress vis-a-vis the median age of Americans. Here are some common types of data visualizations:

- Table: A table is data displayed in rows and columns, which can be easily created in a word document or Excel spreadsheet.
- Chart or graph: Information is presented in tabular form with data displayed along an x and y axis, usually with bars, points, or lines, to represent data in comparison. An infographic is a special type of chart that combines visuals and words to illustrate the data.
    + Gantt chart: A Gantt chart is a bar chart that portrays a timeline and tasks specifically used in project management.
    + Pie chart: A pie chart divides data into percentages featured in “slices” of a pie, all adding up to 100%.
- Geospatial visualization: Data is depicted in map form with shapes and colors that illustrate the relationship between specific locations, such as a choropleth or heat map.
- Dashboard: Data and visualizations are displayed, usually for business purposes, to help analysts understand and present data.

3. Type of decision operational, tactical and strategic

3.1. Operational decision

These decisions relate to the day-to-day operations of the enterprise. They have a short-term horizon as they are taken repetitively. These decisions are based on facts regarding the events and do not require much business judgment. Operational decisions are taken at lower levels of management. As the information is needed for helping the manager to take rational, well-informed decisions, information systems need to focus on the process of managerial decision-making.

3.2. Tactical decision

These decisions relate to the implementation of strategic decisions. They are directed towards developing divisional plans, structuring workflows, establishing distribution channels, acquisition of resources such as men, materials, and money. These decisions are taken at the middle level of management.

3.3. Strategic decision

Strategic decisions are major choices of actions that influence the whole or a major part of a business enterprise. They contribute directly to the achievement of the common goals of the enterprise. They have long-term implications on the business enterprise.

They may involve major departures from practices and procedures being followed earlier. Generally, strategic decision is unstructured and thus, a manager has to apply his business judgment, evaluation, and intuition to the definition of the problem. These decisions are based on partial knowledge of the environmental factors which are uncertain and dynamic. Such decisions are taken at the higher level of management.

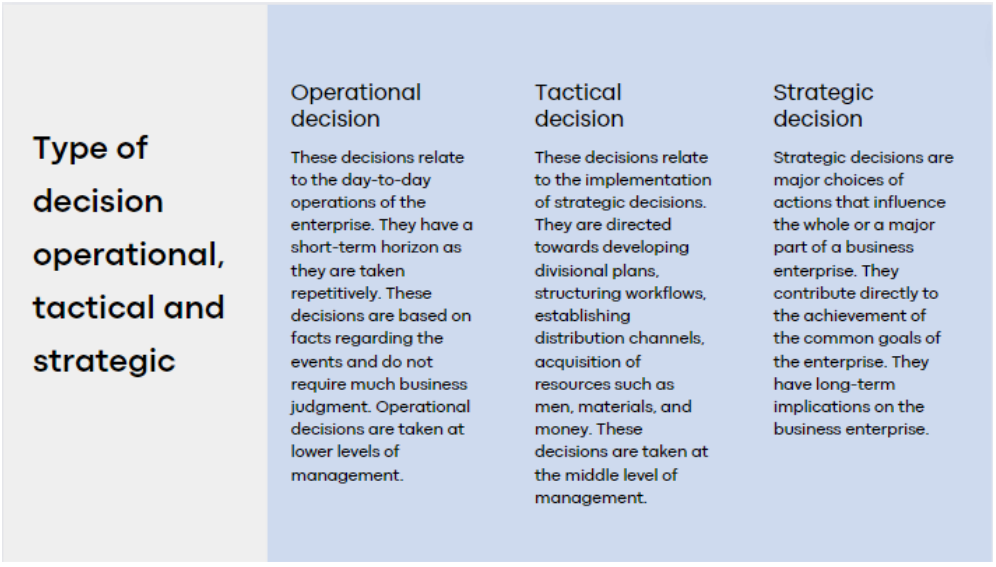

Figure 25: Slide 19

4. Compare the types of support available for business in your scenario

Data-driven DSS:

- Focus: Data-driven DSS primarily rely on data analysis to support decision-making.
- Data Usage: These systems analyze structured and unstructured data to identify patterns, trends, and insights.
- Examples: Business intelligence tools, data visualization software, and data mining applications.

Model-driven DSS:

- Focus: Model-driven DSS use mathematical and analytical models to simulate and predict outcomes.
- Modeling Techniques: These systems employ optimization, simulation, and forecasting models to generate insights.
- Examples: Financial planning models, supply chain optimization tools, and risk assessment models.

Intelligent DSS:

- Focus: Intelligent DSS leverage advanced technologies such as artificial intelligence (AI) and machine learning to enhance decision-making.
- Cognitive Capabilities: These systems can understand, learn, and reason based on data inputs and historical patterns.
- Examples: Chatbots, virtual assistants, recommendation engines, and predictive analytics platforms.

Document-driven DSS:

- Focus: Document-driven DSS provide decision support through documents and knowledge management.
- Information Retrieval: These systems organize, store, and retrieve relevant documents, reports, and knowledge bases.
- Examples: Content management systems, document repositories, and knowledge bases.

Comparison:

- Data Usage: Data-driven DSS focus on data analysis, Model-driven DSS use mathematical models, Intelligent DSS incorporate advanced technologies like AI, and Document-driven DSS rely on organizing and retrieving relevant documents.
- Decision Support: Data-driven DSS provide insights from data analysis, Model-driven DSS simulate and predict outcomes, Intelligent DSS offer intelligent recommendations, and Document-driven DSS provide access to relevant documents and knowledge.
- Complexity: Data-driven DSS involve data analysis and visualization, Model-driven DSS use complex mathematical models, Intelligent DSS leverage AI algorithms, and Document-driven DSS focus on organizing and retrieving documents.

- Decision Types: Data-driven DSS are suitable for operational and tactical decisions, Model-driven DSS support tactical and strategic decisions, Intelligent DSS assist in various decision levels, and Document-driven DSS provide support across decision levels through knowledge management.

It's important to note that these types of DSS are not mutually exclusive, and organizations may combine different approaches to create a comprehensive decision support system that meets their specific needs and requirements.

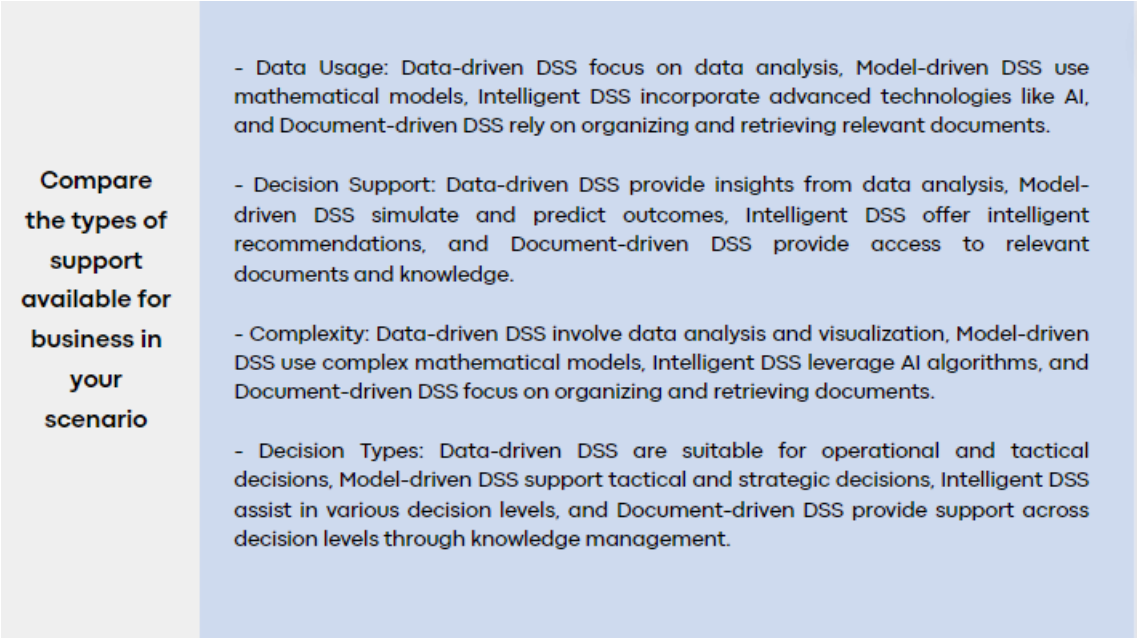

Figure 26:Slide 20

III.CONCLUSION

Overall, we have provided all the necessary information in this report. We have provided information on BI, with explanations and examples of how it is applied in the company and other areas. Not only that, we have also provided explanations and examples of Business Process as well as knowledge of Decision support process. We also provide necessary information about the definition, benefits and some tools in Data visualization. In this report, we also introduced the strengths and weaknesses of some tools for BI. Finally, we introduced the type of decision operational, tactical, strategic and compared the types of support available for business in our company.

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