

University of Greenwich

Supermarket sales project

Class GCS1005A

Subject: 1641 - BI

Group 8

Nguyen Le Minh Thanh - GCS210087

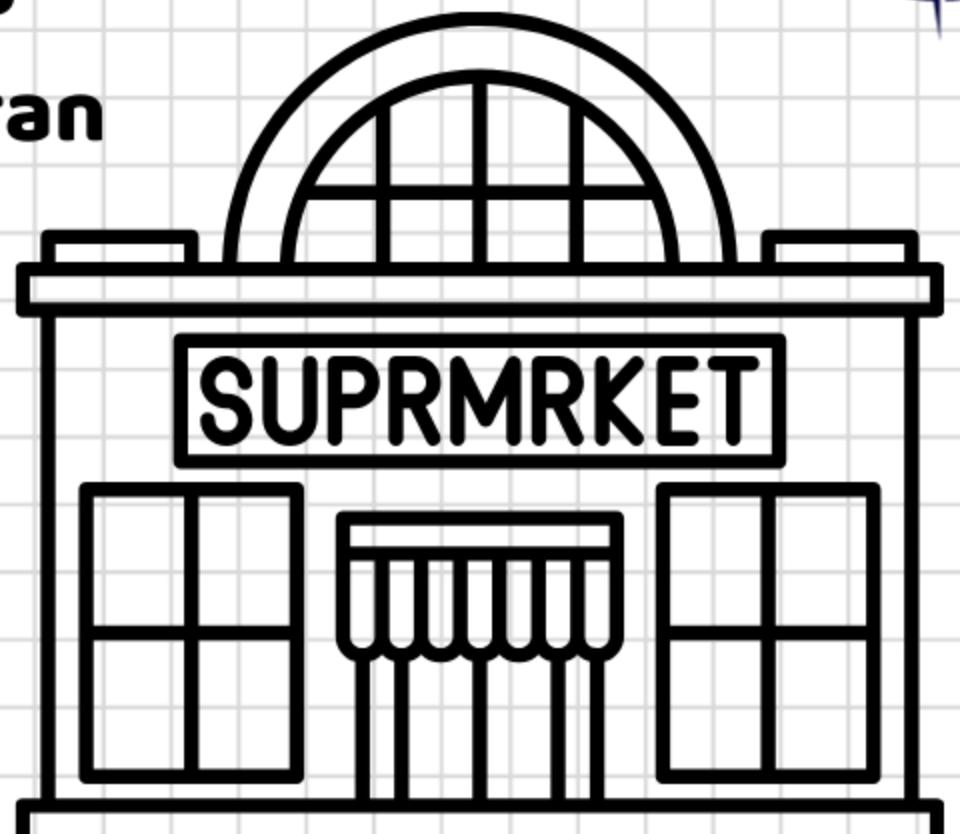
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Assessor name: Le Tran Ngoc Tran



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Introduction

The sales network wants our team to create the highest profit for the following year's direct marketing campaign. The sales system will be better and more efficient using business information. It can improve assistance by measuring and optimizing usage using statistics and data analysis. Provide intelligent information so that everyone can understand the consumer's state in different situations, know how to acquire things, and thus foresee customer service demands. Of course, we'll discuss about business intelligence and how it may help you with your business/project in this project. Furthermore, we will apply advanced data analysis techniques to discover the patterns that customers select. We may then promote that product to the sales system or investigate ideas to enhance other items that have the potential to generate sales system income in this project.

Table of contents

01

Business process

Definition of business process

02

Examples

Examples for business process

03

BI in decision-making

How BI helps in decision-making

04

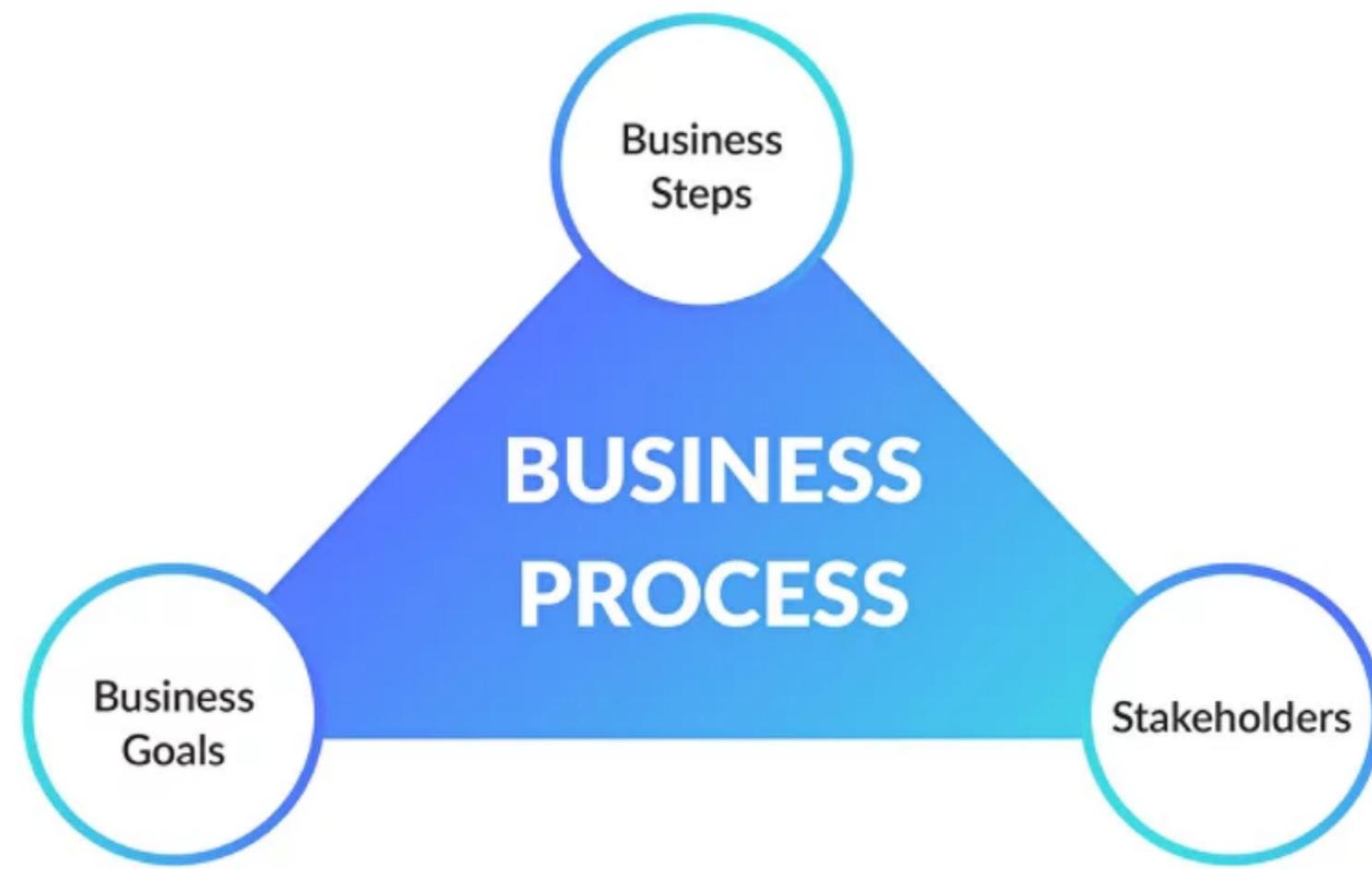
BI tools

Review of some BI tools

01 Business process

Definition of business process

Definition: A business process is an organized collection of actions or processes that an organization or corporation does in order to attain certain goals and objectives



01 Business Process in supermarket sales

Sales Process: The sales process aims to attract potential customers, interact with them, offer information about product samples, and ultimately convert them into sales.

Warehouse Management: Warehouse management processes are implemented to ensure the optimal levels of various items, including product samples.

Marketing and Promotion: The marketing and promotion process is designed to allure customers, generate awareness about the available product models, and highlight competitive pricing and incentives.

01 Support process

A support process, also known as a "customer support process" or "customer service process," is a collection of planned and standardized processes aimed to help customers, clients, or end-users with enquiries, difficulties, or demands regarding a product, service, or organization.

Benefit of support process :

- Enhanced Efficiency : Support processes help streamline and facilitate the core operations of an organization, making it more efficient.**
- Cost Savings: Efficient support processes can lead to cost savings by optimizing resource allocation and reducing wastage.**

01 Support process in supermarket sales

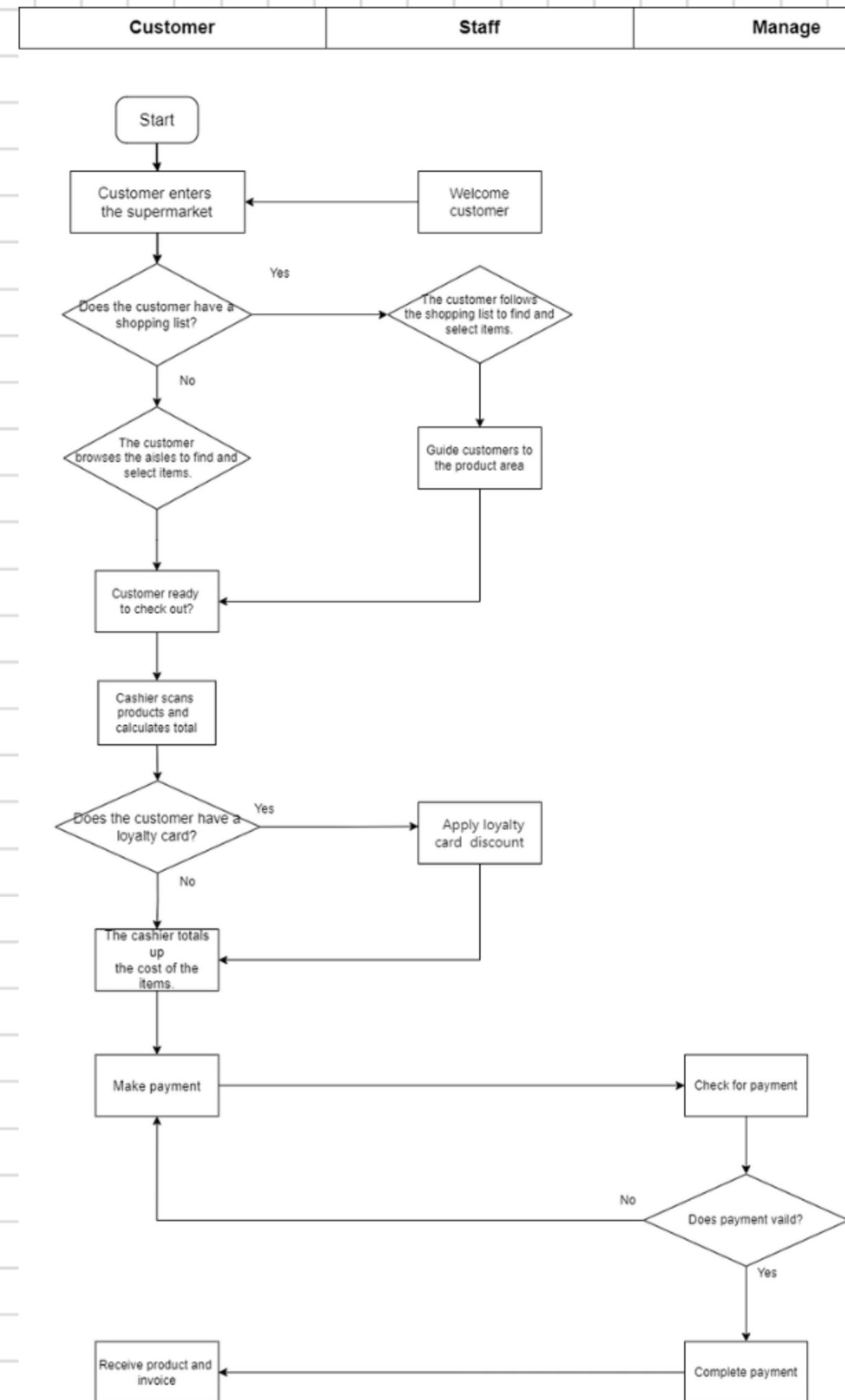
Exchange and Repair Management: The exchange and repair management process is responsible for facilitating exchange claims and ensuring that customers receive necessary repairs or replacements for defective products.

02 Examples for business process

Business process example

The store has two staff roles:

- **Staff: Welcome customers, provide product advice, receive customer information and confirm orders.**
- **Management: Handles tasks related to payment processing and order fulfillment.**



02 Examples for Support process

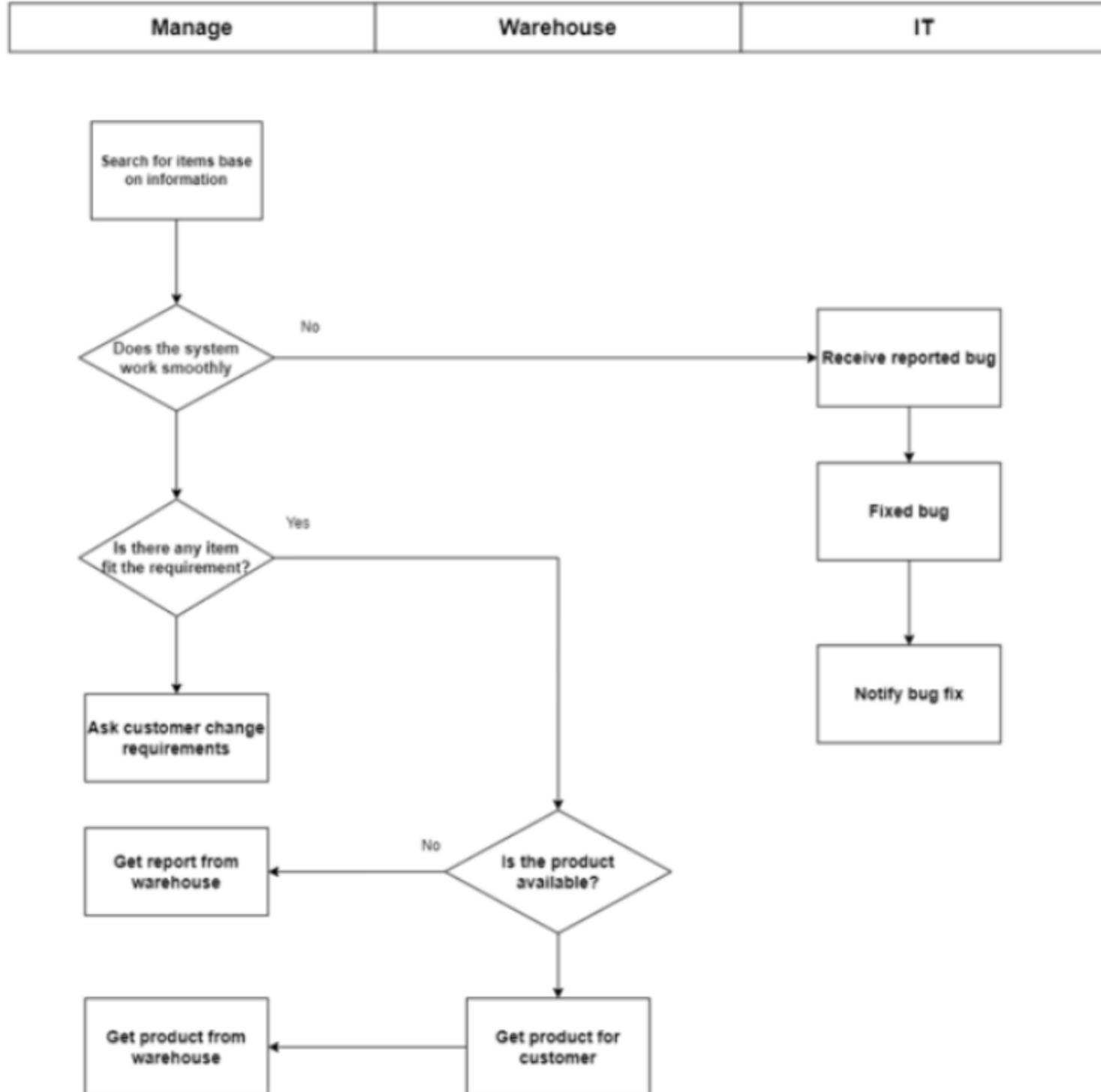
This process has two main employee roles:

Warehouse:

- Main role: Check the availability of products selected by the management process
- If the product is out of stock, the customer chooses another product
- After payment, the warehouse delivers the desired product to the customer

IT:

- Role: Ensuring the product management process runs smoothly
- Receive error information and promptly fix any system problems
- Notify other departments when the system is ready for use



03 BI in decision-making

How BI helps in decision-making

Three levels of decision-making

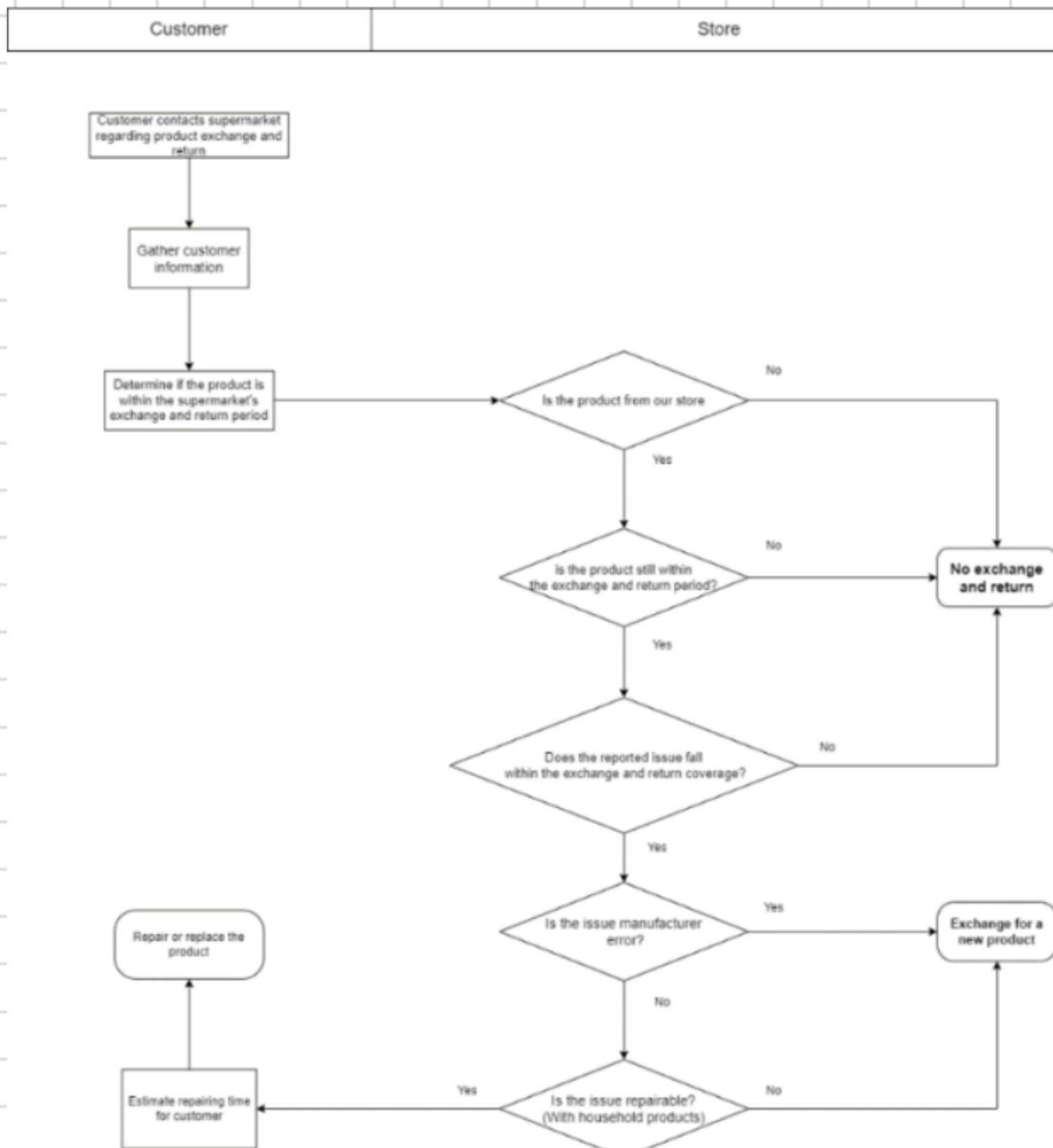
Decision-making contains three levels, which are:

- **Operational:** Daily routine and immediate impact.
- **Tactical:** Departmental goals and medium-term effects.
- **Strategic:** Long-term vision and organization-wide impact



03 Operational level - Product Exchange process

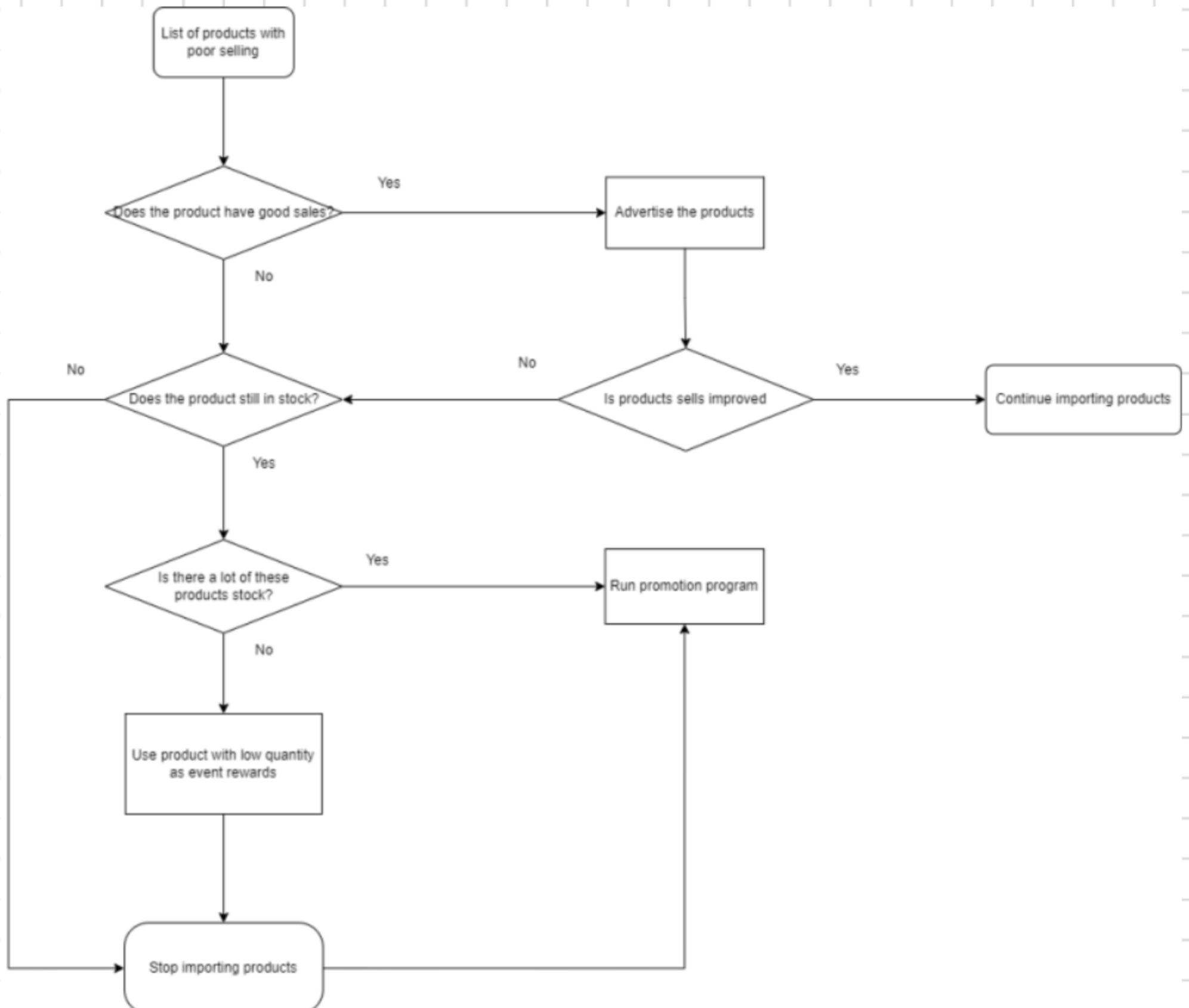
Operational decision making occurs at the frontline level, where employees and supervisors make daily decisions that directly impact operations. They handle tasks like shift scheduling, inventory management, and addressing customer issues. These decisions have immediate effects on the organization's day-to-day functioning.



03 Tactical - Handling poor selling products process

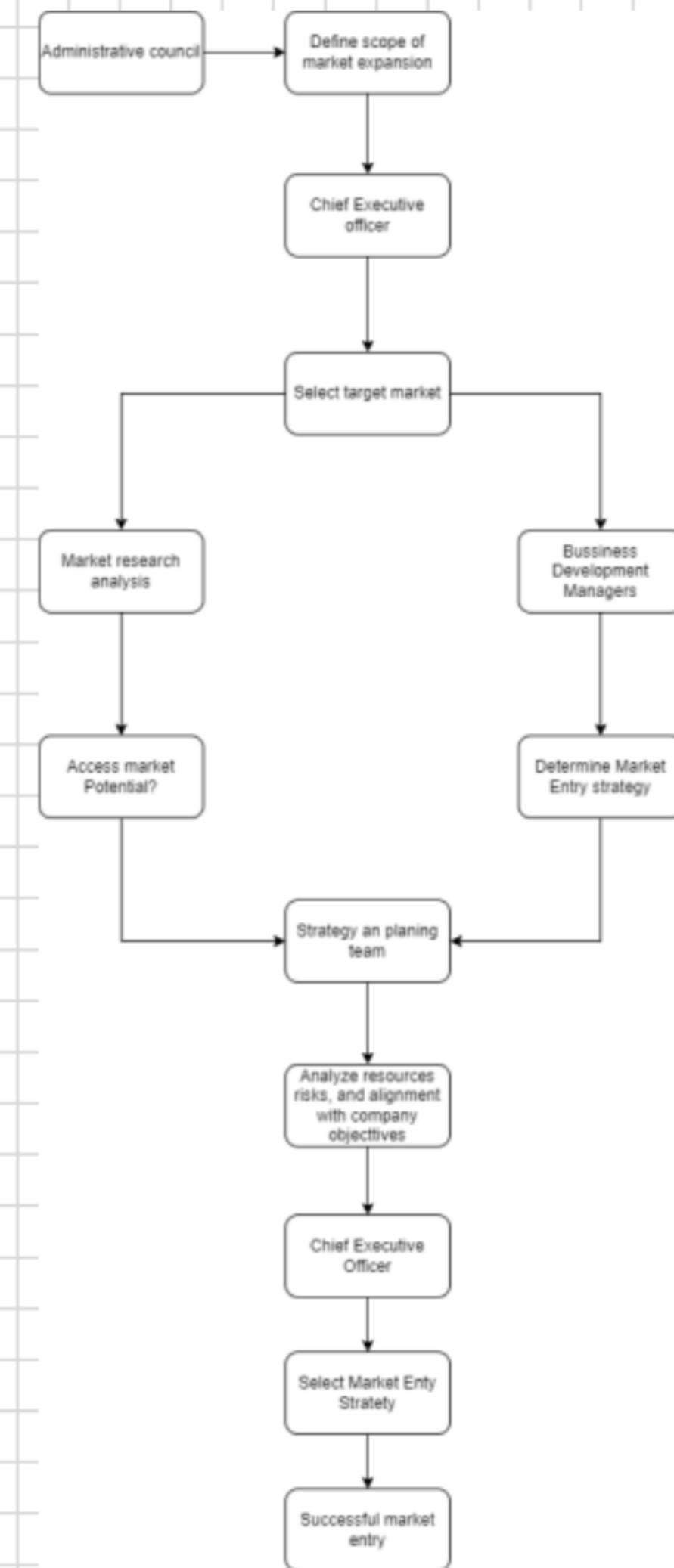
Supervisors, department heads, middle managers, and other leaders dominate this organizational level. Those who work at this level often supervise those who work at the operations management level.

Decisions are made semi structuredly by tactical users. A combination of set policies and tactical calls form the basis of decisions. The allocation of resources, establishment of objectives, and process optimization are a few examples of tactical decisions. The effectiveness and performance of the corresponding departments are impacted by these choices over the medium term.



03 Strategic – Market expansion decision making process

The highest level of the corporation makes strategic decisions, and that brings us to a close. These choices are made by senior executives and the leadership group. Their primary concern is defining the organization's overall mission and vision. Strategic choices are important and have lasting consequences. Examples include market entry strategy, business expansion, and mergers & acquisitions.



04 BI tools

Review of some BI tools

Some famous BI tools



Tableau

Users may turn unstructured data into interactive and aesthetically pleasing insights with Tableau, a robust data visualization and business intelligence (BI) application.



Power BI

A robust business intelligence (BI) and data visualization tool created by Microsoft is called Power BI. It enables businesses and people to analyze data, produce interactive reports and dashboards, and share insights to help them make wise decisions.

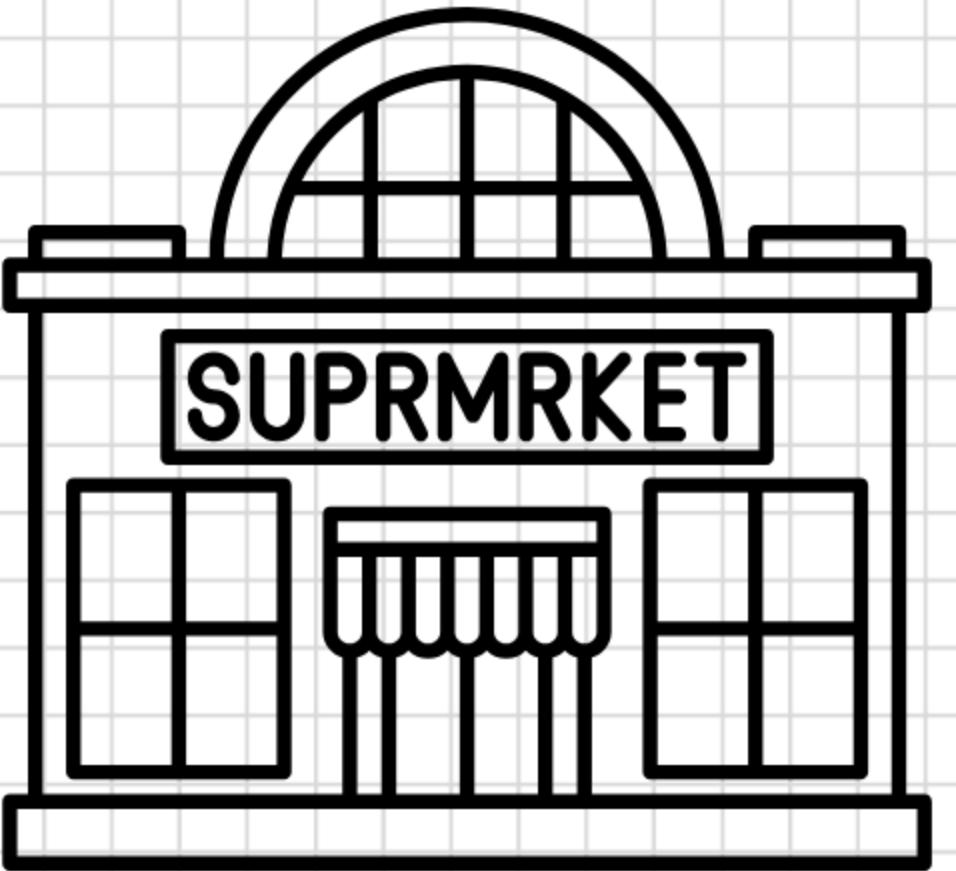
04 Apply tableau

- **Exchange performance analysis:** You can use Power BI to examine exchange data and identify patterns, trends and anomalies. You can measure how well your exchange claims program is working by looking at exchange performance indicators such as claim frequency, cost and repair time.
- **Predictive analytics:** Power BI can use advanced analytics and machine learning techniques to forecast warranty-related outcomes. By analyzing past exchange data, you can create predictive models that estimate exchange claim rates, predict future or potential exchange costs and detect possible exchange fraud.
- **Reporting and collaboration:** Power BI makes it easy to create and share reports, allowing you to communicate warranty-related insights with stakeholders effectively. You can create custom interactive reports or dashboards that give an overview of exchange performance, highlight key metrics and track progress against warranty-related objectives.

04 Apply Power BI

- **Data visualization:** Create interactive charts, graphs, and maps to identify market trends and opportunities.
- **Market analysis:** Analyze customer preferences, competitive activity, and market dynamics for informed decision-making.
- **Dashboards and reports:** Customize interactive dashboards to track progress, share insights, and promote collaboration.
- **Geographic analysis:** Utilize mapping features to identify growth areas, analyze demographics, and optimize market penetration strategies.

Thank you for your attentive listening



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Business Intelligence

ASSIGNMENT 1

Learner's name: Nguyen Le Minh Thanh – GCS210087

Le Thai Trung Tin – GCS210085

Class: GCS1005A

Subject code: 1641

Assessor name: Le Tran Ngoc Tran

Assignment due:

Assignment submitted:

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	
Student Name	Nguyen Le Minh Thanh – GCS210087 Le Thai Trung Tin – GCS210085	Student ID	GROUP 8
Class	GCS1005A	Assessor name	Le Tran Ngoc Tran
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	

Grading grid

P1	P2	M1	M2	D1	D2

✿ Summative Feedback:

✿ Resubmission Feedback:

Grade:	Assessor Signature:	Date:
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IV Signature:

Assessment Brief

Student Name/ID Number	
Unit Number and Title	14: Business Intelligence
Academic Year	2019-2020
Unit Tutor	
Assignment Number & Title	Assignment 1: Discover business process and BI technologies
Issue Date	
Submission Date	
IV Name & Date	

Submission Format

The submission is in the form of a Microsoft® PowerPoint® style presentation to be presented to your colleagues. The presentation can include links to performance data with additional speaker notes and a bibliography using the Harvard referencing system. The presentation slides for the findings should be submitted with speaker notes as one copy. You are required to make effective use of headings, bullet points and subsections, as appropriate. Your research should be referenced using the Harvard referencing system. The recommended word limit is 500 words, including speaker notes, although you will not be penalised for exceeding the total word limit.

Unit Learning Outcomes

LO1 Discuss business processes and the mechanisms used to support business decision-making.

LO2 Compare the tools and technologies associated with business intelligence functionality

Assignment Brief

Your company is currently working in [Assumed Domain] for 2 years. For a new, young company, the competition in the market is very high. Therefore, the Board of Director has decided to apply Business Intelligence to improve the company business process by making better decisions.

The Board of Directors assigns a small group including you in Research & Development Department to study business intelligence to apply for the company in the coming years. You need to research about business processes and decision support processes in the company and identify the types of data (unstructured, semi-structured or structured) generated by these processes with examples. You also need to research about current software used in the business process or decision support process and evaluate these usages (benefits and drawbacks).

Next you need to 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 types of support. Study the information systems or technologies (of BI) can be used in this case, compare and contrast them to conclude which should be used. Your group needs to present the research results to the board in a presentation of 30 minutes.

Learning Outcomes and Assessment Criteria		
Pass	Merit	Distinction
LO1 Discuss business processes and the mechanisms used to support business decision-making		
P1 Examine, using examples, the terms 'Business Process' and 'Supporting Processes'.	M1 Differentiate between unstructured and semi-structured data within an organisation.	D1 Evaluate the benefits and drawbacks of using application software as a mechanism for business processing.
LO2 Compare the tools and technologies associated with business intelligence functionality		
P2 Compare the types of support available for business decision-making at varying levels within an organisation.	M2 Justify, with specific examples, the key features of business intelligence functionality.	D2 Compare and contrast a range of information systems and technologies that can be used to support organisations at operational, tactical and strategic levels.

Table of Contents

ASSIGNMENT 1 ANSWERS	1
I. Introduction.....	1
P1 Examine, using examples, the terms ‘Business Process’ and ‘Supporting Processes’	1
1. Business Process	1
2. Business Process in supermarket sales.....	1
3. Support process	2
4. Support process in supermarket sales	2
P2 Compare the types of support available for business decision-making at varying levels within an organization.....	6
1. BI in decision-making	6
2. Type of Decision-making.....	7
2.1 Operational	8
2.2 Tactical Levels	9
2.3 Strategic Levels	10
2.3 Example.....	10
3. BI tools	12
3.1 Tableau introduction	12
3.2 Microsoft power BI introduction	13
3.3. Other tools	14
4. Compare	14
5. Task table	15

ASSIGNMENT 1 ANSWERS

I. Introduction

The sales network wants our team to generate the highest profits for next year's direct marketing campaign. The sales system will be better and more effective when using business information. It can improve support by measuring and optimizing usage with statistics and data analytics. Provide intelligent information so people can understand the consumer's state in different situations, know how to buy things, and thereby anticipate customer service needs. Of course, we will discuss business intelligence and how it can help your business/project in this project. Furthermore, we will apply advanced data analytics techniques to discover product patterns that customers choose and areas that need expanded reach. We can then promote that product to the sales system or expand new sales systems and markets to enhance other items that have the potential to generate income for the sales system in the project.

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

1. Business Process

A business process is an organized collection of actions or processes that an organization or corporation does in order to attain certain goals and objectives. These processes are intended to carry out numerous activities inside the company, such as providing products or services to clients, managing internal operations, and enhancing corporate performance. Business procedures are critical for an organization's efficiency, consistency, and accountability.

Business Process Management (BPM) is a systematic strategy to developing, implementing, monitoring, and constantly improving an organization's business processes in order to meet particular goals, improve efficiency, and deliver better results. BPM entails the coordination of people, processes, systems, and information in order to improve workflows and align them with the strategic objectives of the business.

Business processes are a critical component of organizational management, and their efficiency and efficacy may have a substantial impact on an organization's performance. Processes that are well-designed and optimized may lead to better customer satisfaction, lower costs, increased productivity, and a competitive edge.

2. Business Process in supermarket sales

Sales Process: The sales process aims to attract potential customers, interact with them, offer information about product samples, and ultimately convert them into sales. It includes activities such as lead generation, inquiry management, product introduction, pricing, order processing, and sales closure.

Inventory Management: Inventory management processes are implemented to ensure the optimal levels of various items, including product samples. These processes encompass tasks such as inventory tracking, demand forecasting, procuring products from suppliers, and receiving and inspecting imported goods.

Marketing and Promotion: The marketing and promotion process is designed to allure customers, generate awareness about the available product models, and highlight competitive pricing and incentives. Its goal is to attract potential customers by implementing effective marketing strategies and promotional campaigns.

3. Support process

A support process, also known as a "customer support process" or "customer service process," is a collection of planned and standardized processes aimed to help customers, clients, or end-users with enquiries, difficulties, or demands regarding a product, service, or organization. A support process's major purpose is to guarantee that customers receive fast and effective help, resulting in their satisfaction and loyalty. A support process is an essential component of a company's customer-centric strategy since it helps to maintain customer satisfaction, resolve issues effectively, and develop long-term connections with consumers and clients. Skilled support agents, good communication, technology, and a commitment to continual development are all required for successful support procedures.

4. Support process in supermarket sales

Technical Support: The technical support function involves identifying and resolving technical issues to ensure that customers' products are operating optimally. This includes diagnosing problems, providing assistance with software installation and configuration, and troubleshooting software-related concerns.

Software Installation and Troubleshooting: Technical support personnel assist customers with installing and configuring software on their products. They also troubleshoot any issues that may arise during the software usage, helping customers resolve software-related concerns.

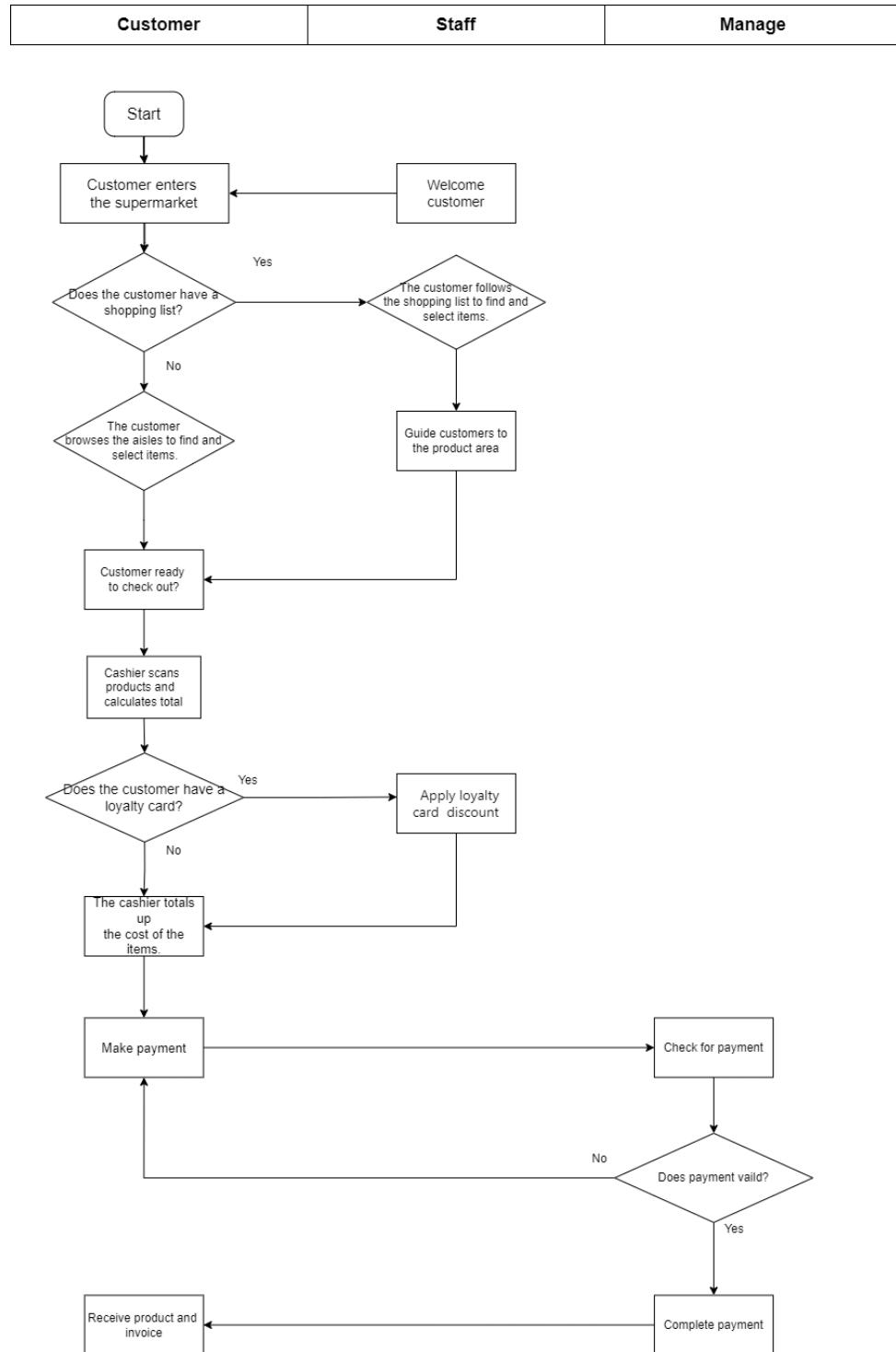
Exchange and Repair Management: The exchange and repair management process is responsible for facilitating exchange claims and ensuring that customers receive necessary repairs or replacements for defective products. Technical support keeps customers informed about the progress of their product repairs, providing regular updates and estimated repair times.

Pre-sales Support: The pre-sales support function involves providing personalized recommendations to customers based on their specific requirements. Technical support personnel guide customers in selecting the most suitable product model and assess compatibility with other devices and peripherals, ensuring a seamless experience for the customers.

Business process example

Selling supermarket process

1. Roles in the process



The store has two staff roles:

- Staff: Welcome customers, provide product advice, receive customer information and confirm orders.
- Management: Handles tasks related to payment processing and order fulfillment.

The process begins when the customer enters the supermarket. Welcoming them will be the employee's first action. If they

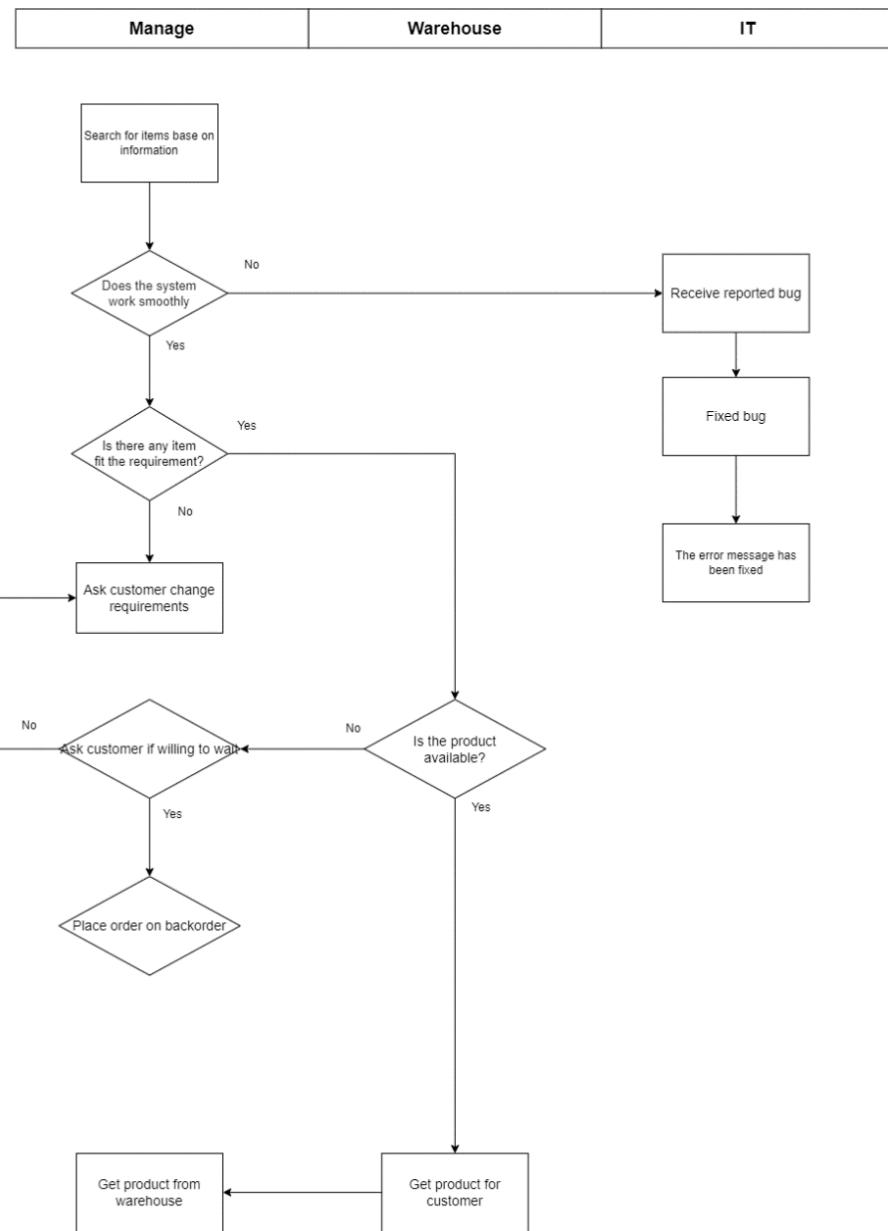
If they already have a list of specific products to buy, they will immediately begin the purchasing process. Otherwise they will come

Ask employees for information about the products they want, employees then find and guide the location of products that are suitable for them

requests in the database. If there is no suitable product, the customer must provide another product requested.

Request. The payment process will ask the customer to provide a membership card, the manager role will then apply the discount if they have their membership card and bring the product to the customer.

2. Support process



This process has two main employee roles:

Warehouse:

- Main role: Check the availability of products selected by the management process
- If the product is out of stock, the customer chooses another product
- After payment, the warehouse delivers the desired product to the customer

IT:

- Role: Ensuring the product management process runs smoothly

- Receive error information and promptly fix any system problems
- Notify other departments when the system is ready for use

After the management process, search for products according to the requirements provided by the customer, if an error occurs

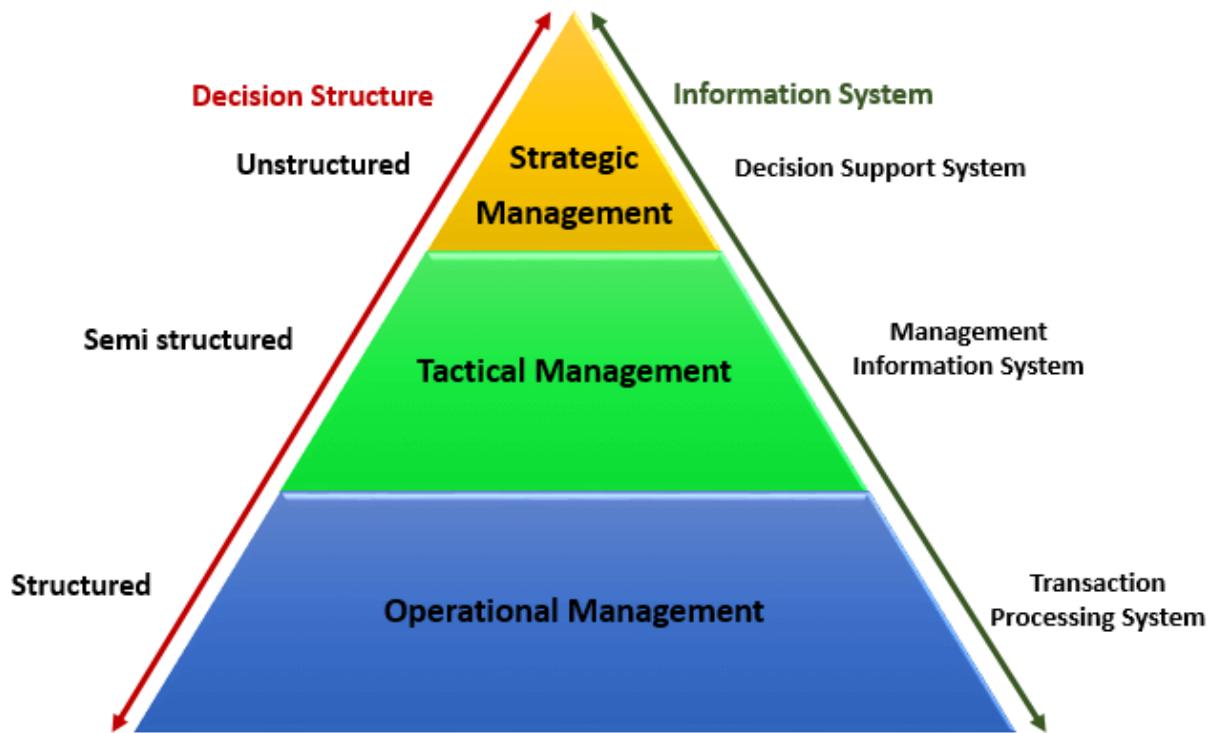
to the system, they report errors that IT staff will receive. The IT department will then try to fix the error, after fixing it will report back to management. The role of the warehouse is to check it. The customer's selected product is available or not and notifies management if the product is available, then they will deliver it to management to carry out further processes.

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

1. BI in decision-making

BI plays an important role in decision-making by providing decision-makers with fast, accurate, and relevant data. It promotes data-driven decision-making at all levels of a business, from operational to strategic, and assists firms in gaining a competitive advantage by making educated decisions based on facts and analysis.

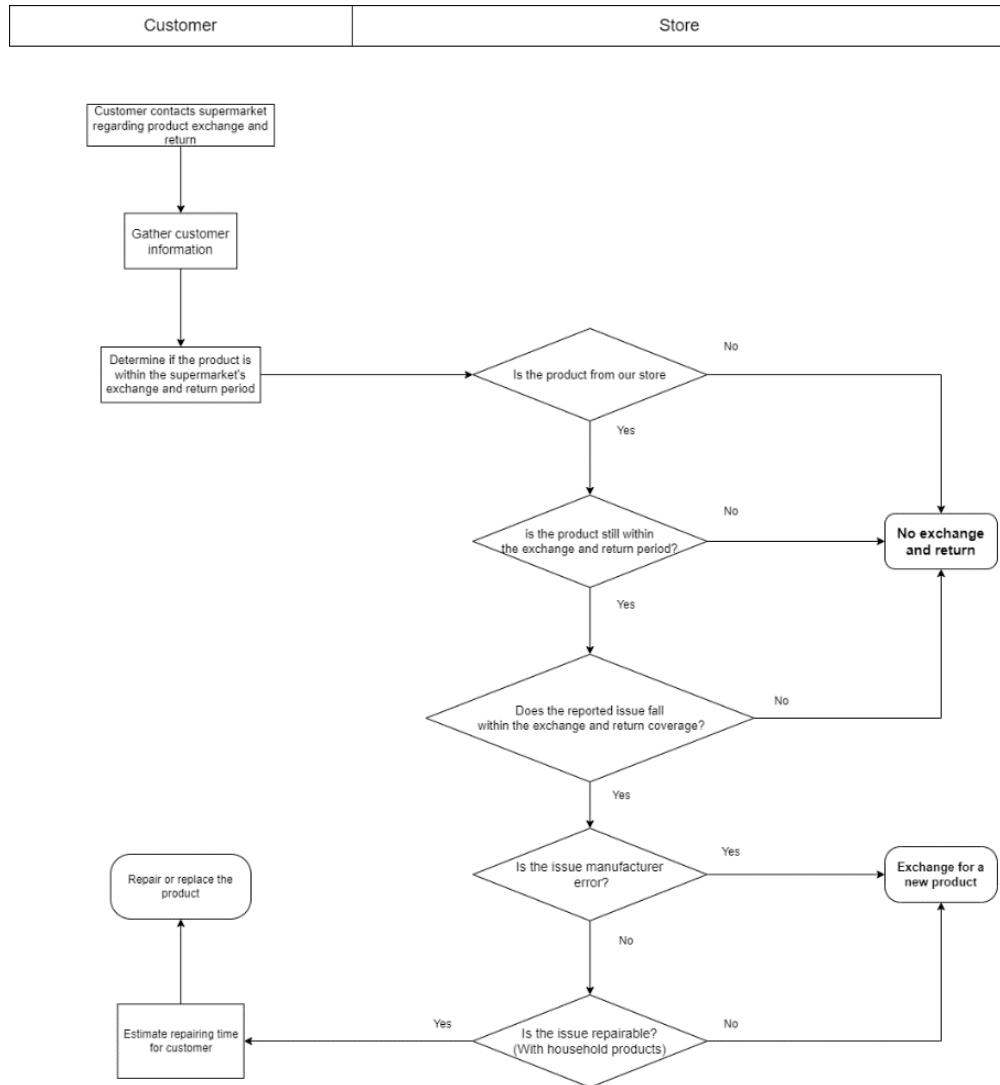
2. Type of Decision-making



Decision-making contains three levels, which are:

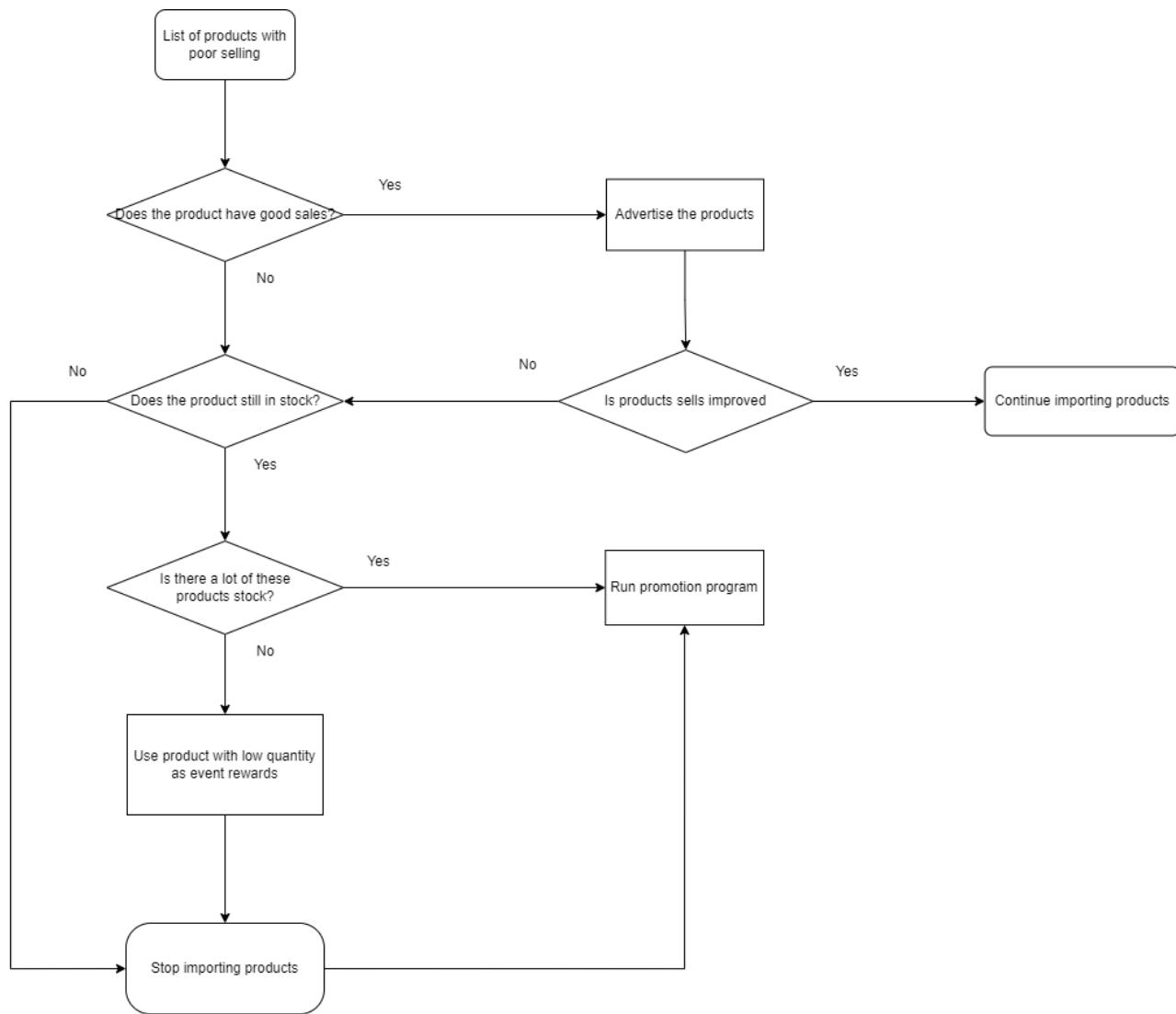
- Operational: Daily routine and immediate impact.
- Tactical: Departmental goals and medium-term effects.
- Strategic: Long-term vision and organization-wide impact

2.1 Operational



Operational decision making occurs at the frontline level, where employees and supervisors make daily decisions that directly impact operations. They handle tasks like shift scheduling, inventory management, and addressing customer issues. These decisions have immediate effects on the organization's day-to-day functioning.

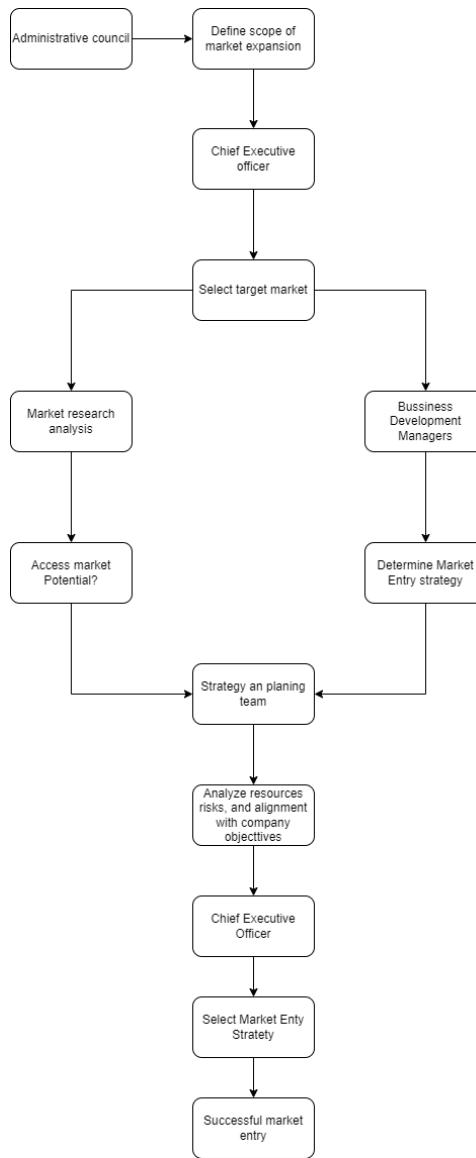
2.2 Tactical Levels



Supervisors, department heads, middle managers, and other leaders dominate this organizational level. Those who work at this level often supervise those who work at the operations management level.

Decisions are made semi structured by tactical users. A combination of set policies and tactical calls form the basis of decisions. The allocation of resources, establishment of objectives, and process optimization are a few examples of tactical decisions. The effectiveness and performance of the corresponding departments are impacted by these choices over the medium term.

2.3 Strategic Levels



The highest level of the corporation makes strategic decisions, and that brings us to a close. These choices are made by senior executives and the leadership group. Their primary concern is defining the organization's overall mission and vision. Strategic choices are important and have lasting consequences. Examples include market entry strategy, business expansion, and mergers & acquisitions.

2.3 Example

Operational level:

- Stocking shelves
- Managing daily product deliveries
- Processing checkout transactions
- Cleaning and sanitizing stores
- Training and scheduling staff

Tactical level:

- Planning weekly/monthly product promotions
- Setting department budgets (e.g. for produce, dairy, etc.)
- Tracking inventory levels and reordering products
- Evaluating customer feedback and reviews
- Promoting new or exclusive product lines

Strategic level:

- Setting the overall vision and mission for the supermarket
- Developing long-term plans (3-5 years) for growth and expansion
- Determining target customer demographics
- Selecting new store locations via market research
- Negotiating contracts with major suppliers
- Developing competitive pricing strategies
- Creating marketing campaigns to increase brand awareness
- Mergers, acquisitions or partnership opportunities
- Analyzing industry trends to position the business for the future

3. BI tools

3.1 Tableau introduction

Users may turn unstructured data into interactive and aesthetically pleasing insights with Tableau, a robust data visualization and business intelligence (BI) application. Businesses, analysts, and data specialists frequently use Tableau to analyze data, build interactive dashboards, and come to informed conclusions.

Tableau is a useful tool for anyone wishing to explore and successfully express insights from data because of its user-friendly interface and strong data analysis and visualization capabilities.



Advantages of tableau

- **Data Visualization:** Tableau is a master at producing dynamic, visually appealing data representations. It enables users to turn difficult-to-understand charts, graphs, and dashboards from complex data sets, making it simpler to identify trends, patterns, and insights.
- **Ease of Use:** Simple coding and technical knowledge are all that are needed to use Tableau's drag-and-drop interface. Because of this, it may be used by a variety of users, such as business analysts, data scientists, and non-technical professionals.
- **Speed and Efficiency:** Quick data processing and real-time updates are made possible by Tableau's in-memory data engine. In order to make timely judgments, users must be able to swiftly explore and understand data.

Power BI is a useful tool for product exchange analysis and decision making. It can help you in the following ways:

- **Exchange performance analysis:** You can use Power BI to examine exchange data and identify patterns, trends and anomalies. You can measure how well your exchange claims program is working by looking at exchange performance indicators such as claim frequency, cost and repair time.
- **Predictive analytics:** Power BI can use advanced analytics and machine learning techniques to forecast warranty-related outcomes. By analyzing past exchange data, you can create predictive models that estimate exchange claim rates, predict future or potential exchange costs and detect possible exchange fraud.
- **Reporting and collaboration:** Power BI makes it easy to create and share reports, allowing you to communicate warranty-related insights with stakeholders effectively. You can create custom interactive reports or dashboards that give an overview of exchange performance, highlight key metrics and track progress against warranty-related objectives.

3.2 Microsoft power BI introduction

A robust business intelligence (BI) and data visualization tool created by Microsoft is called Power BI. It enables businesses and people to analyze data, produce interactive reports and dashboards, and share insights to help them make wise decisions. Microsoft Power BI is extensively used in all sectors and by organizations of all sizes to improve decision-making processes and to help businesses succeed via the use of data-driven tactics. It is a popular option for companies trying to harness the potential of their data because of its user-friendly interface and connectivity with the Microsoft ecosystem.



Advantages of Microsoft power BI

- **Data Visualization:** Power BI is excellent at producing dynamic, aesthetically appealing data visualizations that make it simple to grasp complicated data and spot trends and patterns.

- **Data Transformation:** Users of Power BI's Power Query Editor may clean, manipulate, and shape data to ensure data quality and correctness before it is analyzed.
- **Cloud Service:** The cloud-based Power BI Service provides access to reports and dashboards from any location and on any device.

Tableau possesses several capabilities that can facilitate market expansion in the following ways:

- **Data visualization:** Create interactive charts, graphs, and maps to identify market trends and opportunities.
- **Market analysis:** Analyze customer preferences, competitive activity, and market dynamics for informed decision-making.
- **Dashboards and reports:** Customize interactive dashboards to track progress, share insights, and promote collaboration.
- **Geographic analysis:** Utilize mapping features to identify growth areas, analyze demographics, and optimize market penetration strategies.

3.3. Other tools

- Excel
- My SQL
- Python
- Anaconda

4. Compare

STT	Characteristic	Microsoft Power BI	Tableau
1	Usability	Simple and familiar user interface makes it easy to get started.	Doesn't require specialised knowledge but not as user-friendly as Power BI.
2	Best for	Analysing personalised data - but can convert data from multiple sources with optional software add-	Built to represent larger data sets from

		on.	multiple sources.
3	Data handling	Power BI Pro is limited to 1GB per dataset and 10GB per user. With Power BI Premium this increases to 10 GB per dataset and 100TB across all users	Limited to 100GB capacity for workbooks and extracts
4	Data sources	Can access a multitude of databases and cloud services including SQL, SAP, HANA and Oracle.	Can access a huge number of servers and data source
5	Features	Power BI is an effective data visualisation tool that is constantly evolving.	Tableau is feature-rich and highly customisable - though more complex than Power BI.
6	Deployment options	Delivered as a cloud service - particularly ideal for smaller organisations.	Can be delivered as a cloud service, on-premise, or via third-party cloud provider
7	Cost	Easy to get started with low cost - per - user pricing.	Higher cost - balanced by richer features and data handling capabilities

5. Task table

Task	Work	Status	Name	Self - Evaluate	Evaluate (Leader)
1. Business process	Finding dataset	Work in group	Work in group	10	10
	Give introduction for business process and support process	Personal	Minh Thanh	8	9
	Choose 2 business processes and create diagrams	Personal	Trung Tin	9	9

2. Decision making levels	Describe 3 levels of decision-making	Personal	Minh Thanh	9	9
	Give examples for 3 levels of decision-making and draw diagrams	Personal	Trung Tin	9	9
	Find BI tools	Personal	Minh Thanh	10	10
	Apply BI tools in given cases	Personal	Trung Tin	9	9
3. Prepare slides and speaker notes	Create slides from found information and write speaker notes for slides	Work in group	Work in group	10	10

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