CHAPTER 2
THEORITICAL FOUNDATION

2.1 Theoretical Foundation

This chapter will describe the fundamental theories and terminologies that will be utilized within the framework methodology in terms of analysis and design for the following chapters. There will be exploration of diverse studies and different perceptions to further heighten the concept of Business Project Reengineering. It contains the underlying theories, frameworks, and supporting technologies for Business Process Reengineering.

2.1.1 Information System

Deriving from the words of Information and System, it conceptualizes the study of “Information System”. According to Stair et al (2018), a system is a set of correlated elements to accomplish a particularized goal, and the correlation between the components determines how the system functions. Input, process, output, and feedback are the four essential components of a system. Subsequently, Information is defined as knowledge conveyed or acquired from study, investigation, or instruction (Merriam-Webster, n.d.)

Combined as a term, an information system can be defined as a collection of interconnected elements or components that gather (input), modify (process), store, and distribute (output) data and information, as well as offer a corrective reaction (feedback mechanism) to achieve a goal (Stair & Reynolds, 2015, p. 8). It is how a technology implementation is appropriated and instantiated in order to realize the implementation of IS that meet the information needs and requirements of diverse actors – such as people, groups, or organizations – in relation to certain objectives and practices (Boell & Cecez-Kecmanovic, 2015).

An important component of an information system emphasizes on its feedback mechanism as its vital to the success operation of a system, assisting businesses in meeting their objectives, such as generating revenues or enhancing customer service.
Essentially, the sequence of events in information system includes input, processing, output, feedback, and forecasting (Stair & Reynolds, 2015).

![Figure 2.1 Information System Sequence (Stair & Reynolds, 2015).](image1)

Henceforth, Business Information Systems are a subset of information systems that are often utilized in business organizations. To perform business activities, large companies may employ a single enterprise information system or distinct ones (Stair, Reynolds, & Chesney, 2018). The graphic below illustrates the primary kinds and levels of information systems that business organizations often employ.

![Figure 2.2 Business Information System Triangle (Stair, Reynolds, & Chesney, 2018).](image2)
2.1.2 Information Technology

Information Technology, often abbreviated as IT, is defined as “the study or use of electronic equipment, especially computers, for storing, accessing, analysing and sending information.” (Oxford Learner Dictionary, n.d.) Information technology refers to the use of devices such as computers to manage electronic data including its creation, usage, storage, and processing.

In this day and age, Information Technology has become a vital part of all aspects of modern life. With the development of mobile devices and social media, the absence of IT has become a rare occurrence in our daily lives (Lloyd, 2020). Currently, a growing number of businesses are integrating Information Technology into their daily operations, which has allowed them to boost their productivity in an effort to keep up with modern technology (Kutz, 2016).

Information Technology is used in Business in various ways. The most common uses of IT in business include as a mode of communication between members of the market such as between employers and employees as well as between suppliers and customers, allowing companies to maintain a relationship with their customers. IT software and hardware are also often used to systematically manage relevant data and inventory, which is largely beneficial to companies that need to process a large amount of data (MacKechie, 2019).

IT has revolutionized the way we obtain and manage information, eliminating a significant fraction of what we call the knowledge problem, which in the past has hindered economic growth due to a lack of information (Hayek, 2018). Incorporating Information Technology in a business has boosted our economy, essentially allowing products to reach a vast amount of buyers and sellers. The use of IT in doing business has restructured many industries and created new jobs, which has especially been advantageous in developing countries such as Indonesia.
2.1.3 Business Process

According to Dumas et al. (2018), business processes are the activities that companies engage in when they provide a service or a product to a client. The way processes are planned and executed influences both the perceived quality of service and the efficiency with which services are provided.

A business process is a collection of related actions carried out in a coordinated manner within an organizational and technological environment. These actions work in tandem to accomplish a corporate objective. While each business process is carried out by a distinct company, it may interact with those carried out by other organizations (Weske, 2019).

Dumas et al (2018) argued that along with events and activities, a typical business process contains decision points, or moments in time at which a choice is taken that influences how the process is carried out. Therefore, a process comprises of three fundamental components, which include:

1. Actors, such as individuals, organizations, and software systems that act on their behalf.
2. Physical items, including machinery, equipment, materials, manufactured goods, and paper documents.
3. Informational objects, which are electronic records and electronic documents.

![Figure 2.3 Ingredients of a Business Process (Dumas, Rosa, Mendling, & Reijers, 2018)](image)
The objective of managing a business process is to continuously improve and drives growth by assessing the outcomes of current business processes’ performance. Organized business processes will expedite work, improve internal order, reduce costs, and contribute to the improvement of product/service quality, as well as organizational activities and capabilities in general (Kaniški & Vincek, 2018).

2.1.4 Organizational Structure

An organizational structure refers to the workflow of an organization in terms of the roles and interactions between members of the organization, such as between employees and a manager. It is often outlined in the form of an organizational chart that defines a hierarchy between units within an organization (Ahmadya, Mehrpour, & Nikooravesh, 2016).

The chart has a purpose of organizing the members of an organization into an ordered structure, where internal reporting and relationships between departments are clearly indicated. Organizational structure acts as a guideline in ensuring that the personnel can fulfill their roles and responsibilities as a member of an institution, working towards organizational success (Ahmadya, Mehrpour, & Nikooravesh, 2016).

2.1.5 Business Process Reengineering

Business process reengineering originated in the 1990s as a term that refers to the process of enhancing an organization’s quality, cost, service, lead time, result, flexibility, and innovation (Susanto, 2016). However, in the 1980s, BPR mainly focused on academic instead more than for organizational use. Harmon (2007) stated it was until the 90s when Michael Hamper and James Champy started to introduce BPR as an organizational awareness concept and emphasized that BPR is focused on radical and dramatic process redesign, which includes a complete overhaul of current processes (Sorunke & Nasir, 2016). Hamper and Champy (2006) defined reengineering as “the fundamental rethinking and radical redesign of business processes with the goal of achieving significant improvements in critical contemporary performance performance such as cost, quality, service, and speed.” (Sorunke & Nasir,
According to Hamper and Champy (2006), business process reengineering can be emphasized into 4 key definitions, which are fundamental, radical, dramatic, and processes (Soranke & Nasir, 2016). The first word ‘fundamental’ suggests that organizations must address fundamental issues on their reasoning of actions and implies on the question of why they do it. As a result, no assumptions regarding which processes should be performed and which should be removed must be made. The second word ‘radical’ indicates that reengineering does not only involve minor improvements, but it includes disregarding all current structures and processes into creating a whole new method of completing tasks. The third word ‘dramatic’ implies that it begins with a fresh sheet of paper and designing the ideal process without any consideration for existing organizational barriers; as contrast to incremental changes that require fine tweaking. The fourth word ‘processes’ signifies that reengineering should focus on processes rather than tasks, jobs, people, or structures, in order to bring about a significant change for the whole process, and not just the functions, since all of those elements occur within it.

Business process reengineering implies evaluating existing processes, identifying inefficient operations, and devising ways to eliminate or enhance them, restructuring current processes in order to provide more value to the customers. Typically, they develop a new value system that puts a higher emphasis on customer requirements. (Bain, n.d.).

Davenport and Short proposed a five-step technique that included the following steps: establish a business vision and process objectives as BPR is driven by an organization’s aim, identify redesign processes that are critical within the activities, comprehend current processes and examine which part can be improved, discover IT levers and capabilities to influence process design, and construct a prototype for the newly established process; this is considered as a successful iteration, not the conclusion of the BPR process (Bhaskar & Singh, 2014).

Inferring from the various elaborations above, Zaini and Saad (2019) summarizes the four qualities that BPR focus on, which includes:
1. It highlights innovations and improvements, starting with a blank sheet of paper to formulize a perfect process.
2. It involves the radical redesign of processes.
3. It makes use of information technology, which is a critical component of BPR and a necessary component of today’s business activities.
4. It enables cost savings and an increase in service quality.

2.1.6 Business Project Management

Business process management refers to a collection of ideas, methodologies, and techniques that facilitate the design, administration, configuration, execution, and analysis of business processes. It is based on the explicit depiction of business processes, their associated activities, and the execution constraints that limit them. Once defined, business processes may be analysed and improved for better enactment (Weske, 2019).

Jeston and Nelis (2013) point that in terms of process improvement, BPM outperforms the competition of any other methods. BPM has undoubtedly made process improvement more visible in many organizations. Furthermore, BPM have been advocated for its distinction and superiority than prior process improvement options. This includes integrating a new and better technology of implementation. Nonetheless, technology should not be the first priority. The initial phase should involve an evaluation of existing processes with the objective of increasing their efficiency and effectiveness.

BPM relates to the process of identifying and implementing an organization's strategic goals, as outlined in a strategic plan. Achieving the company’s direction and goals set for improvement. It encompasses the whole enterprise's end-to-end business operations, allowing it to be more effective and efficient. However, there is a widespread misconception that business process management (BPM) is primarily concerned with implementing technology to enhance processes (Jeston and Nelis, 2013).

BPM is more than software; it is more than simply optimizing or reengineering processes. BPM addresses managerial concerns, and it is not merely a hype. It is an integral part of management which provides more than just modelling. Implementation
and execution of the processes that requires analysis are also entailed. As a management discipline, BPM necessitates an end-to-end organizational view of the company and a lot of common sense, both of which are sometimes lacking. (Jeston and Nelis, 2013).

Jeston and Nelis (2013) categorized there are seven types of drivers and triggers that influence a company to consider implementing BPM, which mainly problems in organization, management, employees, customer/suppliers/partners, product and services, processes, and information technology. This includes the existence of repetitive transactions, processing time issues, redundant calculations, real-time monitoring for visibility status, technology necessity, need of simultaneous accessibility to transactions by many parties. Nevertheless, it is important to strive for a balance between automation and human participation. Over-automating procedures may cause a company to lose focus on the importance of employee involvement. Engagement of people is critical and should be engineered to the processes.

**2.1.7 Business Project Management Framework**

There are three components to the foundation, which are represented as a three-legged BPM project success stool. Each component is critical to the success of a BPM project.

1. **Process:** The degree of business process innovation or redesign must be in an appropriate level in relation to the company's strategy and process objectives, and the significance of processes must be accepted throughout the organization.
2. **People:** As a company matures in process management, people are essential to the successful implementation of new processes. At any rate, a company must have the necessary mechanisms in place to monitor and manage critical processes' performance.
3. **Technology:** Technology acts as the supporting tool for both processes and people.

Furthermore, it must have the 'seat' of project management as its fourth component for a successful implementation. The complexity of BPM initiatives
necessitates a good project management approach that aligns IT, business, and the people if they are to be successful.

Figure 2.4 BPM Project Framework (Jeston and Nelis, 2013)

According to Jeston and Nelis (2013), figure 2.4 is a BPM framework known as the 7E Project Framework, which consists of 10 phases:

1. Foundation Phase

The foundation phase is where BPM projects determines on the extent to which how organization strategy and process architecture phases are referred to throughout the process, and the launch pad phase is where most new BPM project initiatives begin.

a. Organization Foundation

This phase serves as the kick-off for a BPM implementation project. It involves making certain that all of the organization's strategies, visions, and strategic objectives are properly understood. It is essential that all project stakeholders understand the project's short- and long-term benefits, as well as the organization's value proposition. This will align the scope of the project to the organization's strategy and ensure greater value added to the well-defined strategic goal. The objective of this phase is to define the relationship and interaction between the organization's strategy and processes.
b. Process Architecture

The process architecture is designed at this phase. A company's process architecture defines a collection of rules, principles, standards, and models for implementing BPM throughout the organization's departments and divisions. The process architecture serves as the foundation for designing and implementing BPM process initiatives. All three aspects of processes, IT, and business architecture are brought in sync with the organization's strategic goals.

c. Launchpad

There are three primary results from this phase:

1. The decision of where to launch the initial (or next) BPM project inside the business
2. A consensus of the process goals and/or vision once the processes are identified.
3. Establishment of the desired project.

Choosing a starting point is a challenging task in and of itself, but the framework will give numerous options for where and how to begin. For processes to enhance or add value to the strategy, they must be aligned with the organization's vision and the organization's process architecture. After deciding on a business unit and process and agreeing on the determined process objectives, the project must be created to optimize the chances of success. Forming the project include determining the structure of project team, scope, stakeholder management, initial business case development, and projected business advantages.

2. Findings and Solutions

Findings and solutions refers to what must be discovered or analysed about current processes which it is accomplished in the Understand phase, with appropriate solutions developed and specified in the Innovate phase.
d. Understand

It is important to have a thorough grasp of current company processes during this stage in order to go on to the Innovate phase. At the very least, fundamental process metrics must be obtained in order to create process baseline costs for future comparisons. Additionally, doing a root-cause analysis and looking for opportunities for fast wins are both critical. Quick wins must be identified and implemented along the road as a company cannot (and should not) give infinite funding for process improvement initiatives. Ideally, the project(s) should become self-financing through the utilization of the fast wins that result from their execution.

e. Innovate

Innovate phase is the creative phase of the project where innovative solutions are designed to resolve the identified issues. It should not only include the project team and the business, but also key internal and external stakeholders. After determining several options for new process alternatives, it is necessary to perform simulations, conduct activity-based costing, undertake capacity plan, and evaluate implementation feasibility in order to decide which solutions are the best. There should be additional metrics completed to provide a comparison to the baseline metrics that were created during the Understand phase.

3. Fulfilment

Fulfilment involves the people, develop, and implementation phase of the specified solution.

f. Develop

Develop phase involves building all of the necessary components for implementing the new business processes. This encompasses the building of every infrastructure needed, including detailed system design, to support the deployment of the new system change. 'Build' refers to the construction of all facilities (desks, PC movements, buildings, etc.) that also comprise software
and hardware testing in order to support the people change management programs.

g. People
This is a crucial step in the project's framework as it might jeopardize everything else when not handled properly. This phase's goal is to make sure that activities, responsibilities, and performance metrics align with the organization's overall strategy and process objectives. Ultimately, regardless the amounts of automation involved, it is humans that enables processes work successfully and efficiently.

h. Implement
It is where aspects of all the phases and improvements (such as the roll out of new procedures, the dissemination of new job descriptions, performance management and metrics, and training) are brought to reality and executed. Plans for roll-back and contingency are as important to the implementation. A well-defined implementation phase will result in trained and motivated employees and better processes that function in accordance with initial user needs, making an implementation plan critical to performance monitoring and measures.

4. Future
Future helps to set up the project for future success, which is attained by completing realize value and sustainable performance phase successfully. That way, initiatives may be replicated and become part of the organization's daily routine, rather than being isolated from it.

i. Realize Value
The phase goal is to make certain that the project's intended benefits and expectations are realized. Benefits realization management and benefits realization reporting are the main components of this phase. No extra funds should be provided to future process initiatives unless any gains are achieved. As a result, the project team, owner, sponsor, and business all have a part to
play in making sure these advantages are achieved. When a project has met all of its projected business value and advantages, it can ultimately be considered complete.

j. Sustainable Performance

The project team must work closely with the company to create a process framework that allows for process adaptability and improvement to continue in the long term. After the project’s planned benefits have been accomplished, the organization must understand that processes have a lifetime and require ongoing improvement. To the contrary, failing to realize this will cause the company simply be executing its procedures sub-optimally over time and operate in a less-than-optimal manner as the firm evolves. The phase focuses on transforming a project-based BPM framework to an actual BPM business-based operational activity.

2.1.8 Scenarios of Business Project Management Implementation

Each organization may have different situation and circumstances therefore selecting a suitable scenario of implementing BPM is important as impact level varies.

Figure 2.5 Scenarios of BPM Implementation (Jeston and Nelis, 2013)
There are four scenarios as summed by Jeston and Nelis (2013).

1. **Business as usual.** Most BPM-mature organizations will select this scenario. Business managers and the company will commit to become a process-centric organization.

2. **In the driver’s seat.** Next step of organizational BPM maturity, and it occurs when a business manager is completely informed and fully committed to implementing BPM inside the organization or business unit for which the manager is accountable.

3. **Pilot project.** This is the case when a well-informed business management is still undecided about the benefits of BPM and is prepared to experiment on a modest scale before making a complete commitment.

4. **Under the radar.** This is an option for least BPM-mature company, when a business manager is just partially aware and are not much committing to BPM inside the firm. This scenario might be a project disguised as process improvement, with no mention of BPM. A fascinating note about this sort of project situation is that some businesses may finish several 'under the radar' BPM initiatives and yet fail to attract the attention of the relevant business management to expand BPM across the enterprise.

### 2.1.9 Supply Chain Management

Supply chains are comprised of firms and business activities involved in the design, manufacture, delivery, and usage of a product or service. The supply chain of a company is critical to their long-term viability and success as it provides necessities. Each company is involved in one or more supply chains and plays a function in each one. The rapid speed of change and the unpredictability surrounding market evolution have made it more critical for businesses to be aware of the supply chains in which they engage and to understand their responsibilities. Businesses who succeed developing and participating in strong supply chains will gain a significant competitive edge in their market (Hugos, 2018).

According to Chopra and Meindl, “A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses,
retailers, and customers themselves.” In a supply chain management, production, inventories, locations, and transportation are coordinated among the parties to create the greatest possible combination of responsiveness and efficiency for the market being served (Hugos, 2003).

Effective supply chain management necessitates both an increase in customer satisfaction and a reduction in the operational costs of the firms involved in the chain. Customer service on a basic level implies consistent high order fill rates, high on-time delivery rates, and a very low percentage of items returned by consumers for any reason. For businesses in a supply chain, internal efficiency includes getting a good return on investments in inventory and other assets and finding methods to reduce operating and sales expenditures (Hugos, 2018).

### 2.1.10 Business-to-Consumer E-Commerce

Business-to-consumer (B2C) e-commerce refers to a subset of e-commerce where customers transact directly with organizations, without the need of intermediaries (Reynold, 2018). B2C e-commerce has a steady growth due to an advantageous attribution in part to consumers discovering that numerous items and services are cheaper when purchased online. Additionally, B2C e-commerce is on the rise since online B2C customers may create a customized service in need. By providing services directly to customers via B2C e-commerce, manufacturers or providers of consumer items can cut out the intermediates between them and the consumer. Disintermediation is the process of removing intermediary organizations between the producer and the customer. In many situations, this reduces the supply chain's costs and inefficiencies, which benefits companies by increasing profits and lowering prices for customers.

Furthermore, e-commerce is developing quickly as a result of the COVID-19 virus. Customers were obliged to utilize the internet and incorporate it into their everyday routines as a result of the Coronavirus (Abiad, Arao, & Dagli, 2020). The overall sale of e-commerce has increased as a result of this virus, as individuals avoid going out, maintain social distance, and shop from home or work from home, such as Walmart supermarket e-commerce, which has increased by 74% (Bhatti et al, 2020). As a result of the pandemic, customers are gravitating toward e-commerce technology.
Competition is also exerting pressure on businesses to become more efficient in providing goods and services to consumers while also lowering their prices. In such a circumstance, more resources are allocated to maintain competitiveness, which in turn leads to increased company efficiency. Firms tend to be more inventive in discovering methods to run their business more efficiently in response to increased competition pressure. Hence, they utilize a variety of technologies, including the Internet, conventional Electronic Data Interchange (EDI) systems, electronic marketplaces, online auction, and electronic supply chain management systems. The application of Internet technology to enable business-to-business interactions has garnered a great potential for transforming supply chain processes especially to B2C ecommerce (Alsaad, Mohamad, and Ismail 2018).

2.1.11 Porter Five Forces

The foundation of a competitive strategy should be a thorough knowledge of industry structures and how they evolve over time. Professor Michael Porter of Harvard Business School developed the five-force model, which was originally published in the Harvard Business Review in 1979. “Porter Five Forces is a framework for comprehending the competitive forces at work in an industry, and which drive the way economic value is divided among industry actors.” (Harvard Business School, n.d.) According to Porter, the strategist's job is to identify and manage a competitive environment by looking at rivals directly or from a larger viewpoint that competes with the company.

The five-force framework is a useful and simple technique for identifying specific powers relevant to a given business scenario from an outside-in viewpoint (Brujil, 2018). Upon closer study, it is clear that the model gives an organization a better grasp of how profit is allocated among the five forces in a particular sector. As a result, the organization will have a better knowledge of which industry actors wield the greatest influence and are thus likely to set the rules for the activities. Additionally, porter five forces can be viewed as a tool for doing an industrial analysis. Organizations may have a better understanding of the industry not just now, but also in the future, because of the framework's ability to look at the sector's dynamics and anticipate changes.
The framework denotes five microenvironmental forces that fuels competition and may potentially threaten an organization's capacity to earn profit.

1. Rivalry among Existing Competitors

Highly competitive sectors have a typical characteristic of high entry and exit costs, low levels of product differentiation, and a large number of rivals. The larger the amount of rivals and low levels of product differentiation may diminish the power of company. Hence, companies continuously assess their resource and asset utilization in order to obtain an advantage over their rivals. This resource-based vision is a strategy for obtaining and controlling assets and resources that can provide the business a competitive edge. For example, a transportation business may opt to invest in radio-frequency technology to tag and trace items as they move from one point to another.

2. Threat of New Entrants

Threats occur when there is a low entry and exit costs, as well as widespread availability of the technologies required to establish and run a firm. An example of this is a small restaurant that is under pressure from new rivals. Small restaurant owners don't have to invest millions of dollars to get started, food cost is not much lower when buying in bulks, and food preparation and processing equipment is readily accessible. To keep out new competitors when the threat of new entrants is strong, it is important to seek and retain
competitive advantage. It is ideal to have high barriers of entry as companies can better benefit from charging higher prices and negotiate better conditions.

3. Threat of Substitute Products and Services
   Companies that specialize in a particular product or service may face threats of competition from other firms that specialize in the same product or service. Companies that provide unique products or services will be able to charge higher rates and lock in favourable terms of sale since there are no similar replacements. However when close alternatives exist, buyers have the option of not purchasing the company's goods, reducing the company's power.

4. Bargaining Power of Buyers
   Customer base may influence price reductions or level of power. It is influenced by the number of buyers or customers an organization has, the value of each client, and the expense of acquiring new customers or markets for the organization's product or service. Smaller and stronger client base enables each customer to have greater bargaining power when it comes to negotiating for cheaper pricing and better deals. A business with a large number of smaller, independent clients will find it simpler to boost pricing and profit margins.

5. Bargaining Power of Suppliers
   Fewer numbers of suppliers in the industry indicates an increase of company's reliance on a particular, causing the supplier to gain leverage and has the ability to increase input costs and pursue other trade advantages. However, when a firm has a large number of suppliers or low switching costs between competing suppliers, it can reduce its input costs and increase profits.

2.1.12 SWOT Analysis

According to Gurel and Tat (2017), SWOT Analysis is defined as a technique or tool used in businesses for strategic planning and management. It may be efficiently utilized to develop organizational and competitive strategies. Thomson argued SWOT
Analysis is a straightforward yet effective technique for assessing an organization's resource capabilities and weaknesses, market opportunities and external threats to its future (Gurel and Tat, 2017). SWOT Analysis is a critical situation analysis technique that assists managers in identifying organizational and environmental variables.

SWOT is an acronym for 'strengths,' 'weakness,' 'opportunities,' and 'threats.' The SWOT Analysis, sometimes called the 'SWOT Matrix,' can also be referred to as the 'TOWS Analysis' or 'TOWS Matrix. SWOT analysis is divided into two parts: internal and external. Organizational variables, such as strengths and weaknesses, are included in the internal dimension, whereas environmental aspects, such as opportunities and threats, are included in the exterior dimension (Gurel and Tat, 2017).

The four elements of SWOT analysis:

1. **Strength**
   An organization's strengths define what it excels at and what makes it stand out from the competitors. The ability of a firm to obtain an advantage over its competitors, a feature that provides value and helps it stand out from the crowd. Strength benefits the business in this instance. This includes having an established brand, a loyal client base, a strong balance sheet, and cutting-edge technological capabilities.

2. **Weakness**
   Weaknesses prevent an organization from operating at maximum efficiency. They are areas in which the firm must improve in order to remain competitive. This includes having a weak brand, excessive debt levels, poor supply chain, and inadequate capitals. Weakness has a detrimental effect on the business.

3. **Opportunities**
   Opportunities relate to external conditions that benefit a business and may provide it with a competitive edge. For instance, if a government lowers tariffs on automobiles, a manufacturer can export them to a new market, therefore increasing sales and market share.
4. Threat

Threats are defined as circumstances that may cause harm to an organization. Several typical threats include, rising material costs, increased competition, and a shortage of manpower.

![Figure 2.7 TOWS Matrix (Dandage, Mantha, Rane 2019)](image)

The TOWS matrix focuses on maximizing the strengths (S) and opportunities (O) of the organization while reducing its weaknesses (W) and threats (T). It provides a conceptual foundation for future study on the interaction of external and internal elements, as well as the tactics that are based on these variables. The TOWS matrix requires managers to assess their company's current position and design strategies, tactics, and actions to help the firm meet its goals and fulfill its mission in an efficient and effective manner (Dandage, Mantha, Rane 2019).

2.1.13 Value Chain Analysis

A value chain is a sequence of operations performed by a company to transform inputs into outputs while increasing the value of the input. There may be several value
chains in a single organization, and various businesses in different industries will each have its own distinct value chains (Stair, Reynolds, & Chesney, 2018).

According to Stobierski (2020), value chain relates to various business processes and activities performed in the process of making a product or providing service. Businesses often utilize value chains as an approach to organize their work operations in order to achieve goals. Michael Porter developed value chains to structure and connect high-level business processes, offering insight into how an organization operates (Weske, 2019).

Value chain analysis is a technique for assessing each activity throughout a company's value chain in order to see where improvements may be made. Value chain analysis allows for an evaluation how each activity step contributes to or detracts from the end product or service's value. Substantially, it may assist the company to realize possibilities for achieving a competitive edge, such as cost savings and product differentiation. By optimizing the value business creates along the chain, the more value it can share with consumers while also increasing its own share. Knowing how one’s company produces value will help gain a better grasp on its competitive advantage (Stobierski, 2020).

Figure 2.8 Value Chain Structure (Weske, 2019)
Introduced by Porter in 1985, all activities and business function that contribute to a firm's value chain may be partitioned into two categories: primary activities and support activities (Weske, 2019).

Primary activities are referred to activities that directly contribute to the production or delivery of a product or service, such as the followings:

1. Inbound logistics: Activities involving the receive, warehouse storage, and inventory management of source materials and components required to conduct its business.
2. Operations: Activities involved in the transformation of raw materials and components into final products.
3. Outbound logistics: Activities relating to distribution-related tasks, such as packaging, sorting, and shipping.
4. Marketing and sales: Activities organizing the marketing of a product or service and selling in a competitive market, such as promotion, advertising, and pricing strategy.
5. Services: Activities that occur following a finalized transaction, such as installation, training, quality assurance, repair, and customer service, where it may address any issues that can potentially arise, while also collecting important consumer information for use in creating and selling future items.

Support activities helps to set an environment where it can improve the efficiency of primary activities and effectively create a competitive advantage. Support activities may be divided into:

1. Procurement: Activities relating to the sourcing of raw materials, components, equipment, and services.
2. Technology Management: Activities relating to product and process improvement initiatives, such as product design, market research, and process development.
3. Human Resource Management: Activities relating to recruitment, hiring, training, growth, retention, and personnel compensation.
4. Firm Infrastructure: Activities relating to the overhead and management of a company, such as accounting, financing, general management, and planning.
2.1.14 Process Selection Matrix

Process selection matrix (PSM) is a visual representation of all the business processes within a business unit, typically on a single sheet. Additionally, the PSM is an excellent tool for determining and communicating the degree of process complexity, the number of processes, and the business's high-level process metrics (Jeston and Nelis, 2013).

![Process Selection Matrix](image)

*Figure 2.9 Process Selection Matrix (Jeston and Nelis, 2013)*

As seen from figure 2.9, the vertical axis consists of main processes that are derived from the end-to-end processes defined. While, the horizontal axis denotes the scenarios that allows for a more comprehensive analysis of the processes inscribed on the vertical axis.

2.1.15 Flowchart

Diagrams may be used to depict business processes as it enables stakeholders to see processes in a unified modelling language. The flowchart is one of the earliest and most common diagram types used for process modelling. Businesses frequently utilize flowcharts to visualize high-level procedures and processes. It also assist business analysts and programmers in segmenting problems and analyzing various solutions in operations (Jeston and Nelis, 2013).
In a flowchart, rectangles indicate activities, whereas diamonds represent decision points. Additionally, a process model includes activity nodes and control nodes. Activity nodes define work units performed by people or software. Meanwhile, control nodes represent the execution flow between activities. Subsequently, there is a cross functional flowchart which combines swim lanes that denote various organizational functions (Dumas, Rosa, Mendling, & Reijers, 2018).

Figure 2.10 Representation of Flowchart with Swim Lanes (Dumas, Rosa, Mendling, & Reijers, 2018)

### 2.1.16 Activity Diagram

The activity diagram is used to represent a system's procedural processing. It illustrates the control and data flow between the various actions necessary to carry out an activity. It depicts the various user or system activities, the person or component responsible for completing each activity, and their sequential flow (Satzinger, Jackson, & Burd, 2015).
The fundamental symbols used in an activity diagram are shown in figure 2.11. Individual workflow activities are represented by flattened ovals. The transition arrows that link the dots reflect the steps in the process. The black circles represent the start and finish of the workflow, respectively. The diamond represents a crucial decision point where the process might take one of two directions. The thick solid line is a synchronization bar, which divides or recombines concurrent routes depending on how it is configured. The swimlane depicts the person or actor in charge of carrying out the task. It is named a swimlane as each agent in the workflow takes a route parallel to other agents as though they were all swimming together in a pool (Satzinger, Jackson, & Burd, 2015).

It is straightforward to create activity diagrams. Prior to creating swimlanes, determine the agents who will be involved. Proceed by following the workflow's different steps and then creating specific ovals for the activities in the workflow diagram. Illustrate the workflow by connecting the ovals with arrows (Satzinger, Jackson, & Burd, 2015).
2.1.17 Use Case Diagram

Use case diagram is a UML model that is used to demonstrate the link between use cases and their associated users. An actor is represented as a simple stick figure. The actor's function is represented by the name given to the stick figure. The use case is represented by an ellipse containing the use case's name. The connecting line between the actor and the use case denotes the actor's involvement in that use case. Finally, a rectangle containing the use case denotes the automation boundary, which separates the computerized component of the program from the people operating it. Communication between the actor and the use case transcends the automation border (Satzinger, Jackson, & Burd, 2015).

![Use Case Diagram Example](image)

*Figure 2.12 Symbols of Use Case (Satzinger, Jackson, & Burd, 2015)*

2.1.18 Class Diagram

The UML class diagram is used to illustrate a system's object classes. Rectangles represent classes on a class diagram, while the lines linking the rectangles indicate the relationships between classes. Class diagrams are created by depicting classes and their associations. The top portion includes the class's name, while the
bottom section contains a list of the class’s attributes (Satzinger, Jackson, & Burd, 2015).

![Figure 2.13 Symbol of Domain Class (Satzinger, Jackson, & Burd, 2015)](image)

Figure 2.13 Symbol of Domain Class (Satzinger, Jackson, & Burd, 2015)

Figure 2.14 illustrates a simple domain model class diagram consisting of three classes: Customer, Order, and OrderItem. Each class symbol in this section is divided into two parts. A customer may place many amount of Orders (minimum zero and maximum many) and each order is placed by a single Customer. It also shows how to incorporate the associations of ‘places’ and ‘consist of’ on a diagram for clarity, however it is not mandatory. The notation of multiplicity, denoted by an asterisk next to the Order class, shows the presence of several orders. The other association indicates that an Order may contain one or more OrderItems, each of which is connected with a single Order (Satzinger, Jackson, & Burd, 2015).

![Figure 2.14 Domain Class Multiplicity (Satzinger, Jackson, & Burd, 2015)](image)

Figure 2.14 Domain Class Multiplicity (Satzinger, Jackson, & Burd, 2015)
2.1.19 Burndown Chart

A burn down chart depicts the amount of work left to be done in relation to the amount of time available. Scrum, an agile software development methodology, frequently employs this technique. Nevertheless, it may also be applied to any project that requires observable progress over time (Dalton, 2018).

The outstanding work is usually on the vertical axis of a burn down chart, while the time is usually on the horizontal axis. It is practical for estimating when the job will be done in its entirety. The development team will provide a daily scrum update to the sprint burn down and maps the remaining work for the day (Visual Paradigm, n.d.). Several advantageous a burndown chart will provide include:

1. Tracking on the project's growth in scope.
2. Ensuring that the team works are on schedule.
3. Comparing planned work to team progress.

2.1.20 User Interface

Satzniger et al (2015) defined user interface (UI) as a collection of inputs and outputs associated with an application's direct interaction with the user. It is the component of the system with which the user interacts and interacts. Due to the fact that the user interface is the only element of the system that people see, the user interface is the system to them. The design of a user interface can be vastly different based on the goal of the interface, the user's attributes, and the features of the interface device itself. While all user interfaces should be developed for maximum ease of use, other factors such as operational efficiency may be significant for internal users who may be trained to utilize a specific interface suited for a particular hardware device.

Once a system is in place, the quality of the user interface may make or break its success or failure. Poor-quality customer and other external user interfaces frequently decide the failure of an entire organization. Moreover, employees' reactions to a new system interface may significantly impact the system's and business's performance. Well-designed interfaces boost staffs’ productivity and morale whereas poor-quality user interfaces contribute to mistakes and inefficiency (Satzinger, Jackson, & Burd, 2015).
2.1.21 RACI Matrix

RACI model (also known as RASCI or RASIC) is an effective tool for identifying project activities, roles, and responsibilities during the People phase. This model aids in describing precisely what needs to be done and by whom so that a new process may be carried out by the people involved in the process (Jeston and Nelis, 2013).

The RACI matrix is a responsibility assignment chart which maps out all of the tasks, milestones, and important decisions involved in completing a project and assigns who is responsible for each action, who is held accountable, and whom to consult or inform as necessary (CIO, 2018).

![Figure 2.15 Simple RACI Model (CIO, 2018)](image)

According to Jeston and Nelis (2013), RASCI model is an abbreviation for the following.

1. **R for Responsibility**: The individual(s) responsible for an issue or action. They are ought to completing the job or aim or for making the choice. Multiple individuals can share responsibility.

2. **A for Accountable**: The individual(s) who “own” the work and is to whom the work must be signed off (approved) before it put into practice. They must provide their approval or sign off when a task, goal, or choice is complete. They are also in charge of making certain that all responsibilities are clearly defined in the matrix.
3. C for Consulted: The individual(s) who possesses the required knowledge and competence to fulfil the work or process. They must provide input before work can be completed and approved. These individuals are “in the loop” and actively involved.

4. I for Informed: The individual(s) who must be kept “in the picture”, which the progress and results of the process or activity must be reported to them, but they are not required to be consulted nor do they actively contribute to tasks or decisions throughout the execution of the process or activity.

2.1.22 People Capability Matrix

People Capability Matrix (PCM) is a tool used to assess existing skills and provide useful insight into the underlying reasons of current process anomalies and how they will need to be changed in future processes. Therefore, the gap analysis between the current and future PCM is crucial, and must be clearly recorded and fully comprehended at a high level. More in-depth analysis, specific action plans and possible modifications to the organization's structure will take place throughout the Innovate and People stages (Jeston and Nelis, 2013).

![People Capability Matrix](image)

Figure 2.16 People Capability Matrix (Jeston and Nelis, 2013)
Figure 2.16 explains of how a people capability matrix may be completed. The horizontal axis depicts the key abilities or competences required by each process to perform the tasks or activities. While, the individual processes, process groups, or end-to-end models are shown on the vertical axis. Substantially, these core competencies are evaluated on a simple scale from 1 to 3, with 1 denoting a required core competency and 3 denoting a desirable but non-essential core competency (Jeston and Nelis, 2013).
2.2 Theoretical Framework

This section elaborates on the methodologies utilized for this research. Business Project Management will act as the methodological framework for the analysis and solution design of this research. This is prompted by the company’s need to optimize its operation and add an addition value to its service for competitive advantage.

The main objective of this project is to implement Business Project Reengineering (BPR) in PT Prima Trans Logistic as to shift its focus on end-to-end solution (B2C), while enabling the efficient integration of supply chains and gain new market segmentation in the anticipated expansion of e-pool commerce’s entrepreneurs during this pandemic. Furthermore, BPR helps to enable information technology integration to optimize process improvement and improve productivity. This allows for an increase in information accuracy and better customer satisfaction through restructured integration of systems and transparent visibility of process.

2.2.1 Data Collection and Evaluation Methods

This research will employ a qualitative approach for its data analysis, which will be gathered via interviews and direct site observations. However, as a result of the COVID-19 outbreak, the situation in Indonesia has deteriorated to the point that an onsite meeting is obstructed with many difficulties. Therefore, some of the interviews will be conducted through Zoom or Google Meet to ease the interviewees’ corresponding schedule, while site visits are occasionally organized with strict health protocols and limited hours. Subsequently, the data collected will be analysed with use of the adopted framework from BPM implementation in this research.

2.2.1.1 Interviews

An interview will be conducted with the company’s director and head of departments to ascertain the existing state of the firm, such as its current business processes, systems, technologies utilization, and thereafter gain insights of the
business requirements. The purpose of the interview is to elicit an objective qualitative assessment of each department based on their personal experiences and viewpoints in PT Prima Trans Logistic.

2.2.1.2 Direct Observation

Sie visits will be carried out to directly observe the business environment and how the company runs its processes. Existing business activities, documentations such as flowcharts, procedures, and daily operations occurring in PT Prima Trans Logistic will thoroughly be examined for this research purpose.

2.2.2 Research Methodology

To ensure a thorough grasp of the scientific research and its application to PT Prima Trans Logistic, the author will adhere to the principles and heuristic approach of Jeston's business process management implementation framework. Three important elements of process improvement to examine are people, processes, and systems, or technology.

The business project management framework by Jeston comprises of 10 stages, which is a series of phases to ensure that each critical components are in line with the company's strategy. The 10 phases include: organization strategy, process architecture, launch pad, understand, innovate, develop, people, implement, realize value, sustainable performance. These phases are sorted into 4Fs which identifies as foundations, finding and solutions, fulfilment, and future. Nevertheless, due to the pandemic condition and scope limitation, only 8 stages until implementation phases will be executed, thereby excluding “Realize Value” and “Sustainable Performance”. The following figure illustrates the implemented stages of framework for this project.
The methodology framework comprises of 8 phases that will be embedded into the 7 chapters of this research. The author will begin the first three stages by collecting data requirements via direct interviews and observations of existing procedures and systems. Subsequently, chapter 3 through chapter 6 will cover in-depth details of the BPM implementation framework. Chapter 3 scrutinize the foundation within the BPM implementation framework for PT Prima Trans Logistic, starting from the first to the fourth phase. Chapters 4, 5, and 6 will elaborate the remaining stages of the BPM implementation framework that specify the solutions and fulfilment for PT Prima Trans Logistic.

1. Organization Foundation

Organization foundation phase entails a grasp understanding of the organization, starting from its background history, vision and mission, strategic objectives, business drives, which serves as a guide and stimulates the business and BPM project. This is to ensure that BPM projects will achieve the organization's objectives and adds additional value to the organization. The phase will have the following output:

a. Company Overview
b. Vision and Mission
c. Organizational Structure
d. Industrial Analysis of Company through Porter 5 Forces

e. Strategy Analysis of Company through SWOT Analysis

2. Process Architecture

Process architecture acts as an intermediatory phase between organization strategy and launchpad phase. This phase assesses the alignment of business process, information technology, and business architectures inside an organization in order to accomplish the BPM implementation across organizational strategy. This phase will provide the creation of:

a. Value Chain Analysis
b. Current Technologies Applied
c. Current People-Process Technology Model

3. Launchpad

Launchpad phase establishes the groundwork for BPM implementation where it explains the specified processes and potential areas selected for project implementation that are in accordance with its scope. It focuses on the foundational tasks of defining, creating, and launching BPM initiatives. This phase will cover:

a. Current Business Process
b. Current Activity Diagram

4. Understand

Understand phase identifies the potential issues that occur from the business environment after creating a baseline, understanding and validating the current process. It explains the current issues and difficulties that the business is experiencing, as well as the advantages that will be obtained as a result of the suggested solution. This phase will aim to create:

a. List of Identified Issues
b. Proposed Solutions
5. Innovate

Innovate phase is the creative phase of the project where innovative solutions are designed to resolve the identified issues. After determining several options for new process alternatives, it is necessary to perform simulations, conduct activity-based costing, undertake capacity plan, and evaluate implementation feasibility in order to decide which solutions are the best. This phase will deliver reengineered process models:

   a. New Process Selection Matrix
   b. New Business Process
   c. New Activity Diagram
   d. Gap Analysis

6. Develop

Develop phase involves constructing all of the components necessary for implementing the new business processes. This encompasses the building of every infrastructure needed, including detailed system design, to support the deployment of the new system change. This phase runs in parallel with the output of People phase. As such, develop phase has the following deliverables:

   a. Use Case Diagram
   b. Class Diagram
   c. User Interface of Application Prototype

7. People

People phase translates all activities, roles, and performance metrics for each employee that need to be modified to align with the organization's goals and vision stated. With the new system, there will be adjustments on the standard of how each individual should function, which may lead to development of new roles and employee metrics. This phase will provide:

   a. RACI Matrix
   b. People Capability Matrix (PCM)
8. Implement

Implement phase is where an implementation plan is designed to roll out the new process system. This acts as the penultimate phase of deployment to conclude all the designed project deliverables. This phase will unveil:

a. Implementation Timeline and Burndown Chart
b. Investment Plan