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Assignment Coversheet

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Assignment & Course Details:

Subject Code: (e.g. XCAT1234) XBIS 3034N		Subject Name (e.g. Fundamentals of Computing): Business Process Management		
Course (e.g. Bachelo	r in Computing) :	1		
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Lecturer Name:				
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Assessment Due Date: (dd/mm/yy)	6-11-2023	Assessment Title:	Assignment	

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1.0 HYPOTHETICAL BACKGROUND AND ASSUMPTION

Business process management is rooted in the strong willingness of collaboration among Grab and Jaya Grocer, a collaboration that gained momentum following the acquisition of Jaya Grocer by Grab. Both entities, post-acquisition, have maintained separate and isolated business processes, IT systems, and data, underscoring the pressing need for integration. While the integration of Grab Reward, aimed at enhancing customer retention through cumulative loyalty points and discounts, is fully realized, it is evident that optimizing their remaining business processes is imperative. Recent realizations by both management teams have shone a spotlight on the ineffectiveness of existing processes, particularly in areas like customer service and order fulfilment, which significantly influence the consumer experience. The primary objective is to amplify the effectiveness of Grab Reward and augment the market penetration of online grocery shopping by optimizing business processes and refining the customer shopping experience. Moreover, this optimization serves to fortify Jaya Grocer's strategic position within the competitive 'Grab Mart' landscape. The integrated system, collaboratively shared between Grab and Jaya Grocer, is seen as the key differentiator among various grocers on Grab Mart.

This assignment delves into the strategies and techniques proposed to streamline and align these critical business processes for improved efficiency and customer satisfaction, while considering the legal, technical, and financial aspects that underpin the collaborative endeavour.

This table serves as a visual aid to highlight the key components and reasons of collaboration, paving the way for a detailed exploration of strategies and techniques in the upcoming sections.

Assumptions List		
Assumptions	Description	
Mutual Commitment to	After the acquisition, a strong willingness of collaboration	
Collaboration	by Grab and Jaya Grocer in terms of BPM.	
System Integration	Except the Grab Reward, the other modules, components, or	
Deficiencies	systems are not well integrated.	
Inefficient Business Process	Customer services and order fulfilment are the key areas	
memerent Business i focess	that significantly influence the consumer experience.	

	Grab and Jaya Grocer aims to optimize the business
1 st Goal	processes thus increasing the consumer shopping experience
	and consumer retention by the implementation of IS.
	Grab and Jaya Grocer would like to strengthen the strategic
2 nd Goal	position of the latter in the intense landscape of "Grab
	Mart".
Feasibility Consideration	The legal, technical, and financial perspective are
reasionity Consideration	considered in the collaborative endeavour.

Table 1 Assumption List

2.0 SUITABLE REQUIREMENTS ELICITATION TECHNIQUES AND STAKEHOLDER IDENTIFICATION

BPM aims to analyse, design, optimize, measure, and continuously enhance firms' business processes and enabling them to align with efficiency principles (Tucci. 2022). It follows that the stakeholders' engagement is considerable as the direct relationship between them and related processes.

2.1 STAKEHOLDER IDENTIFICATION

In this case, requirement elicitation plays the crucial point of stakeholders' participation in understanding the needs of business processes' improvement. By applying various elicitation methods, Grab and Jaya Grocer can effectively address and align where the problem embedded on isolated business processes, data, and systems.

The following matrix demonstrates the identified stakeholders in this case.

Stakeholder Engagement Matrix		
High Influence, High Interest Stakeholders		
<u>Stakeholders</u>	<u>Description</u>	
	This includes executives, managers, and decision-makers at Grab	
Top Management	and Jaya Grocer, who are responsible for overseeing the project, as	
	they can provide high-level strategic insights and goals.	
	The IT teams from both Grab and Jaya Grocer are vital	
IT teams	stakeholders as they have insights into the current technology	
11 wains	infrastructure, data systems, and any potential integration	
	challenges.	

-	-			
<u>Stakeholders</u>	<u>Description</u>			
	Low Influence, Low Interest			
Teams	processes that support these functions.			
Marketing and Sales	Understanding the marketing and sales strategies can help align the			
Teams	insights into customer service processes and pain points.			
Customers Support	Those who handle customer inquiries and issues can provide			
<u>Stakeholders</u>	<u>Description</u>			
	Low Influence, High Interest			
	of the business processes.			
Financial Teams	processing, financial management, and cost-effectiveness aspects			
	Finance professionals can provide insights into payment			
	processes.			
Suppliers	may be necessary to align procurement and inventory management			
	Jaya Grocer relies on external suppliers for products, their input			
<u>Stakeholders</u>	Description			
	High Influence, Low Interest			
Customers	Jaya Grocer.			
Customore	Those who use the Grab application to order the groceries from			
Compliance reams	critical to ensure that the processes align with these obligations.			
Legal and Compliance Teams	business processes, involving legal and compliance teams is			
Local and	In cases where regulatory or compliance requirements impact			
	business processes.			
Operational Teams	should be involved to understand the practical aspects of the			
Operational Teams	fulfilment, customer service, and supply chain management,			
	Those responsible for day-to-day operations, such as order			

Table 2 Stakeholder Engagement Matrix

2.2 SUITABLE REQUIREMENTS ELICITATION TECHNIQUES

Suitable elicitation methods always depend on the case's scenarios, stakeholders' extent, and limitations (LinkedIn, 2023). For example, except the customers, interview could be used for the stakeholders who are in 'High Influence' group; Questionnaire is suitable for customer and stakeholders who have low influence from the optimization process.

2.2.1 Interview

Interviews are among the most frequently employed techniques for eliciting BPM and software requirements (Modern Analyst, n.d.). They serve as the conduit for interaction, communication, and gaining a deep understanding of stakeholders. Interviews offer an ideal avenue for acquiring essential data, knowledge, and information critical to optimizing business processes. Traditionally, interviews were conducted face-to-face, but the post-COVID-19 era has seen the rise of online interviews as a viable alternative (Thakkar, 2023). Notably, both formal and informal interviews represent effective options for comprehending stakeholder requirements.

In addition to enabling stakeholders to express their concerns, perspectives, and expectations regarding business processes, interviews provide a platform for uncovering hidden requirements that may not have been revealed through other means (Indeed Editorial Team, 2023). The interview could reveal the information including high-level strategic insights, technology infrastructure, integration challenges, day-to-day operational experiences, financial feasibility, regulatory insights, and so on.

Given the stakeholders' strong willingness to embrace changes, interviews are a suitable method. It's worth noting that stakeholders have varying degrees of influence and interest in the collaborative effort. The flexibility of interviews allows customization to match each group's context and preferences. For example, top management from Grab and Jaya Grocer might prefer a formal interview setting, while operational teams may find informal discussions more comfortable. This versatility of interviews is an asset, ensuring effective engagement with each stakeholder group.

Indeed, while interviews offer substantial advantages, they also present challenges. Guiding the conversation and conducting interviews can require a significant investment of time and resources, including costs. This is one reason why assessing the financial feasibility is essential. Careful planning and execution are crucial to maximize the effectiveness of interviews. To illustrate, the following table provides examples of interview questions for various stakeholders. These questions are not limited to a specific interview format.

	Interview Questions
<u>Stakeholders</u>	<u>Questions</u>
Top Management	 Can you provide insights into the strategic goals of Grab and Jaya Grocer in this project, especially regarding the improvement of customer order fulfilment and customer services? From a high-level perspective, how do you envision these improvements aligning with the broader objectives of both organizations? What key performance indicators (KPIs) or success metrics do you consider most important for measuring the impact of these process improvements?
IT Teams	 How do you perceive the current technology infrastructure's readiness for integrating and optimizing the business processes related to customer order fulfilment and services? Can you highlight any existing data systems or integration challenges that we should be aware of in this context? What potential technology solutions or improvements do you see as critical to achieving the project's objectives?
Operational Teams	 As individuals closely involved in daily operations, what pain points or challenges do you currently face in the customer order fulfilment and service processes? How do you believe the proposed improvements will affect your day-to-day tasks and responsibilities? Are there any specific customer feedback or experience issues that you've encountered, and how do you think they can be addressed?
Legal and Compliance Teams	 Are there any regulatory or compliance requirements that are relevant to the processes being considered for improvement? How do you perceive the potential impact of process changes on legal and compliance aspects, and what steps should be taken to ensure alignment?

	3. What recommendations or insights can you provide to maintain
	adherence to legal and compliance standards while optimizing the
	processes?
Suppliers	1. From your perspective, what aspects of our supply chain management
Suppliers	could be improved to enhance the customer order fulfilment process?
	1. Can you identify areas within financial management where
	improvements could lead to a more cost-effective and customer-centric
Financial	approach?
Teams	2. From a financial perspective, what key metrics or indicators do you
Teams	consider essential for measuring the success of customer-focused
	process improvements?
	3. Would our plan potentially surpass our financial capabilities?

Table 3 Interview Questions

2.2.2 Questionnaire

Questionnaire is another effective alternative for eliciting the stakeholders' requirements from both Grab and Jaya Grocer. This process involves distributing questionnaires to the various stakeholders through online platforms such as Google Forms, SurveyKing, Email, and other digital means. Alternatively, physical paper-based questionnaires may also be utilized. Different methods to distribute the questionnaire will have different follow-up benefits. Based on the information available from the Qualtrics website, the following table describes the difference of benefits in two methods (2023).

Benefits of Different Questionnaire Distribution Methods		
<u>Online</u>	<u>Physical</u>	
Online surveys can be distributed quickly via	Suitable for audiences who may not be	
email or social media, allowing immediate	receptive to strictly online surveys	
responses.		
No limitations on space, making them	Face-to-face distribution establishes	
suitable for various question types.	rapport.	
Utilize features like routing, randomization,	-	
and real-time analysis		
Receive alerts when specific responses are	-	
given		

Table 4 Benefits of Different Questionnaire Distribution Methods

Apart from the benefits of using different distribution methods, the inherent benefits of the questionnaire itself should also be considered. The structured and standardized attributes of questionnaire can be used to understand the specific stakeholders' challenges in the current distinct business processes and systems (DeFranzo and DeFranzo, 2023). It is regardless of their varying levels of influence and interest in collaborative effort.

Besides the strengths from unlimited space and faster speed, questionnaire will allow the related stakeholders such as customers, suppliers, and customers service teams to express their opinions in terms of quantitative and qualitative without the social desirability bias (Cornell, 2023). This allows the Business Process Management (BPM) to be founded on accurate information and data.

Moreover, when customers receive the questionnaire, it conveys the message that their opinions are valued and respected. This alignment with customer satisfaction enhancement not only fosters a positive perception but also bolsters Jaya Grocer's strategic position within the competitive "Grab Mart" landscape. It is due to the feedback could contribute to enhance order fulfilment and customer service processes, specifically for the Jaya Grocer. From 'Low Influence' group perspective, questionnaire serves as a more practical method for soliciting their input while saving time and resources.

However, it's important to acknowledge that questionnaires, despite their advantages, come with certain limitations, including the potential for limited response rates and constraints in

probing for nuanced responses (Schwarz, 2022a). The table below displays tailored questions for related stakeholders used for enhancing the mentioned business processes.

Questionnaire Question				
Stakeholders	<u>Questions</u>			
Customer Support Teams	 On average, how many customer inquiries or issues related to order fulfilment do you handle in a typical workday? Please provide a number. Are there common challenges or issues related to order fulfilment and customer satisfaction that customers frequently inquire about? 			
	Please describe. 3. Please share any additional comments or suggestions for improving the order fulfilment and customer service processes.			
Marketing and Sales Teams	 How do you rate the effectiveness of our current marketing and sales strategies in promoting Grab Mart and Jaya Grocer's improved order fulfilment and customer satisfaction? Highly effective Somewhat effective Neutral Somewhat ineffective Highly ineffective In your opinion, which specific marketing or sales tactics have been the most successful in enhancing order fulfilment and customer satisfaction? Please describe. Can you suggest any improvements or changes to our current strategies to further enhance order fulfilment and customer satisfaction? Please provide details. 			
Customers	 1. On average, how frequently do you use the Grab app to order groceries from Jaya Grocer? Daily Weekly Monthly 			

- Rarely
- First-time user
- 2. How satisfied are you with the timeliness of your orders and the quality of the items received the ordered groceries from Jaya Grocer? Please rate on a scale of 1 to 5.

Timeliness: []1[]2[]3[]4[]5

Quality: [] 1 [] 2 [] 3 [] 4 [] 5

3. How satisfied often you have the problems related to ordered groceries from Jaya Grocer? Please rate on a scale of 1 to 5.

[]1[]2[]3[]4[]5

4. Do you think the customer service is helpful when you are having the problems with your orders? Please rate on a scale of 1 to 5.

[]1[]2[]3[]4[]5

5. What improvements or additional features would enhance your experience when ordering groceries through the app in terms of order fulfilment and customer satisfaction?

Table 5 Questionnaire Questions

3.0 BUSINESS PROCESS DISCOVERY, ANALYSIS AND REDESIGN

The insights obtained from stakeholders, as well as the understanding of challenges and perspectives related to both major and minor business processes, serve as a robust foundation for the optimization of the major business process, order fulfilment, and the minor business process, customer service, within the context of Grab and Jaya Grocer. This optimization involves the strategic implementation of information technology that aligns with their specific business requirements.

3.1 MAJOR BUSINESS PROCESS – ORDER FULFILMENT

Order fulfilment is the process of delivering the value to customers by processing their orders (Schwarz, 2022b). In this case, order fulfilment begins when customers place orders through the Grab app and ends when the orders are delivered for customers. This process involves order processing, inventory management, picking and packing of items, and delivery.

3.1.1 Current Process

The following flowchart serves as visual representation of order fulfilment process.

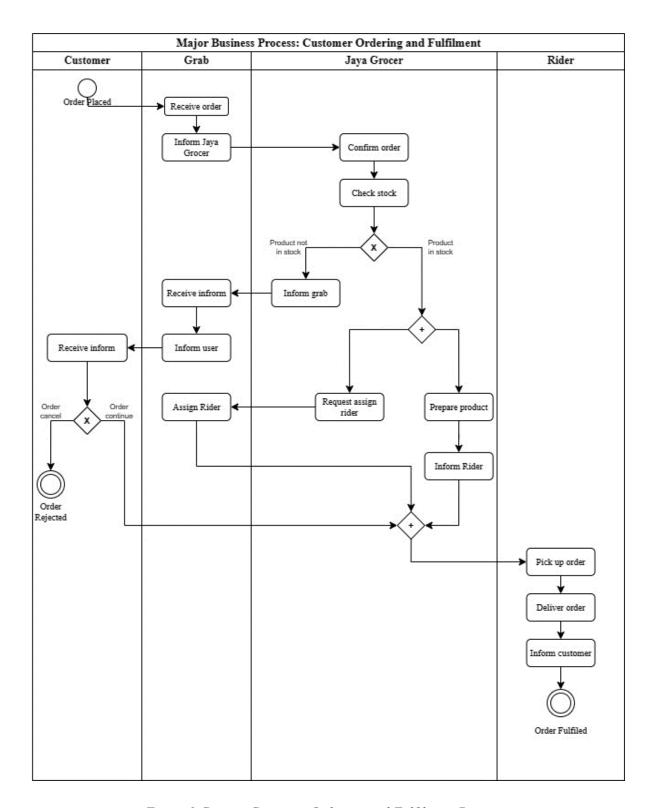


Figure 1 Current Customer Ordering and Fulfilment Process

The current order fulfilment process involves four key parties: the customer, Grab, Jaya Grocer, and the rider. The whole process includes following steps:

- Steps 1: Customer places the order through the Grab application.
- Step 2: Grab receives the order and promptly informs Jaya Grocer.

- Step 3: Jaya Grocer's staff checks the products' availability; if any items are unavailable, Grab notifies the customer, who can choose to cancel or proceed with the order.
- Step 4: If the product is available, Jaya Grocers' staff will prepare the order.
- Step 5: Jaya Grocer requests a rider for delivery from Grab.
- Step 6: Once Jaya Grocer is getting ready, they will inform the assigned rider.
- Step 7: The rider collects the order, delivers it to the customer, and provides a final delivery notification.

However, an issue arises when certain products are unavailable, causing potential disruptions. This situation may lead to additional efforts in communicating with the customer and, in some cases, order cancellations. The existing process exhibits redundancy, as multiple parties are repeatedly informed to proceed, resulting in inefficiencies and the occasional decline in customer satisfaction due to order cancellations.

Obviously, the primary reason for this situation is a lack of integration within the system, particularly between the inventory management systems of Grab and Jaya Grocer. The existing disconnect results in operational inefficiencies, affecting the smooth flow of the order fulfilment process. To streamline, enhance, and optimize the process, there are two solutions should be involved. It is the system integration of Grab and Jaya Grocery and, secondly, the application of IoT and blockchain in terms of inventory management.

3.1.2 The Application of IoT and Blockchain.

IoT stands for the internet of things, it is a system of interconnected devices, that enables the communication and data exchange with the cloud-based services (Gillis, 2023); while blockchain is a decentralized database or ledger that is distributed across nodes within a computer network (Hayes, 2023). By applying these technologies in the inventory management, they will bring significant advantages for the improvement of order fulfilment process.

First and foremost, IoT plays a pivotal role in connecting physical objects and devices to the internet, facilitating the real-time collection and exchange of data. This technology enables the tracking of product availability and enhances quality control by utilizing sensors to monitor factors such as fridge temperatures, ensuring product freshness. It also has the potential to automate the reordering process. On the other hand, blockchain technology

enhances traceability, security, and data sharing capabilities within the supply chain (Wegrzyn and Wang, 2021).

In this context, the advantages of IoT and blockchain primarily benefit Jaya Grocer's inventory management. However, beyond the customer ordering system and procedures, inventory management emerges as the linchpin of efficient order fulfilment. Effective inventory management ensures product availability, quality, and order accuracy, directly contributing to customer satisfaction and bolstering Grab's profitability.

It's important to note that in the context of online order fulfilment, these benefits may not be fully realized until the system is seamlessly integrated with the Grab application. This integration prevents customers from adding unavailable products to their carts, streamlining the order fulfilment process.

3.1.3 Streamlined Process

This flowchart illustrates the streamlined order fulfilment process.

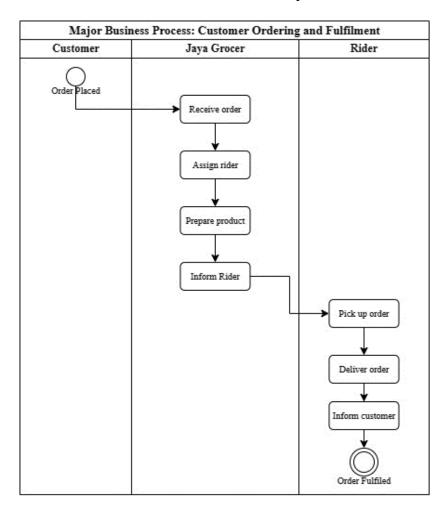


Figure 2 Streamlined Customer Ordering and Fulfilment Process

The streamlined order fulfilment process includes the following steps:

Step 1: Customer places the order through the Grab application and Jaya Grocer receives order.

Step 2: Jaya Grocer assign the rider.

Step 3: Jaya Grocer's staff prepare product and inform the assigned rider once getting done preparation.

Step 4: The rider collects the order, delivers it to the customer, and provides a final delivery notification.

The integration of the Grab and Jaya Grocer systems not only streamlines the workflow by eliminating redundant communication but also ensures a seamless process. It means that the Jaya Grocer can receive the order and assign rider instead of relying on Grab. Moreover, the improved inventory management systems, when integrated with the Grab application, allow the real-time indication of product availability. This will prevent order cancellations caused by customers ordering out-of-stock products, thereby optimizing the overall efficiency.

Current & Streamlined Order Fulfilment Process		
	<u>Current</u>	<u>Streamlined</u>
Involved	4	3
Parties	[Customer, Grab, Jaya Grocer, Rider]	[Customer, Jaya Grocer, Rider]
Total Steps	7	4

Table 6 Current & Streamlined Order Fulfilment Process

3.2 MINOR BUSINESS PROCESS – CUSTOMER SERVICES

The integration problem between Grab and Jaya Grocer system also being reflected on the customer service process. This process will be triggered when the customer is facing the problem after order has been delivered, such as missing the products in the order, receiving expired product and so on.

3.2.1 Current Process

The following flowchart represents the current customer support and issue resolution process.

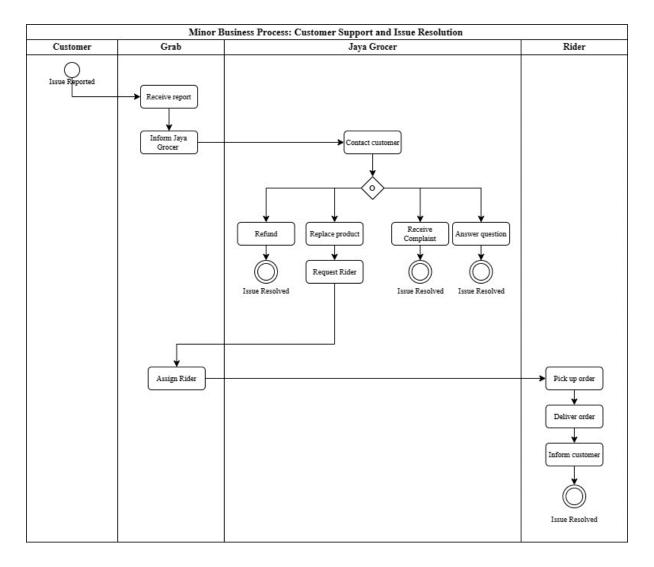


Figure 3 Current Customer Support and Issue Resolution Process

The current process involves the following steps:

- Step 1: The customers report via the Grab application.
- Step 2: Grab receives report and informs Jaya Grocer.
- Step 3: Jaya Grocer immediately contacts and reacts to the customers based on their needs. For example, the issues including complaints from customers, cash refund or product replacement due to the relevant issues.
- Step 4: If the product replacement is required, the process like order fulfilment will be performed.

The current process leads to immense customer frustration, primarily arising from issues at step 2. Currently, customers can only report problems to Grab's customer support team when they encounter an issue. However, Grab does not gather specific details about these problems

or share them with Jaya Grocer. Consequently, vital information often fails to reach Jaya Grocer, resulting in the need for customers to re-report their issues. This multi-step communication process leaves customers exasperated, as they must engage with multiple parties to resolve a single problem.

This situation takes a toll on customer satisfaction, as it fosters the perception of poor coordination between Grab and Jaya Grocer. Moreover, the current process incurs additional negative consequences, including extended resolution times and the allocation of unnecessary resources to address simple issues.

3.2.2 Streamlined Process

By integrating the Grab and Jaya Grocer systems, customers will have a direct line of communication with Jaya Grocer's customer support team. This enhancement will cleverly reduce the likelihood of customers requesting cash refunds and product replacements due to the improved management of inventory and smoother issue resolution processes.

The following flowchart represents the streamlined process:

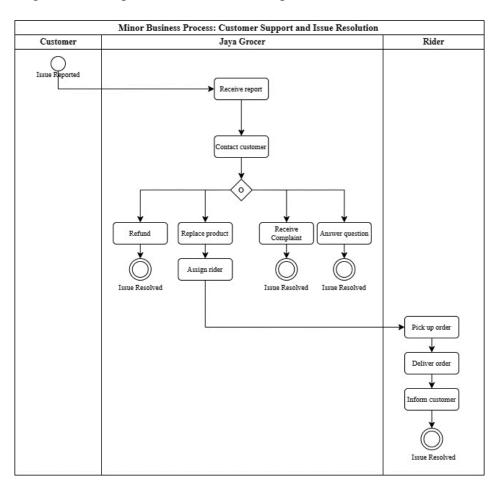


Figure 4 Streamlined Customer Support and Issue Resolution Process

The streamlined process allows the customer to reduce their effort in the engagement of multiple communications although the new process seems like the current process. The refund and product replacement has been remained in streamlined process in case of the unexpected condition. It serves as the customer centric approach to enhance their shopping experience.

The streamlined process minimizes the customer's need for extensive communication, even though it appears similar to the current process. In the streamlined approach, the option for refunds and product replacements remains available, especially in unexpected circumstances. This customer-centric approach aims to enrich the shopping experience by ensuring that customers have a convenient and efficient means of resolving issues while safeguarding their satisfaction.

3.3 BENEFITS OF BUSINESS PROCESS OPTIMIZATION

Overall, the enhancement of both business processes establishes a harmonious synergy between Grab and Jaya Grocer. This synergy not only elevates Jaya Grocer's strategic position, positioning it as a superior service provider compared to other grocers within "Grab Mart," but also minimizes losses associated with order fulfilment and optimizes overall business efficiency.

4.0 ALTERNATIVE APPROACHES FOR INFORMATION SYSTEM IMPLEMENTATION

To be efficient and effective in terms of implementing the IS that required to meet the Grab and Jaya Grocer's requirements, so the alternative of implementation approaches become important. The identified approaches are:

- In-house development with Agile methodology
- Commercial Off-the-Shelf (COTS) Solutions

4.1 IN-HOUSE DEVELOPMENT WITH AGILE METHODOLOGY

4.1.1 In-house Development

In the case of Grab and Jaya Grocer, in-house development refers to the parties who manage and responsible for the project are not from the external group, firm, organization, or external contractor (Stefanowicz, 2023). It means that this project requires the relevant experts from Grab and Jaya Grocer to perform the work. It requires all the efforts from the mentioned stakeholders previously.

4.1.2 Agile Methodology

Agile methodology serves as the framework, principles, and practices for the software development, which is the guideline to implement IoT, blockchain for inventory management and legacy system integration. Van der Hoek mentioned that there are 5 phases in the agile methodology, all phases are iterative until the development is done (2023). The 5 phases include ideation, development, testing, deployment, and operation.

4.1.2.1 *Ideation*

This is the first step; it involves the collaboration among stakeholder for gathering requirement and defining the scope. In the context of BPM, the process analyst will coordinate with IT technicians, and other stakeholders to elicit the vital requirements. IT technicians such as developers whereas play the role of transforming the business requirement into system requirements.

4.1.2.2 Development

After the project's purpose, goal, requirements, and priority of each module has been well defined and documented. The developers start to transform the idea into an executable program. It involves the UX/UI design, coding and so on. The process analysts might be helpful in this phase since they can align the business requirements and system requirements during the development process.

4.1.2.3 Testing

In this step, it involves testing the done deliverable, which is module. The testing methods such as unit testing, UAT and so on will be used to ensure the IS for support Grab and Jaya Grocer will be worked properly. So, the bugs, errors and any defects should be eliminated in this phase to avoid the business disruption in future.

4.1.2.4 Deployment

The updated system is started to be used in Grab and Jaya Grocer daily operations. The relevant documentation should be provided, and the user training is necessary. In essence, this phase requires system installation and comprehensive instructions to ensure a smooth transition into practical execution (GitKraken, 2023).

4.1.2.5 Operation

The last phase concerns with the feedback from the user to ensure the performance is met. And it will contribute to the release in following iterations.

4.2 COMBINATION OF COTS SOFTWARE AND OUTSOURCING

4.2.1 COTS Software

COTS refers to Commercial Off-The-Shelf software, it is pre-built software applications, systems that are good-to-use and available in the market (Computer Security Resource Center, n.d). Grab and Jaya Grocer can choose and buy the suitable off-the-shelf system that fit their requirements. Then, they can use it "as-is" or with the minimal customization to make the system aligns with the business needs. This is an option for the part of IoT and blockchain implementation.

In addition, COTS software is developed by the vendors, it means that Grab and Jaya Grocer can use the most minimum effort in terms of human resources, schedule, hardware resources, and costs to having the systems that meet their needs. Besides that, such systems are normally easy to install, and the vendors will always provide the supports to address the issues (Kapsys, 2023). In the area of system maintenance, the related responsibilities belong to the system providers. This releases the stress and trouble in daily maintenance.

4.2.2 Outsourcing

Outsourcing refers to the practice of contracting external software development companies or individual developers to create, maintain, and enhance systems based on the specific needs of Grab and Jaya Grocer (BairesDev, 2022). This approach becomes particularly relevant when addressing the legacy system integration of Grab and Jaya Grocer. For example, to streamline the order fulfilment and customer support processes, it is essential to ensure that Jaya Grocer can directly receive orders and customer reports. In this context, outsourcing offers a flexible and efficient solution to achieve these integration goals while optimizing the overall business processes.

This streamlined approach primarily hinges on the willingness of customer collaboration when it comes to requirements gathering. In this way, Grab and Jaya Grocer won't have to reconfigure their human resources, including IT experts, to oversee this project. This allows them to maintain their focus on other operational aspects without the need for extensive resource reallocation.

Nonetheless, the evaluation of vendor and external contractor suitability must be conducted with great care. Grab and Jaya Grocer should thoroughly assess the solutions offered, the reputation and credibility of vendors and external contractors, their financial stability, technological capabilities, the expertise of their workforce, and other relevant factors. This

meticulous evaluation ensures that the chosen solution and partners are not only appropriate but also poised to make a substantial and positive contribution to the project.

5.0 JUSTIFICATION OF CHOSEN APPROACH

The lessons learned and experiences gained from the system development process can be viewed as valuable investments in the growth and development of employees (Walburg, 2022). This not only benefits the individual employees but also enhances the prospects of future projects within the company. Simultaneously, it serves to safeguard sensitive knowledge from being exposed to external organizations such as COTS vendors, and contractors (Pawlan, 2023). If the project yields positive results, it provides the company with a distinct competitive advantage.

Moreover, Grab and Jaya Grocer will be granted the full ownership of intellectual property of their systems, so they can tailor it to meet the changing business requirement (Burenko, 2023). So, they will fully be responsible for the control over their systems, so the data, and security protocols can be well managed to reduce the chances of data breaches.

Meanwhile, the agile methodology in the context of implementing information systems mainly aligns with the benefits such as flexibility, incremental delivery, quality assurance and so on. Its inherent flexibility is vital in industries where market dynamics, customer preferences, and regulatory demands can swiftly change. Agile methodology allows teams to embrace these changes even during later project stages, avoiding disruptions.

Another strength of agile methodology is its incremental delivery approach. It divides the project into manageable iterations, enabling the delivery of functional components at the end of each phase (Iqbal, 2022). This means Grab and Jaya Grocer can start reaping the benefits of the system earlier, improving efficiency without waiting for the entire project to conclude.

Furthermore, agile methodology places a strong emphasis on quality assurance. Continuous testing and rigorous quality checks throughout the development process reduce the likelihood of critical errors or defects (Iusov, 2020). This focus on quality is paramount for Grab and Jaya Grocer as it ensures smooth operations and enhances customer satisfaction.

6.0 CONCLUSION

All the processes which are discussed, including identifying stakeholders, choosing requirements elicitation techniques, redesigning business processes, identifying development alternatives, and determining the best approach, collectively serve the purpose of helping

Grab and Jaya Grocer achieve their goals. These efforts optimize their business processes and enhance Jaya Grocer's strategic position. Consequently, the integration of Grab Rewards and well-aligned business processes will not only improve operational efficiency but also boost Jaya Grocer's market penetration. This holistic approach contributes to their overall success and growth in the competitive market landscape.

7.0 REFERENCES

- BairesDev (2022) Outsourcing Software development BairesDev Blog: Insights on software development & tech talent. https://www.bairesdev.com/blog/what-is-it-outsourcing/ (Accessed: October 30, 2023).
- Burenko, S. (2023) *In-house vs Outsourcing: Which One to Choose?*https://www.uptech.team/blog/in-house-vs-outsourced-development (Accessed: November 2, 2023).
- Chowdhury, T. (2021) *The Future Startup Dossier: Grab's Journey From GrabTaxi to Everyday Everything App and The Largest*. https://futurestartup.com/2021/06/27/the-future-startup-dossier-grab/ (Accessed: November 2, 2023).

Computer Security Resource Center (no date) commercial-off-the-shelf (COTS) - Glossary /

- CSRC.

 https://csrc.nist.gov/glossary/term/commercial_off_the_shelf#:~:text=Software%20an
 d%20hardware%20that%20already,purchase%20by%20the%20general%20public.

 (Accessed: October 30, 2023).
- DeFranzo, S.E. and DeFranzo, S.E. (2023) Which is More Effective: Paper-Based Surveys or Online Surveys? https://www.snapsurveys.com/blog/which-is-more-effective-paper-based-surveys-or-online-surveys/.
- Gillis, A.S. (2023) *internet of things (IoT)*.

 https://www.techtarget.com/iotagenda/definition/Internet-of-Things-IoT (Accessed: October 27, 2023).
- GitKraken (2023) 6 stages of agile development. https://www.gitkraken.com/blog/6-stages-of-agile (Accessed: October 30, 2023).
- Hayes, A. (2023) *Blockchain Facts: What is it, how it works, and how it can be used.*https://www.investopedia.com/terms/b/blockchain.asp (Accessed: October 27, 2023).

- Indeed Editorial Team (2023) Advantages And Disadvantages Of Interviews (And Useful Tips). https://in.indeed.com/career-advice/interviewing/advantages-and-disadvantages-of-interviews (Accessed: October 22, 2023).
- Iqbal, M. (2022) *Incremental delivery and the principles of the agile manifesto*.

 https://www.scrum.org/resources/blog/incremental-delivery-and-principles-agile-manifesto (Accessed: November 2, 2023).
- Iusov, K. (2020) 'All There Is To Know About The Best Testing And QA Methodologies,'

 Jelvix, 5 November. https://jelvix.com/blog/qa-testing-methodologies.
- Kapsys (2023) Commercial Off-the-Shelf Software (COTS): Pros & Cons | Kapsys.

 https://kapsys.io/custom-solutions/commercial-off-the-shelf-software-cots-proscons/#:~:text=Low%20cost%3A%20commercial%20off%2Dthe,main%20advantages%20off%20software%20packages. (Accessed: October 30, 2023).
- LinkedIn (2023) How can you overcome common requirement elicitation challenges?

 https://www.linkedin.com/advice/1/how-can-you-overcome-common-requirement-elicitation#:~:text=Requirement%20elicitation%20is%20the%20process,success%20criteria%20of%20the%20project. (Accessed: October 22, 2023).
- Modern Analst (no date) *The top five Go-To Requirements Elicitation Methods*.

 https://www.modernanalyst.com/Resources/Articles/tabid/115/ID/2483/The-Top-Five-Go-To-Requirements-Elicitation-Methods.aspx (Accessed: October 22, 2023).
- Pawlan, D. (2023) *In-House Development: The Pros And Cons StartupNation*.

 https://startupnation.com/manage-your-business/business-technology-manage-your-business/in-house-development-the-pros-and-cons/ (Accessed: November 2, 2023).
- Qualtrics (2022) Survey Distribution Methods and research results / Qualtrics.

 https://www.qualtrics.com/uk/experience-management/research/survey-distributinon-methods/ (Accessed: October 23, 2023).

- Schwarz, L. (2022a) '16 Advantages & disadvantages of questionnaires,' *ProProfs Survey Blog*, 22 August. https://www.proprofssurvey.com/blog/advantages-disadvantages-of-questionnaires/ (Accessed: October 27, 2023).
- Schwarz, L. (2022b) What is order fulfillment? 7 step process & key strategies.

 https://www.netsuite.com/portal/resource/articles/erp/order-fulfillment.shtml

 (Accessed: October 27, 2023).
- Stefanowicz, P. (2023) 'In-House Development vs. Software Development Outsourcing: A Comparison of Pros and Cons,' *STXNEXT*, 27 June. https://www.stxnext.com/blog/in-house-development-vs-software-development-outsourcing-comparison/ (Accessed: October 29, 2023).
- Thakkar, B. (2023) What is requirements gathering? Template and examples LogRocket Blog. https://blog.logrocket.com/product-management/what-is-requirements-gathering-template-examples/#interviews (Accessed: October 22, 2023).
- Tucci, L. (2022) What is business process management? An in-depth BPM guide.

 https://www.techtarget.com/searchcio/definition/business-process-management
 (Accessed: October 22, 2023).
- Van Der Hoek, J. (2023) *The 5 stages of the Agile Software Development Lifecycle*. https://www.mendix.com/blog/agile-software-development-lifecycle-stages/ (Accessed: October 30, 2023).
- Walburg, M. (2022) *In-House Development advantages and disadvantages*.

 https://binarapps.com/in-house-development-advantages-and-disadvantages/
 (Accessed: November 2, 2023).
- Wegrzyn, K.E. and Wang, E. (2021) *The pros and cons of blockchain in supply chain*. https://www.foley.com/en/insights/publications/2021/08/the-pros-and-cons-of-blockchain-in-supply-chain (Accessed: October 27, 2023).