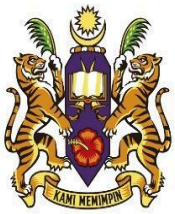

SCHOOL OF COMPUTER SCIENCES

SEMESTER I 2024/2025

CMT323/CMM322

INFORMATION SYSTEMS THEORY & MANAGEMENT

ASSIGNMENT 1:
ANALYZING INFORMATION SYSTEMS FOR STRATEGIC AND OPERATIONAL ADVANTAGE

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DECLARATION

"I confirm this group assignment is my work and is not copied from any other person's work (published or unpublished)".

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1.0 Business Scenario Analysis

Eco Grocer is a health-oriented organic store based in Malaysia. Eco Grocer specializes in offering high-quality, organic, and healthy food products to its customers. With both an online presence through platforms like Shopee and Lazada and a physical store in D'Alamanda Pudu Impian, the company aims to make healthy living accessible and convenient.

1.1 Current Business Operations

Inventory Management

EcoGrocer utilizes the ERP System - SAP to track stock and inventory levels efficiently. Inventory movements, lead times, and buffer stocks are monitored using a Just-In-Time (JIT) ordering method. Monthly and weekly sales analysis trackers are employed to ensure orders are placed promptly, reducing the risk of overstocking or stockouts. Purchase Orders (POs) are issued to vendors based on the ordering cycle, with ad hoc orders made for out-of-stock items.

Customer Relationships

Eco Grocer currently manages customer interactions using basic digital tools such as Facebook Messenger, Business WhatsApp, and email. The company maintains an active social media presence to promote products and respond to inquiries. Additionally, the company sends promotional newsletters via email to inform customers about new products, discounts, and events. Eco Grocer prioritises customer feedback to improve its offerings and services continually. Rather than relying solely on traditional methods like suggestion boxes or email, customers are invited to participate in quick surveys after their purchases through digital receipts with embedded survey links or QR codes displayed at checkout counters.

Order & Supply Chain

Eco Grocer employs a semi-automated approach to managing its supply chain. The company maintains a spreadsheet-based system to track inventory levels, sales patterns, and supplier lead times. Orders are placed manually, based on the discretion of store managers, who analyse sales trends and historical data. While this approach allows some flexibility, it relies heavily on human oversight and can result in delays or inaccuracies during peak demand periods.

Internal Collaboration

Internal communication at Eco Grocer is segmented between management levels. The top management team utilizes advanced collaborative platforms such as Microsoft Teams for strategic discussions, project management, and document sharing. However, operational and frontline staff primarily rely on traditional tools like WhatsApp for daily coordination and task updates. While WhatsApp is accessible and easy to use, its lack of integration with other systems and limited functionalities for task tracking or collaboration can lead to inefficiencies.

1.2 Challenges

1.2.1 Ineffective Inventory Management

EcoGrocer's reliance on a spreadsheet-based inventory tracking system poses several challenges. The manual nature of the process increases the likelihood of errors in inventory counts and delays in updating stock levels. During peak shopping seasons or promotional events, the system struggles to keep up with real-time inventory changes, leading to stockouts of high-demand items or overstocking of slow-moving goods. Furthermore, the inability to integrate real-time sales data with inventory tracking hampers the company's ability to forecast demand accurately and optimize stock levels, especially for perishable products.

1.2.2 Cybersecurity Risks and Data Protection

EcoGrocer's reliance on online platforms for sales and customer engagement exposes the business to potential cybersecurity threats. The company faces the challenge of ensuring customer data security, especially considering sensitive information such as personal details and payment data. Without comprehensive security measures in place, EcoGrocer risks data breaches that could harm its reputation, erode customer trust, and lead to financial losses, especially in the growing e-commerce space.

1.2.3 Communication and Coordination Gaps

The divide between top management using advanced platforms like Microsoft Teams and operational staff relying on WhatsApp creates gaps in collaboration and information flow. Operational staff may miss important updates or fail to align with organizational goals due to the

informal nature of their communication tools. This inconsistency hampers cross-departmental coordination, particularly during promotions, restocking campaigns, or issue resolution, reducing overall efficiency.

1.3 Opportunities

1.3.1 Implementing Advanced Inventory Management Systems

Eco Grocer can adopt a robust inventory management system integrated with real-time tracking and demand forecasting. Systems such as Enterprise Resource Planning (ERP) software or specialised inventory platforms can provide automated low-stock alerts, real-time stock updates, and waste tracking for perishables. This shift would improve stock optimisation, reduce waste, and ensure product availability, even during peak demand periods.

1.3.2 Adopting an Integrated Supply Chain Management Platform

Introducing a Supply Chain Management (SCM) system would enable Eco Grocer to automate supplier orders and track deliveries in real-time. This system could include vendor performance analytics, automated restocking schedules, and demand-driven replenishment. By integrating this with the inventory management system, Eco Grocer could improve supply chain transparency, minimise delays, and better manage seasonal demand fluctuations.

1.3.3 Centralizing Customer Feedback and Introducing a Loyalty Program

Eco Grocer could implement a Customer Relationship Management (CRM) system to consolidate feedback from all channels into a single platform. This system would enable detailed trend analysis and faster response times to customer concerns. Additionally, launching a loyalty program with personalized offers based on purchase history and preferences could foster customer retention and encourage repeat purchases, strengthening long-term relationships.

2.0 Types of Information Systems and Their Role

2.1 Enterprise Resource Planning (ERP)

Enterprise Resource Planning (ERP) is a suite of integrated software modules. ERP collects data from many departments of firms and key business processes for internal business activities. ERP systems optimise operations, reduce errors and improve efficiency by centralizing data and automating tasks. For example, ERP can integrate the company operations like purchasing, sales, inventory management and finance. It's able to generate purchase orders automatically, track real time inventory, manage sales orders and generate financial reports accurately. This integration enhances decision making, decreases traditional effort and improves visibility. Finally, ERP helps businesses to operate efficiently, reduce costs and achieve sustainable development.

2.2 Customer Relationship Management (CRM)

Customer Relationship Management (CRM) is a software solution that may capture and integrate customer data from all over the organization. It helps businesses to consolidate and analyze customer data and then share it to various systems and customer touch points across enterprises through phone, email and customer service desk. Every single enterprise view of customers helps businesses improve sales and services. For Eco Grocer, CRM helps to centralize customer information, improve customer service, integrate loyalty programs, enhance customer segmentation and monitor customer interaction. Eco Grocer can build a strong customer relationship, customize offerings more precisely to their preferences and retain profitable customers by implementing CRM for their business.

2.3 Supply Chain Management (SCM)

Supply Chain Management (SCM) is a network of organizations and processes for procuring materials, transforming them into products and distributing the product. SCM links suppliers, manufacturing plants, distribution centres, retail outlets and customers to the business. In other words, SCM is a powerful tool that can optimize inventory management, improve supplier relationships and reduce supply chain disruptions. SCM provides real-time updates on supply chain operations by integrating functions like procurement, logistics and inventory management. Business owners are able to forecast demand for the product accurately, optimize inventory levels and reduce overproducing and underproducing. Other than that, SCM provides communication and collaboration with suppliers effectively. It enables the streamlining of the order process, sharing demand forecasts and providing transparency in the production schedule at the same time improving supplier relationships. In addition, SCM enables problem solving capability in real-time by identifying potential issues earlier and finding solutions to overcome the issue in advance. SCM provides actionable insight to prevent any disruption by tracking external factors like market trends, geopolitical events and natural disasters.

2.4 E-Collaboration

Microsoft Teams and Slack are examples of E-Collaboration that have improved the way businesses communicate and collaborate. Team members are able to share information, discuss ideas and work together even at different physical locations by using these centralized hub platforms. These tools can improve internal communication and collaboration significantly because it facilitates real time communication, document sharing and project management. Teams are able to access the latest data and insights quickly since these tools enable rapid information sharing. So, the business is able to facilitate timely decision making, reduce response time and improve overall operational efficiency. Furthermore, these tools help in a teamwork environment like idea sharing, solutions finding and handling tasks together to achieve business goals. In summary, E-Collaboration leads to innovative solutions and improves business outcomes.

3.0 Supporting Operational and Strategic Activities

3.1 Enterprise Resource Planning (ERP) Technology

The implementation of the SAP ERP system is important to ensure Eco Grocer's operational efficiency and strategic growth. For example, it operationalises inventory tracking, procurement, and order management, thus reducing any possible errors from manual processes. Just-in-time ordering helps keep inventory levels at an optimal stock, very important for perishable goods to prevent waste. Sales analysis allows aligning inventory with customer demand to lower operational costs.

Strategically, the system supports data-driven decision-making. By analysing the trend of inventory, sales, and supplier performance, management gains insights to forecast demand, optimize stock levels, and negotiate with vendors. The ERP provides a holistic view of the business that helps Eco Grocer adapt to changes in the market and consumer behaviour. Its scalability positions the company for future growth, whether through new product lines, market expansion, or adopting new technologies. Overall, the ERP system is critically vital for Eco Grocer's continued survival in the competitive health and organic food market.

3.2 Customer Relationship Management (CRM)

CRM consolidates customer information from social media, email, and in-store feedback into one platform to ease customer service and allow for quicker responses to inquiries. It automates tasks such as sending promotional newsletters and post-purchase surveys, freeing up staff for more productive activities. CRM also helps Eco Grocer analyze purchase histories and preferences for personalized marketing that will help improve customer engagement and satisfaction.

It enables strategic data-driven decisions for customer loyalty and growth by revealing insight into product popularity and market opportunities. It also facilitates loyalty programs, helps track feedback in real-time, and thus assists Eco Grocer in finding the gaps in its services to work toward improvement in healthy food offerings. Overall, CRM is vital for continued growth and competitive advantage for Eco Grocer.

3.3 Supply Chain Management (SCM)

Integration of the Supply Chain Management system at Eco Grocer also enhances its operational efficiency and strategic decision-making. It automates order processing, stock reordering, and delivery tracking, hence reducing errors and improving fulfilment. In addition, real-time tracking enables better transparency and vendor performance analysis ensures reliable suppliers, which helps reduce costs and ensure product availability.

From a strategic standpoint, SCM allows for correct demand forecasting. This helps in inventory management to avoid bottlenecks and waste. Additionally, the integration of ERP and CRM systems allows for better operational coordination. The overall system of SCM would, therefore, support growth by increasing flexibility, mitigating risks, and opening the door to new markets for Eco Grocer.

3.4 E-Collaboration

E-collaboration tools are highly instrumental in both operational and strategic functions at Eco Grocer, making the environment of the organization much more cohesive and effective. Operationally, these tools, such as Microsoft Teams, enhance day-to-day communication and task management, reducing dependence on slower modes of communication, including email. This single workspace increases transparency in task assignments, thereby helping management and staff stay coordinated to minimise miscommunication and delays in operations related to restocking and customer service.

Strategically, e-collaboration tools ease better decision-making and innovations since departments share knowledge effectively. This may be assisted by integrated management of data-driven discussions for long-term planning with the help of real-time analytics on integrated dashboards. E-collaboration encourages a more inclusive approach by taking input from all ranks regarding formulating strategy.

Additionally, e-collaboration tools smooth onboarding and training as Eco Grocer scales. They can ensure the business remains agile in the instance of market changes or disruptions along supply chains through rapid communication. Finally, they enhance productivity to support the company in its continuing ability to stay competitive within the health and organic food market.

4.0 Comparison with Competitors

In this comparison, we will compare the Information System Capabilities and also identify the gaps between Eco Grocer and Lotus Malaysia. Similar to Eco Grocer, Lotus also has a wide range of outlets, with 67 stores across Malaysia. The company also offers high-quality products, such as fresh produce, groceries, electronics, clothing and also household essentials. The company emphasises customer satisfaction and sustainability, adopting initiatives such as eco-friendly packaging and energy-efficient store designs.

Category	EcoGrocer	Lotus Malaysia	Gap Identified
Inventory Management	● Using SAP ERP with JIT system (Just-in-time). ● Have a Monthly and Weekly sales analysis trackers ● Ad hoc manual ordering for stockouts	● Advanced real-time inventory systems. ● Machine learning for demand forecasting. ● Automated replenishment minimizes manual intervention.	EcoGrocer rely on manual periodic analysis while Lotus Malaysia using a real-time tracking and predictive analytics
Customer Relationship	● Using basic tools such as Facebook Messenger, Whatsapp, Email ● Social Media for promotion purposes ● Customer feedback via QR codes and surveys in digital receipts	● Have an advanced CRM system such as Salesforce ● Omni-channel marketing (personalized app notifications, loyalty schemes). ● AI-driven customer behaviour analysis for tailored promotions.	EcoGrocer only has simplistic interaction tools and a lack of personalization compared to Lotus's advanced CRM and AI-based customer insights.
Order and Supply Chain	● Semi-automated system with spreadsheets. ● Store managers analyze sales trends and historical data manually.	● Fully automated supply chain systems. ● Integration with inventory and sales data. ● AI-driven real-time order placement and supplier coordination.	In EcoGrocer they are prone to human error and delays in manual processes, particularly during peak demand or stocking day. Compared to Lotus they are seamless automation.

Internal Collaboration	• Microsoft Teams for top management. • WhatsApp for frontline staff. • Limited integration between platforms.	• Enterprise-level tools like Microsoft 365 and custom platforms. • Real-time dashboards for task allocation. • Integration with operational systems for streamlined workflows.	In EcoGrocer there are inefficiencies in coordination due to reliance on WhatsApp and lack of integration compared to Lotus Unified tools.

5.0 Proposed Information System for EcoGrocer

5.1 Recommended Strategy

In this part, we will recommend an upgrade to the Information System that is in EcoGrocer to make sure EcoGrocer will be performed more efficiently. An optimized information system is a very critical component in order to ensure the seamless function of a modern retail environment. By leveraging advanced technological solutions, EcoGrocer can improve its supply chain management, customer relationship management, and overall business operation.

Component	**Proposed Strategy**	**Expected Impact**
ERP (Enterprise Resource Planning)	Upgrade to a cloud-based ERP system for example SAP S/4HANA or Oracle NetSuite for real-time inventory tracking, financial management, and data analytics.	• Reduces manual human errors and delays • Provides real-time visibility into operations
CRM (Customer Relationship Management)	Implement a modern CRM platform Salesforce or HubSpot to manage customer relationships, enable personalized marketing, and introduce loyalty programs.	• Enhances customer engagement between retail and customer • This system will enable data-driven marketing and feedback analysis
SCM (Supply Chain Management)	Introduce a fully integrated SCM system with AI-driven demand forecasting and automated supplier coordination.	• Streamlines or unified order placement and supplier • This upgrade will reduce the risk of stockouts or overstocking
E-collaboration	Transition to an enterprise-wide collaboration platform like Microsoft 365 or Slack with integrated task management, file sharing, and real-time communication for all staff levels.	• Improves internal communication and task coordination • Enhances more productivity for staff or worker and their operational transparency

5.2 Implementation Timeline

Phase	Duration	Activities
Phase 1:Planning	1 month	In this first phase 1 which is the Planning phase we can form a cross-functional IS implementation team to discuss the implementation strategy, This Team will define system requirements and select vendors for upgrade purposes. this phase also will conduct an employee readiness assessment
Phase 2:ERP implementation	3 month	This second phase will slowly migrate to a cloud-based ERP system. This phase is also crucial to train staff on new ERP functionalities. This also will ensure integration with existing systems.
Phase 3:CRM deployment	2 month	This phase will set up a CRM for customer data management and marketing. we also need to train marketing and customer support teams to study and know how to use the system
Phase 4:SCM integration	3 month	Install and integrate SCM system with ERP and automate supplier communication and demand forecasting
Phase 5:E-collaboration	2 month	In this phase, we will deploy collaboration tools and train staff at all levels. Integrate tools with existing workflows
Phase 6:Testing and Optimization	1 month	In this final phase, we will conduct end-to-end testing of all systems. This phase is also crucial to resolve issues and optimize workflows. Finally, we can launch full operation

5.3 Potential Challenges and Mitigation Strategies

Challenge	**Mitigation Strategy**
Resistance to change from employees	The strategy for this challenge is to provide a comprehensive training session to the employee or staff and also involve them in the process so they will be familiar with the changes.
Integration with existing systems	● Thorough compatibility testing during the planning phase needs to be conducted. ● Work with experienced vendors so that the process of integration will be seamless
Budget Constraint	● Main prioritisation only the critical system component in the initial phases ● Seeking cost-effective vendor solutions or payment plans is required
Data migration and system downtime	● Plan data migration during off-peak hours for example at midnight ● Use backup systems to avoid operational disruptions
Scalability and future adaptability of systems	● Choose cloud-based solutions with scalable infrastructure ● Regularly update systems to meet future demands.

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