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Marina Ellim

Master of Accounting Program, Faculty of Economics and Business, Universitas Indonesia
marina_ellim@yahoo.com

Dr. Siti Nurwahyuningsih Harahap

Master of Accounting Program, Faculty of Economics and Business, Universitas Indonesia
nungharahap@yahoo.com

EVALUATION OF STANDARD OPERATING PROCEDURES OF E-COMMERCE REVENUE CYCLE: CASE STUDY OF PT XYZ

*Marina Ellim**, *Siti Nurwahyuningsih Harahap*

Master of Accounting Program, Faculty of Economics and Business, Universitas
Indonesia

ABSTRACT

The development of the e-commerce industry requires e-commerce businesses to continue to create improvements. Consistent improvement may support the delivery of satisfactory services and expansion of e-commerce market share. One of the most important factors to improve services is the improvement of information systems. An effective and efficient information system can be achieved if standard operating procedures (SOP) have proper internal controls. This study obtained primary qualitative data through interviews and related SOP documents applied during covid-19. The research method is a case study in e-commerce XYZ. This study aims to evaluate the SOP of e-commerce XYZ's revenue cycle. This study finds problems related to control access, verification, authorization, and revenue cycle efficiency. E-commerce XYZ needs to limit access over selling prices, discounts promotions, and e-wallet. Control of access could evade fraud. Result of this study suggests that e-commerce XYZ needs to limit the access and complement control activities as level authorization and transaction's verification. The revenue cycle of e-commerce XYZ advised changing its transaction processing policy. The policy changes aim to limit overload capacity and fasten the order process. Future research could obtain data from different level of management and use a different period as e-commerce technology keep changing.

Keywords: E-commerce, Information System, Internal Controls, Revenue Cycle, Standard Operating Procedure

* Corresponding Author's Email: marina_ellim@yahoo.com

1. INTRODUCTION

The e-commerce industry in Indonesia has shown significant growth in recent years. BI reported the value of the digital transactions in Indonesia has grown from 42,2 trillion rupiahs in 2017 to 266,4 trillion rupiahs in 2020 (BI, 2020).

The growth of the e-commerce industry can not be separated from the rapid development of technology. Technological developments provide facilities for a better life. It also caused cultural shifting and changes in lifestyle preferences, including preference in trading transactions. Formerly, people conventionally traded their products. Buyer and seller have to meet physically to settle the transaction. The invention of technology makes it possible to transact digitally. By using a device connected to the internet, people could buy and sell their products without meeting physically. Commonly, it is defined as e-commerce.

The convenience e-commerce offers have made it keeps growing. Even so, the e-commerce industry consistently needs a lot of improvement and development, particularly in system design, service method, and control activity. This improvement is needed to facilitate e-commerce transactions that have different characteristics compared to conventional transactions.

E-commerce cover activities starting from receiving orders, settling payments, and delivering the product to the buyer. The e-commerce concept support non-physical transactions. The seller could reach the buyer without concerning location and time. On the other side, buyers could find any type of product easily and receive their product without much efforts. The e-commerce system benefits both parties and made transactions happen seamlessly.

Meanwhile, the conventional transaction has a different characteristic. The system only accepts transactions from people who come to shop. Therefore, the services are limited to activities in a shop for a limited range of time. These characteristics have impact to control activities needed. Therefore, the different characteristics of e-commerce and the conventional transaction will require different control activities.

In addition, the establishment of assurance among buyers and sellers is another aspect that will determine e-commerce success (Wibowo, 2015). E-commerce has 3rd parties known as the marketplace to ensure the reality of transactions. The marketplace serves its purpose to maintain trust and provide assurance for buyers

and sellers. Indonesia has substantial market-place known as Tokopedia, Shopee, Lazada, Bukalapak, and Blibli.

Commonly, the e-commerce transaction has characteristics of business to consumer model. It has a high volume of transactions, frequent, and transparent spread of information. The characteristics caused higher competition among sellers and a higher requirement to be fulfilled. Therefore, e-commerce demands an effective and efficient system that will enhance service quality. A previous study Dina (2013) concludes that e-commerce needs control to ensure the validity of transactions, authorization of transactions, and security of assets. Another research related to e-commerce by Utama et al. (2019) utama concludes that e-commerce is vulnerable to system cracking, problems in coding systems, and dependence on experts in the company.

Recent research by Malau (2019) related to the revenue cycle of e-commerce finds that internal control should have clear policy toward pricing, discount, and sales promotion which will affect corporate margin. In addition, research by Kusumastuti (2018) finds an integrated system could provide real-time and reliable information.

The difference between the characteristics of e-commerce transactions and conventional transactions requires the enhancement of e-commerce systems. This study aims to evaluate standard operational procedures in revenue cycles e-commerce XYZ. E-commerce XYZ considerable as research object as its demand to evaluate the effectiveness and efficiency of its internal control. E-Commerce XYZ is an e-tailer that has problems in the revenue cycle control system. The main cause is e-commerce XYZ using standard operational procedures adopted from conventional trading companies. Thus, standard operational procedures require internal control adjustments to minimize risk of e-commerce trading process. The evaluations toward the internal control aims to create an efficient and effective procedure for e-commerce transactions.

This study will evaluate the internal control of XYZ's e-commerce based on standard operating procedures applied. The research used data obtained from standard operating procedures, interviews, and observations of activities related to the income cycle. The data obtained will be grouped into 4 main processes of the revenue cycle: the online sales process, expenditure and delivery of goods, cash receipts, and online sales returns. The activities will be evaluated based on COSO internal control framework focusing on control activities. The activities are

evaluated by understanding and analyzing internal control activities and possible risks. The research will compare the internal control designed and possible risks toward internal control applied.

2. LITERATURE REVIEW

2.1. ECOMMERCE TRADING

E-Commerce is a business transaction using the internet (Maulana, Susilo, & Riyadi, 2015). E-commerce also refers to the use of the internet and the web to transact business (Laudon & Laudon, 2020). Thus, E-commerce is a business transaction (marketing, selling, or buying products) using the internet network as a medium of communication/transactions. Meanwhile, conventional trades require a physical place to meet and deal with the transactions.

Several aspects differentiate the characteristics of e-commerce markets and conventional markets (Laudon & Laudon, 2020), as presented in Table 1.

Table 1. Comparison of E-commerce and Conventional Markets Characteristics

Characteristics	eCommerce	Conventional Markets
Information asymmetry	Asymmetry reduced	Asymmetry high
Search costs	Low Cost	High Cost
Transaction costs	Low Cost	High Cost
Delayed gratification	High (Possible to wait)	Lower (Purchase instantly)
Menu costs	Low Cost	High Cost
Dynamic pricing	Low Cost	High Cost
Price discrimination	Low Cost	High Cost
Market segmentation	Low Cost	High Cost
Switching costs	Low Cost / High Cost (Depending on products)	High Cost
Network effects	Strong	Weak
Disintermediation	Likely	Unlikely

The high asymmetry of information caused a high competition in the e-commerce market. E-commerce has an advantage in terms of low operating costs compared to the conventional market (Mel, 2020). Therefore, E-commerce could provide products at cheaper prices and transmit faster information for decision-making (Amit, 2001). However, e-commerce has some laxity in terms of delivering products. Delivery will take more than 2 days which is longer than in-store purchase.

2.1.1. TYPE OF ECOMMERCE

E-commerce are commonly classified into 3 types, i.e. Business-to-consumer (B2C), Business-to-business (B2B), Consumer-to-consumer (C2C). The most popular type in Indonesia e-commerce is B2C. B2C allows retailers to sell directly to end-user. Thus, the system designs should be aligned with B2C characteristics that sell in small quantities and at high frequency. B2C models focused on graphic design, structure design, content design, and social clue design (Windarto, 2016).

E-Commerce could also be classified by the purpose of the website. E-commerce classified as, e-Tailer, transaction broker, market creator, content provider, community provider, portal, and service provider (Laudon & Laudon, 2020). The common one in public is e-Tailer. The e-Tailer is an eCommerce purpose for selling physical products directly to buyers. The system supports marketing until delivery and return.

2.1.2. REVENUE MODEL OF ECOMMERCE

Revenue models of e-commerce categorized based on its source as the advertising revenue model, sales revenue model, subscription revenue model, freemium revenue model, transaction fee revenue model, and affiliate revenue model (Laudon & Laudon, 2020). Each revenue model will relate to the type of eCommerce. The e-Tailer commerce that sells physical products earn profit from the spare margin of selling price and spending cost. Thus, e-Tailer commerce is categorized as a sales revenue model.

2.2. E-COMMERCE INTERNAL CONTROL SYSTEM

2.2.1. E-COMMERCE INFORMATION SYSTEM

System is a set of methods, procedures, and routines that carry out specific activities, perform a duty, achieve goals or solve problems (Romney, Steinbart, Summers, & Wood, 2021). While The information system is a set of interrelated component to collect, process, store, and distribute information to support decision making and control in an organization (Laudon & Laudon, 2020).

The e-commerce information system is defined as the collective uses of web-based information systems and conventional information systems such as databases, transaction processing systems, and management information systems to serve customers. Research by Bellaaj and Zekri (2012) create a model of e-commerce information system that is composed of e-commerce system quality (ECSQ), e-commerce content quality (ECCQ), and e-commerce service quality (ECSEQ). The research concludes that ECSQ, ECCQ, and ECSEQ affect the satisfaction of e-commerce customers directly.

2.2.2. REVENUE CYCLE OF ECOMMERCE

The revenue cycle describes the process to earn revenue and provides a return on investment. The activity of the revenue cycle starts from receiving orders from buyers to collecting cash from sales. In the trading company, revenue is derived from the activity of selling goods purchased from manufacturers. Generally, offline trading transactions are carried out face-to-face. However, along with the development of technology, trading transactions can be carried out without meeting face to face by utilizing internet technology. It is widely known as e-commerce.

The revenue cycle of B2C e-commerce started with the digital marketing of products in the marketplace. Customers search for the products through the website and check out the product from a virtual cart. In e-commerce trading, payment should be initiated in the first place before delivering the products. On the other hand, the conventional trade payment allows the buyer to create the payment after receiving the products.

The following process is packing and shipping the products. The packing and shipment processes are different compared to conventional trading. E-commerce sellers do have their logistics. However, their scope is limited in some regions. In order to serve a larger area, e-commerce uses a delivery service from 3rd parties.

Customers will receive the products from the courier and could propose a return in a certain period. In case the customer doesn't file a complaint, the marketplace will settle the transaction to the eWallet.

2.2.3. INTERNAL CONTROL

The Committee of Sponsoring Organizations of The Treadway Commission (COSO, 2013) defines internal control as a process influenced by the board, management, and other personnel within an entity, designed to provide the satisfaction of objectives related to operations, reporting, and compliance. COSO stated five basic concepts of internal control. The first one is the aims of internal control. Internal control is designed to achieve operational, reporting, and compliance objectives. Second, Internal control is a process consisting of ongoing tasks and activities that aim to achieve a goal. Third, Internal control depends on the actions of the operator. Fourth, Internal Control provides reasonable assurance but does not assure senior management and company directors. Fifth, Internal Control is flexible to adjust the company's organizational structure.

The internal control framework consists of 5 components and 17 principles (COSO, 2013). The five components are control environment, risk assessment, control activities, information and communication, and monitoring activities. Figure 1 shows the framework of internal control from COSO.

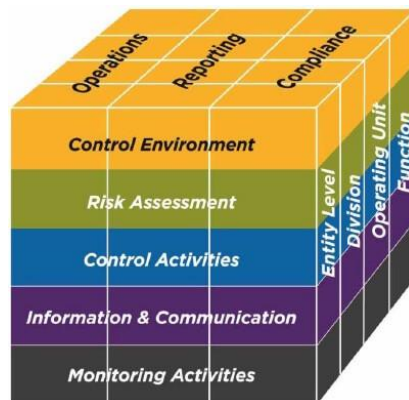


Figure 1. COSO Internal Control Framework

2.2.4. STANDARD OPERATING PROCEDURES

SOP or standard operating procedure is a standard set by the company as a reference for operators in carrying out business activities so that the company can achieve its goals. The main objectives of standard operating procedure are to maintain the consistency of operator performances in carrying out certain tasks and become a reference for the implementation of certain activities for fellow workers and supervisors. Besides, standard operating procedures could avoid mistakes, doubts, duplication, and waste in the implementation of activities (Hartatik, 2014). Therefore, standard operating procedures are needed and should be designed in a clear, efficient, and effective way.

3. RESEARCH METHODS

This research will be descriptive research with the case study method at PT XYZ. Preference of the case study method consider the problems in an organization may be different from one another. Therefore, solving specific problems in an organization require to analyze objects directly.

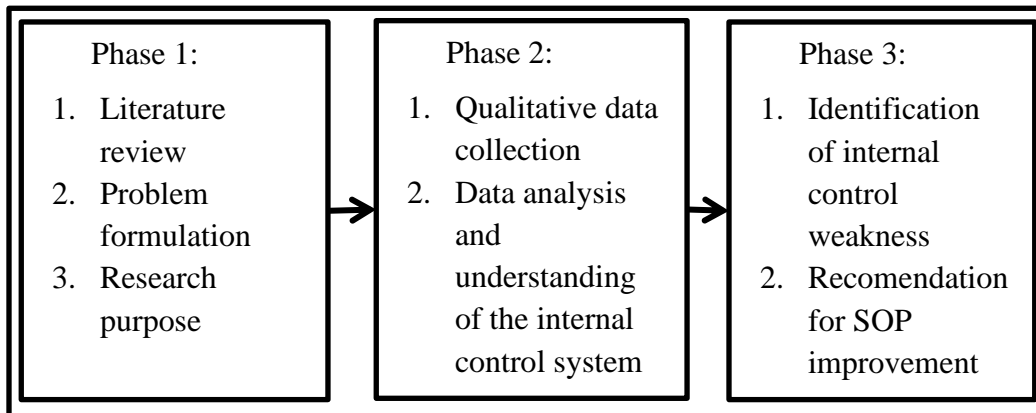
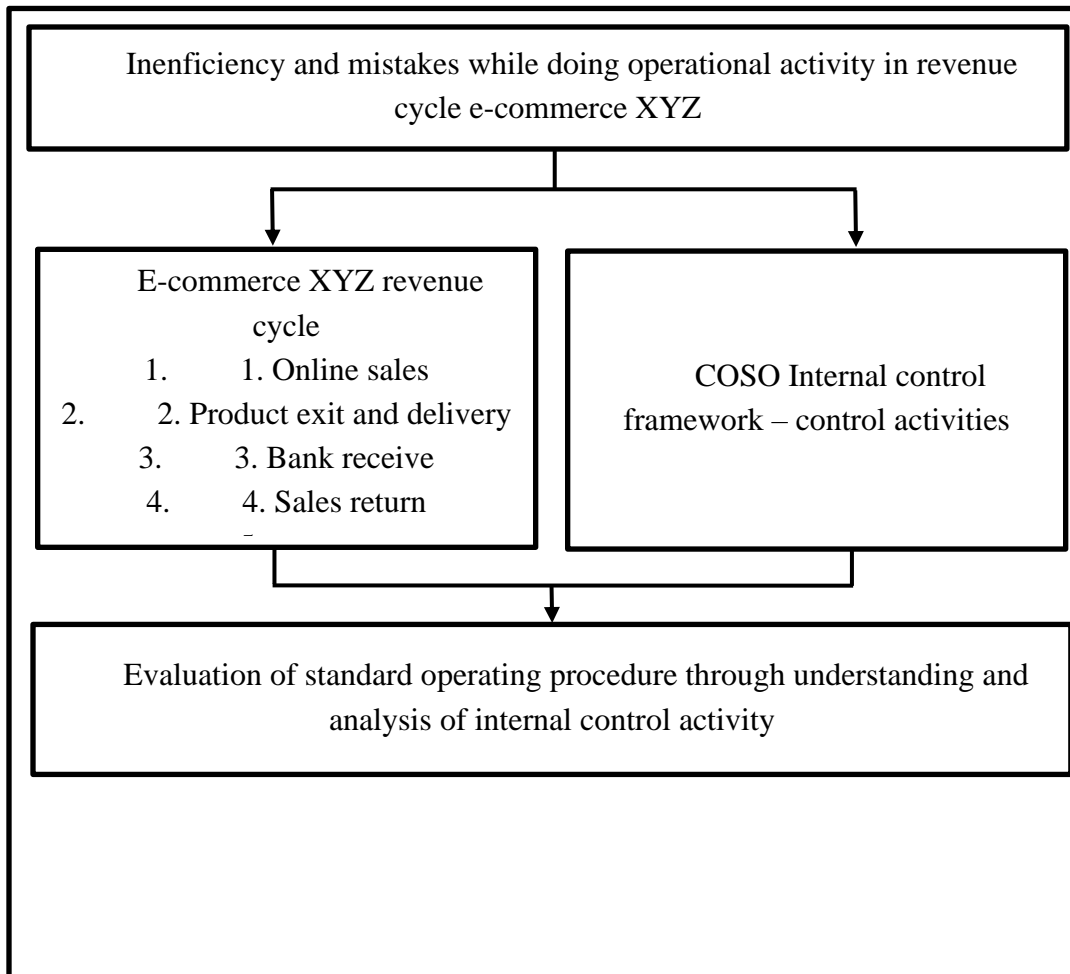


Figure 2. Research Operational Model

Research will collect qualitative data obtained from standard operational procedure, interview, and observation. Interview will be held with two source persons, operational and finance manager. Election of operational and finance manager as interviewees considering deep understanding of detailed process and technical problems. Data will be processed, analyzed, and presented in the form of narratives or pictures. Based on the information presented, the research will summarize the problems and provide recommendations for improvement.



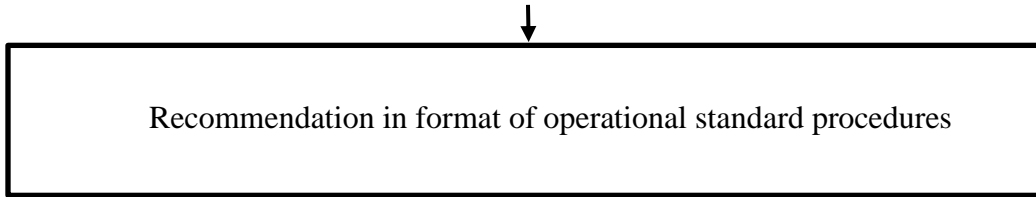


Figure 3. E-commerce Sales Flow

4. ORGANIZATION PROFILE

PT XYZ is one of the e-commerce companies in Indonesia founded in 2016. PT XYZ is a sister company of PT ABC. PT ABC mainly distributed household electronic products since 1980. PT XYZ establishes to help PT ABC distribute products through e-commerce. In 2016, PT XYZ was selling through its website. In 2017, PT XYZ join major marketplaces such as Tokopedia, Shopee, Blibli, Lazada, Bukalapak, and Elevania as seller. In 2018, PT XYZ begin to accept wholesale and retail sales through showrooms. In 2021, Selling through its website was closed and the company decided to sell online through the marketplace.

PT XYZ's main activity is selling household electronics. The revenue cycle of PT XYZ consists of 4 main processes, sales, delivery of goods, cash receipts, and sales returns. PT XYZ's sales transactions are mainly from e-commerce sales. The flow of the e-commerce sales process is presented in figure 3.

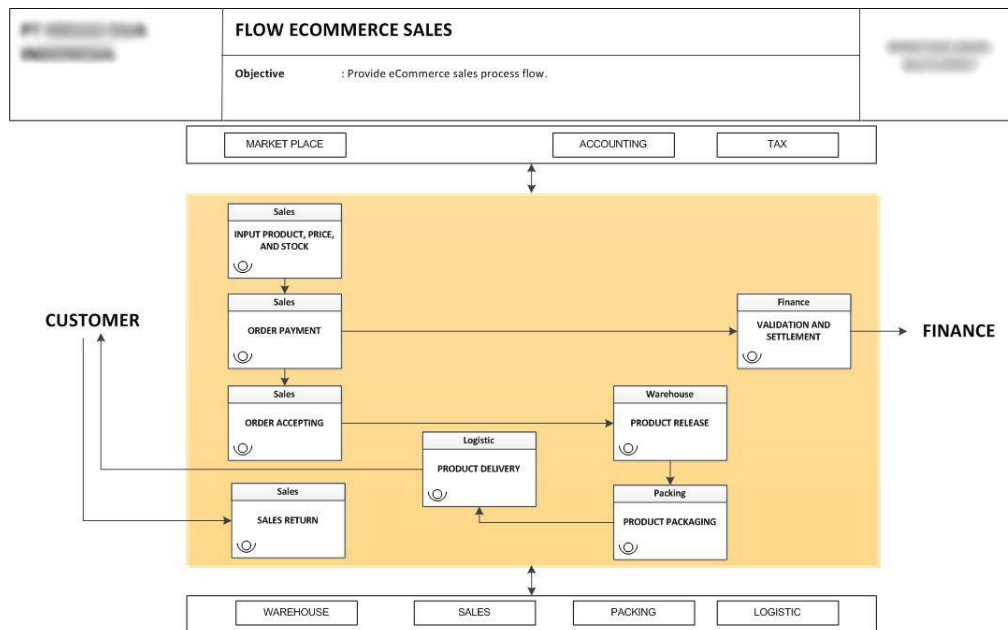


Figure 4. E-ommerce Sales Flow

The e-commerce transactions are carried out through marketplaces, such as Tokopedia, Shopee, Blibli, Lazada, Bukalapak, and Elevania. PT XYZ also conducts direct sales in the showroom. The showroom sales process is the same as conventional sales. It allows customers to buy on the spot. Nonetheless, PT XYZ's conventional sales could be derived from e-commerce marketing. This is due to the integration of offline and online marketing systems through some marketplace.

PT XYZ is classified as a small business based on PP no. 7 of 2021 article 35 paragraph 3. The classification criteria are based on business capital or annual sales. The criteria for small business capital is IDR 1,000,000,000, - (one billion rupiah) up to IDR 5,000,000,000, - (five billion rupiah). Small businesses can be classified based on annual sales. Small business criteria based on annual sales ranging from IDR 2,000,000,000, - (two billion rupiah) up to IDR 15,000,000,000, - (fifteen billion rupiah).

5. RESULT AND DISCUSSION

The analysis is carried out using the internal control framework found by COSO. The framework has five components of the internal control framework, Control Environment, Risk Assessment, Control, Information and Communication, and Monitoring (COSO, 2013). The research focuses on analyzing and analyzing the risks of controlling revenue cycle activities. The research will begin by understanding the risk of activities in PT XYZ's e-commerce revenue cycle. Followed by an analysis to minimize the impact of the risk, this study will provide results in form of suggestions and recommendations for PT XYZ so that internal control in business processes can mitigate the risks contained in the e-commerce cycle.

The analysis identifies risk based on four main processes of e-commerce XYZ. The processes are sales, delivery of goods, cash receipts, and sales returns. The revenue cycle starts from the activity of inputting product data, stock, and selling prices on the website. After the product is displayed on the website, potential buyers can obtain product information through the website. If the customer buys the product, the buyer must pay the order through the marketplace. The verified order will be delivered to the seller by the website. The seller will process the order received, print shipping labels, and package the product. After the product has been packaged, the courier will pick up the package and send the product to the buyer. The buyer could propose a return in a certain period before the transaction is settled automatically. The settled transaction will be verified by finance.

Table 2. Internal Control Analysis and Recommendation for Online Sales

Risk	Causal	Internal control activity	Implementation in PT XYZ	Analysis and recommendation
Activity: Inputting selling prices and promos on the website				
Operational risk: The selling price entered is lower or higher than the price it should be. The company may suffer a material loss or be less competitive in the market.	Unintentional mistake	Perform a re-examination of the results of input prices and promos.	Currently, a re-examination of the selling price is being carried out by the same person.	The internal control is Inadequate. The company should implement segregation of duties to control selling prices and promos.
	Fraud by employees	Access to input and changing prices and promotions is restricted to certain people.	PT XYZ has not restricted access to the website menu.	The internal control is Inadequate. PT XYZ should restrict access to some features. Logged-in users can only access features related to their tasks. In addition, control can be carried out by verifying selling prices and promos before orders are received.
Activity: Updating the quantity of the products on the website				
Operational risk: Loss of orders due to unavailability of stock thus hampering the growth of turnover.	Stock quantity on the website is empty / not updated	Doing regular stock updates	The company updates stock every 2 days. The lead time to update stock caused product status on the website less than rill stock.	The internal control is Inadequate. The company is advised to do stock updates regularly every day. In addition, companies should consider using an ERP connected to marketplaces. The ERP could manage stock in real-time among platforms.
Risk	Causal	Internal control activity	Implementation in PT XYZ	Analysis and recommendation
Activity: Online order acceptance				
Operational risk: A high rate of order cancellation may lower turnover and store rating.	Incoming orders exceed the capacity of the packaging process.	Implement proper time management and order cut-off limits.	Currently, the company processes orders at 8.30 and 14.00. Therefore, the waiting time is too long. Longer lead time caused orders to pile up and overdue the processing time.	The internal control is Inadequate. The company is advised to reduce the waiting time to process the incoming order. The company may conduct periodic reviews of customer responses through store and product ratings. In addition, the company should motivate employees through a reward and punishment system.

				Therefore, the quality of service could be increased.
Operational and system risk: Leakage of personal data may cause information used by outside parties without permission	The device is infected with viruses and malware. Misuse of data by internal parties.	Data access restrictions. Scanning device with antivirus regularly.	The company has not restricted access to customers' data.	The internal control is Inadequate. Companies can exercise access rights, and commitments to maintain integrity and ethics. In addition, socialization and uses of technology such as anti-virus and malware could minimize data stealing.

Based on the information obtained from the interview and current standard operating procedures. Table 2 presents an analysis and recommendation for online sales' internal control in PT XYZ. The analysis proceeds that internal control in e-Commerce sales should put higher control on the price and promotion activities. In addition, real-time information like stock quantity on the website is required to maximize potential income. Another concern for e-Commerce transactions is the leakage of data. Leakage of data will deliver an unpleasant experience and may cause financial loss.

Table 3 presents an analysis and recommendation for product exit and delivery in the internal control PT XYZ. Most of the risks are borne as operational risks. The crucial aspects are employee and system. E-Commerce should have more concern for access restrictions, permit warehouse exit-entry, employee motivation, and uncertain risks while delivering the product.

Table 3. Internal Control Analysis and Recommendation for Product Exit and Delivery

Risk	Causal	Internal control activity	Implementation in PT XYZ	Analysis and recommendation
Activity: Product release from the warehouse				
Operational risk: Loss of goods caused financial losses.	Intentional and unintentional mistakes	Imposing sanctions for negligence. In addition, the company could use technology such as barcode scanning to validate goods released and CCTV and access restrictions for	The company has not given sanctions if employees make mistakes and do not re-examine the goods released. The company also does not use barcode scanning tools. Access to the warehouse is	The internal control is Inadequate. Companies could prevent the loss of goods from the warehouse by restricting access to and from the warehouse. Locking the door could minimize the risk of loss of goods due to theft. The company must ensure that stock opname is carried out regularly and audited by an independent party. Companies could minimize the risk of delivery errors by

		control and monitoring.	open to every employee.	providing training to employees. In addition, the reward and punishment system could motivate employees to work carefully.
Activity: Product packaging				
Operational risk: Product delivery miscarriage	Packaging standards have not been applied consistently.	Supervise the implementation of packaging standards and provide training on packaging standards. In addition, the company could consider buying insurance.	The company has adequate packaging standards. However, the packaging is done by humans without supervision. The process caused differences in the packaging method of each order.	The internal control is Inadequate. Companies could prevent the risk by training employees. Applying reward-punishment systems could enhance the quality of the packer for all orders. In addition, the company may consider purchasing shipping insurance. Shipping insurance could cover the risk of product damage in transit.
Operational risk: Mismatch product ordered with the shipped product	Employee negligence followed by the absence of re-examination over the packages.	Giving sanctions for negligence and re-examination of the packaging of goods before sending the products.	The company doesn't apply sanctions for negligence. Absence of segregation duties, as the package re-examination done by the packer.	The internal control is Inadequate. The company could minimize the risk by applying a reward and punishment system. The company advised applying segregation of duties for re-examination.

The analysis of bank receipt from the e-commerce payment should emphasize on security of the account and eWallet. Account breaching is a common risk related to payment receipt. E-commerce could limit the risk by creating access restrictions, regularly update the password, and withdraw account balance everyday. Table 4 present the anaysis of bank receipt internal control in PT XYZ.

Table 4. Internal Control Analysis and Recommendation for Bank Receive

Risk	Causal	Internal control activity	Implementation in PT XYZ	Analysis and recommendation
Activity: Receipt of proceeds from online sales				
Operational and system risk: Theft of The eWallet	Users saved the password and username on the device. Access	Limiting features access to comply with user responsibilities	The company changes passwords regularly on Blibli marketplaces.	The internal control is Inadequate. The company advised withdrawing funds regularly every day. In addition, access limitation and regular

balance and account breach by an outsider or another employee.	account is unlimited and users are free to access the eWallet. Obsolete devices without updated antivirus protection.	and change passwords regularly.	However, does not change passwords on other marketplaces. The company withdraws funds regularly once a week.	password updated are recommended to enhance account security.
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Based on the information obtained, Table 5 presents an analysis and recommendation for e-commerce sales return's internal control in PT XYZ.

Table 5. Internal Control Analysis and Recommendation for Sales Return

Risk	Causal	Internal control activity	Implementation in PT XYZ	Analysis and recommendation
Activity: Sales return verification				
Financial risk: Material loss for the seller because returns could be submitted without sufficient evidence	Disharmony of the company's sales returns policy and marketplace.	Re-examination of evidence of returns. Returns with insufficient evidence and are not suitable with company policy should be negotiated with the marketplace.	The company verifies return and evidence. The company also attempts to negotiate with the market-places.	The internal control is adequate. The risk related to marketplace policies already minimized to the minimum level.
Risk	Causal	Internal control activity	Implementation in PT XYZ	Analysis and recommendation
Activity: Sales return submission				
Loss of customers due to unpleasant shopping experiences. Sales returns are an unpleasant shopping experience.	The buyer is not satisfied with the product sent because it was damaged in shipping.	e-commerce could reduce the risk of damaged goods in transit, by purchasing shipping insurance and packing according to standards.	The company has not consistently implemented the delivery of all packages according to standards and does not require the purchase of insurance.	The internal control is inadequate. E-commerce is advised to supervise product packaging and consistently carry out the product standards' packaging. Companies can also provide compensation such as promo codes and vouchers for subsequent purchases.

6. CONCLUSION AND DISCUSSION

This study concludes that in XYZ's e-commerce, internal controls for the revenue cycle have been implemented. However, several weaknesses were found that require improvement. Currently, PT XYZ adopts SOP of the parent company (PT ABC) whose business process is for offline sales. Thus, internal controls that are specific for e-commerce sales should be added. E-commerce platforms have additional risks such as breaching access to data and features, market places' policies that conflict with company policies, and ease of transaction. In addition, easy access to purchase anonymously without limitation makes e-commerce transactions prone to fraud and cyber-crime.

The results of the study found that XYZ's e-commerce internal control system has weaknesses as follows,

1. Limitation of access rights of platform features
2. Selling price and online promotion
3. Allocation of rill stock between market-places
4. User data leak
5. Cheating and fraud by users
6. Items lost in the shipping process
7. Delivery of products that do not match the order
8. Order management, Packaging capacity allocation, and Shipping
9. Lack of supervision and consistent implementation of SOPs
10. Theft of money from sales in eWallet

Thus, the research suggests PT XYZ control activities such as:

1. Limiting access to marketplace features based on the responsibilities of each employee. For example, the sales admin is limited to access to buyer chat. The financial manager is limited to withdrawing funds and transferring eWallet. The operation manager is limited to product and stock management.
2. Verify orders for selling prices and issue promos.
3. Using ERP that is connected between marketplace platforms so that inventory and order management on each platform is easier and more accurate.
4. The company may restrict data access rights and commit to maintaining the integrity and ethical values. The owner of the purchaser's data access must maintain the confidentiality of the data and not sell or share the data.
5. Re-examination of transactions, validation of completeness, and strength of supporting evidence.
6. Monitoring delivery status and purchasing shipping insurance.

7. Employee training, supervision, and implementation of the reward-punishment system. Thus, Employee is motivated and works more carefully.
8. Shorten the waiting time for order processing. Thus, there is no accumulation of orders.
9. It is necessary to carry out supervision and examination by an independent auditor.
10. Withdrawal of proceeds from sales every day.

Research findings related to the importance of access limitation and control of selling price and promotion are aligned with studies by Dina (2013) and Malau (2019). In addition, research finding that e-commerce is vulnerable to system cracking is supported by Utama et al. (2019). Research is limited to the information obtained from the managerial level and limited to current technology invented. Future research could obtain data from different level of management and use a different period as e-commerce technology keep changing.

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