
Implementation of task continuity management in banking service activities and treasury operations for smooth payment system

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ABSTRACT

The increasing complexity and unpredictability of future business environments, including threats such as terrorism, natural disasters, and pandemics like COVID-19, necessitates robust business continuity management (BCM) to ensure the uninterrupted functioning of critical operations. This study aims to evaluate the effectiveness of Bank XYZ's Business Continuity Management, particularly focusing on its Task Continuity Management (TCM) within banking services and treasury operations. Using a case study approach, data were collected through interviews, document analysis, and observations at Bank XYZ, and evaluated against the ISO 22301:2019 standard for "Security and Resilience - Business Continuity Management Systems – Requirements." The findings indicate that Bank XYZ's BCM generally aligns with ISO 22301:2019, covering aspects such as organizational context, leadership, planning, and continuous improvement. However, the evaluation also identified areas for enhancement, including broader risk assessment, improved communication, better competency development programs, and more comprehensive testing and monitoring methods. The study concludes with recommendations for industry, education, and public sectors to improve BCM practices by focusing on risk assessment, communication, competency development, and effective evaluation methods.

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INTRODUCTION

According to a survey conducted by Siemens published in 2023, there has been a notable increase in downtime costs during the period of 2021 to 2022. The study reveals that unplanned downtime has resulted in a financial loss of approximately 11% of annual revenue turnover for Fortune Global 500 companies. This amounts to nearly \$1.5 trillion, which is a significant rise from the \$864 billion recorded two years prior. According to [Adeloka and Clelland \(2020\)](#), the concepts of

Business Continuity Management (BCM) and Organizational Resilience demonstrate the progression of a risk management standpoint in identifying the essential abilities of an organization. This is followed by the implementation of a BCM strategy to cultivate these capabilities, enabling effective response and recovery in the event of disruptions (Fauzi et al., 2020). Ultimately, this process fosters the development of organizational resilience, allowing for the anticipation, mitigation, and successful navigation of various stages in building resilience capacity when confronted with threats, disruptions, and incidents (Medah & Santosa, 2023). Financial institutions must be prepared to protect the future of their business by managing the inherent risks in carrying out any activity and the specific risks associated with the activities carried out to protect not only physical assets but also the reputation and continuity of their actions in the future (Mudholkar et al., 2013).

In implementing effective BCM, organizations must at least create a BCP (Business Continuity Plan) or Business Continuity Plan. BCP is a process that involves creating a system for preventing and recovering organizational/business activities from a risk event (Alijoyo et al., 2020). Organizations must consider implementing effective Business Continuity Management (BCM) to ensure smooth recovery if an incident occurs that threatens business continuity (Padeliento et al., 2020).

Bank XYZ is an entity that carries out one of its main tasks, ensuring the payment system runs smoothly. In carrying out these duties, Bank XYZ has duties including ensuring that the completion of all transactions carried out, especially in the context of carrying out monetary operations and foreign exchange management, can run as they should under various conditions. The Business Continuity Management implemented by Bank XYZ is outlined in Bank XYZ's Task Continuity Management. Referring to ISO 22301-2019 concerning "Security and Resilience - Business Continuity Management Systems – Requirements", Business Continuity Management (BCM) is defined as a set of documents that includes the structure and requirements for implementing and maintaining business continuity according to its size and the types of impacts that an organization may or may not receive after a disruption occurs. Meanwhile, according to Bank XYZ, Task Continuity Management is defined as a planned, measurable, and comprehensive management cycle to ensure the continuity of the Bank. Referring to each definition, there are main issues in common in these definitions, as follows:

Table 1 Comparison of BCM and TCM definitions

BCM Definition (ISO 22301)	TCM Definition (by Bank XYZ)
As a set of documents that includes structure and requirements	A planned, measurable, and comprehensive management cycle
To implement and maintain business continuity according to its size	To ensure the continuity of Bank XYZ's operational tasks, especially critical tasks

Source: ISO 22301 and Bank XYZ

Meanwhile, activities are defined as a collection of one or more tasks with a specified output (ISO 22301, 2019). Referring to the definitions above, Bank XYZ's TCM is the BCM applied to Bank XYZ. The focus of this research is the evaluation of the Task Continuity Management (TCM) for banking services and treasury operations functions based on ISO 22301:2019 - Business Continuity Management Systems – Requirements which are international standards for implementing Business Continuity Management or, in this case, Task Continuity Management. The benefits of this research are as a sustainable improvement for Bank XYZ, to ensure the smooth implementation of tasks through adequate Task Continuity Management, to provide input for improvements to the function of banking services and treasury operations so that the implementation of Task Continuity Management is in accordance with general practice; as insight for public organizations, business, and education through the latest research and literature in the context of implementing better risk management.

Literature Review

Task Continuity Management

Bank XYZ's Task Continuity Management (after this referred to as TCM) is determined through PADG No. 22/55/PADG INTERN/2021 concerning Bank XYZ Task Continuity Management. Following the PADG, TCM is defined as a planned, measurable and comprehensive management cycle to ensure the continuity of Bank XYZ's operational tasks, especially critical tasks. The TCM was made by considering the implementation of Bank XYZ's risk management as stated in PDG No. 23/6/PDG/2021 concerning Bank XYZ risk management. The scope of TCM regulations generally includes:

- a) Governance of TCM implementation, which includes determining critical tasks; TCM disorders and status; duties and responsibilities of each TCM organ; resources and reporting on TCM implementation.
- b) Readiness to face disruptions, including TCM activities under normal conditions.
- c) Handling disruptions and continuity of tasks, including TCM activities in alert, standby, and incident conditions.

Furthermore, the TCM is reduced to the Task Continuity Protocol (TCP), a procedure for carrying out the rescue and security of people to respond so that critical tasks continue within a specific time for each type of task specified. TCP is an implementation provision of TCM which regulates specifically and in detail each critical task carried out by Bank XYZ. The term Task Continuity Management (TCM) used by Bank XYZ is based on the duties and functions of Bank XYZ by the law as a non-profit public sector organization. Thus, the emphasis is more on task continuity than business continuity, which is generally profit-oriented.

Institutionally, TCM Bank XYZ has obtained ISO 22301:2019 certification concerning Business Continuity Management System (BCMS) for several critical tasks, including foreign exchange management, monetary management, financial management, banking services and treasury operations. This indicates that Bank XYZ's TCM practices align with BCM practices or Business Continuity Management.

Business Continuity Management

Business Continuity Management are steps that include Business Continuity Planning (BCP) and Disaster Recovery Planning (DRP) (ISO 22301, 2019). BCP is how an organization prepares to handle an incident that may occur in the future that could endanger the continuity of tasks. Local events such as fires will be covered, as will regional disruptions such as earthquakes or national security incidents, as well as international incidents such as terrorism and pandemics. (Hopkin, 2018).

Technological construction (IT reliability, complexity, and technology), organizational construction (management support), environmental construction (external pressure, business environment), and individual construction (staff competency, roles, and responsibilities) are the main factors that are essential in implementing BCM and Effective DRP (Mukhametzyanov & Razyapov, 2018). Organizations from both the private and public sectors must be well protected by increasing resilience in carrying out tasks and business so that the continuity of tasks and business operations can be well maintained and better prepared to face unwanted crises and ensure that disruption to business operations can be minimized (Bakar et al., 2015). A management system's scope can encompass one or more functions across organizational groups, the entire organization, certain and specified organizational functions, or specific and identified portions of the organization. (ISO 22301, 2019).

The Importance of Business Continuity Management

The primary key to integration between BCM and ERM is threat so that BCM and ERM complement each other in maintaining current business continuity to strengthen the company. BCM implementation cannot be separated from the need for operational resilience. However, BCM does not have clear boundaries regarding its relationship to operational resilience (Galaitis et al., 2023). If carried out correctly and communicated correctly to interested parties, risk identification and

management can improve financial performance, protect organizational value, and create competitive advantages (Paunescu & Argatu, 2020).

Relationship between TCM and BCM

Referring to the explanation above regarding TCM and BCM, several similarities are found, especially regarding the essence and objectives of TCM and BCM. The common thread in the similarities between these two terms (TCM and BCM) in general is that they aim to ensure the continuity of activities in business and in terms of carrying out tasks in accordance with applicable regulations. In addition, referring to ISO 22301, an activity is defined as a collection of one or more tasks with a defined output. In other words, business terms in MKB can be compared to tasks in TCM. Business is termed an activity, while tasks are part of an activity that consists of one or more tasks. Considering that XYZ bank TCM has ISO 22301 certification regarding BCM and several similarities above, it can be concluded that Bank XYZ's TCM is BCM as intended in ISO 22301.

ISO 22301:2019 concerning Business Continuity Management System

The requirements specified in ISO 22301:2019 are general and are intended to be applicable to all types of organizations, including the type, size and nature of the organization. Thus, these standards can be applied to the business sector and government agencies carrying out their duties and functions by applicable statutory provisions. The scope of application of this standard will depend significantly on the environment and complexity of the organization's activities.

As a public sector institution, Bank XYZ requires guidelines that ensure the continuity of critical tasks in the context of carrying out its functions, duties and authority by applicable statutory provisions. Considering that XYZ bank is a non-profit institution, the business terms in BCM are adjusted to become tasks so that the BCM (Business Continuity Management) referred to by bank XYZ is TCM (Task Continuity Management). In implementing ISO 22301:2019, seven clauses must be fulfilled: organizational context, leadership, planning, support, BCM operations, performance evaluation and continuous improvement.

Organization Context

Organizations must ensure compliance with applicable legal and statutory requirements by identifying legal and statutory provisions related to the continuity of tasks, activities, products, services, and resources (ISO 22301:2019). The organizational context covers more than just the organization as a whole. The operating units within the organization can also be defined as an organization so that the implementation of BCM can be partially in the form of units within the organization (ISO 22301:2019). Human resource management strategies have a significant impact on business continuity, especially through management support, risk assessment, and human resource planning (Jado et al., 2022)

Leadership

Evaluation of leadership factors in BCM includes top management commitment related to business continuity policies and business continuity goals that have been set and are in line with the organization's strategic direction, integration of BCMS requirements into the organization's business processes, resources required for BCMS, as well as communication-related to its importance: effective business continuity and compliance with BCMS requirements (ISO 22301:2019). Leadership has a direct and indirect relationship that is beneficial and significant to business continuity and the implementation of tasks. In addition, leadership can reduce the burden of crises, losses, or unexpected impacts by controlling crisis management scenarios through appropriate crisis management (Alblooshi et al., 2023).

It is imperative for senior executives to develop a business continuity strategy that is in line with the objectives of the organization. This may be achieved by implementing a business continuity framework that encompasses several elements, such as a commitment to adhere to relevant regulations and a dedication to continuously enhance the business continuity management system (BCMS) (ISO 22301:2019). The influence of leadership has a significant direct impact on business continuity and crisis management through efficient leadership in managing crises and the willingness

to appear first in taking action and making decisions in uncertainty regarding organizational continuity (Asad et al., 2021). Leaders help organizations adapt to their environment, encourage increased resilience, and form superior organizations through direction, guidance, support, and strong leadership in realizing organizational strategies in facing rapid change (Lisdiono et al., 2022).

Planning

Structured planning includes determining risks that may arise and ensuring that the BCMS can be implemented to prevent or reduce impacts that may occur, as well as in the context of continuous improvement (ISO 22301:2019). The risk assessment stage plays a vital role in establishing the effectiveness of business continuity management (BCM) implementation. Meanwhile, the creation of a business continuity strategy has the most significant influence on the overall effectiveness of BCM (Paunescu & Argatu, 2020). Organizations must plan regarding the resources needed, responsible parties, start and end times, and the results to be evaluated to achieve their goals. Subsequently, modifications are necessitated in the execution. In this scenario, it is imperative to carefully strategize the modifications, taking into account the desired outcomes and potential consequences, preserving Business Continuity Management System (BCMS) integrity, the availability of resources, and allocating or redistributing duty and power. (ISO 22301:2019).

Support

The support function is needed to ensure that all things related to BCMS can be carried out well, including providing the resources necessary for the initiation, implementation, maintenance, and continuous improvement of BCMS, the required competencies of the people carrying out the tasks, education, training, or experience required, understanding of policies related to task continuity and the contribution of each human resource to the effectiveness of the BCMS (ISO 22301:2019). The organization is responsible for establishing internal and external communication protocols regarding the Business Continuity Management System (BCMS). Establishing internal and external communication protocols requires making decisions regarding content, timing, recipients, methods, and the individual responsible for the communication. In addition, information documentation needs to be established by the organization to determine the effectiveness of the BCMS (ISO 22301:2019). Organizations that share BCM strategies effectively with stakeholders can improve financial performance, protect the organization's value, and generate competitive advantages (Paunescu & Argatu, 2020).

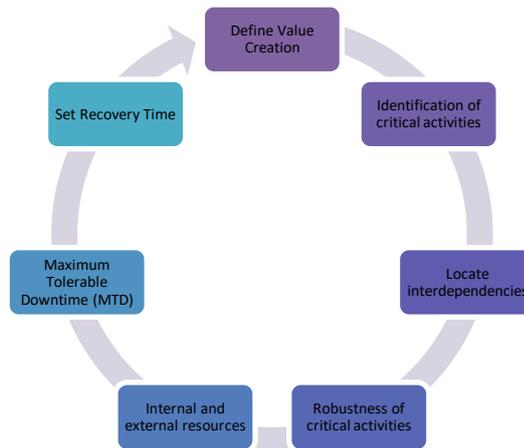
BCMS operationalization

Organizations are required to conduct periodic analyses of business impacts and risk assessments and conduct them whenever significant changes occur in the organization's operating cycle (ISO 22301:2019). The approach of BCM implementation involves more inclusive, protective, and corrective procedures to manage unexpected incidents through risk assessment, Business Impact Analysis (BIA), and recovery planning (Radjenovic & Zykovic, 2022). BIA is essential for increasing organizational effectiveness, improving the organization, and understanding the organization, including business processes and critical activities in each function (Kosyakova et al., 2020).

The implementation of effective Business Continuity Management (BCM) necessitates careful consideration of various critical components, namely human, technological, and organizational factors. Among these, the recovery process assumes utmost importance. The recovery process must be adequately documented, possessing attributes such as simplicity, ease of comprehension, comprehensiveness, up-to-dateness, and accessibility. These qualities are essential to ensure efficient adherence to the BCM plan whenever required. (Abdullah & Ibrahim, 2015). A comprehensive understanding of the organization and BIA are the two main aspects/elements of BCM best practices that can increase organizational effectiveness (Kosyakova et al., 2020). Risk management for unexpected events requires every organization to conduct a thorough and continuous analysis of internal resources and capabilities to optimize expected results (Paunescu & Argatu, 2020).

In determining a recovery strategy, a comprehensive view regarding services classified as critical must be determined by financial institutions, considering the recovery of certain processes and the overall processes that support these services (Monetary Authority Singapore, 2022). The determination of a business continuity strategy should be predicated upon assessing methods and solutions that possess the capability to fulfil the prerequisites for the continuation and restoration of priority activities within the agreed-upon time frames and capacity (ISO 22301:2019). Preparing a good BIA begins with a series of activities that become challenges in analyzing business continuity based on preventive and protective obstacles in implementing the BCP (Fani & Subriadi, 2019).

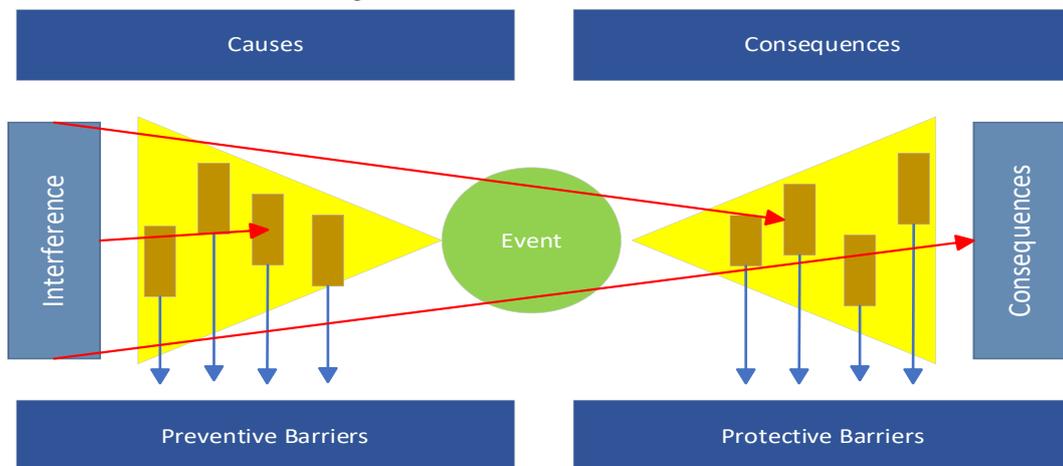
Figure 1 Illustration of BIA Process



Source: The Business Impact Analysis (by Fani & Subriadi, 2019, reprocessed)

It is imperative for organizations to establish and uphold training and testing initiatives in order to assess the efficacy of their business continuity strategies and solutions. This includes evaluating their alignment with the organization's business continuity objectives, as determined by predetermined scenarios (ISO 22301:2019). The company is required to take action based on the outcomes of its exercises and tests in order to adopt essential modifications and enhancements. Typically, the adoption of Business Continuity Management Systems (BCMS) involves the utilization of the PDCA (Plan, Do, Control, Act) paradigm to strategically design, coordinate, execute, enforce, oversee, evaluate, administer, and perpetually enhance the efficacy of BCMS inside a business or enterprise (ISO 22301:2019).

Figure 2 The Bow Tie Model (BIA)



Source: The Business Impact Analysis (by Fani & Subriadi, 2019, reprocessed)

In preparing a BIA, a definition is needed regarding an organization's value creation, which includes organizational goals and the organization's vision and mission. After defining value creation,

identify critical activities in implementing the organization's goals. Next, determine the relationship between each activity, including the resilience of each exercise. Next, identify internal and external resources, determine the Maximum Tolerable Downtime in each critical activity, and determine the recovery time required if an incident occurs.

Tools model that can be used to create a comprehensive BIA, one of which is the bow tie model; The present study encompasses a comprehensive depiction of an event scenario, accompanied by examining potential interferences (on the left side). The interferences aim to identify the underlying causes of the event. Additionally, a corresponding event tree (on the right side) is provided to explore the subsequent repercussions that may develop due to the event (Fani & Subriadi, 2019). In general, the Business or Task Continuity Management cycle in public sector organizations is as follows:

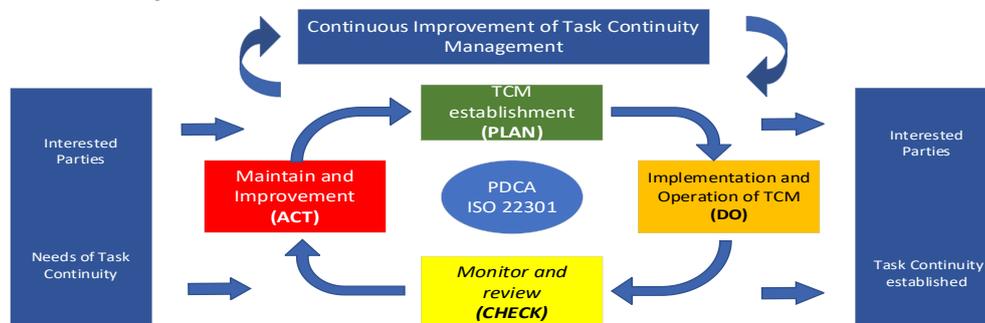
Figure 3 Business/Task Continuity Management Cycle in Public Sector



Source: www.smartsheet.com (reprocessed)

Based on the illustration above, leadership, planning, and support factors influence the entire cycle of task continuity. The task continuity management cycle is continuous, starting with Business Impact Analysis and Risk Assessment, followed by task continuity strategies. The next step is to create task continuity procedures and provide regular training and testing. Organizations must establish and uphold training and testing initiatives to assess the efficacy of their business continuity strategies and solutions. This includes evaluating their alignment with the organization's business continuity objectives, particularly with predetermined scenarios (ISO 22301:2019). Organizations must act based on their exercises and tests to implement necessary changes and improvements. In general, the implementation of BCMS uses the PDCA (Plan, Do, Control, Act) model to plan, organize, implement, monitor, review, manage, and continuously improve the effectiveness of BCMS in an organization or company (ISO 22301:2019). This process can be illustrated in the following picture.

Figure 4 PDCA Model (Plan, Do, Control, Act) of BCM / TCM



Source: Kanaidi, 2020 (reprocessed)

As per the picture above, the series of task continuity management according to ISO 22301 begins with "Plan" which is a plan which includes determining the TCM, then the next step is "do" which is the implementation and operation of the TCM. Based on the TCM implementation and

operations results, a "check" is then carried out, which is a monitoring and review activity. The results of monitoring and review activities are used as feedback for future TCM maintenance and improvement "acts". Overall, the TCM activities contain things that influence the running of the TCM, including interested parties, the need for continuity of the task and the importance of continuous improvement of the TCM.

Performance Evaluation

In evaluating BCMS, the organization must determine what needs to be monitored and measured, measurement, analysis, and evaluation methods to ensure the validity of the results and when and by whom monitoring and measurements are carried out (ISO 22301:2019). Internal audits must be carried out at planned time intervals to determine conformity with the plan, including audit program planning, audit criteria, scope, selection of auditors, and ensuring that audit results are reported to relevant managers (ISO 22301:2019). Management conduct reviews by considering previous management reviews, changes in external and internal issues pertinent to BCMS, trends in nonconformities and corrective actions, information about BCMS performance, monitoring and measurement evaluation results, check-up result, feedback from interested parties, the necessity of updating the BCMS, and data from risk assessments and business impact analyses (ISO 22301:2019).

In evaluating BCM, several tools are currently used by the public. Several of these models are the Business Continuity Maturity Model (BCMM), BCM Maturity Model (SMIT), BCM Maturity Model (Randeree), Gartner Maturity Model, RSA Archer Maturity Model, and BCM Self-Assessment. Based on the research results by [Haidzir et al. \(2018\)](#), it is known that not all of the six models comply with the clauses as stated in ISO 22301:2019, which includes seven main clauses. One of them, per ISO 22301:2019, is the BCMM method developed by Virtual Corporation ([Haidzir et al., 2018](#)).

Continuous Improvement

Organizations must make continuous improvement efforts to achieve the desired results from the BCMS, including taking action against nonconformities in controlling and correcting them and dealing with the consequences (ISO 22301:2019). Evaluation actions are needed to eliminate the causes of nonconformity so that the incident does not repeat itself (ISO 22301:2019).

The relationship between Enterprise Risk Management and Business Continuity Management

In realizing good risk management, it is necessary to prioritize best ERM practices by best practices at leading companies that have succeeded in implementing ERM carefully. In its implementation, the scope of ERM expands to include Business Continuity Management (BCM) as an integral part of good Enterprise Risk Management (ERM) practices. A Business Continuity Plan (BCP) is built by establishing a long-term plan to recover 'business as usual' immediately after a disaster. According to COSO (2017), Enterprise Risk Management (ERM) refers to a systematic procedure that is initiated and executed by the Board of Directors, management, and other staff members within an organization. This process is strategically implemented to encompass all aspects of the company and aims to identify potential events that may have an impact on the entity. Furthermore, ERM is designed to effectively manage the risks that are likely to arise within the organization's predetermined risk tolerance, with the ultimate goal of providing reasonable assurance in attaining the entity's objectives.

Meanwhile, Business Continuity Management (BCM) encompasses a holistic framework for effectively managing an organization by identifying potential hazards and assessing their potential impact on business operations. It provides a structured framework for enhancing the resilience of the organization by developing effective response capabilities. These response capabilities aim to safeguard the interests of key stakeholders, protect the organization's reputation, brand, and ongoing activities. The concept of value creation refers to the process of generating and enhancing value within a given context or system. (DRI-International Glossary for Resilience, 2023).

The concepts of ERM and BCM begin with the goal of identifying, assessing, and managing risks that can impact the achievement of strategic goals ([Supriadi et al., 2018](#)). Enterprise Risk Management (ERM) and Business Continuity Management (BCM) are two distinct talents and

disciplines that play significant roles in enhancing organizational resilience. The integration of Enterprise Risk Management (ERM) with Business Continuity Management (BCM) has the potential to enhance strategic alignment and foster improved collaboration (Deloitte Indonesia, 2020). BCM and ERM are one unit in achieving company goals through Business Impact Analysis (BIA) and risk identification, a series of ERM activities to support business strategy (Pefindo, 2023).

The relationship between ISO 22301-2019 concerning Business Continuity Management and ISO 31000-2018 concerning Risk Management

The implementation of ISO 22301-2019 concerning Business Continuity Management is closely related to the implementation of ISO 31000-2018 concerning Risk Management. The mapping of these relationships lies in several clauses, such as in risk assessment criteria regarding risk impact analysis and risk assessment, which requires a risk assessment that includes risk identification, risk analysis, and evaluation, as well as determining risks that require special maintenance both on ISO 22301-2019 and ISO 31000-2018. The other criteria is about understanding the organization and its context, which includes determining relevant internal and external issues that influence the achievement of BCM results in the risk management process.

The incident was a lesson about the importance of BCM

In May 2023, a disruption occurred at Bank Syariah Indonesia, Tbk., which has disrupted financial services since May 8 2023. The public expressed much disappointment regarding the IT disruption from BSI, which caused financial transactions not to run smoothly. Disruption occurred not only in electronic transaction channels but also in the ATM network, digital channels such as mobile banking and internet banking, and physical outlet channels such as tellers and customer service that cannot operate properly. (Nugroho, 2023). The disruption, thought to have originated from a ransomware cyber-attack, threatened to leak 1.5 TB of 15 million customer and employee data (kontan.co.id, 2023).

Apart from that, the public still remembers the incident at Bank Mandiri that occurred in 2019, when several customers complained that the funds in their savings had decreased drastically without any transactions. On the other hand, several customers experienced a sudden increase in their balances (CNBC Indonesia, 2019).

The cases above occurred due to ransomware attacks or problems related to information technology. Several other cases in the form of physical threats that threaten business continuity, including the fire in cyber building 1 in South Jakarta, which contains the data centres of several companies, red in 2014, 2015 and most recently in 2021, then another data centre fire in the IDC3D building in 2012 reminded returning to the importance of a good BCM. This can be addressed immediately if the company has a good BCM so that the company's operations can resume running relatively quickly. Reflecting on these cases, BCM is necessary so that organizations can carry out their business/tasks when incidents occur that can affect the continuity of business/tasks.

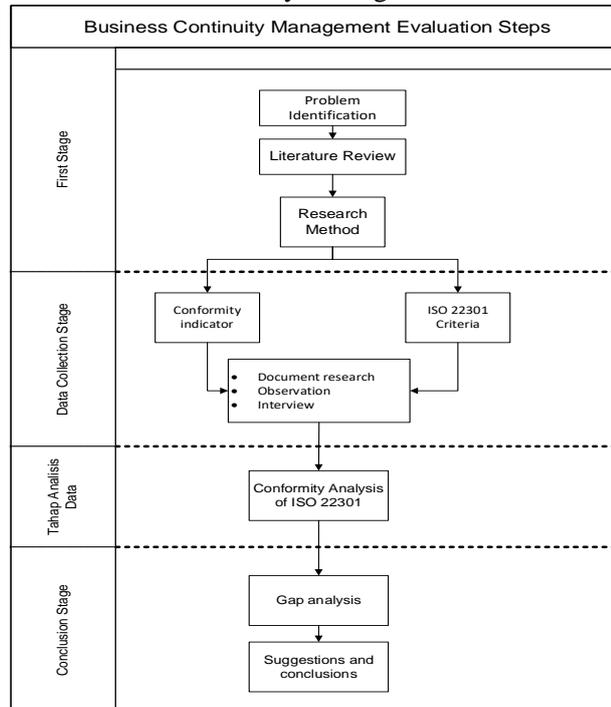
METHOD

The approach in this research uses a qualitative approach. A qualitative approach is used to explore something that requires a further in-depth understanding of the occurring phenomena. According to Cooper and Schlinder (2014), research methods that delve deeper into people's unconscious perceptions, understandings, and motivations are frequently necessary to comprehend the various meanings that people assign to situations. Furthermore, the purpose of qualitative research is to explain to investigators the how (process) and why (meaning) of a phenomenon. (Cooper & Schlinder, 2014). The method used in this research is an evaluation scenario, which describes situations where a deeper understanding of a person, division, company, country, strategy, or policy is needed in making a critical decision or action can be taken (Ellet, 2018).

Research Design

The fieldwork for this case study was undertaken in financial institutions that have a duty to maintain the financial system's stability and ensure the payment system runs smoothly. It has a central influence on the financial system in Indonesia. With this significant influence, our study differs from the other case studies that discuss financial institutions. The fieldwork was conducted over three months, from the beginning of August until the middle of Oct 2023, using interviews, observations, and document analysis. The research stages can be illustrated as follows:

Figure 5 Business Continuity Management Evaluation Stages



Source: -

Participants and Data Sources

Interviews are used as primary data by determining the target informants/sources according to the target information to be obtained. Considerations for selecting informants are adjusted to the capacity of the information provider according to the topic to be asked. Besides that, determining the number of informants considers the elements of obtaining information and clarification from other sources to ensure the validity of the information received. The author did not entirely mention the informants' names for reasons of information confidentiality. However, the author wrote down the informant's position to provide adequate confidence in the information provided by the authority and competence of the informant in delivering information. The informants are the Head of the Treasury Systems Operations and Banking Services Division, the Head of the Treasury Operations Team, the Internal Control Officer, the Head of the Treasury Systems Operational Team, and the Assistant Manager who handles BCM of banking services and treasury operations.

The core interview questions comprise 41 questions arranged based on the 7 main criteria of ISO 22301:2019. Interviews with sources are conducted on average for 1 to 1.5 hours. They are conducted in a relaxed manner so that in providing information, informants are more open, do not feel burdened and do not feel like they are being "examined". Interview activities were recorded digitally using an online meeting application, even though the interview was conducted face to face or via an online meeting application. Apart from that, the interview results are stated in an interview manuscript printed and shown to the interviewee to confirm the answers that have been given previously.

In making observations, the author followed the informant's activities in the BCM implementation simulation and asked direct questions about the activities being carried out by the informant. The author also analyzes documents related to BCM that are available internally to support the interview results. Internal documents include risk assessment working papers, internal regulations, Standard Operating Procedures related to BCM, and other reports related to BCM. The criteria used in evaluating business continuity management are seven, as stated in ISO 22301 - 2019 - Business Continuity Using the PDCA (Plan, Do, Check Act) approach.

RESULTS

In the organizational context, the organization has determined the parties involved internally and externally, especially in the context of implementing banking services and treasury operational functions (ISO 22301:2019). Internal parties, including a workstream related to information system management, a workstream related to implementing monetary management policies and foreign exchange management, and a business workstream related to the two functions; meanwhile, external parties that can influence the continuity of tasks are banking and the government of the Republic of Indonesia, especially the Ministry of Finance. This mapping aligns with the primary duties and functions in implementing the critical processes of banking services and treasury operations, where according to these main tasks and functions, organization has ten main tasks, which are classified as essential functions. Furthermore, the organization has carried out risk and opportunity mapping that can affect the continuity of tasks outlined in the Risk Control Matrix, risk register and Risk and Control Self-Assessment (RCSA), which are adjusted periodically (quarterly) if there are things that need to be adjusted to current conditions. Risk mapping in banking services and treasury operations functions is prepared based on critical tasks. The main risk that arises in the critical tasks of banking services and treasury operations is operational risk, which is mapped into several risks, namely inaccuracy and inaccuracy in the implementation of operational transaction activities, incomplete data and information in supporting business processes, and ineffective implementation of task continuity management. Meanwhile, sources of risk come from disruptions in critical applications, errors in completing transactions, incomplete information preparation, and non-compliance with applied SOPs. Risk assessments are strengthened by preparing a Disaster Risk Assessment (DRA) to maintain the continuity of banking services and treasury operations. Based on this assessment, a recovery strategy mapping from incident to normal conditions was carried out by preparing Business Continuity Strategy (BCS) and Business Impact Analysis (BIA) working papers.

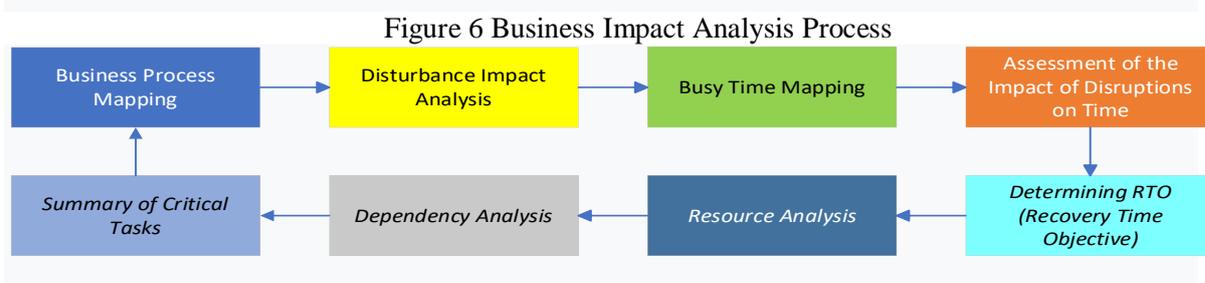
Regularly monitoring the expectations of interested parties has been carried out once a year. However, the results of this monitoring have yet to be analyzed in depth, especially regarding the potential for improving the BCM organization and adjustments to risk assessments in the banking services function and treasury operations. In addition, the organization has carried out management related to regulations or laws that affect the continuity of duties. The organization has established an incident response structure to identify management and personnel who will respond to disruptive events. The incident structure is determined as a whole and consists of the Board of Governors, department head, and workstream technical team. Meanwhile, in the Task Continuity Protocol, the banking and treasury services function was established; an organization consists of a department head and a technical team, starting from treasury system management and banking services, settlement of treasury and non-treasury transactions, and internal control officer.

The leader's central role is reflected through his authority in determining critical tasks determining the status of the BCM condition of Bank XYZ. Communication is delivered in several channels, including through the provision's information center, which can be accessed online or delivered directly on several occasions, either verbally or through other communication channels. TCM policies and objectives align with the organization's mission and strategy. The delegation of authority by the Board of Governors (top management) to workstream leaders is reflected in the determination and termination of the BCM condition status of Bank XYZ, which is divided based on national and local scales. The BCM condition status of Bank XYZ consists of standard, alert, and incident conditions. Delegation of authority to workstream leaders is intended for disturbances on a national and local scale for normal conditions, alert, standby, and incidents with various scenarios.

The influence of leadership has a significant direct impact on business continuity and crisis management through efficient leadership in managing crises and through the willingness to appear first in taking action and making decisions in uncertainty regarding organizational continuity (Asad et al., 2021)

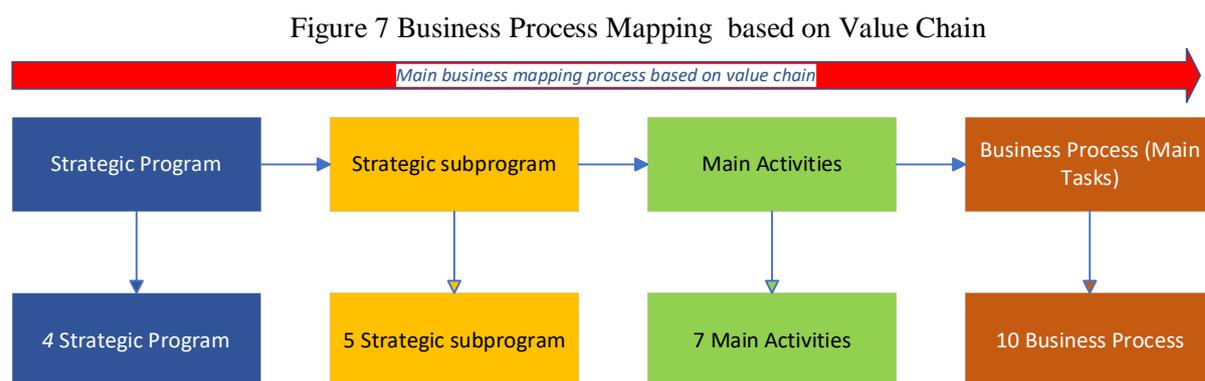
Functions classified as critical have determined opportunities and risks related to the continuity of their duties through preparing a Risk Control Matrix (RCM) and Risk Control Self Assessment (RCSA). RCM describes risk identification, including risks in business processes, sources of risk, risk impact, controls carried out, and risk response to risk mitigation plans. Risk assessment is a crucial stage in building a BCM strategy, while business continuity strategy planning has the most substantial impact on the overall effectiveness of BCM (Paunescu & Argatu, 2020). The organization has identified the minimum human resource requirements, tools, equipment, and resources needed for infrastructure, including information technology, supporting physical equipment, location, and other things required to ensure the continuity of duties in the banking services function and treasury operations.

The process of preparing a Business Impact Analysis (BIA) carried out on banking services and treasury operations begins with preparing a mapping of the main business processes, then continues with analyzing the impact of disruptions, mapping busy times, assessing the impact of disruptions on time, determining the Recovery Time Objective. (RTO), resource requirements analysis, dependency analysis of other business processes, and summary of critical tasks. In general, the process flow for preparing a Business Impact Analysis (BIA) is as follows:



Source: Bank XYZ, 2023 (reprocessed)

The primary business process mapping process is grouped based on strategic programs, strategic sub-programs, main activities, and main business processes. The mapping can be illustrated as follows:



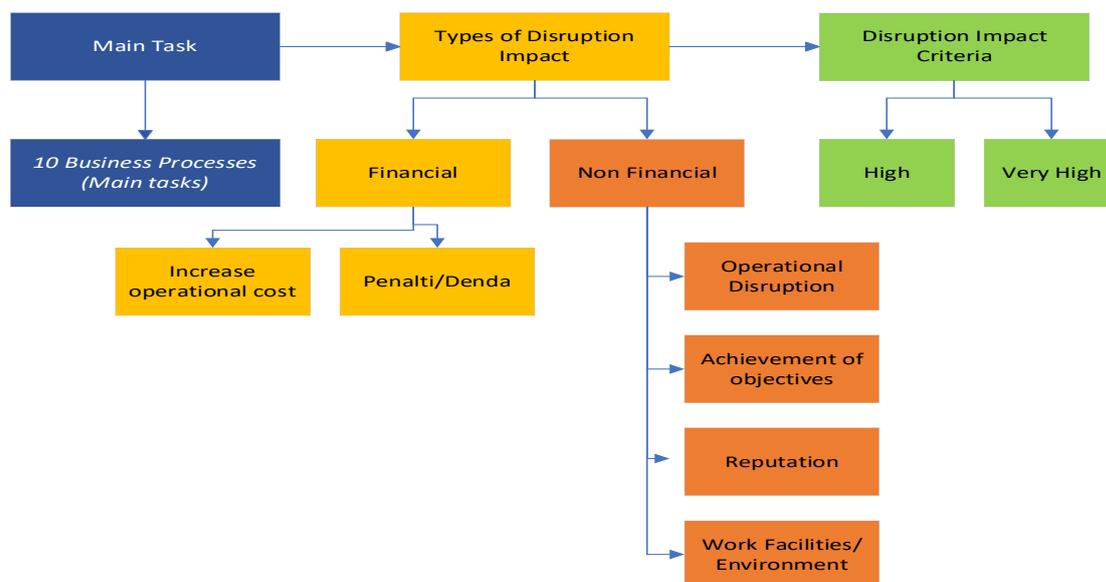
Source: Bank XYZ, 2023 (reprocessed)

The process of disruption impact analysis is arranged based on business processes (main tasks), then types of disruption impacts, which are grouped based on financial and non-financial impacts and disruption impact criteria. The process of preparing a disturbance impact analysis can be described in Figure 8.

The mapping of the main business processes is grouped based on the value chain of activities, which consists of 4 strategic programs, then downgraded into strategic sub-programs with five

strategic sub-programs, then downgraded again into seven main activities and ten main business processes. Next, a disruption impact analysis is carried out after mapping the main business, structured based on business processes (main tasks). Types of disruption impacts are grouped based on financial, non-financial, and disruption impact criteria. The primary business mapping process is structured based on the value chain that emerges from each series of organizational activity processes. Priority RTO is directed by recovering applications/devices needed to carry out these critical tasks. RTO is set for 11 critical applications ranging from 30 to 60 minutes. The minimum level of activity priority has been determined by determining the minimum number of human resources needed to carry out critical tasks, limits on business processes that can be carried out with minimum resources through percentages of normal business processes, or limits on certain transactions that are a priority to be carried out.

Figure 8 Process for Disruption Impact Analysis



Source: Bank XYZ, 2023 (reprocessed)

Based on the established BIA, organization then determines the primary resources used, including those related to human resources, infrastructure, facilities, information, data, IT, equipment, transportation and finance. The primary resources come from internal organization and other work units by their authority. However, the other work units are still internal to the Bank. Apart from that, operationally, organization has established a communication mechanism related to the continuity of tasks as stated in the organization Task Continuity Protocol, including a communication mechanism between technical teams, between members of the Bank XYZ TCM Task Force and the technical team; between members of the TCM Bank XYZ task force; between the organization technical team and the TCM Bank XYZ task force and between the TCM task force and technical team and external parties. In order to prevent impacts or reduce the duration of disturbances that may arise, organization has mapped various efforts to prevent these impacts as listed in the Risk Control System Assessment, which is mapped based on the work unit's business processes and risk mitigation plans. These activities are monitored and evaluated periodically every quarter, and the results of these evaluations can be used as a reference for adjustments to the TCM organization mechanism both about RCM, BIA and other matters within the framework of TCM organization in particular and Bank XYZ's TCM in general.

The scope of BIA carried out in banking services and treasury operations functions is in accordance with general practices of good BIA implementation, including by increasing understanding of the organization, including business processes, and identifying critical activities in each department to ensure continuity of tasks (Kosyakova et al., 2020). In addition, the BIA has considered overall process recovery that supports the service in minimizing the impact of an event

(Monetary Authority Singapore, 2022). In conducting a business impact analysis in banking services and treasury operations functions, BIA has set a target time required to resume disrupted activities within a minimum acceptable capacity or called recovery time objective (ISO 22301:2019). Institutionally binding and coordinated by the department in charge of risk management (Risk Management Department/RMD). Meanwhile, a separate mechanism within the work unit is contained in the Task Continuity Protocol (TCP), which includes internal coordination for early detection of disturbances and a rapid response mechanism for incidents that occur. In addition, procedures for making detailed reports about disturbing incidents, including articulating the steps and decisions that will lead to an incident, are contained in the same PADG, which is institutionally binding and under the authority of the RMD.

The procedure for receiving and responding to warnings about possible incidents is an integral part of the rapid response procedures for an incident or event, including mechanisms for coordination, reporting and decision-making in responding to matters related to disturbances or warnings about possible incidents. Thus, the rapid response procedure cannot be separated between its related parts because it is a complete series of activities. The evaluation process carried out on the business processes of the banking services function and treasury operations is carried out through updates to the RCM (Risk Control Matrix), RCSA (Risk Control Self-Assessment), and BIA (Business Impact Analysis), which are updated every quarter. The results of this evaluation are followed up through improvements, especially findings that are found by the ICO (Internal Control Officer), internal audit and external auditors.

DISCUSSION AND CONCLUSION

Based on the evaluation of banking services and treasury operations functions, it is in accordance with the criteria described in ISO 22301-2019 concerning Security and Resilience - Business Continuity Management Systems. Meanwhile, several conclusions in the evaluation can be described by identifying parties involved internally and externally, which can influence the management of task continuity. Identifying parties involved internally and externally covers the process from the beginning until the end. Meanwhile, external parties place greater emphasis on government and third-party transaction services, which can impact the smooth payment system. Risk mapping for banking service and treasury operations is prepared based on critical functions that can affect the continuity of tasks. Regular monitoring of the expectations of interested parties can be carried out through surveys as input for improving Task Continuity Management (TCM) and monitoring related to applicable regulations or laws that may affect task continuity. Determining the organizational structure, roles, duties, and responsibilities is critical in ensuring the effectiveness of TCM/BCM implementation (ISO 22301:2019).

Top management's commitment to ensuring the continuity of banking service functions and treasury operations is necessary to ensure that TCM/BCM implementation aligns with the organization's strategic direction and runs as it should (ISO 22301:2019). Leadership directly impacts the continuity of tasks by controlling crisis management scenarios and appropriate crisis management (Alblooshi et al, 2023). This was confirmed by determining a decision on the conditions for task continuity as a reference in implementing the following task continuity protocol. Delegation of authority and responsibility in implementing TCM/BCM must be defined in internal procedures related to TCM/BCM to ensure that the implementation mechanism can be carried out well.

The crucial risk assessment factor related to the continuity of tasks arranged in a structured manner is the preparation of a Risk Control Matrix (RCM) and Risk Control Self-Assessment (RCSA), which are updated periodically. Additionally, task continuity strategies are outlined in the Task Continuity Protocol. Risk assessment is a crucial stage in building a BCM strategy, while business continuity strategy planning has the strongest impact on the overall effectiveness of BCM (Paunescu & Argatu, 2020). Identification of minimum human resource requirements, tools, equipment, and resources needed in terms of infrastructure, including information technology, supporting physical equipment, location, and other things required to ensure the continuity of critical tasks. Business Impact Analysis (BIA) is essential in increasing effectiveness. It helps determine the steps needed to ensure the continuity of tasks for all activities, especially for critical functions in ensuring the continuity of tasks (Kosyakova et al., 2020). The BIA component in ensuring banking

service functions and treasury operations run well, covering the main business processes, then continuing with analysis of the impact of disruptions, mapping busy times, assessing the impact of disruptions on time, determining the Recovery Time Objective (RTO), analyzing resource requirements and analysis of dependencies of other business processes. Internal audits are needed to ensure that TCM/BCM is running well and following the procedures both internally and other regulations, including the requirements of ISO 22301:2019.

The implementation of task continuity management involves every party employed, both in the form of simulations and practical implementation in the field. To support this implementation, an incident response structure is essential in identifying and responding to events that disrupt the continuity of tasks, including procedures for detecting disruptive incidents and quick response. Another important thing is the completeness of the procedures required to ensure implementation goes according to the scenario, including reporting procedures, warning response procedures and rapid response procedures for an incident, procedures for securing people and infrastructure, internal and external communication procedures, as well as procedures for switching from temporary responses to normal business operations. In the context of performance evaluation, determining the work unit that carries out monitoring is necessary to ensure that TCM is still in accordance with current conditions, including determining what needs to be monitored and measured; monitoring, measurement, analysis and evaluation methods, to ensure the validity of the results; and when and by whom monitoring and measurements are carried out (ISO 22301:2019).

Several suggestions can be proposed to minimize failures in the transfer of operational tasks for banking services and treasury operations as well as continuous improvement efforts, especially for Bank XYZ and generally for the world of education and the general public, such as for the business world or public sector organizations, in the context of risk assessment comprehensive, covering both internal and external sides, the risk assessment should include risks inherent in external parties that can affect the continuity of banking services and treasury operations. In addition, the results of periodic monitoring evaluations of interested parties' expectations can be used as an element in updating risk assessments. Communication is one of the essential things in establishing effective task continuity management. Therefore, communication with internal and external parties is an important thing. On the other hand, communication to external parties needs to be re-evaluated regarding what needs to be conveyed and what does not need to be conveyed regarding the confidentiality of information. Meanwhile, creating a MoU with stakeholders bilaterally could be an option to accommodate the confidentiality of information related to TCM. Individual competency is essential, considering that the effectiveness of TCM implementation is greatly influenced by the level of competence of both the individual who leads the TCM and the individual who implements the TCM. This also considers the relatively fast movement of employees in banking services and treasury operations. Therefore, regular training to increase awareness of the parties involved and to increase competency related to TCM is essential. TCM testing, both partial and complete, needs to be carried out periodically to ensure that the TCM is still appropriate and ready to be implemented. Measuring tools, monitoring methods, and parties who evaluate the management of the continuity of banking services and treasury operations must be clearly defined to make implementation more effective and on target.

This research has several limitations, including the informant, who is the target of the interview, giving answers based on the information he has according to the position in question, so it only sometimes depicts complete and complete information regarding the research object. The results of this research and evaluation are strongly influenced by personal bias and judgment errors, especially in interpreting and analyzing the information obtained based on the literature obtained. This research gets information at one point, allowing for changes during or after obtaining the information. The case study was taken from one public sector institution in the finance and banking sector so that if the research object was in another institution or type of organization, whether private or public sector, it could produce different results. The results of this research may not apply to other activities or other areas of work, so it is possible that the results of this research cannot be generalized to similar activities in the private sector financial industry or with a smaller, larger range of activities or various types of transactions.

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