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METHODOLOGY FOR DECISION-AS-A-SERVICE IN SERVICE-ORIENTED MODELLING ARCHITECTURE FOR TRANSACTION BANKING

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ABSTRACT

In order to gain a competitive edge in the banking industry, direct face-to-face interactions between customers and banks are being gradually replaced by virtual interactions. Instead, they communicate using electronic devices such as smartphones, tablets, and web applications. Transaction banking, which provides commercial services for banking products to small, medium, and large corporations, is a highly typical work unit in banking. Shipping and international payments, risk management for international trade, and other services are provided. We use the Service Oriented Modelling Architecture (SOMA) methodology to solve the problem of the transaction banking unit by relocating it from a system with general dependencies to a system that is independent of the entire service and operates on a small function scale. The study found that a decision as a service (DAAS) model with an Enterprise Service Bus (ESB), Business Process Management (BPM). and Business Rule Management (BRM) solution can provide guidelines for the design of decision rules pertaining to integrated or separate business modeling, thereby aiding business unit delivery.

I. INTRODUCTION

For an industry to be successful in business, technology is a crucial factor. The entry of new players (start-ups) that are more agile, competitive, and innovative in providing consumers with satisfying services has begun to disrupt industries with an old culture and business strategy or to continue to maintain one [1]. Therefore, after "conventional" transportation actors are disrupted by the presence of "online transportation," the financial sector, including banking, insurance, and others, will be disrupted by the presence of a financial innovation known as "financial technology" or fintech.

To gain a competitive advantage in the banking industry, face-to-face interactions with prospective customers and customers are being replaced by electronic devices such as smartphones, tablets, and Internet-based web applications [2]. Moreover, digital banking is a newer and more advanced form of electronic banking. If e-banking is a service channel that banks provide to customers to support other traditional services (i.e Internet Banking, Short Message Service (SMS) Banking, and Mobile Banking services), then digital banking refers to the entire service platform that affects the entire bank system, including organizational structure, work processes, the provision of products and services, legal

issues, and customer interaction methods [3].

Transaction banking is a common working unit in banking that provides commercial services for banking products to small, medium, and large corporate customers. Products and services offered include domestic and international ship- ping and payments, international trade risk management, and others [2]. With the emergence of fintech, the trans- action banking unit must redesign its use of technology to provide consumers with services that are in sync with societal developments and conditions. Not only does the application of these technologies make it competitive with fintech, but there are numerous options for collaborating with fintech to take advantage of their technology. PricewaterhouseCoopers reveals that in 2021, weekly banking transaction interactions will reach 61% of banking customers and reduce activity at branches by 35% (compared to 42% of activity before the pandemic), indicating that banking customers are becoming more accustomed to digital services delivered via web and mobile platforms [4].

Competition will greatly benefit financial transaction participants by improving banking services through collaboration. The Service-Oriented Modeling Architecture (SOMA) approach helps practitioners in an organization design the systems required to organize services that customer needs. The SOMA approach aims to improve internal organizational collaboration by starting with a business vision, then looking at available system assets, and finally looking for the systems that need to be combined into a unified design which includes how the organization works in supporting business processes.

II. RELATED WORK

Despite a highly complex regulatory framework, the delivery of services to customers depends heavily on the rate of change. The transaction banking work unit understands that their primary responsibility is to serve customers and they must adapt to the digital society. Not only drive in transactional services, but also tempo in making decisions based on diverse quantitative customer information [5]. The department must pay close attention to the implementation of system changes related to transactional conditions due to the regulator's stringent regulations. The current state of the system used to serve transactional customers is that it cannot be executed rapidly due to system modifications, particularly those pertaining to transactional rules. With regulations related to the development of system changes, the process of developing the quality of banking services entails enhancements or modifications to the components of the banking service in the way it is presented and provided to customers in order to increase customer satisfaction [6]. Services requiring changes to decision rules, such as transaction fees, transaction limits, and account management. are more difficult to implement and cannot be performed by the current system due to its heavy reliance on other systems, resulting

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in a longer implementation period and a greater risk associated with making changes. The transaction banking work unit has a high exposure to corporate customers of all sizes; these customers have a large enough portfolio of depository funds that customer dissatisfaction poses a significant risk to the banking industry; therefore, changes requested by these customers must be implemented rapidly. In order to address these issues, the transaction banking unit must compile a list of the transactional service capabilities that are currently integrated into the current system in order to facilitate collaboration with other institutions. This development requirement will undoubtedly contribute to the escalation of the system's complexity, as continuous integration must be performed both within and outside the banking system's sys- tem. Microservices and Service Oriented Architecture (SOA) are among the systems architectural approaches and solutions an organization may employ to realize system integration that facilitates collaboration between business and Information Technology (IT) lines. A system that adheres to the SOMA methodology will categorize its components as services based on the business services it offers [7]. Microservice technology emerged as a new architectural paradigm that decomposes services to the smallest (micro) level, is distributed and actively collaborates within a narrower service scope.

The microservice approach from the SOA concept makes it possible to functionally subdivide a service down to the smallest scale and give it resource independence so that it can have its own maintenance and performance that can be tailored to the requirements [8].

Therefore, an additional tool is required to accelerate the process of change. Use of ESB as the primary system for transforming, converting, and integrating other systems is crucial. It requires the use of BPM to identify, prioritize, analyze, monitor, and improve ongoing processes and BRM. which is used as the decision-making logic of the running process [9]. which aims to simplify the coordination path without compromising the overall process's essence [10].

III. LITERATURE REVIEW

A. SYSTEM INTEGRATION

System Integration is the process of integrating all physical and virtual components of a business. Physical components may include various machine systems, computer hardware, and networks, among other things. While the virtual component is comprised of information stored in databases, soft- ware, and applications [11]. These components collaborate and provide solutions in accordance with the company's objectives to support group activities. System integration is important for businesses because it can solve a variety of problems that frequently arise, such as human error, data duplication, which makes it difficult to maintain data integrity and validity, etc. This condition may result in an increase in expenses and resource usage. On the other hand, system integration has many advantages for the

business. Information that is centralized and easily accessible. So that businesses can view and access information 24/7 in order to make quick decisions. This will make the company more competitive in its efforts to adapt to the most recent business developments. There are three types of integration in the context of industry. 4.0 [12]

Horizontal Integration (integration between firms). Integration based on the cooperation of two or more firms to achieve a common objective.

Vertical Integration (intra-company integration), integration that brings together the existing compo- nent systems within an enterprise, including business processes, system applications, operating personnel, and data, so that they can coordinate, work together, or collaborate.

• End to end integration is a model of integration that combines the implementation of real-world activities and the digital world; it is the embodiment of system integration. For instance, a network-connected device can send information to the cloud or a user interact- ing with the system via Human Machine Learning interactions.

B. SERVICE ORIENTED ARCHITECTURE

When an enterprise requires the flexibility to adapt to rapid process changes, enterprise systems can provide the desired outcomes. Prior to the SOA era, federally organized solutions for cross-system organization process coordination presented formidable obstacles [13]. Service Oriented Architecture is currently utilized by businesses to obtain virtual IT services and end-to-end enterprise integration. SOA is defined in a variety of ways: it is a model that is economically responsive to the needs of IT and enables businesses to focus more on business processes and applications than on the deployment of more enterprise software [14].

In today's heterogeneous and complex computing environment. Service Oriented Architecture is emerging as a leading integration and architecture framework that eliminates the challenges posed by multiple devices, application integration. distributed software, multiple platforms, and multiple proto- cols. Also. Service Oriented Architecture enables adaptable Aggregated Business Processes and Real Time Enterprise (RTE) [15].

One of the outcomes of the SOA concept is flexibility and speed, as it enables program modification and rapid development, thereby providing agility to business processes. SOA addresses applications and infrastructure that are functionally designed as network-accessible services and requires the use of public standards for intersystem communication. SOA is an architectural approach that enables distributed deployment by exposing enterprise data and business logic as a unit of functionality that is easily discoverable, structured, and conforms to industry standards [15]. In addition, SOA permits reuse within a service and access to preexisting resources, which

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can then be exposed as new services. Existing investments can be optimized through the reuse of enterprise-owned software applications. The capability to create new processes from previously owned services and then re-expose them at the desired level of granularity, so that a published service is well-defined. SOA is comprised of three primary components: service providers, service consumers, and service directories [15]. Service providers are entities that develop and deliver services. Clients who consume services are known as service consumers. The service directory is where service providers register their offerings and consumers search for services. Scalability, decoupling. updates, lookup services, and provider runtime are among the services offered by the service directory.

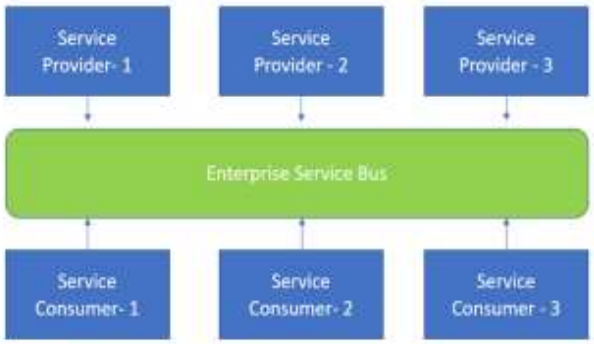

FIGURE 1. ESB as standalone [17].

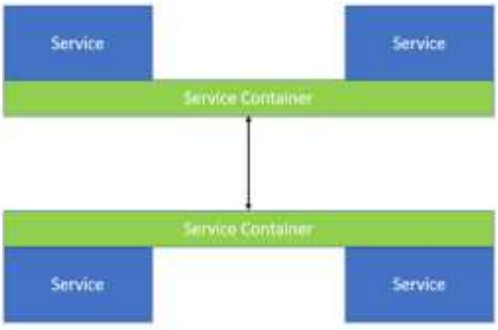

FIGURE 2. ESB as service container [18].

C ENTERPRISE SERVICE BUS

Enterprise Service Bus (ESB) is an infrastructure system that fully supports an integrated and adaptable Service Oriented Architecture (SOA) [16]. Systems that describe a collection of service requestors and providers, system mediators, and information operations between requestors and providers that support information transparency in the SOA system architecture are ESB characteristics. ESB is a centralized infrastructure for service interconnection with separate administrative functions, but without the business logic of the service provider or the requester application. There are numerous instances of system modeling employing ESB [17]:

1) STAND ALONE

This model uses a hub and spoke implementation where the ESB provides an interface adapter to the integrated system. The ESB here also functions as a router for a service accord- ing to its purpose. This implementation is often referred to as a service broker, where the destination of the system is determined by the consumer system, and the ESB acts as a router to the destination system.

2) SERVICE CONTAINER

This model is an extension of the ESB application server that provides server integration communication at the container level, because there are supporting components in the system that have the same specifications for services from both the requester and provider systems. The service

interfaces are discovered dynamically. The service consumer does not know the format of the request message or response message or the location of the service until it needs a particular service [18].

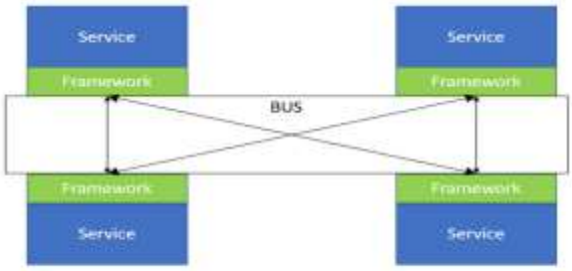

FIGURE 3. ESB as framework [19].

3) FRAMEWORK

It is the implementation of a framework that is specific to the service created, but the framework can be used for other services transparently so that it can be used by other systems with different environments (Operating Systems, Program- ming language). This is usually referred to as a system adapter that has technical specifications that are specific to a system but can support the integration of many service variants. According to the research by [19], health systems with dif ferent frameworks can synergize with each other for the same purpose, allowing services to be maximized.

D. BUSINESS PROCESS MANAGEMENT

Business process management is a collection of tools and techniques for enhancing the performance of a business process, which is classified as business operations, service support, and decision direction [19]. Essentially, BPM is a tool that an organization employs to influence business operations, including decisions. In terms of operational con- siderations, an activity must be well-documented and adhere to an optimum process in order to be evaluated in accordance with organizational objectives [20].

There are six essential aspects of BPM modeling: strate- gic alignment, governance, methods, information technology. people, and culture [21]. The author will apply two of these approaches, namely the methodology and information tech- nology, to a system that is concerned with process analysis and decision making.

In the context of system integration, BPM is used as a medium to accommodate the orchestration requirements of a process executed at the integration or service layer, which we will refer to as the process layer. In this layer, a process must be defined as a stateful process that stores data for later combination and decision-making, either automatically by the system or manually by the user.

E. BUSINESS RULE MANAGEMENT

Business rule is a statement that aims to give effect to the fact the business processes are running. Basically, a rule cannot change the running process where the process has been previously defined but is a supporting factor where the process will get optimal benefits. The right decision regarding the rule must of course be accompanied by a good under- standing of the business process, so that decisions regarding rule changes can be implemented according to the needs of the organization.

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In the context of systems integration, BRM implementa- tion is a subset of BPM where a business application basically has a graphical user interface (GUI) to define and document a process model. With BRM, of course, the parameter values needed to influence the process layer require a database stor- age media that is accessed through the GUI. To make a rule statement that affects a business process aimed at bridging between data and business is to make business rules into 4 (four) categories, namely [22]:

Definitions, Defines the entities and attributes of a process.

Facts, Documenting process relation entities with data attributes.

. Constraints, since the condition of data changes is always true and has an impact on the process.

. Derivations, applied to create new information from a running process.

In the implementation of BRM, it is crucial the values that can be altered by the user are not hard coded into the process flow. It is crucial for a rule decision to involve a change that is simpler to manage in the dedicated rule representation and independently [23]. Business rule must possess the following characteristics [24]:

. A Structural Assertion is a defined concept or a state- ment that expresses some aspect of the enterprise's structure.

. An Action Assertion is a statement of a constraint or condition that limits or regulates the enterprise's action.

. A Derivation, which is a statement of knowledge derived from other business knowledge.

This research contributes to the development of a model of action assertion that will describe an online banking transaction process with minimal technical implementation development.

F. DECISION AS A SERVICE

Decision as a Service layered architecture is presented through an example of a customer acceptance process with its corresponding customer acceptance decision model. The bot- tom layer depicts the processes layer, while at the top the deci- sion layer is represented. In the service-oriented approaches, the services are implemented offering a single decoupled point of entry to the services. That way, the bottom layer. i.e. the process layer, only needs the information regarding the point of entry, or more specifically the interface, in order to invoke the higher-level layers. This single point of entry provides an abstraction specifying how clients should interact with the decision services [6].

IV. PROPOSED METHODOLOGY

The authors use SOMA (service-oriented modeling architec- ture) to build DAAS (decision as a service) in this transaction banking system, which creates a system

architecture that combines API, ESB, BPM, and BRM technologies.

The context for this study was the transaction banking business unit of PT Bank XYZ, which was dissatisfied with the implementation period of the decisions made to be implemented in the system. Some of the involved systems are also not used for their designated purpose because earlier implementations did not pay attention to the system's fundamental functions, such as the use of host-to-host systems for customer transactional rules and internet banking databases to store data authentication. Due to the dispersion of data across multiple systems, it is difficult for business units to assist customers with problems; this is caused by data and systems that lack a structure consistent with their designation. The system design is carried out by carrying out each stage in the SOMA methodology as in Figure 4 is a guide in implementing SOA-based solutions.

A. BUSINESS MODELLING AND TRANSFORMATION

Reengineering emphasized a holistic focus on organizational priorities and how systems link them to the project, promoting the recreation of the entire process as opposed to incremental process optimization [25]. During the business modeling and transformation phase, the original business processes cur- rently employed by the transaction banking work unit are identified. In order to create a new business process as a result of business process reengineering, current business processes are modeled, simulated, and optimized, and then identified using a series of SOMA steps. During the business modeling and transformation phase, the transaction banking work unit's current business processes are identified.

B. SOLUTION MANAGEMENT

At this stage, tasks related to project management are completed, and the results are used to establish Solution Templates and Patterns. Stabilizing the solution entails iden tifying the solution used by the participating applications as well as the component involved in solving the solution.

C. IDENTIFICATION

During this point, it begins by compiling all Corporate Inter- net Banking and API features and functions, followed by an analysis of the operating system's observation findings. The results of the observation and collection of these functions are used to inform the goal service modeling phase, which is identified via process decomposition. Business processes previously specified in Business Process and Transformation are decomposed into components at the service layer, process layer, and decision layer, which will lead to various modular- ity types that place a greater emphasis on standardization.

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FIGURE 4. SOMA methodology [15].

D. SPECIFICATION

At this stage, specifications are carried out, including the precise specifications of the to-be-utilized service compo- nents and high-level designs. Utilizing the findings from the preceding stage of identification, the design of the composi- tion of services and the method for transferring data between layers are carried out at this stage.

E. REALIZATION

Numerous predetermined services are connected to their respective implementation-related components during the realization phase. In the realization process, the SOA Ref- erence Architecture is used as a framework to specify and describe the levels required to create a layer system, whose implementation will be determined by API, ESB. BPM, and BRM applications.

F. IMPLEMENTATION

After designing through all 5 (five) SOMA steps, the implementation and deployment phases are the next to be completed. During the implementation phase, the SOA sys- tem will actualize the constructed, generated, and integrated services, components, and processes. Existing assets may be repaired and refactored so that they can be utilized to construct a service. During this deployment phase, we will utilize a variety of solution templates, including those that sup- port custom development, packaging application integration, design, and composite business services. The actions of this template solution for multiple global solutions prolong the implementation phase.

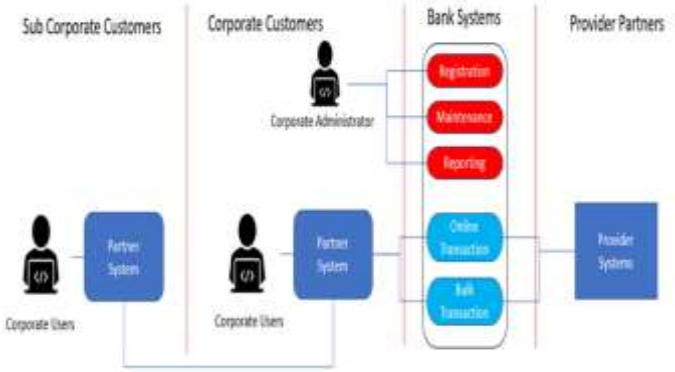

FIGURE 5. Process topology of transaction banking.

V. RESEARCH RESULT

The result of the design process is an architectural system solution that supports API functions in conjunction with ESB, BPM, and BRM. In addition to implementing scalability. dependency, and flexibility to functions that support business processes, it is essential to find solutions to the issues by doing so. APIs are transformed

into gateways for integrated systems, ESBS are transformed into service backbones, and BPMs are transformed into orchestration processes between services within an ESB. Utilizing BRM becomes part of the Transaction Banking business unit's decision-making process.

The research begins by establishing that the to-be- developed procedure is associated with online transactional services, which are a type of service for financial transactions that are typically not intended for recreational purposes [17]. Transaction Banking focuses on providing clients with financial transaction services that are convenient, particularly in corporate banking. Figure 5 illustrates how transaction process works within a transaction banking unit of work. Here we have a corporate customer who uses the system to make transactions with the banking system, execute financial transactions, and provide management services such as registration and reporting. The banking system also works with service providers other than banks to add value to the services provided. Corporate customers are also affiliated with other companies and are therefore recognized by banks as subsidiaries of major corporate customers.

The identification of the service extracts information through a discussion involving all parties from both the busi- ness unit and the information technology unit in order to determine the Goal Service Modelling (GSM) and enters the domain decomposition phase in order to create the identifi- cation process redesign and streamline service that reflects a process [24]. In role-based business processes, modeling activities are abstracted as a collection of collaborations between entities that represent items of interest in a specific modeling context. As depicted in Figure 7, the process and transaction management decomposition yield three layers. Authentication, single or bulk transactions, and management in the form of transaction limits and transaction fees are sup- ported by fundamental services. During this process, we also identify the essential needs and objectives of the transac- tional banking business area, where the system can meet the value that affects current processes without requiring major changes. This is urgently required to meet the challenges posed by the rapidity of change, where transaction banking workspace clients are corporate clients with varying bargain- ing power who require business flexibility combined with ancillary services. Tables 1 and 2 summarize the values that would be part of a business decision that was part of the service offered to customers and was designed to be adaptable to change.

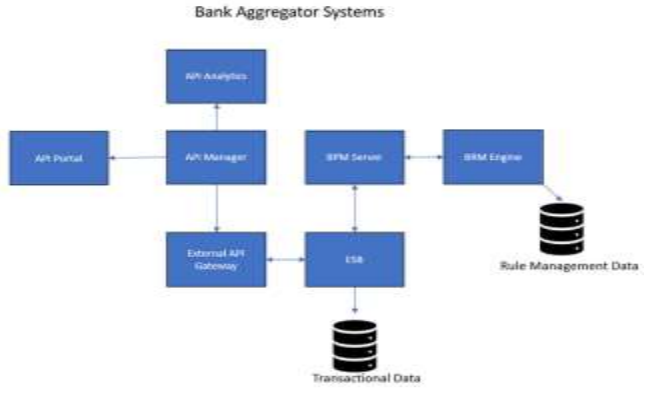

FIGURE 6. Solution architecture for transaction banking services.

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FIGURE 7. Domain decomposition.

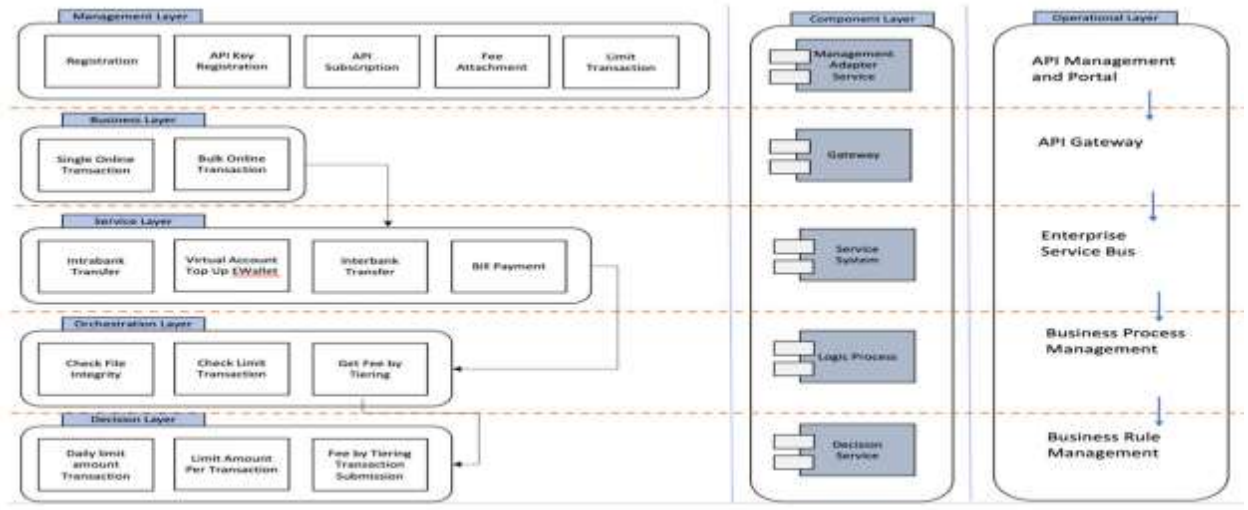

FIGURE 8. Service and technical layer.

After identifying the services required by the business unit, we create a layer component design whose formation will be modified by the system once the solutioning phase has concluded. At this stage, it is essential to reevaluate the business unit's understanding of the services provided, and the information technology unit's team must also comprehend how these services interact with one another. The service specification should define all relevant service requirements, including the interaction model [15]. Through this procedure, the Auxiliary Services also become more structured in order to facilitate all work units that interact with the operational services. In

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order to provide solutions, service development and the identification of ongoing service issues are accelerated. Figure 8 is the result of the specification and realization phases encapsulating the service interaction specification layers as a unified standard. The strategy proposed will cause the service layer to receive requests sent by the business process layer, allowing the service modules to be flexibly subdivided and assembled the business components will then be converted into service models and there will be appropriate request.

The documentation for the API, which was previously delivered as a file (softcopy), can now be viewed on a web portal, making it easier for customers and even potential customers who have not joined to view the API provided by the Bank. This is consistent with the example in the source, in which the API design is implemented in a product that is packaged according to the feature category for which it is intended to be made available to customers as in Figure 9. A catalog representation of these products has been generated by a web API Portal. Depending on the capabilities of each client, API-collecting products may also be used and monetized via API calls. The relationships from the API are a logical representation of the division on top of the IT systems, and from a business perspective, the logic of the relationships used to manage the company's customers should also be shared with service delivery. The API includes two decisions that are used as company-level transaction limits, as well as a decision that is attached to the API key, allowing companies to have subsidiaries or sub-companies with different decisions.

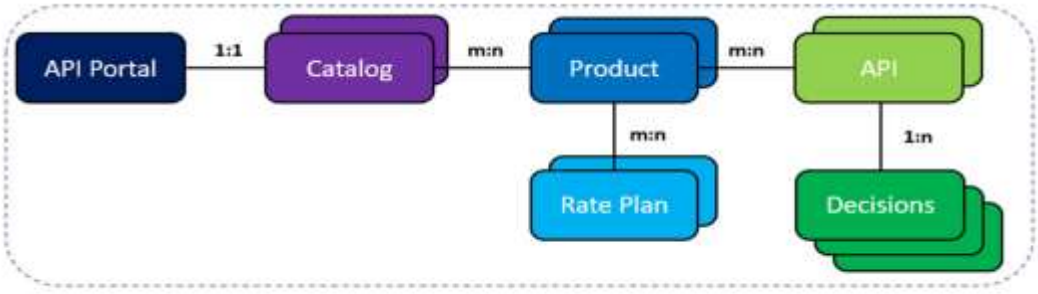

FIGURE 9. Relation structure of API.

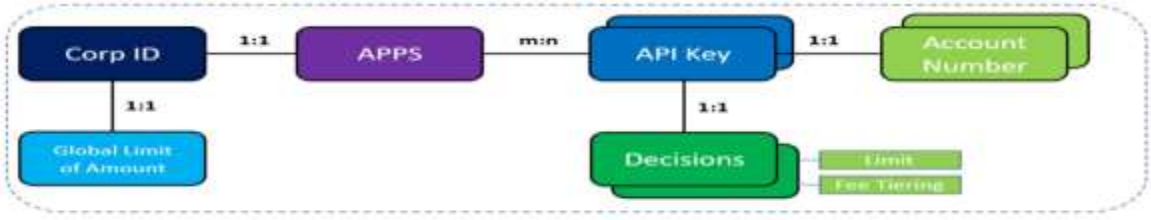

FIGURE 10. Relation structure of business API.

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Customers are provided with an API relation structure represented by a web portal API. which is a catalog. In this instance, the catalog is a collection of various objects asso- ciated with the transaction banking work unit. Using this concept, the company can create a catalog that is specific to other work units, such as consumer banking, where the items supplied vary. A product is a collection of APIs with similar objectives but distinct functionality. Examples of money transfer products include APIs for transfers between bank accounts, transfers to other local bank destinations, and transfers to international bank destinations. Each of these products is also eligible for a variety of pricing plans that provide clients with a value based on the volume of trans- actions. In this case, the rate plan acts as a capacity guardian by limiting the number of API calls that can be made within a given time period. Customers will frequently make direct API requests without consulting the catalog or the product, making it crucial from a security standpoint to define each API. Regardless of whether an API is transactional or not, its security is tailored to the API's type so that users and service providers are aware of API calls.

TABLE 1. Decision table for limit amount.

Corp ID	Currency	Global Limit
PT. AAA	IDR	300,000,000
PT. BBB	IDR	250,000,000

Corp ID	Apps Name	API Key	Transaction Limit
PT. AAA	Descent Oas	Vp6GZyljR8qk1daeqOfZ5MZyDqy87bOT	100,000,000
PT. AAA	Eclipse Mining	hEJ8eegEIOTIWe6C9pO7vZPkeherBlyPb	50,000,000
PT. AAA	Memoir Logistics	30BeUDRR0fEF2i3fNKCIbXHukEOTsJ4	150,000,000
PT. BBB	BBB Financial	iV3EHz9r1qhHJ5qf1jcj2Js9xae9xEBL8887	250,000,000

TABLE 2. Decision table for fee transaction.

Fee Rule ID	Tier 1			Tier 2			Tier 3		
	Min	Max	Fee	Min	Max	Fee	Min	Max	Fee
Default	0	100	3,500	101	500	2,000	501	—	1,000
Gold	0	75	800	76	200	1,500	351	—	0
Silver	0	100	2500	101	500	1750	501	—	500

Corp ID	Apps Name	API Key	Fee Rule ID
PT. AAA	Descent Oas	Vp6GZyljR8qk1daeqOfZ5MZyDqy87bOT	Gold
PT. AAA	Eclipse Mining	hEJ8eegEIOTIWe6C9pO7vZPkeherBlyPb	Gold
PT. AAA	Memoir Logistics	30BeUDRR0fEF2i3fNKCIbXHukEOTsJ4	Silver
PT. BBB	BBB Financial	iV3EHz9r1qhHJ5qf1jcj2Js9xae9xEBL8887	Default

TABLE 3. Comparison of the outcomes response time with the monolithic system to the DAAS model.

	Monolithic Model		DAAS Model	
Service Name	Sample	Response time in millisecond	Sample	Response time in millisecond
Intrabank Transfer	4,480	724	50,000	69.12
Transaction Inquiry	350	939	67,971	382.58
Transaction Status	320	276	73,287	719.29

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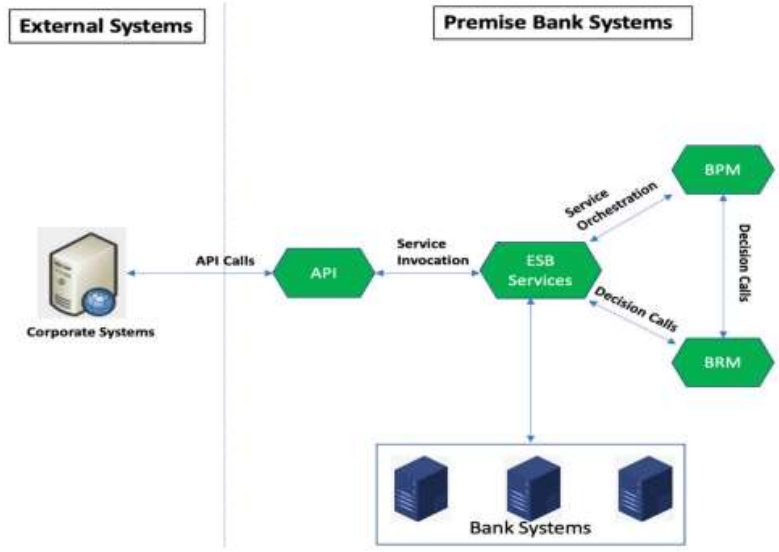

FIGURE 11. Decision as a service with API calls.

VI. DISCUSSION

As depicted in Figure 12, the overall design of an architectural system that integrates API with ESB, BPM, and BRM components. According to the architectural design that will be implemented, the customer system will make API calls via the API gateway, which will then forward the request to the ESB. The API is an extension of the ESB's native service. The service or services in this ESB are independent and do not rely on other services, allowing them to increase the availability of an application and reduce the likelihood of downtime. The ESB service is the core of the overall service layer- based process. BPM is a process management application that orchestrates the service layer. The BPM application will make it easier for business units to define processes comprised of multiple services and to combine manual and automated processes. There is a rule in a running process whose value can change with a relatively high frequency. The rule is an entity in a process whose value changes will be centralized in a BRM application, and which is independent of the service and process layers. This design emphasizes independence, speed, and adaptability in both financial transactions and decisions. Our IT operations are autonomous, which enables us to easily remove development from the ongoing process and identify issues. In terms of flexibility provided by corporate customers for subsidiaries or sub-corporations, the Bank's primary ser- vice is that of subsidiaries or sub-corporations, as it represents a significant opportunity for customers who have already joined the Bank and will increase transaction fees and third-party funds.

VII. CONCLUSION

The outcomes of this study's architectural design will accelerate business services for

corporate customers, particularly within the scope of the customer ecosystem. With the response time and separation of concern as result in DAAS model, the study reveals the bank able to address the implications of scalability, maintainability, flexibility, complexity, and understandability. The DAAS approach model enables the bank to manage time to market and increase its funding size. If the corporate group's ecosystem keeps its money in the bank, banking finance will experience a domino effect of profits. The transaction fee offered by primary services such as domestic transfers or international transfers is also very significant when serving business clients. Then, the volume of funds in the bank at a cheap cost will also increase deposit, and this service typically complements the employee payroll payments of corporate clients. Customer loyalty will be significantly impacted by enhancing corporate customer service in response to customer demand.

By preparing a service decision framework, this will simplify the SDLC process from an implementation standpoint. Strategically, system development will be made simpler if each component is tailored to the specific tasks and requirements. This study requires additional research in order to optimize the optimization costs and transaction forecasts for maximum results.

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REFERENCES

[1] N. Basias, M. Themistocleous, and V. Morabito, "A decision making framework for SOA adoption in e-banking: A case study approach," J. Econ., Bus. Manage., vol. 3, no. 1, pp. 48-53, 2015.

[2] M. Eissens-van der Laan, M. Broekhuis, M. van Offenbeek, and K. Ahaus, "Service decomposition: A conceptual analysis of modularizing services." Int. J. Oper. Prod. Manage., vol. 36, no. 3, pp. 308-331, Mar, 2016.

[3] B. V. Halle and L. Goldberg, The Business Rule Evolution. Fremont, CA, USA: Happy About, 2006.

[4] PricewaterhouseCoopers. (2021). PWC's 2021 Digital Banking Con- sumer Survey. [Online]. Available: https://www.pwc.com/us/en/industries/ banking-capital-markets/library/digital-banking-consumer-survey.html

[5] M. Rosemann and J. vom Brocke, "The six core elements of business process management," in Handbook on Business Process Management (International Handbooks on Information Systems), vol. 1, 2nd ed. Berlin, Germany: Springer-Verlag, 2015.

[6] F. Hasic, J. De Smedt, S. V. Broucke, and E. Serral, "Decision as a service (DaaS): A service-oriented architecture approach for

decisions in processes," IEEE Trans. Services Comput., vol. 15, no. 2, pp. 904-917, Mar. 2022.

[7] R. G. Lee and B. G. Dale, "Business process management: A review and evaluation," Bus. Process Manage. J., vol. 4, no. 3, pp. 214-225, Sep. 1998.

[8] J. Wang, W. Wang, and Q. Zhu, "Design and implementation of WeChat mini program for university dormitory based on SOA," J. Phys., Conf. Ser.. vol. 1069, Aug. 2018, Art. no. 012086.

[9] M. M. M. Al-Rubaye, "The influence of regulatory commitment on quality of banking service: An empirical study on trade banks in iraq." Polish J. Manage. Stud, vol. 22. no. 2, pp. 22-35, Dec. 2020.

[10] A. Harika, M. S. Kumar, V. A. Natarajan, and S. Kallam, "Business process reengineering: Issues and challenges," in Proc. 2nd Int. Conf. Smart Energy Commun. Singapore: Springer, 2021, pp. 363-382.

[11] T. T. Nguyen, H. T., Nguyen, H. T. Mai, and T. T. M. Tran, "Determinants of digital banking services in Vietnam: Applying UTAUT2 model." Asian Econ. Financial Rev, vol. 10, no. 6, pp. 680-697.2020

[12] M. Adusei. "The impact of bank size and funding risk on bank stability," Cogent Econ. Finance, vol. 3, no. 1. Dec. 2015. Art, no. 1111489.