ISSN No:-2456-2165

Analysis of Service Technology on Trucks' Logistics Operationalisation Policy: A TSE Model

System Dynamics Review and Service Dominant Logic Framework
Batara Parada Siahaan [1*], Togar Mangihut Simatupang[2], Liane Okdinawati[3]
[1,2,3]School of Business and Management, Bandung Institute of Technology, Bandung, Indonesia.
[1]Software Engineering Program, Del Institute of Technology, Laguboti, Indonesia

Abstract:- Truck logistics is a vital aspect of the economy, as sustainability is intrinsically related to the development of the transportation infrastructure. The greater the development of logistical infrastructure, the more efficient the wheels of the economy. Consequently, limiting and controlling the turbulence of logistical issues, particularly concerning transportation expenses for deployment, can assist businesses in maximizing their profits. This study examines truck service factors in which trucking company owners regularly face unproductive operations due to an imbalance between the supply and demand for the services they offer. It is believed that the truck sharing economy (TSE) has the potential to solve the trucking company's problems. This study underlines the significance of a service environment for freight transport in which industry actors' desires are carefully evaluated by adopting a service dominating logic perspective. The service blueprint design is based on customers' psychological wants and needs, and the nature of potential partnership prospects is offered using service science theory. This study used participant observation, questionnaires, and interviews to determine the status of service systems in trucking companies from the perspectives of both customers and industry players, such as the owner of a trucking company. To propose the model for the service blueprint, we use conjoint analysis to quantify the qualities of the ideal service blueprint. We use system dynamics modeling to predict the position of sharing economy benefits in the truck logistics industry based on the proposition impact of the collaboration for truck utility.

Keywords:- *Truck-Sharing; Service Science; System Dynamics; Sharing Economy; Service Dominant Logics.*

I. INTRODUCTION

Most trucking companies employ silo management as a standard strategy for reaching customers and accomplishing logistics operationalization objectives. There is limited empirical evidence that enterprises collaborate to share their sometimes-excessive customer logistical burden with other trucking companies and, conversely, for other trucking companies to share their idle vehicles to increase their utilization and potential profitability. Companies are usually in the process of providing a transportation unit while awaiting a customer order for logistics load delivery. Sometimes, a lot of advertising or no advertising is used to teach the customer about the company and its services, with the goal of getting the customer to use the services of the company.

Many trucking companies encounter difficulties because of low truck utilization and empty trips of journey carriers, resulting in losses owing to wasteful operational expenditures. The source of this unease in trucking companies is self-evident. The company's operation hours limited its ability to gather a sufficient number of customer loads for its available unit trucks. Second, while other trucking firms sometimes had excess clients, they failed to share them with the company that needed additional customers to achieve, if not profitable, trip delivery, at least minimal operational costs. Other assumptions that incorporate pain issues in the logistics industry are the customer's choice and the nature of the current service system in the trucking industry, both of which indicate an unsatisfactory service perception, prompting the customer to seek alternative service. When customers choose a logistics mode, they always pick the one that is best for them financially and socially [1].

The difficulties and pains are critical to evaluate in order to provide context for the context evaluation and, more precisely, to demonstrate why this study is necessary. In our opinion, truck companies face three distinct challenges. The first is the company's failure to meet a minimum logistics load requirement for a single service trip to remain profitable. This problem might happen because not many people know about the company. Low awareness means the company should do more and better advertising [2].

Second, the company may experience an increase in demand but cannot meet the bare minimum requirement for truckload capacity. Even if a customer's delivery is less than the truck's maximum capacity, the truck company still has to take it where it needs to go. The less truck load means operational costs are lost, and the truck could even go back empty.

Third, the other company occasionally has a high demand for logistics services but does not have a sufficient number of trucks on hand. Unfortunately, the current state of service plans in freight transport is characterized by a lack of collaboration among trucking company owners. In light of these considerations, failing to communicate with the other company that owns trucks and needs increased passenger demand results in the loss of any potential economic profit. A competitive company with silo thinking would naturally be

ISSN No:-2456-2165

unwilling to share their insufficient load demand with other companies that cannot communicate effectively, such as those for which no collaboration platform has yet been established.

Based on the context problem, our first hypothesis is that dissatisfied customers lead to lower utilization, which results in the truck company's inability to profit from its operations. Another hypothesis is that silo thinking in the trucking company's model creates an environment that does not encourage collaboration with other businesses, resulting in low utilization and an invisible boundary for potentially fruitful collaboration. The following research questions are based on those mentioned hypotheses: First, what is the optimal service system for truck companies? Second, what is the optimal service system for truck companies? Second, what is the best service system for facilitating collaboration among truck organizations? By answering these questions, it should be possible to suggest the service system's nature and the service-dominant logic collaboration environment.

Furthermore, the service system discussed in this study is the process of acquiring customer needs to accommodate a delivery from the origin place to the destination place. There is an apparent involvement of actors in this process who produce some conflicts of interest, decisions, and resolutions to be called the user of service and the creator of service [3]. In the truck logistics business model, the economic process incorporates actors [6]: first, the customer as the user of the logistics service; secondly, the company/owner of the truck company that accommodates the process, such as providing units of trucks, maintaining trucks, and delivering policies regarding the operationalization. The third factor is "employees," which can include a variety of tasks, levels of work, and job positions.

In order to comprehend the specifics of the trucking industry's service system, it is necessary to examine the variables of the actors involved in order to comprehend their internal objectives, during which conflict may arise during the interaction process, and resolution may emerge as a result of the interaction process [4]. The service system in truck logistics explains the nature of the truck business model, including the actions that need to be taken by the actors in the truck logistics system. Service begins when a customer realizes they need logistics services and starts the process of getting them [5].

In this study, the proposed selected service system will be critical to understanding those aspects of the problems mentioned above that are not currently understood. When developing a new service system, we must take a close, in-depth, and specific look at the aspects of the exact essential requirement for customer satisfaction in the logistics industry that must be considered [6]. In light of these critical issues, the main goals of the study are: a) to understand the nature of the service system in the truck logistics business model, one must first understand the current model; b) to understand the nature of service science in order to help truck companies work together; c) to come up with ideas and new value propositions for improving the current trucking logistics model, and d) to suggest a new service system.

II. LITERATURE REVIEW

In the field of supply chain management, truck logistics has a significant impact on economic operationalization. As reported by Redseer [7], truck logistics' value in Indonesia's business domain is 32 billion USD. This value is tremendous and should be optimized as an essential economic factor, specifically in terms of truck logistics in Indonesia, which still has infrastructure, utilization, and management problems and lacks optimized truck management and service [8].

A service system is a process of defining who the customer is, who the provider is, what the steps are, and what the components of the service are [9]. The truck logistics industry's nature is defined by the steps and processes that comprise the service's content. These include defining the overall scheme of service concepts, how the service will be delivered, and how the service system will be understood [9].

Furthermore, in terms of academic and managerial implications, the analysis of problems in this domain is still relatively limited. By observing and interviewing various actors in the trucking industry located in Indonesia, our preliminary research reveals several factual conditions. The problems that arise are highly diverse, but they all stem from the context of ineffective operations management.

Various problems arise in the forms of business management, such as driver management, loading policy, backhaul policy, and order management. These problems significantly impact the optimization of the economic value of truck logistics, particularly concerning the Indonesian Truck Association. The association emphasizes the poor utilization of truck modes due to several primary factors, namely silo management, high competition mental models, and the lack of an integrated system that can support centralized operational optimization.

Several conceptual approaches to utilization must be considered, particularly in the transportation sector. The concept of collaborative thinking, also known as the sharing economy, serves as one of the references for developing this model's framework. In addition, the integrative nature of the sharing economy concept can be viewed as one of the solutions to truck logistics issues in Indonesia.

The sharing economy has been extensively discussed in both academia and practice. The sharing economy concept emphasizes the significance of sharing assets to increase the truck's utility value. The sharing economy is widely implemented in the transportation sector in the context of bicycles, cars, and vehicles, as in the case of Gojek and Grab in Indonesia. Some applications of sharing economy are also adopted on immovable assets, such as the Airbnb and Oyo cases in the hotel industry.

We want to examine an example of a truck sharing economy (TSE) requirements analysis based on information system technology. The numerous applications of the sharing economy made possible by the application of information systems are one of the primary reasons why this research is

ISSN No:-2456-2165

regarded as significant and essential. We also believe that the requirements of the TSE policy are closely related to the application of information system technology, as evidenced by our interview with the Indonesian Trucking Association, which confirmed the need for integrated information system technology.

III. METHODOLOGY

In this chapter, we will describe the analysis of the methods used. The first approach was observing and interviewing truck companies was taken better to understand the current state of the service system. The step was taken to view holistically regarding the business model, current situasion, problem that arise and factors that might cause the problem to emerge. For this study, we considered three trucking companies as our object of observation based in the provinces of Java and Sumatera.

In this study, as shown in Figure 1, three major methods were applied to answer the research problem, the first observation to companies, secondly analysis of factors contributing to the model of the service technology, and thirdly, the system dynamics review to analyze how variables observed related to one another. In this study, we observed the trucks ordering capacity orders, defined the delivery destination, and reviewed the overall business model.

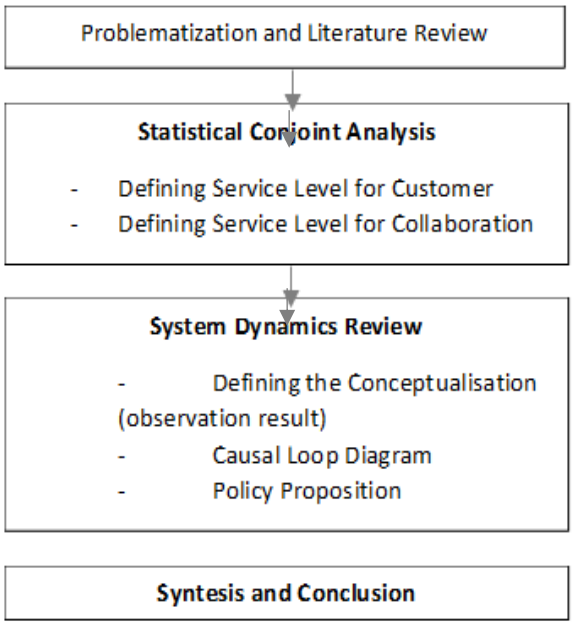

Fig 1. Research Methodology

The option of reserving a delivery is observed by phone, in person, or via an application or website. Through an interview, a model objective for customers, owners, and employees, such as truck drivers, is developed. Some objective judgments were made based on the interview. Furthermore, this approach allows us to infer the current state of the service system for trucking companies in general.

A. Framework for Customer Service Variable

When developing the framework for the service blueprint, aspects of the customer's psychological needs and desires are prioritized. As Buda and Lehota [10] demonstrate, certain aspects of logistics selection, such as cost, mobility access, and preferences, are subjective for each customer. In line with that statement, Yang and Ahn [1] also suggest aspects of the customer's psychological decision-making process when selecting a logistics mode, including benefit, enjoyment of the activity, affordability, safety, and trust. Based on these points of view, looking at the customer's mental state is very important. Thus, we used a statistical approach to develop a model that incorporates aspects of the current service system and those not yet present at some level. These characteristics summarize the customer service level as shown in TABLE I.

TABLE I. CUSTOMER SERVICE LEVEL

Type of Cost	**Ordering Facility**	**Ambience Benefit**
Low Cost	Through Phone	Low Ambience
Medium Cost	Direct Ordering in Person	Medium Ambience
High Cost	Platform/App/Web	High Ambience

TABLE I. summarizes the customer's preferences and indicates which option is the most preferable from their perspective. We classify three levels of customer service based on (1) the cost; (2) the ease with which the customer can order logistics; and (3) the ambiance benefit, which includes real-time monitoring availability, tracking system, and other features that help the customer feel more secure in choosing a particular truck logistic company.

Additionally, as shown in TABLE I, we identify the customer service level for a cost, including low, medium, and high, to discover the consumer's cost preference. Second, the reservation facility is a category used to describe the quality of service provided when a consumer attempts to schedule a logistical delivery using several ordering options. The third factor is the category of ambiance. The ambiance includes all components of the facility's atmosphere, including the facility, such as order tracking availability, employee attitude, safety, and delay standards. In delay rules, for instance, a low ambient level means a high chance of a long delay.

To quantify the importance of customer service from the customer's perspective, we then use the statistical technique known as conjoint analysis, which is advantageous for quantifying the rank of importance. Three axes are required to conduct a conjoint analysis in R: X, Y, and Z [11]. X represents a composite of profiles (as defined in Table 1), Y represents the response to a respondent poll (customer preferences), and Z represents the characteristic level (as mentioned in Table 1). The service level combinations will serve as the basis for a questionnaire survey, with the significance of the combinations indicating the factors affecting the value of each variable in TABLE I. Customers may encounter a low-cost service with a phone ordering option and a low ambiance. Another example of Z's possible combinations is as follows: A customer may receive a low-

cost service with an easy ordering process via an application with a medium-ambiance benefit service.

B. Framework for Collaboration Service Variable

Company collaboration refers to the possibility of two or more truck firms forming a cooperative. The significance of this partnership collaboration becomes apparent as a theme solution to the low utilization of truck units is the development of collaborative consumption or the sharing economy concept. By collaborating, the actors in the truck industry may gain potential benefits such as load sharing (implementation of the sharing economy concept) and income systems improvement (higher revenue potential).

However, there are several aspects to consider when designing collaboration. In this paper, we decided that there are three critical aspects for forming collaboration in the truck-sharing economy that we will discuss. The first aspect is the development of trust [12]; the second is the availability of platform systems capable of efficiently and transparently moderating the partner [13]; and the third is regulation, such as contract-based or lose partnership [14].

TABLE II. COLLABORATION SERVICE LEVEL

Information Openness	Platform Availability	Form of Collaboration
Low Information Sharing	Platform is Not Available on Operationalization	Contract Based
Medium Information Sharing	Platform Available for Operational Supporting	Loose Partnership
High Information Sharing		

As illustrated in TABLE II, we are attempting to establish a service level for collaboration. For example, the collaboration can be a contract-based or loose partnership. For a contract-based example, there is the possibility of a required legal agreement between collaborators, while in a loose partnership arrangement, there is no legal understanding on paper. Second, "information openness" allows firms to share information jointly. Low indicates that very little information is provided, medium indicates that some insight is offered, and high indicates that information sharing between collaborators is firmly integrated. Thirdly, there is a category termed "platform availability" at the service level, which relates to the qualities of an existing platform that enables moderated interaction between operationally connected collaborators. Typically, but not always, in the sharing economy, cooperation is enabled through the use of applications.

C. Data Collection and Analysis Method

To gather respondent insight on customer service levels, we conducted an online survey explaining the design of truck companies' service levels. In the survey, we asked the respondents to scale the combination of the levels as profiles from 0 to 10, where 0 means the combination of levels viewed as less attractive (less critical). In contrast, 10 means the most attractive combination.

Furthermore, for the collaboration model, we asked several respondents from the truck player, such as the company we observed, members of the trucks association, and stakeholders in the business. In our model review, we asked them about the importance of the three quality service factors for the collaboration service level.

For the data analysis and data organization, we used conjoint analysis as a method approach for data analysis both to understand the customer service level and collaboration service level. The combination that has been built is used in the conjoint analysis to show the most critical factors in service technology in the truck logistics business.

D. System Dynamics Review

To understand the overall business model and causal analysis of the related factors, we offer a method approach to describe the relationship between factors called system dynamics. A system dynamics model describes the factors' relationships to others [15]. System dynamics is crucial in this study because we want to show how the relationship between factors and how the process improves service technology, as one of the objectives of this research..

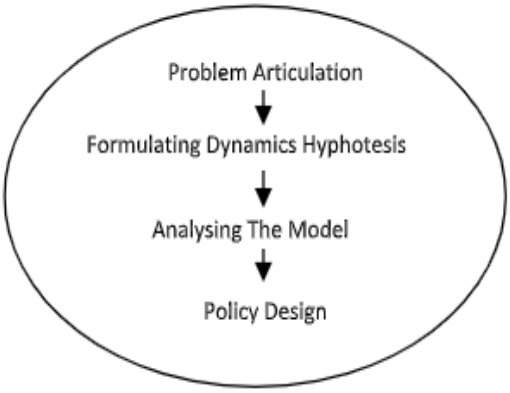

Fig 2. Steps of System Dynamics Review [15]

The system dynamics approach is shown in Figure 1. This research model is used to demonstrate the dynamics hypothesis of the truck business model. However, the limitation of this study is that we did not test the model of the framework created. Thus, policy design is limited to propositions that business actors can use as managerial impacts, such as adopting the conjoint model offered in this study.

IV. RESULTS AND DISCUSSION

The organization of the results and discussion chapter is as follows: in the first sub-chapter A, we first explain the results of the analysis of the current service technology blueprint to describe the current system, and then we propose a model for the service blueprint in sub-chapter B. Then, to show the value of causal analysis, we offer a system dynamics model of hypothesis in sub-chapter C.

A. Truck Companies' Current Service Blueprint

In this study, it is necessary to describe the current service blueprint by examining the service level to identify

areas for improvement in service. Physical evidence, customer action, on-stage contact staff action, backstage contact employee action, and support procedure are all classified as visibility lines in a business's service blueprint. In this manuscript, the four parts of line visibility are analyzed. The analysis shows that many parts of the current service blueprint need to be changed. It could be improved quickly for the actors and environment involved in the truck logistics business process. In the case of the trucking business, the primary line of visibility is divided into three categories and linked to three processes: ordering, customer order confirmation, and the process in which the customer delivery is actually on the journey. During these three processes, it is possible not to meet a predetermined service level delivery, which would make the process less effective or make the customer unhappy.

The ideal accessible channel meets the need for the customer to reserve a logistics delivery service without physically going to the truck office or station. The possible failing point, however, is that the current situation does not assure which order should go to which truck with a precise time or delivery. There is a possibility of waiting time, delay, and further confirmation for trucks to go full load before delivering a specific customer logistics order. Due to the firm's familiarity and customer relationship, these issues may be addressed for a frequent client with large order delivery. However, our interview with the truck owner revealed that maintaining a secure full-truckload capacity could be challenging for infrequent clients.

The other part of the reservation procedure that has room for development is the application of collaboration in terms of sharing the economy. The existing reservation system has a flaw in that when customers attempt to order delivery; they discover that all available trucks have reached their maximum capacity. However, because the companies are not affiliated with other trucking companies, the consumer may not be directed directly to the other company, resulting in a loss of possible revenue. While the customer is upset, the business also misses out on possible economic benefits associated with partnerships with other businesses. It is difficult to envision these possibilities in the existing truck business model, where firms share information and collaborate to improve and raise customer satisfaction for delivery fulfillment while enhancing their truck utility.

The standard of waiting is not a method of having the consumer wait indefinitely; if there were no expense associatedwith the time spent, it could change into waste [16]. However, the existing service architecture for truck logistics suggests that the consumer may be disappointed, as the process for customers to secure their truck for delivery is not standardized and offers no incentive when a delay happens. When ordering truck capacity for delivery, sometimes there is no standard wait time for the actual truck's operating delay. Delay usually happens when the order capacity is small or the truck's maximum capacity is not reached yet.

This pain was experienced by both the consumer, the truck owner, and the truck business. While the business must strive to meet consumer demands for expedited delivery, confirmation, and secure delivery transactions, it must also consider the profitability of the order. At least a certain percentage also requires a capacity to be at least partially filled. Occasionally, however, the capacity does not equal the truck's maximum capacity, preventing the company from billing the client for the full capacity. Furthermore, to complicate these challenges, the prospect of an empty truckload is also a source of stress for the truck logistics owner and firm. The trucks must return to the origin station once they have completed their delivery. Due to the lack of information and the lack of a client backorder, the trucks can return to the station with an empty trip capacity.

During the journey to the destination, some possible actors, such as systems or people, may or may not provide the customer with information about the current status of the delivery in real-time of the logistics process. Apart from that, there is no indication of the package's safety, intelligent information, or some of the related information, which is due to the lack of information technology infrastructures such as an integrated information system or system platform connected through the internet. The flaw in this aspect emerges because there are no standardized, efficient rules that can be benchmarked by including actors or systems in the process of transporting the logistics load in the current service system of the truck business model in general.

B. Proposed Service Blueprint Based On the Statistical Model Result

The customer preferences model in service blueprint design for truck companies can be determined with assurance due to the statistical analysis of the conjoint that we perform. The fit model of the design we create is explained in detail in the model result. As in the method of a "conjoint analysis," a person's "utility level" can show how certain critical traits were to the people who took part in our study.

Our customer preference model has an RSE of 1,69 on 569 degrees of freedom, a p-value of 2,2e-16, an R-square of 0,3755, adjusted R-square of 0,3689. The result indicates that the model has achieved fitness and confidence. As we analyze customers in three categories, we can rank them using the statistical model. The following are variable in terms of their utility value. Low Cost 0,23893, Medium Cost 0,18064, and High Cost -0,41945; Reservation Category: Via Phone 1,35196; Direct or Face to-Face Reservation-1,68297; App/Web 0,3318; and Finally, Ambience Category: Low Ambience-0,40699; Medium Ambience-0,2778; and High Ambience 0,6847.

As illustrated in Figure. 3, the most crucial factor is the reservation type, followed by the cost type and the level of ambiance. Reservations are critical because one of the primary factors frequently entails many potential complications. Insufficiently in operations might happens because mobility access is highly dependent on the certainty and uncertainty of logistics reservations. When a customer wishes to order a logistics service for a specific purpose, the first thing they must verify is that the reserved ticket is still available for purchase, such as the truck's capacity, volume, and accommodating load.

ISSN No:-2456-2165

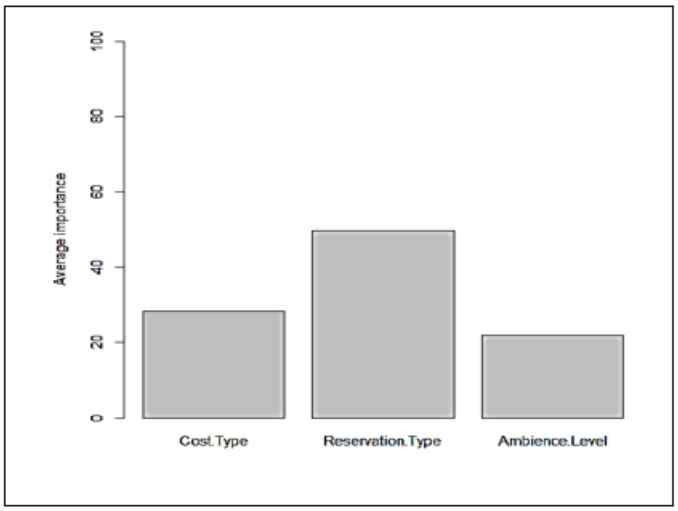

Fig 3. Preferences of Importance based on the Customer Characteristics

According to the valuable utility result, reservations made by phone are the most convenient, at 135196. Physical reservations, such as going directly to the truck station, are the least preferred option, with a utility of -1,68297, followed by ordering via a website or application, which has a utility of 0.31. Our model says that a failure state for the current service system is when a customer cannot make a reservation without going to the truck company in person.

Furthermore, cost preferences match the nature of the benefit justification for selecting a particular logistics option for a customer. With a utility of 0,23893, low cost is most desired, followed by the medium cost, with a utility of 0,18064, and the high cost, with a utility of -0,41945. The cost is essential for the trucking company: the lower the price, the more appealing it is to the customer. However, it is critical to note that not all customer preferences align with their ability to pay for what they want. Even if a customer wants a low price, that does not mean they want lousy service. The aspect will be explained in more detail in the ambiance service level.

According to our statistical analysis, the high ambiance is the most preferred service design for truck companies, with a utility of 0,6847, followed by the medium ambiance, with a utility of -0,2778, and the low ambiance, with a utility of -0,40699. In our survey, the ambiance is influenced by factors such as employee attitude, delay policies, company safety policies, and other supporting facility features such as real-time tracking of order delivery and after-delivery service. As a result of this analysis, we can see that customers place a high premium on aspects such as fair treatment and the importance of enjoyment during the delivery process.

This aspect of this insight is critical if trucking companies are to remain competitive. Furthermore, our conjoint statistical analysis provides a robust analysis of the preferences for collaboration environments in trucking businesses. The conjoint analysis result for the collaboration environment has an RSE of 1,514 on 571 DF, a p-value of 2,2e-16, an R-square of 0,4487, and an adjusted R-square of 0,4448, with an RSE of 1,514 on 571 DF and a p-value of 2,2e-16. The outcome demonstrates that our model has achieved fitness and self-assurance.

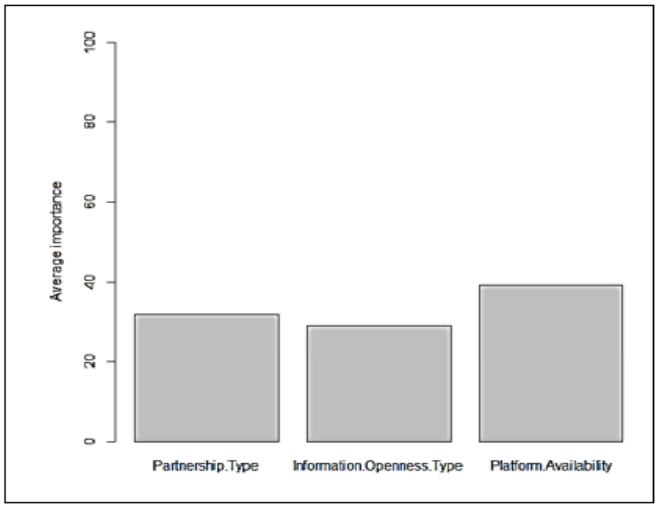

Fig 4. Importance of the Collaboration Environment

As shown in Figure 4., our model suggests that if collaboration is to take place, the availability of the platform is a critical factor to consider. The availability of the platform is represented by a utility value of 0.9809 for the platform. As Nica and Potcovaru [13] proposed, the function of platform or system information is critical in moderating the communication and information dissemination among actors involved in collaboration as well as the process of mediation and appointment. The result hints that platform system availability could affect how well the collaboration works in the long run once it has been set up.

Furthermore, for this type of collaboration, it is suggested that the nature of collaboration should be formalized rather than allowing it to flow dynamically and loosely on the performance of the firm participants. According to the statistical models, collaboration should be based on contracts in which the nature of legality aspects, liability, and responsibility should be shared following each stakeholder's function, as determined by the contract. The utility value of the importance of contract-based decision-making is 0.8142 in the model. This model suggestion is reasonable for the truck companies to share their customers in the form of a sharing economy. The main reason for the collaboration is profit, such as when one company transfers logistics orders to the other company in a partnership, which will require much work.

Our statistical analysis reveals some interesting aspects of the importance of information openness in collaborations, which we discuss below. According to the model's output, the most crucial openness type is low openness, which has a utility of 0.6684. The next level is followed by medium openness, which has a utility of -0,3056, and high openness, which has a utility of -0,3628. If the analysis results are viewed from the perspective of functionality rather than psychology, they may be both relevant and irrelevant.

Given that this is a psychological survey administered to truck company actors such as the owner and stakeholders, the

respondents were asked whether they prefer to share their data with other companies openly, moderately, or dislike sharing their data with other companies at all. Regarding functional aspects, it makes things much easier for the collaborating parties if they share their data. Nonetheless, there are some aspects of business in which a company may choose not to share its data with third parties. As a result, the model suggestion is relevant when considering the preferences for collaboration. However, because the model suggests a commitment-type relationship, it does not imply that the level of openness with which information is shared must be high.

C. System Dynamics Review

The proposal position of incorporating actors, wherein the logistics truck firms are considered critical to the success of this scheme, should be included in the collaboration setting. When it comes to collaboration, this opportunity model considers how to manage the process of collaboration as well as what infrastructure should be provided to facilitate the collaboration.

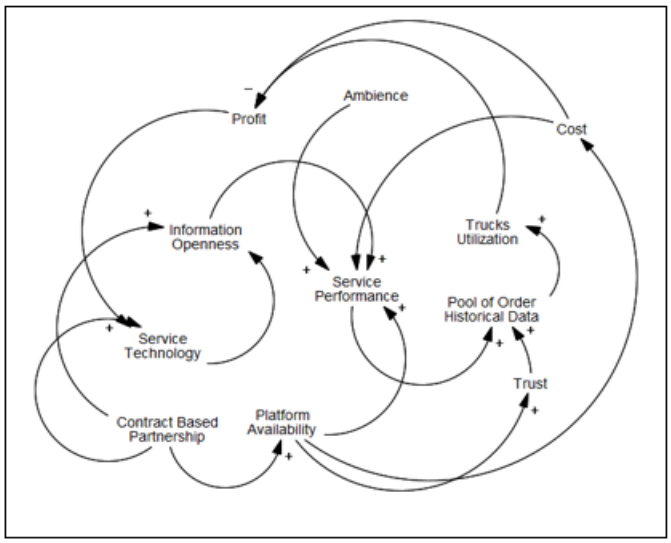

Fig 5. Causal Loop Diagram of Service Performance Factors

A sample of value co-creation can be illustrated in the causal loop diagram, as shown in Figure 5. System performance of the service is influenced by several factors, as confirmed by the statistical model we built. For example, the figure shows that service performance is influenced by information disclosure, good facilities (ambiance), and optimal cost. The dynamics hypothesis image is a reference or description because real-world conditions cannot be known unless implemented [15]. So the CLD in this research is a form of review of the possible service technology environment for TSE Policy.

The importance of showing a system dynamics review in this research is an alternative way to describe the rigidity of the statistical approach. Statistical models describe very rigid values. Meanwhile, the possibility of interconnection between factors is very likely to occur in truck logistics. Model review with system dynamics can be done with an unlimited number of scenarios as long as they are part of the system being analyzed.

Furthermore, as the problem identified suggested, the strategy of the company to acquire mutualism collaboration with other trucking companies will be defined by the value of co-creation within the organization. The issue of failing to refer excessive customers to other companies in the same business is also occurring. Lusch et al. [18], in their research, say that the parts of collaboration that can be seen in the economic platform are becoming more critical when it comes to recognizing that service creation is a collaborative process. Furthermore, the service system has two aspects in the co-creation value process. The first is the co-creation value scheme, and the second is the translational approach to customer provider positioning. It happens when there is no absolute customer and no absolute provider because they share the mentality of collaborating to get a more significant result [17].

D. Discussions

Multiple matrices of issues evaluated in this paper must be pursued simultaneously in the future to gain a deeper grasp of the service system in the truck transportation company's business model. Emerging themes and problems are important because they are linked and cannot be looked at separately..

From the customer's point of view, which in this case is the user of trucks, future research should answer and prove questions about the most important and relevant parts of transportation services. Some aspects, such as time of operational coverage, order certainty of unit transportation, unit of transportation facilities, and other aspects, must be considered. Future research should conduct in-depth interviews to answer more comprehensive customer needs analyses. In the future, the statistical method [19] should be used to prove the result and confirm the hypothesis about the essential things from the customer's point of view.

Another area for future research is the collaboration aspects of truck companies. To view the phenomenon, it is not the only infrastructure, rules, and regulations that make the collaboration happen [20]. It must be sought to the level of who will collaborate willingly and accept the process of sharing internal information. The research could be about finding the characteristics of truck companies that are collaborative-oriented and non-collaborative oriented. This research will eventually provide a more extensive understanding of the service system in truck companies in the aspect of collaboration. Collaboration is essential to nature, and the best way to minimize unsuccessful efforts is to identify with whom not to collaborate. Statistical analysis such as the discriminant analysis model can be considered. The approach could help answer inquiries due to the benefit of discriminant analysis in finding the discriminating factors that categorize groups [21].

Lastly, future research for this topic is to understand the effect of the proposed service blueprint design by understanding variables and their influence on utilization

problems and non-profitable operational phenomena. The simulation aspect will be considered in future research to understand the effect of the proposed service blueprint design. The causal loop diagram and the creation of a stock-flow diagram related to truck companies will be built using System Dynamics until the simulation steps. This study has only provided the conceptualization for the factors analysis relationship. The ability to provide a strong proposition for policy-making and its visibility effect on observed phenomena is the benefit of modeling for the benefit of system dynamics [22].

V. CONCLUSION

In our conclusion, we stated the central importance of this research result. Two critical perspectives are presented in this paper: first, an ideal service design for customers in truck logistics; and second, a proposal for an understanding of how truck companies may initiate collaboration among the actors in the business.

Three tiers of quality define the optimal service design for clients in trucks: first, the cost considerations; second, the type of reservation; and third, the quality of ambiance. The model we offer tells how important each variable is for determining the value of these three features. Industry partners can use this information to make services that customers most desire.

Lastly, in the collaboration model, we emphasize three quality service factors, namely information openness, the availability of service technology platforms, and the type of collaboration contract control. The managerial implication of this model is to emphasize how TSE can be initiated at the policy level in the trucking business domain.

REFERENCES

[1]. Yang, S., & Ahn, S. (2016). “Impact of motivation for participation in the sharing economy and perceived security on attitude and loyalty toward Airbnb”. International Information Institute (Tokyo). Information, 19(12), 5745.
[2]. Fam, K. S., & Merrilees, B. (2001). “What do excellent service promoters do differently?”. Service Industries Journal, 21(4), 1-16.
[3]. Olexova, R., & Kubickova, V. (2014). “The evolution of the SD logic approach and its impact on service science”. Journal of Service Science Research, 6(1), 99-124.
[4]. Gao, D., Deng, X., & Bai, B. (2014). “The emergence of organizational routines from habitual behaviours of multiple actors: an agent-based simulation study”. Journal of Simulation, 8(3), 215-230.
[5]. Barile, S., & Polese, F. (2010). “Linking the viable system and many-to-many network approaches to service-dominant logic and service science”. International Journal of Quality and Service Sciences..
[6]. Dong, H., & Hussain, F. K. (2015). “Service-requester-centered service selection and ranking model for digital transportation ecosystems”. Computing.Archives for Informatics and Numerical Computation, 97(1), 79-102.
[7]. Redseer. (2019, September 13). Indonesia B2B Trucking: At crossroads? RedSeer; redseer.com. https://redseer.com/newsletters/indonesia-b2b-trucking-at-crossroads/
[8]. Siahaan, B. P., Simatupang, T. M., & Okdinawati, L. (2021). “Modelling incentive policy on truck sharing economy concept: current state and literature review”. International Journal of Logistics Systems and Management, 39(2), 185-206.
[9]. Spohrer, J. C., & Maglio, P. P. (2010). “Toward a science of service systems”. In Handbook of service science (pp. 157-194). Springer, Boston, MA.
[10]. Buda, G. (2017). “Attitudes and motivations of consumers in sharing economy”. Management, Enterprise and Benchmarking in the 21st Century, 22.
[11]. Andrzej, G., & Tomasz, B. (2012). “Linear Mixed Effects Models Using R: A Step-by-step Approach.”, 245-273.
[12]. Islam, S., & Olsen, T. (2014). “Truck-sharing challenges for hinterland trucking companies: a case of the empty container truck trips problem”. Business Process Management Journal.
[13]. Nica, E., & Potcovaru, A. M. (2015). “The Social Sustainability of the Sharing Economy”. Economics, Management & Financial Markets, 10(4).
[14]. Cesarani, M., & Nechita, F. (2017). Tourism and the sharing economy. An evidence from Airbnb usage in Italy and Romania. Symphonya. Emerging Issues in Management, 32-47.
[15]. Sterman, J. D. (2001). “System dynamics modeling: tools for learning in a complex world”. California management review, 43(4), 8-25.
[16]. Fernández-Solis, J., & Rybkowski, Z. K. (2015). A theory of waste and value.
[17]. Lusch, R. F., Vargo, S. L., & Wessels, G. (2008). Toward a conceptual foundation for service science: Contributions from service-dominant logic. IBM systems journal, 47(1), 5-14.
[18]. Sampson, S. E., Menor, L. J., & Bone, S. A. (2010). Why we need a service logic: a comparative review. Journal of Applied Management and Entrepreneurship, 15(3), 18.
[19]. Green, P. E., & Krieger, A. M. (2002). What's right with conjoint analysis?. Marketing Research, 14(1), 24.
[20]. Carr, K. (2002). “Building bridges and crossing borders: Using service learning to overcome cultural barriers to collaboration between science and education departments”. School Science and Mathematics, 102(6), 285-298.
[21]. Silva, A. P., & Brito, P. (2015). “Discriminant analysis of interval data: An assessment of parametric and distance-based approaches”. Journal of Classification, 32(3), 516-541.
[22]. Agyapong-Kodua, K., Weston, R. H., & Ratchev, S. (2012). “The integrated use of enterprise and system dynamics modelling techniques in support of business decisions”. Advances in Decision Science.