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EXPLORING THE VALUE CO-CREATION INTENTIONS IN UROLOGY FOR MEDICAL DEVICE BRANDS: THE MEDIATING ROLE OF CUSTOMER BRAND ENGAGEMENT

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ABSTRACT

Amidst the Indonesian Government and the Ministry of Health's initiative to enhance the quality of healthcare services, particularly in urology, focusing on using advanced medical equipment and the improvement of urological competencies, the healthcare industry in Indonesia has experienced significant growth. This study explored consumer perspectives on urology medical device brands, leading to the concept of value co-creation between consumers and brands. Through a survey of 140 urology resident doctors analyzed using quantitative methodology and PLS-SEM, the study found that customer-customer interaction influences consumer brand engagement but does not directly affect value co-creation intention. Conversely, customer-seller interaction has a significant positive impact on value co-creation intention and consumer brand engagement. The findings of this study suggest enhancing customer-seller interaction and leveraging consumer brand engagement to promote value co-creation intention, as well as the importance of developing quality customer interactions to strengthen their engagement with the brand.

KEYWORDS: Consumer-Consumer Interaction, Consumer-Seller Interaction, Consumer Brand Engagement, Value Co-creation Intention.

1. INTRODUCTION

The Indonesian government, in partnership with the Ministry of Health, has established a solid commitment to ensuring the success and continuity of the health development program, which is included in the National Medium-Term Development Plan (RPJMN) 2020–2024. The primary goal of this plan is to enhance the healthcare system by providing adequate and equitable medical facilities and infrastructure by the standards set in the Regulation of the Minister of Health of the Republic of Indonesia Number HK.02.02/Menkes/52/2015, focusing on improving access and quality of healthcare services [1]. According to data from Globocan [2], prostate, bladder, and kidney cancers are among the most common types of cancer in Indonesia. This highlights the importance of high-tech medical equipment such as CT scans, MRIs, and Laparoscopies, especially for urology specialists. To support this, the Ministry of Health of the Republic of Indonesia has issued a Decree of the Secretary-General Number HK.02.02/III/8224/2022, providing funds for local government

hospitals to upgrade infrastructure and medical equipment, particularly in urology ([1]. The growth of the healthcare industry in Indonesia is reflected in data from the Ministry of Health [1], showing the presence of 891 medical device brands in the market, with 80% being imported products. Over 3,500 distributors support the distribution of these medical devices nationwide. Regarding education, the Indonesian Urology Collegium and the Indonesian Medical Council [1] have established competency standards for urology specialists, including the ability to operate advanced medical equipment like laparoscopy, starting from the Urology Specialist Education Program (PPDS) stage. This government support reflects a focus on improving the quality of education and urology practice in Indonesia. Furthermore, at the 2022 annual conference of the Indonesian Urology Association (IAUI), supported by local governments, the theme "Bringing the latest frontiers in urology to best services" was highlighted, emphasizing the importance of advancements in the field of urology [3]. This situation underscores the need for further research on consumer views of various urology medical device brands, as well as the importance of consumer and doctor involvement in product development processes, which will increase consumer engagement in the marketing world.

Urology is a branch of medicine focusing on the urinary tract system, including the kidneys, ureters, bladder, and urethra in both men and women, as well as male reproductive organs such as the prostate, testicles, and kidneys [4]. Urology Departments in several hospitals offer various subspecialty services, including pediatric urology, oncological urology, endourology, urinary tract stones and endourology, kidney transplantation, trauma and reconstruction, and functional, female, and neuro-urology. In practice, the need for various types of medical equipment in urology is crucial, but differing patient conditions often result in suboptimal equipment use. Therefore, medical equipment developers must interact with users to develop and adjust equipment according to needs. Co-creation is an effective method for developing and customizing medical equipment with users. The concept of co-creation places consumers as active participants, not just passive receivers of information and products. They provide feedback and their needs to sellers to enhance the quality and benefits of future medical equipment. According to Tajvidi et al. [5], medical personnel can collaborate to develop medical equipment through co-creation. With input from medical experience, equipment developers gain insights into the necessary feature and function requirements. Such conditions result in more effective and ergonomic equipment, reducing long-term operational costs and improving satisfaction for medical personnel and patients. The customer-centric and service-dominant logic concepts [6], [7] highlight a shift in perspective on the role of consumers. Consumers are considered co-creators of brand value through their interactions with the brand, which is a significant competitive advantage [5]. Brand value is also created when consumers share their brand experiences with others in collaborative new product development [8] and joint product design [9], [10].

Tajvidi et al. [5] research emphasizes the importance of two types of consumer interaction in value co-creation, namely, (1) customer-customer interaction (CCI) and (2) customer-seller interaction (CSI). They suggest further research to test these concepts in other industries. To this end, this study will verify the originality of the claims made by Tajvidi et al. [5] by conducting preliminary rooting

using the software connectedpapers.com to see the citation connectivity with other journals with the same research context. Based on data obtained from connectedpapers.com, the researcher found 41 journals with interconnected contexts from 2013 to 2022. The journal articles are divided into two parts. The first part consists of journals referenced by Tajvidi et al. [5] from 2013 to 2017. The second part consists of journals that use the research of Tajvidi et al. [5] as a reference source from 2017 to 2022. To understand the factors influencing consumer interest in value co-creation, this study examines 20 journals published between 2017 and 2023. In consumer interaction, several independent factors have been identified as necessary. Consumer interactivity includes interactions between consumers and between consumers and sellers [11], [12]. Online social interactions (EWOM) and informal verbal communications for product recommendations or evaluations have been found to have a significant influence [13], [14]. Furthermore, social commerce information sharing and social media marketing are related to knowledge sharing through social media and marketing activities on these platforms [15], [16]. IT support, provided by IT teams in delivering services and products, is also essential [17], [18].

On the other hand, several mediator factors identified include social support and relationship quality, reflecting support in social groups and the strength of the relationship between consumers and others [13]. Consumer brand engagement indicates consumer involvement with the brand and is also considered necessary [19], [20]. Other factors such as perceived control of information, trust, perceived service quality, perceived influence, ethical perception, and privacy risk also play a significant role in measuring trust, perceived service quality, and consumer-perceived privacy risk [12], [21]. Understanding these factors is essential to understanding consumer interactions in today's digital environment. In conclusion, 20 previous research journals found nine independent variables and six mediator (mediating) variables that potentially increase consumer interest in value co-creation. To this end, the researcher conducted a pre-survey with 30 people to determine the main factor that is a consideration for urology residents in growing value co-creation interest in health equipment brands. As a result, the factors of consumer-consumer interactions and consumer-seller interactions have the lowest value compared to other potential independent factors. Furthermore, consumer brand engagement was also found to have the lowest value compared to other potential mediator variables. This indicates a problem with the related variables. Therefore, based on the background description of the problem, the novelty of the research, and the results of the pre-survey conducted by the researcher, this research aims to further investigate, analyze, and reconfirm the relationships between each variable in different situations and conditions.

2. LITERATURE REVIEW

2.1. Service Dominant Logic

In the context of marketing and services, Vargo and Lusch [22] introduced the concept of Service-Dominant Logic (SDL) as a fundamental basis for exchange in the service industry. SDL emphasizes interaction and collaboration between service providers and consumers as the core of the value-creation process. This approach contrasts with Goods-Dominant Logic, which focuses more on goods

as the exchange centre. McColl-Kennedy et al. [23] demonstrated how SDL can be effectively applied in healthcare. They identified that operationalizing SDL in healthcare services can drive more effective field responses, involving various parties such as hospitals, doctors, and consumers in the joint process of value creation. This research highlights how SDL encourages superior customer relationships and lifetime value formation. According to Pandey and Kumar [24], SDL in healthcare services helps to enhance customer interaction, which in turn facilitates the development of superior customer relationships and lifetime value. SDL positions consumers not as passive subjects but as active partners in value co-creation. This is also echoed by Spano et al. [25], who emphasized that in SDL, more value is created during the use of a product or service (in-use) rather than at the point of exchange (in-exchange). In the sustainability economy, especially within the healthcare system, SDL and value co-creation are highly relevant. Investments in advanced medical equipment, for example, can bring significant benefits directly and indirectly. SDL shifts the conventional approach from Goods-Dominant Logic, which focuses on supply, to a more service-oriented approach, leading to more collaborative and dynamic value creation between consumers and service providers.

2.2. Value Co-Creation

Pandey and Kumar [24] emphasized that value co-creation is emphasized as a process involving actions from service providers, customers, and other actors without separating the roles and functions of each subject. Collaboration between businesses, such as care facilities and the overall healthcare system in the healthcare industry, with customers can significantly enhance customer performance. This cooperation is based on unique one-on-one dialogues and interactions, providing opportunities for mutual understanding of conflicting goals while moving forward towards value co-creation for all stakeholders. The study by Tajvidi et al. [5] defines value co-creation as a collaboration between consumers and suppliers involving activities like co-idea, co-design, and co-development for new products. Furthermore, co-creation can transform consumers from passive to active collaborators with suppliers, shifting the paradigm from good-dominant to customer-centric logic [26], [27].

McColl-Kennedy et al. [23] emphasize the importance of innovation in healthcare services, including developing new tools, medications, and technologies. Innovation represents organized creativity based on science and technology to improve goods and services. While consumer engagement is typical in many industries, consumers are rarely involved in development in the healthcare world. However, consumer involvement is crucial for the success of long and complex services. Annisya and Rochman [28] also revealed that consumers can be highly creative in solving problems related to medical devices. The co-creation design should be tailored to consumer needs and observed during interactions, considering many exogenous factors such as adherence to recommendations, complications, and customer satisfaction. McColl-Kennedy et al. [23] also suggest that the traditional passive role of consumers limits innovation in the healthcare sector. They identify a new and active role for consumers in healthcare, where consumers participate in creating value co-creation with healthcare service providers. Shared decision-making, customer participation, empowerment, self-management, collaborative care, and value co-creation are becoming increasingly important in health research and

practice. Ekiyor and Altan [29] add that while interaction with healthcare service providers is essential, most healthcare service activities occur in the consumer's environment.

2.3. Customer Interactivity

Steuer [30], as cited by Tajvidi et al. [5], defined interactivity as emphasising consumer participation in social activities, such as sharing information within social communities. Consumer interactions can be reflected through social functions like forums, communities, ratings, reviews, referrals, and recommendations. These factors have a significant influence on consumer perceptions and behaviour. In their research, consumer interactions are divided into two main categories: (1) customer-customer interaction and (2) customer-seller interaction. These interactions enable consumers to experience aspects related to the product and the brand as a whole. Cowan and Guzman [31] add that these experiences can be direct and indirect, indicating that consumer interactions go beyond the product and influence overall brand perceptions. This suggests that interactivity in a social context significantly shapes consumer experiences and impressions of a brand or product.

2.4. Customer-Customer Interaction

Pandey and Kumar [24] define customer-customer interaction (CCI) as the interactions between consumers in close proximity, usually exchanging information about their satisfaction or dissatisfaction with a product or brand. This type of interaction is seen as a social interaction that can create more enjoyable brand-value experiences linked to the response value needed to strengthen community bonds. However, these social interactions also have the potential to generate negative experiences and responses. Lee [32] describes CCI as stemming from connectivity, which refers to the extent to which users can share common interests and exchange helpful information through online communities, bulletin boards, news groups, and chat rooms. In social commerce, consumers generate content like videos, discussion forum posts, digital images, audio files, ratings, references, and recommendations. This content is available to the public and other consumers, allowing them to gain more information about a product and providing a means to exchange experiences with other consumers. This enhances their confidence and intention to purchase [33]. Pandey and Kumar [24] state that CCI is the interaction where consumers closely exchange information about their satisfaction or dissatisfaction with a product or brand. This study also sees CCI as the degree to which urology residents interact to exchange information about their satisfaction or dissatisfaction with healthcare equipment brands.

Nyangwe and Buhalis [34] emphasize that high-quality interactions that enable consumers to co-create unique personal experiences with companies are critical in value co-creation and as a source of competitive advantage. Prahalad and Ramaswamy [27] identified four main components of quality interaction: dialogue, access, risk-benefit, and transparency. These are critical elements in the co-creation process. Hatch and Schultz [35] expanded on these components, explaining how they provide opportunities for value co-creation. Consumer participation in co-production, co-design, and collaborative innovation is essential to this process. Vargo and Lusch [22] argue that co-production

extends beyond consumer participation in production, emphasizing that consumers are equal to companies in value creation, as the value does not exist without the consumer's involvement in the company's value proposition. Gronroos [26] states that value is fluidly co-created by consumers in service-dominant logic. This logic suggests that consumer interactions with the brand and company staff and the utility value of its services are crucial in the overall experience and outcome of the value co-creation process. Customers evolve from simply consuming a brand to becoming content producers and brand evaluators. Traditional top-down control in branding changes, with brand managers recognizing that a brand is no longer defined by what the brand communicates to consumers but rather by what consumers communicate to each other. Moreover, when brands offer messages and services tailored to consumers' desires, it positively affects consumers' perceptions of their benefits, enhancing consumer loyalty to the brand [36]. When consumers have cognitive and emotional experiences with a brand, they are more inclined to consider it their top choice, indicative of consumer activation [37]. When consumers are motivated to enhance their cognitive presence in consumer-consumer interactions related to brand trends, repeated interactions cultivate a positive brand perception in the consumer's mind. The information shared is more effective [38] in fostering consumer brand engagement [11]. Based on these discussions, the research hypothesis is formulated as follows:

- H₁. Customer-customer interaction positively and significantly impacts value co-creation intention.
H₃. Customer-customer interaction positively and significantly impacts consumer brand engagement.

2.5. Customer-Seller Interaction

Customer-seller interaction (CSI), as outlined by Baumann et al. [39], involves the dynamic between consumers and the sales or marketing team, characterized by a professional exchange of information or knowledge to enhance consumer service. The significance of CSI in business and marketing is paramount, as it shapes customer perceptions, expectations, and overall satisfaction with products and services. For instance, the impact of customer reviews on e-commerce platforms or product discussions in community forums extends to influencing others' purchasing decisions. The effective management and understanding of CSI are thus critical for businesses aiming to boost customer satisfaction and cultivate loyalty. In this study, CSI is delineated as the interaction between urology residents and the sales or marketing teams, characterized by a professional exchange of information or knowledge in consumer service. Nyangwe and Buhalis [34] delved into value co-creation through service-dominant logic, focusing on the utility value for consumers. This concept is rooted in the consumer's perception of the value experience, derived from the utilization of resources or their psychological state. Historically, value co-creation was viewed through a company-centric lens, where the company unilaterally crafted value. However, as per Prahalad and Ramaswamy [27], the evolution of more informed, connected, and empowered consumers has led to a convergence of roles in producing and consuming value, pivoting the focus towards consumer-seller interactions. According to the service-dominant logic perspective, this shift is feasible only through direct engagement between services and consumers.

Cheung et al. [11] emphasized the crucial role of brands or sellers in listening to and engaging in two-way communication with their consumers. Such engagement strengthens the consumer-seller relationship and motivates consumers to actively participate in brand-related activities, such as sharing brand experiences, participating in contests, and contributing to developing new products and services [40]. The interaction between consumers and sellers positively correlates with a consumer's inclination to engage in brand activities, suggesting that consumer brand engagement directly stems from this interaction, as Cheung et al. [11] described. The research supports the notion that value co-creation is a collaborative endeavour between consumers and sellers, wherein consumers are not merely passive recipients of value but active contributors to its creation. Based on this discussion, the hypothesis formulated in this research is:

H₂. Customer-seller interaction positively and significantly impacts value co-creation intention.

H₄. Customer-seller interaction positively and significantly impacts consumer brand engagement.

2.6. Customer Brand Engagement

Consumer brand engagement (CBE) is critical in creating a competitive advantage in the market. It has become a primary focus in marketing research, as outlined by the Marketing Science Institute. CBE refers to consumers' cognitive, emotional, and behavioural involvement with a brand, stemming from primary interactions between the consumer and the brand. It is conceptualized as a psychological state related to consumers' affinity towards a brand, arising from the strength of their interactions with it. The strategic management of CBE is crucial in shaping, managing, and sustaining CBE and its impact on behavioural outcomes in the co-creation process. Cheung et al. [11] explain that co-creation provides opportunities for consumers to shape a brand, which is vital for the brand's success by encouraging repeat purchase intentions. In marketing intelligence, France et al. [20] highlight that facilitating consumer-brand interactions is essential in strengthening the psychological relationship between consumers and the brand and their intention for co-creation. However, there is still room for further development in this area. With advancements in the social environment, marketers engage in intensive brand communication activities to enhance brand interactions and solidify a positive brand image in the eyes of consumers [11]. Brand interactions strongly influence CBE and co-creation [14]. Harrigan et al. [37] focus on CBE due to its emphasis on brand usage [16].

Hollebeek et al. [41] define CBE as emotionally driven consumer motivation, including cognitive, emotional, attitudinal, and social abilities, and resources like equipment/products in brand interaction. This creates a proactive view of consumers, who are not just recipients of brand-related content but actively participate in its creation through marketing communication techniques or creating their content, reflecting two-way CBE interactions. However, CBE can sometimes be limited by institutional regulations and financial budget constraints [37]. In this study, consumer brand engagement is defined as the extent to which urology residents have emotionally driven motivation, encompassing cognitive, emotional, behavioural, and social abilities and resources like equipment/products in brand interactions. CBE focuses on consumers at a specific level of cognitive,

emotional, and attitudinal activities in brand interactions. Prahalad and Ramaswamy [27] believe that in value co-creation, consumers play a role beyond being passive recipients of brand information; they become active contributors in the experience and joint creation of brand value. This emphasis has evolved with the emergence of customer-centric and service-dominant logic [7], [22], where consumers are seen as co-creators of brand value. Tajvidi et al. [5] also highlight that brand value is crucial to a company's competitive advantage. Rosenthal and Brito [42] note that value co-creation also involves consumers sharing their experiences about the brand, directly and indirectly, with other consumers. This includes collaboration in developing new products or in the co-creating process of product design. Cowan and Ketron [43] and Tajvidi et al. [5] acknowledge that co-creation enables consumers to be active working partners, playing a significant role in brand success.

Research by Cheung et al. [11] found that consumer brand engagement (CBE) positively influences the formation of value co-creation. CBE is described by Hollebeek et al. [41] as emotionally driven consumer motivation, including cognitive, emotional, and behavioural aspects, in interactions with the brand. Several studies [37], [44], [45] affirm the importance of CBE in influencing consumer behaviour, including brand attachment, attitudes towards the brand, purchase intentions, and brand loyalty. These studies also investigate the impact of brand interactivity on social media on CBE and subsequent consumer behaviour [36], [46], [47]. The perspective of Prahalad and Ramaswamy [27], depicting consumers as active participants in brand experience and value creation, is reinforced by the concept that consumers also play a crucial role in co-creation. This encompasses involvement in interactions between consumers and sellers and among consumers in the value co-creation process. Therefore, CBE is presumed to be a consumer motivation driven by emotional, cognitive, and behavioural factors in interactions with the brand, significantly contributing to value co-creation. Based on this discussion, the hypothesis formulated in this research is:

H₅. Consumer brand engagement positively and significantly impacts value co-creation intention

H₆. Consumer brand engagement mediates the relationships between customer-customer interaction and value co-creation intention.

H₇. Consumer brand engagement mediates the relationships between customer-seller interaction and value co-creation intention.

3. METHODOLOGY

3.1. Research Design

This study employs a quantitative methodology with a causal design to explore the impact of customer-customer interaction and customer-seller interaction on value co-creation intention while also considering the role of consumer brand engagement as a mediating variable. Data is collected through an online survey using a systematically designed questionnaire distributed via Google Forms. The survey focuses on customer-customer interaction, customer-seller interaction, consumer brand engagement, and value co-creation intention. The participants' responses are evaluated using a Likert scale, allowing for a nuanced understanding of their attitudes and perceptions towards these variables.

This approach facilitates the quantification of complex interpersonal dynamics and their influence on the co-creation process within the brand-consumer relationship.

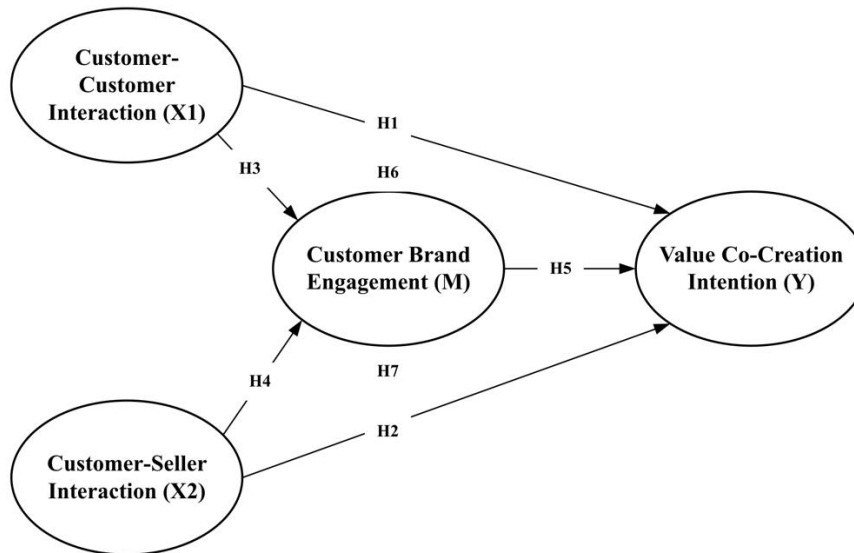


Figure 1: Conceptual Framework

The Partial Least Squares (PLS) method is selected for its flexibility in handling non-normal data distributions and its effectiveness in exploring and confirming relationships between variables [48]. This approach is intended to test and understand how customer-customer interaction, customer-seller interaction, and consumer brand engagement can influence the formation of value co-creation intention. This study aims to provide a comprehensive and systematic view of how these factors influence the scope of value co-creation. The choice of PLS methodology aligns with the study's objectives to discern complex relationships and interactions among variables, particularly when the data does not conform to average distribution assumptions, making it a suitable analytical tool for this research.

3.2. Population and Sample

This research focuses on a population of 140 urology residents, divided into two distinct groups: 80 residents are affiliated with the Faculty of Medicine at Universitas Indonesia (FKUI) or are employed at Cipto Mangunkusumo Hospital (RSCM), and the remaining 60 are from the Faculty of Medicine at Universitas Padjajaran (FKUNPAD) or work at Hasan Sadikin Hospital (RSHS). The concept of population, as outlined by Sugiyono [49], extends beyond mere numbers and includes the complete range of characteristics and properties inherent to the subjects or objects under study. The research adopts a sampling approach as described by Malhotra and Birks [50], where a sample is a selected subgroup of the population chosen to participate in the study. Sampling is employed due to practical limitations in research, such as funding, time, manpower, and the extensive size of the population. The sample needs to be representative to reflect the population accurately. In this case, a saturation

sampling technique is utilized, where the entire population is used as the sample, justified by the relatively small number of people in each group. All 140 respondents confirmed their status as urology residents. When asked about their university affiliations, they identified either the Faculty of Medicine of Universitas Indonesia or Universitas Padjajaran as their institutions. Specifically, 80 respondents (57%) are from Universitas Indonesia, and 60 respondents (43%) are from Universitas Padjajaran. They also confirmed their employment at either Cipto Mangunkusumo Hospital (RSCM) or Hasan Sadikin Hospital (RSHS), aligning with their respective university affiliations. From a demographic standpoint, the majority of the respondents are male, with 117 out of 140 (84%) identifying as such. The predominant age group among the respondents is 31-35 years, encompassing 57 individuals (41%). Most respondents are in their second and third semesters of urology residency, with each semester accounting for 15 respondents (11%). Lastly, a significant portion of the respondents, 57%, are associated with the Faculty of Medicine at Universitas Indonesia (FKUI).

3.3. Measurement Items

In this study, the measurement of variables involves a series of indicators and statements that have been adapted from prior research. For the variable of customer-customer interaction (X1), based on Tajvidi et al. [5], the measurement encompasses aspects of interaction within the urology community. This includes participating in discussions, exchanging information with colleagues (CCI1, CCI2), soliciting evaluations or testimonials, considering references, and seeking recommendations related to urology medical equipment (CCI3 to CCI8). The customer-seller interaction variable (X2), derived from Baumann et al. [39], is gauged through several dimensions such as marketing communications, functional information, economic offers, and emotional ties with vendors of urology medical equipment (CSI1 to CSI4). Regarding customer brand engagement (M), following the framework of Fernandes and Moreira [51], this variable's indicators span cognitive, affective, and behavioural aspects. It involves thoughts about the brand, the interest it generates, exclusive focus while using the brand, challenges in switching from the brand, and feelings of pride and commitment when engaging with a specific brand (CBE1 to CBE18). Lastly, the variable of value co-creation intention (Y), as adapted from Cheung et al. [11], is measured based on the respondents' readiness to suggest improvements in products and services, express personal needs, seek collaborative solutions, participate actively in new product development, and respond to the brand's initiatives for co-creative collaboration (VCCI1 to VCCI5). These measures are intended to delve into the intricacies of customer interactions, their experiences with the brand, and their active participation in the value co-creation process in the realm of urology medical equipment.

3.4. Measurement Model Evaluation

The measurement model was evaluated using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, a technique specifically chosen for its ability to assess both validity and reliability, following the recommendations of Fahmi et al. [52], [53]. The model, known as the outer model, is crucial for understanding the relationships between the indicators and the latent variables. When it comes to convergent validity, the criteria set by Putra [54] indicate that outer loading values

should ideally be above 0.70. Contrarily, Putra et al. [54] propose that a reflective indicator loading greater than 0.50 is sufficient for a good measure. The results of this study reveal that all items have loadings above 0.7 and p-values below 0.05, which solidly confirms the validity of the indicators. Furthermore, the average variance extracted (AVE) values are another vital aspect in assessing convergent validity. These values need to be greater than 0.5, suggesting that over half of the variance of the reflective indicators is explained by the latent variables, as outlined by Perkasa and Putra [55]. In this research, all AVE values successfully meet this threshold, aligning with the findings of Andriani and Putra [56]. This thorough approach in evaluating the measurement model through PLS-SEM ensures a high level of accuracy and reliability in the findings, particularly in the context of exploring customer interactions and value co-creation in the urology medical equipment field.

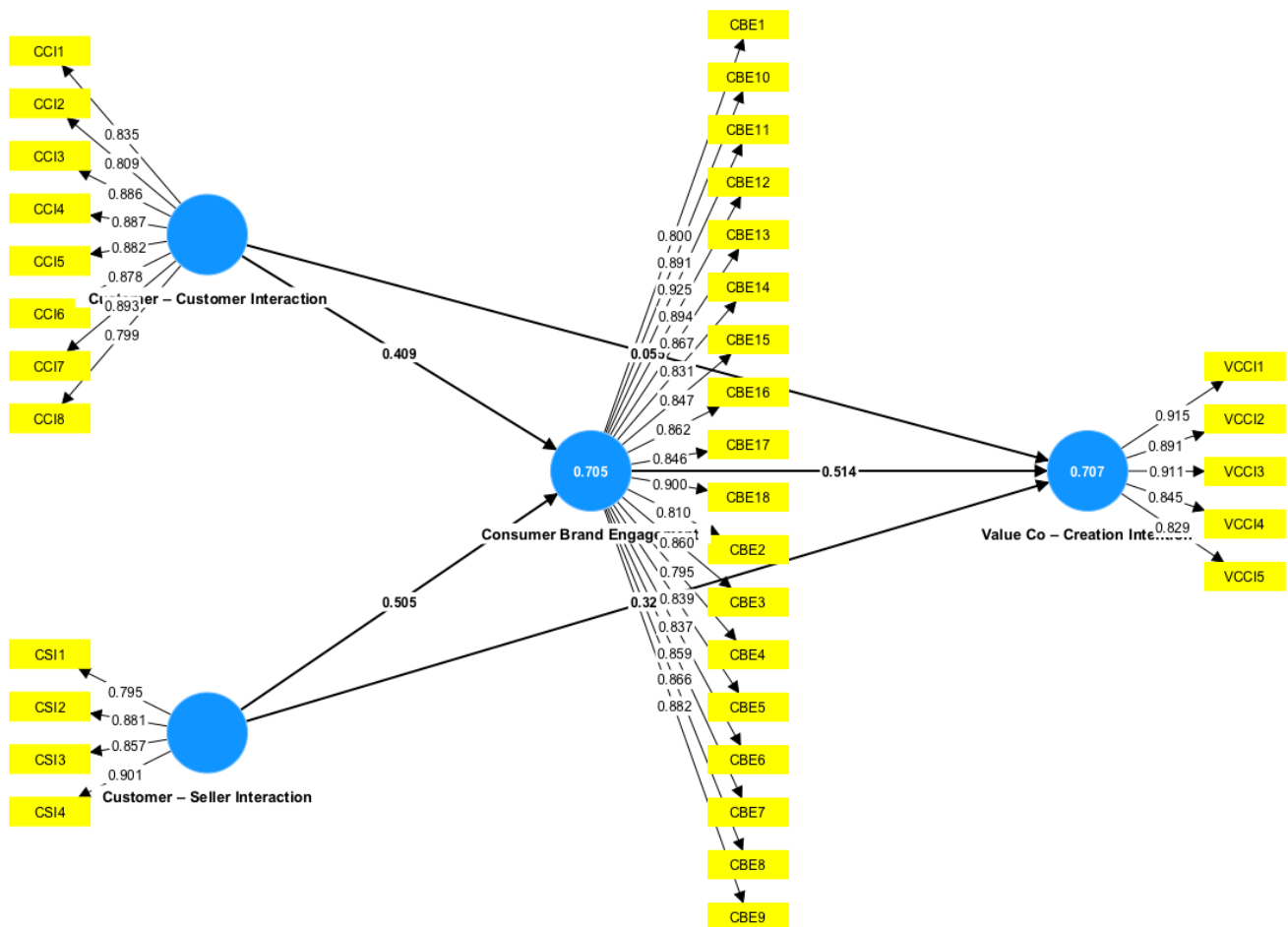


Figure 2: PLS Algorithm Output

For assessing discriminant validity in this study, the Fornell-Larcker criterion, Heterotrait-Monotrait ratio of correlations (HTMT), and cross-loading methods were utilized [57], [58]. The analysis revealed that the square root of the Average Variance Extracted (AVE) for each latent variable was

greater than its correlations with other latent variables, indicating good discriminant validity. However, Henseler and Sarstedt [59] have cautioned that the Fornell-Larcker criterion might sometimes fail to identify discriminant validity issues. They recommend the use of HTMT as a more robust measure. In this research, both HTMT0.85 and HTMT0.90 values were found to be below 0.85, which supports the absence of discriminant validity problems. Finally, for reliability assessment, this study employed Cronbach's alpha and composite reliability values. Dijkstra and Henseler [60] suggest that a composite reliability value should be ≥ 0.7 and Cronbach's alpha ≥ 0.6 to ensure good reliability. All the latent variable values in this study met these criteria, indicating acceptable reliability for each construct. This thorough evaluation process ensures that the research constructs are both distinct from each other and reliable, thereby reinforcing the validity of the study's findings in exploring customer interactions and value co-creation in the context of urology medical equipment.

3.5 Structural Model Evaluation

In this study, after confirming the adequacy of the outer model or measurement model criteria, the focus shifted to examining the structural model or inner model. As explained by Hair et al. [61], the primary goal of evaluating the structural model is to test the predictive strength among the latent variables. A key step in this process is assessing multicollinearity through the use of the Variance Inflation Factor (VIF) inner values. Multicollinearity is measured to ensure that there is no excessive correlation among independent variables, ideally with VIF values not exceeding 10. This study follows the approach recommended by Avkiran and Ringle [62] to evaluate the structural model using inner VIF. The results indicate that VIF values did not exceed the recommended threshold, suggesting minimal multicollinearity issues. Further evaluation of the model's fit was conducted using the standardized root mean square residual (SRMR) and the normed fit index (NFI), as suggested by Ramayah et al. [63]. A model is considered to have a good fit if the SRMR value is less than 0.10 and the NFI is more than 0.9 [64]. The findings of this study meet both criteria, indicating a good model fit. The model testing also involved an analysis of the R-squared (R^2) for endogenous latent variables. The R^2 coefficient of determination, which ranges from zero to one, measures how well the exogenous variables explain the endogenous variables. While higher R-Square (R^2) values indicate a better explanation, this study also considers that adding exogenous variables can increase R^2 without significant impact. The results show that consumer brand engagement (M) and value co-creation intention (Y) have high R^2 , indicating significant explanation by exogenous variables.

The f^2 effect size test was applied to determine the collective impact of independent variables on the dependent variable. According to the scale described by Hair et al., small, medium, and large effects are marked by f^2 values of 0.02, 0.15, and 0.35, respectively. The analysis reveals variations in the effect size among different relationships in the model. Next, predictive relevance (Q^2) was evaluated to determine how accurately the structural model predicts observed values. Hair et al. [61] state that a Q^2 value greater than zero for endogenous latent variables indicates good predictive relevance of the PLS path model. Lastly, PLSpredict, developed by Shmueli et al. [65], was used to assess the predictive performance of the PLS-SEM model. Based on the PLSpredict results, the model has medium

predictive power, aligning with the criteria described by Shmueli et al. [65], where a model is categorized as having medium predictive strength when most indicators have PLS-SEM values greater than those of a linear model (LM).

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

In this study, descriptive statistics were employed to analyze the data, providing a detailed depiction of the collected information. The primary focus of this analysis was to describe the data factually without aiming for generalization. The four main variables analyzed were customer-customer interaction, customer-seller interaction, value co-creation intention, and consumer brand engagement. For the customer-customer interaction variable, the highest mean score was recorded at 3.943 for the item, stating, "I often receive recommendations from my peers in the urology community regarding which urology medical equipment brands are best for me to use." This result indicates a positive assessment from respondents on various aspects of the customer-customer interaction variable. In the customer-seller interaction variable, the statement, "Urology medical equipment vendors offer the best quality products at the best prices," achieved the highest mean score of 4.100. This outcome signifies that respondents positively rate the elements within the customer-seller interaction variable. Regarding consumer brand engagement, the statement, "To complete my tasks quickly in the urology department, I always use urology medical equipment from a specific brand," recorded the highest mean score of 4.057. This indicates that respondents have a favourable view of the aspects within the consumer brand engagement variable. Finally, in the value co-creation intention variable, the statement, "I am keen to offer suggestions when I know that the maker of the urology medical equipment brand, I frequently use is developing a new product," registered the highest mean score of 4.171. This suggests that respondents positively evaluate the elements within the value co-creation intention variable. Overall, these results demonstrate a positive inclination of respondents towards all the main variables, reflecting their experiences and perceptions in the context of urology medical equipment.

4.2 Findings

This study found that customer-customer interaction (X1) does not significantly influence the intention to co-create value (Y). The path coefficient value for this relationship was only 0.055, with a T-Statistic of 0.674, which falls well below the threshold of 1.96. Additionally, the p-value was 0.500, exceeding the standard significance level of 0.05. These results led to the rejection of the first hypothesis (H1). This finding suggests that an increase in customer-customer interaction (X1) does not significantly affect the enhancement of value co-creation intention (Y). This outcome contrasts with previous research [26], [35], which identified a significant influence of customer-customer interaction on the intention to co-create value. The discrepancy suggests that the dynamics of customer interactions and their impact on value co-creation intentions may vary depending on the context. In this specific study's context related to urology medical equipment, the customer-customer interactions did not play a substantial role in fostering value co-creation intentions.

Table 1: Hypothesis Testing

Direct Path		Original sample (O)	T statistics (O/STDEV)	P values	Decision
H1	<i>Customer – Customer Interaction → Consumer Brand Engagement</i>	0.409	5.695	0.000	Accepted
H2	<i>Customer – Seller Interaction → Consumer Brand Engagement</i>	0.505	6.644	0.000	Accepted
H3	<i>Consumer Brand Engagement → Value Co – Creation Intention</i>	0.514	4.801	0.000	Accepted
H4	<i>Customer – Customer Interaction → Value Co – Creation Intention</i>	0.055	0.674	0.500	Rejected
H5	<i>Customer – Seller Interaction → Value Co – Creation Intention</i>	0.328	3.183	0.001	Accepted
Indirect Path		Original sample (O)	T statistics (O/STDEV)	P values	Decision
H6	<i>Customer – Customer Interaction → Consumer Brand Engagement → Value Co – Creation Intention</i>	0.210	3.400	0.001	Accepted
H7	<i>Customer – Seller Interaction → Consumer Brand Engagement → Value Co – Creation Intention</i>	0.259	4.421	0.000	Accepted

This finding underscores that customer-customer interaction (CCI) does not directly drive value co-creation intention (VCCI). While interactions among customers are crucial in building community and customer engagement, they do not automatically prompt customers to participate in the process of co-creating value with a brand. In the context of Service-Dominant Logic (SDL), this result might indicate that although CCI plays an important role in fostering relationships and communities among customers, its focus may be more on the exchange of information and experiences rather than active collaboration in value creation. Essentially, customer interactions may not directly translate into engagement in initiatives for co-creating value with the brand. From a practical perspective, these findings imply that while customers interacting with other customers may engage in discussions or share experiences, this does not necessarily propel them to directly contribute to joint projects or initiatives that co-create value with the brand. However, CCI can still play a significant role in nurturing social relationships and supportive communities that could facilitate future collaboration.

This insight is particularly relevant for marketers and brand strategists, who might consider other ways to leverage these customer interactions, understanding that while they are valuable for community building, they might need additional catalysts to translate into active co-creation efforts with the brand. This study reveals that customer-customer interaction (CCI) does not directly foster value co-creation intention (VCCI). This finding implies that while customer interactions are vital for building a community and engaging customers, they do not automatically lead to participation in the value co-creation process with a brand. In the context of Service-Dominant Logic (SDL), this result suggests that while CCI is essential in establishing relationships and communities among customers, its focus may lie more in information and experience exchange rather than in active collaboration in value creation. This means customer interactions may not directly result in engagement in value co-creation initiatives with a brand. From a practical viewpoint, this indicates that while customers engaged in interactions with other customers may be involved in discussions or sharing experiences, it does not necessarily propel them to contribute directly to joint projects or initiatives that co-create value with the brand. However, CCI still plays a crucial role in fostering social relationships and supportive communities that could facilitate future collaboration. The study also found that customer-seller interaction (CSI) has a significant and positive impact on value co-creation intention (VCCI). This suggests that higher levels of customer-seller interaction lead to an increase in value co-creation intention. This aligns with prior research by Nyangwe and Buhalis [34], which identified a significant influence of customer-seller interaction on the intention to co-create value. This finding underscores that CSI directly and positively impacts VCCI, indicating that quality interactions between customers and sellers can encourage customers to participate more actively in the value co-creation process. In the SDL framework, this illustrates the crucial role of CSI in the process of creating and exchanging value. Positive and meaningful interactions between customers and sellers can motivate customers to collaborate with sellers in creating mutually beneficial value. These interactions create opportunities for customers and sellers to create higher value collaboratively.

Furthermore, the study uncovered that customer-customer interaction (CCI) significantly impacts consumer brand engagement (CBE). This suggests that interactions among customers significantly enhance their engagement with a brand. In the SDL framework, value is created through interactions between consumers and service providers or brands. CBE reflects the level of customer engagement with a brand, potentially leading to stronger loyalty and support for the brand. CCI is seen as an integral part of the co-creation of value, where customers actively participate in shaping brand perception through discussions, reviews, and sharing positive experiences with fellow customers. This indicates that in real-world settings, positive interactions among customers tend to increase customer engagement with the brand. This can include sharing positive stories, product or service recommendations, and forming brand-centric communities. In the SDL context, this emphasizes that CCI is a crucial element in the co-creation of the value process between customers and brands. Positive customer interactions facilitate co-created value that supports brand objectives while also strengthening the bond between customers and the brand. The findings also demonstrate that customer-seller interaction (CSI) has a direct and significant influence on consumer brand engagement (CBE).

This means that CSI positively and significantly impacts CBE, affirming that interactions between customers and sellers are key in influencing the extent to which customers engage with a brand. In the SDL framework, CSI is considered a critical point where value is exchanged between customers and service providers or brands. CSI reflects the quality of service provided and the quality of interactions between customers and companies or brands. Effective and positive interactions with sellers can provide satisfying experiences for customers, build trust, and increase their engagement with the brand.



Figure 3: Bootstrapping Output

Practically, when customers interact with responsive sellers, receive useful information, and experience services that meet or exceed their expectations, they are more likely to become more engaged and loyal to the brand. This creates motivation for customers to continue interacting and engaging with the brand. From the SDL perspective, this highlights that CSI is a primary channel in the value creation process. Positive interactions with sellers can enhance customers' perceptions of the value they receive from the brand and offer opportunities for customers and brands to co-create additional value, such as through product or service improvements. In conclusion, these results

emphasize the importance of customer-seller interaction in shaping customer engagement with the brand, aligning with SDL principles that place interactions at the core of value creation and exchange. The study finds that consumer brand engagement (CBE) positively and significantly influences value co-creation intention (VCCI). This indicates that higher levels of consumer brand engagement lead to an increase in value co-creation intention. This finding is consistent with previous research [11], [21], [43], which also showed a significant influence of consumer brand engagement on value co-creation intention.

The research affirms that consumer brand engagement (CBE) plays a crucial role in driving value co-creation intention (VCCI). This indicates that when customers are more engaged with a brand, they are more likely to participate in the value co-creation process. In the Service-Dominant Logic (SDL) framework, VCCI represents the customers' willingness to actively contribute to the value co-creation process with a company or brand. High CBE reflects a strong emotional bond and customer commitment to the brand. This opens up opportunities for customers to participate more actively in co-creating value, such as through providing feedback, collaborating in product development, or sharing ideas that can enhance the overall customer experience. Practically, this suggests that customers who feel engaged with a brand are more motivated to contribute to the value-creation process. Customers become more open to collaborating with the brand and strive to enhance the products or services they enjoy. Overall, in the SDL context, this shows that CBE is an important factor in encouraging customers to participate in co-creating value actively. CBE helps create a strong sense of ownership and identification with the brand, which in turn encourages customers to take an active role in co-creating value with the brand.

The study reveals that consumer brand engagement (CBE) acts as a partial mediator in the relationship between customer-customer interaction (CCI) and value co-creation intention (VCCI). The test results show a path coefficient of 0.210, close to +1, a T-Statistic of 3.400, higher than 1.96, and a p-value of 0.001, lower than 0.05. Therefore, the sixth hypothesis (H6) is accepted, indicating that consumer brand engagement (CBE) significantly mediates the relationship between customer-customer interaction (CCI), which does not directly influence value co-creation intention (VCCI). This finding suggests that although CCI does not have a direct influence, higher engagement in consumer brand engagement (CBE) can enhance value co-creation intention (VCCI). This result is supported by previous research [21], [43], which found that consumer brand engagement acts as a mediating variable in the relationship between customer-customer interaction and value co-creation intention. From the perspective of Service-Dominant Logic (SDL), this result indicates that although customer interactions (CCI) do not directly encourage customers to participate in co-creating value (VCCI), CCI can influence the level of customer engagement with the brand (CBE). High engagement in CBE then encourages customers to participate in co-creating value actively. In real-world terms, this means that when customers interact with other customers and experience strong engagement with the brand through those interactions, they are likely to develop an emotional involvement with the brand. This involvement then encourages them to be more active in co-creating value initiatives.

Furthermore, consumer brand engagement (CBE) was also found to mediate the relationship between customer-seller interaction (CSI) and value co-creation intention (VCCI). With a path coefficient of 0.259, a T-Statistic of 4.421, and a p-value of 0.000, the seventh hypothesis (H7) is accepted, indicating that although customer-seller interaction (CSI) has a direct positive and significant influence on value co-creation intention (VCCI), the mediating role of consumer brand engagement (CBE) is also relevant. This finding is supported by research by France et al. [20], which found that consumer brand engagement acts as a mediating variable in the relationship between customer-seller interaction and value co-creation intention. These results assert that in the context of SDL, positive customer-seller interactions (CSI) not only directly impact VCCI but are also mediated by the level of customer engagement with the brand (CBE). This suggests that good CSI can create a closer relationship between the customer and the brand, encouraging customers to be more actively involved in co-creating value with the brand (VCCI). This condition emphasizes the importance of high customer engagement with the brand in triggering their contributions to co-creating value efforts that benefit both the customer and the brand itself.

5. CONCLUSION

This research provides insightful revelations about the mechanisms and effects of various forms of interaction within the urology industry context. The study discovered that customer-customer interaction (CCI) has a direct and significant impact on consumer brand engagement (CBE), yet it does not influence value co-creation intention (VCCI) directly. This suggests that while CCI is instrumental in community building and information sharing, its impact on VCCI is more indirect, requiring deeper brand engagement from customers. Conversely, the interaction between customers and sellers (CSI) demonstrated a significant and positive influence on both VCCI and CBE, underlining the crucial role of CSI in motivating customers towards co-creating value and enhancing their brand engagement. High-quality CSI tends to strengthen customer-brand relationships and create positive perceptions of the offered value. Consumer brand engagement (CBE) was found to be a key mediator in the relationship between CCI, CSI, and VCCI. High CBE reflects a strong emotional bond and customer commitment to the brand, promoting their active participation in the value co-creation process. This confirms that in the Service-Dominant Logic (SDL) context, customer engagement with the brand is a crucial catalyst enabling the transition from customer interaction to active participation in value co-creation. Overall, the study highlights the complexity of relationships between various customer interactions and their impact on co-creating value. These interactions influence not only how customers perceive and engage with the brand but also how they contribute to a mutually beneficial value-creation process. These conclusions offer valuable guidance for stakeholders in the urology industry to optimize their marketing strategies and customer relations by leveraging the diverse dynamics of customer interactions.

For practitioners in the urology industry, enhancing customer-seller interactions should be a primary focus. This involves investing in training sales staff not only to improve their communication skills

but also to equip them with a deep understanding of products and customer needs. Implementing customer-oriented approach strategies, where sales staff aim not just to make sales but to build long-term relationships with customers, is vital. Furthermore, utilizing technology like CRM (Customer Relationship Management) systems can be instrumental in gathering and analyzing customer data, allowing for personalized service and offerings. Developing and leveraging digital platforms for customer interactions is also critical. This can include online forums, social media, and mobile apps, where customers can interact, share experiences, and gather information. Creating engaging and relevant content, such as health articles, product usage tips, and customer success stories, can enhance customer engagement with the brand. Additionally, hosting webinars, online seminars, and Q&A sessions with experts can strengthen the customer community and encourage their active participation. Not only does this enhance loyalty, but it also encourages customers to engage in the co-creation of value, such as providing suggestions or ideas for new product development. From an academic perspective, future research should delve deeper into how cutting-edge technologies like artificial intelligence can be used to enhance customer-seller and customer-customer interactions. This research could explore how AI is used for customer sentiment analysis, personalized offerings, and effective communication automation. Moreover, interdisciplinary research combining consumer psychology, information technology, and strategic management could provide new insights into maximizing the value of these interactions. Exploring cultural and social factors in customer interactions is also important. For instance, understanding how cultural and social norms influence customer expectations and their communication styles with sellers can help companies tailor their strategies to suit the uniqueness of local or global markets. Comparative studies across industries could reveal innovative and different ways of managing customer interactions that can be applied in the urology industry. This would broaden the understanding of customer interaction dynamics and how they can be optimized to support co-creating value and customer engagement across various contexts.

REFERENCES

- [1] Kementerian Kesehatan Republik Indonesia, Pedoman Nasional Pelayanan Kedokteran Tata Laksana Kanker Prostat. Jakarta: Kementerian Kesehatan RI, 2019.
- [2] Globocan, "Cancer in Indonesia," International Agency for Research on Cancer. World Health Organization, 2020. doi: 10.1001/jama.247.22.3087.
- [3] N. S. Wardyah, "Sulsel tuan rumah Konferensi Nasional Ahli Urologi," 2022. Accessed: Jan. 09, 2024. [Online]. Available: <https://www.antaraneews.com/berita/3119861/sulsel-tuan-rumah-konferensi-nasional-ahli-urologi>
- [4] B. Turkbey, A. B. Rosenkrantz, M. A. Haider, A. R. Padhani, and ..., "Prostate imaging reporting and data system version 2.1: 2019 update of prostate imaging reporting and data system version 2," *Eur Urol*, no. Query date: 2023-12-13 14:16:23, 2019, [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0302283819301800>
- [5] M. Tajvidi, M. O. Richard, Y. C. Wang, and N. Hajli, "Brand co-creation through social commerce information sharing: The role of social media," *J Bus Res*, vol. 121, no. June, pp. 476–486, 2018, doi: 10.1016/j.jbusres.2018.06.008.

- [6] S. L. Vargo and R. F. Lusch, "Evolving to a New Dominant Logic for Marketing," *J Mark*, vol. 68, no. 1, pp. 1–17, 2004, doi: 10.1038/physci230194a0.
- [7] R. J. Brodie, M. S. Glynn, and V. Little, "The service brand and the service-dominant logic: Missing fundamental premise or the need for stronger theory?" *Marketing Theory*, vol. 6, no. 3, pp. 363–379, 2006, doi: 10.1177/1470593106066797.
- [8] K. Bharti, R. Agrawal, and V. Sharma, "What drives the customer of world's largest market to participate in value co-creation?" *Marketing Intelligence and Planning*, vol. 32, no. 4, pp. 413–435, 2014, doi: 10.1108/MIP-07-2013-0111.
- [9] M. Galvagno and D. Dalli, "Theory of value co-creation: A systematic literature review," *Managing Service Quality*, vol. 24, no. 6, pp. 643–683, 2014, doi: 10.1108/MSQ-09-2013-0187.
- [10] S. H. Hsieh and A. Chang, "The Psychological Mechanism of Brand Co-creation Engagement," *Journal of Interactive Marketing*, vol. 33, pp. 13–26, 2016, doi: 10.1016/j.intmar.2015.10.001.
- [11] M. L. Cheung, G. Pires, P. J. Rosenberger, and M. J. De Oliveira, "Driving consumer–brand engagement and co-creation by brand interactivity," *Marketing Intelligence and Planning*, vol. 38, no. 4, pp. 523–541, 2020, doi: 10.1108/MIP-12-2018-0587.
- [12] S. Kamboj, B. Sarmah, S. Gupta, and Y. Dwivedi, "Examining branding co-creation in brand communities on social media: Applying the paradigm of Stimulus-Organism-Response," *Int J Inf Manage*, vol. 39, no. March 2017, pp. 169–185, 2018, doi: 10.1016/j.ijinfomgt.2017.12.001.
- [13] W. Nadeem, "Consumers' value co-creation in sharing economy: The role of social support, consumers' ethical perceptions and relationship quality," *Technol Forecast Soc Change*, vol. 151, no. Query date: 2023-12-14 00:33:47, 2020, doi: 10.1016/j.techfore.2019.119786.
- [14] J. Kim and K. H. Lee, "Influence of integration on interactivity in social media luxury brand communities," *J Bus Res*, vol. 99, no. September, pp. 422–429, 2019, doi: 10.1016/j.jbusres.2017.10.001.
- [15] S. Bazi, A. Hajli, N. Hajli, M. Shanmugam, and X. Lin, "Winning engaged consumers: The rules of brand engagement and intention of co-creation in social commerce," *Information Technology and People*, vol. 33, no. 2, pp. 456–476, 2020, doi: 10.1108/ITP-09-2018-0415.
- [16] R. A. Rather and L. D. Hollebeck, "Customers' service-related engagement, experience, and behavioral intent: Moderating role of age," *Journal of Retailing and Consumer Services*, vol. 60, no. December 2020, p. 102453, 2021, doi: 10.1016/j.jretconser.2021.102453.
- [17] B. Nyamkhuu and S. You, "The Relationship between Consumer Interactivity and Brand Purchase Intention at SNS Brand Page: Targeting Generation MZ in Korea and China Byambadolgor," *Korean J Community Living Sci*, vol. 8565, no. 2, pp. 275–293, 2022.
- [18] F. Shirazi, Y. Wu, A. Hajli, A. H. Zadeh, N. Hajli, and X. Lin, "Value co-creation in online healthcare communities," *Technol Forecast Soc Change*, vol. 167, p. 120665, 2021, doi: 10.1016/J.TECHFORE.2021.120665.
- [19] I. Castillo and N. Villagra, "The communication of CSR. Analysis of the hotel sector," no. Query date: 2023-12-11 18:25:43, 2019, doi: 10.4185/rllcs-2019-1400en.

- [20] C. France, D. Grace, B. Merrilees, and D. Miller, "Customer brand co-creation behavior: conceptualization and empirical validation," *Marketing Intelligence and Planning*, vol. 36, no. 3, pp. 334–348, 2018.
- [21] X. Wang, M. Tajvidi, X. Lin, and N. Hajli, "Towards an Ethical and Trustworthy Social Commerce Community for Brand Value Co-creation: A trust-Commitment Perspective," *Journal of Business Ethics*, vol. 167, pp. 1–16, 2019, doi: 10.1007/S10551-019-04182-Z.
- [22] S. L. Vargo and R. F. Lusch, "Institutions and axioms: an extension and update of service-dominant logic," *J Acad Mark Sci*, vol. 44, no. 1, pp. 5–23, 2016, doi: 10.1007/s11747-015-0456-3.
- [23] J. R. McColl-Kennedy et al., "The changing role of the health care customer: review, synthesis and research agenda," *Journal of Service Management*, vol. 28, no. 1, pp. 2–33, 2017, doi: 10.1108/JOSM-01-2016-0018.
- [24] S. Pandey and D. Kumar, "From a literature review to a conceptual framework for customer-to-customer value co-creation," *Contemporary Management Research*, vol. 17, no. 3, pp. 189–221, 2021, doi: 10.7903/CMR.20663.
- [25] G. Spano et al., "Dreaming with hippocampal damage," *Elife*, pp. 1–15, 2020.
- [26] C. Gronroos, "Value-driven Relational Marketing: from Products to Resources and Competencies Marketing," *Journal of Marketing Management*, vol. 13, pp. 407–419, 1997.
- [27] C. K. Prahalad and V. Ramaswamy, "Co-opting Customer Competence," *Harv Bus Rev*, 2000.
- [28] E. O. Annisya and T. Rochman, "Designing a Medical Device Marketplace Business Model Using the Lean Startup Method," *IOP Conf Ser Mater Sci Eng*, vol. 1003, no. 1, 2020, doi: 10.1088/1757-899X/1003/1/012144.
- [29] A. Ekiyor and F. Altan, "Marketing Communication and Promotion in Health Services," *Promotion and Marketing Communications*, pp. 1–21, 2020, doi: 10.5772/intechopen.91656.
- [30] J. Steuer, "Defining Virtual Reality: Dimensions Determining Telepresence," *Journal of Communication*, vol. 42, no. 4, pp. 73–93, 1992, doi: 10.1111/j.1460-2466.1992.tb00812.x.
- [31] K. Cowan and F. Guzman, "How CSR reputation, sustainability signals, and country-of-origin sustainability reputation contribute to corporate brand performance: An exploratory study," *J Bus Res*, no. Query date: 2023-12-13 13:02:11, 2020, [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S0148296318305691>
- [32] T. Lee, "The impact of perceptions of interactivity on customer trust and transaction intentions in mobile commerce," *Journal of Electronic Commerce Research*, vol. 6, no. 3, pp. 165–180, 2005.
- [33] B. Han and J. Windsor, "User's willingness to pay on social network sites," *Journal of Computer Information Systems*, vol. 51, no. 4, pp. 31–40, 2011.
- [34] S. Nyangwe and D. Buhalis, "Branding Transformation Through Social Media and Co-creation: Lessons from Marriott International," *Information and Communication Technologies in Tourism 2018*, pp. 257–269, 2018, doi: 10.1007/978-3-319-72923-7_20.
- [35] M. J. Hatch and M. Schultz, "Toward a theory of brand co-creation with implications for brand governance," *Journal of Brand Management*, vol. 17, no. 8, pp. 590–604, 2010, doi: 10.1057/bm.2010.14.

- [36] L. D. Hollebeek et al., "Customer engagement in evolving technological environments: synopsis and guiding propositions," *Eur J Mark*, vol. 53, no. 9, pp. 2018–2023, 2019, doi: 10.1108/EJM-09-2019-970.
- [37] P. Harrigan, U. Evers, M. P. Miles, and T. Daly, "Customer engagement and the relationship between involvement, engagement, self-brand connection and brand usage intent," *J Bus Res*, vol. 88, no. June, pp. 388–396, 2018, doi: 10.1016/j.jbusres.2017.11.046.
- [38] A. S. Mishra, "Antecedents of consumers' engagement with brand-related content on social media," *Marketing Intelligence and Planning*, vol. 37, no. 4, pp. 386–400, 2019, doi: 10.1108/MIP-04-2018-0130.
- [39] J. Baumann, K. Le Meunier-FitzHugh, and H. N. Wilson, "The challenge of communicating reciprocal value promises: Buyer-seller value proposition disparity in professional services," *Industrial Marketing Management*, vol. 64, pp. 107–121, 2017, doi: 10.1016/j.indmarman.2017.02.002.
- [40] M. Gómez, C. Lopez, and A. Molina, "An integrated model of social media brand engagement," *Comput Human Behav*, vol. 96, pp. 196–206, 2019, doi: 10.1016/j.chb.2019.01.026.
- [41] L. D. Hollebeek, R. K. Srivastava, and T. Chen, "SD logic-informed customer engagement: integrative framework, revised fundamental propositions, and application to CRM," *Journal of the Academy of ...*, no. Query date: 2023-12-13 14:16:23, 2019, doi: 10.1007/s11747-016-0494-5.
- [42] B. Rosenthal and E. P. Z. Brito, "How virtual brand community traces may increase fan engagement in brand pages," *Bus Horiz*, vol. 60, no. 3, pp. 375–384, 2017, doi: 10.1016/j.bushor.2017.01.009.
- [43] K. Cowan and S. Ketron, "A dual model of product involvement for effective virtual reality: The roles of imagination, co-creation, telepresence, and interactivity," *J Bus Res*, vol. 100, no. January, pp. 483–492, 2019, doi: 10.1016/j.jbusres.2018.10.063.
- [44] C. France, B. Merrilees, and D. Miller, "Marketing Intelligence & Planning Customer brand co-creation: a conceptual model," *Marketing Intelligence & Planning International Journal*, vol. 33, no. 3, pp. 848–864, 2015, [Online]. Available: <http://dx.doi.org/10.1108/MIP-06-2014-0105>
- [45] N. Luo, M. Zhang, and W. Liu, "The effects of value co-creation practices on building harmonious brand community and achieving brand loyalty on social media in China," *Comput Human Behav*, vol. 48, pp. 492–499, 2015, doi: 10.1016/j.chb.2015.02.020.
- [46] L. De Vries, S. Gensler, and P. S. H. Leeflang, "Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing," *Journal of Interactive Marketing*, vol. 26, no. 2, pp. 83–91, 2012, doi: 10.1016/j.intmar.2012.01.003.
- [47] T. M. Nisar and C. Whitehead, "Brand interactions and social media: Enhancing user loyalty through social networking sites," *Comput Human Behav*, vol. 62, pp. 743–753, 2016, doi: 10.1016/j.chb.2016.04.042.
- [48] M. Sarstedt and J. H. Cheah, "Partial least squares structural equation modeling using SmartPLS: a software review," *Journal of Marketing Analytics*, vol. 7, no. 3, pp. 196–202, 2019, doi: 10.1057/s41270-019-00058-3.
- [49] Sugiyono, *Metode Penelitian Kuantitatif*. Bandung. Bandung: Alfabeta, 2018.

- [50] N. K. Malhotra and D. F. Birks, *Marketing Research: An Applied Approach*, 3rd Europe. London: Prentice Hall, 2012.
- [51] T. Fernandes and M. Moreira, “Consumer brand engagement, satisfaction and brand loyalty: a comparative study between functional and emotional brand relationships,” *Journal of Product and Brand Management*, vol. 28, no. 2, pp. 274–286, 2019, doi: 10.1108/JPBM-08-2017-1545.
- [52] J. F. Hair, G. T. M. Hult, C. M. Ringle, and M. Sarstedt, “A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM),” *International Journal of Research & Method in Education*, vol. 38, no. 2, pp. 220–221, 2016, doi: 10.1080/1743727x.2015.1005806.
- [53] M. Fahmi, N. Kostini, and W. B. T. S. Putra, “Exploring hybrid learning readiness and acceptance model using the extended TAM 3 and TPB approach: An empirical analysis,” *International Journal of Research in Business and Social Science (2147- 4478)*, vol. 11, pp. 321–334, Nov. 2022, doi: 10.20525/ijrbs.v11i8.2144.
- [54] W. B. T. S. Putra, D. H. Perkasa, S. N. Ahmadi, and D. Pramestuti, “Analisis Faktor Penentu Organizational Citizenship Behaviour Pada Perusahaan Otomotif Manufaktur Indonesia,” *Jurnal Perspektif Manajerial dan Kewirausahaan (JPMK)*, vol. 1, no. 1, pp. 40–52, 2020, [Online]. Available: <http://jurnal.undira.ac.id/index.php/jpmk/>
- [55] D. H. Perkasa and W. B. T. S. Putra, “Peran Kualitas Pendidikan, Biaya Pendidikan, Lokasi dan Citra Merek Dalam Mempengaruhi Minat Siswa Memilih Perguruan Tinggi XYZ,” 2020.
- [56] R. Andriani and W. B. T. S. Putra, “The Intersection of Marketing and Human Resource Disciplines: Employer Brand Equity as a Mediator in Recruitment Process,” 2019. [Online]. Available: www.ijisrt.com465
- [57] W. B. T. S. Putra and B. Ardianto, “Why Does Risk Communication Matter? Preventive and Excessive Health Behavior among Uninfected People,” *South Asian Journal of Social Studies and Economics*, vol. 13, no. 2, pp. 56–72, Feb. 2022, doi: 10.9734/sajsse/2022/v13i230355.
- [58] A. B. P. Kasmoo, D. F. Sukardiman, and W. B. T. S. Putra, “Social Media Health Campaign: An Investigation of Factors Affecting Facebook User’s Attitude and Health Behavioral Intention Among Indonesian Cultures,” 2018. [Online]. Available: <https://www.researchgate.net/publication/335137380>
- [59] J. Henseler and M. Sarstedt, “Goodness-of-fit indices for partial least squares path modeling,” *Comput Stat*, vol. 28, no. 2, pp. 565–580, 2013, doi: 10.1007/s00180-012-0317-1.
- [60] T. K. Dijkstra and J. Henseler, “Consistent partial least squares path modeling,” *MIS Q*, vol. 39, no. 2, pp. 297–316, 2015, doi: 10.25300/MISQ/2015/39.2.02.
- [61] J. F. Hair, G. T. Hult, C. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. 2017.
- [62] N. K. Avkiran and C. M. Ringle, “Partial Least Squares Structural Equation Modeling: Recent Advances in Banking and Finance,” *Springer*, no. February, p. 239, 2018, doi: 10.1007/978-3-319-71691-6.
- [63] T. Ramayah, J. A. L. Yeap, N. H. Ahmad, H. A. Halim, and S. A. Rahaman, “Testing a confirmatory model of facebook usage in smartPLS using consistent PLS,” *International Journal of*



Business and Innovation, vol. 3, no. 2, pp. 1–14, 2017, [Online]. Available: <http://www.theijbi.net/dl/vol3/issue2-2017/IJBI-Testing-Confirmatory-Model.pdf>

[64] P. M. Bentler and W. Huang, “On Components, Latent Variables, PLS and Simple Methods: Reactions to Rigdon’s Rethinking of PLS,” *Long Range Plann*, vol. 47, no. 3, 2014, doi: 10.1016/j.lrp.2014.02.005.

[65] G. Shmueli et al., “Predictive model assessment in PLS-SEM: guidelines for using PLSpredict,” *Eur J Mark*, vol. 53, no. 11, pp. 2322–2347, 2019, doi: 10.1108/EJM-02-2019-0189.