

CO-CREATING VALUE AND ITS IMPACT ON CUSTOMER SATISFACTION AND CUSTOMER LOYALTY: A BANKING SECTOR PERSPECTIVE

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Abstract

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The application of co-creation is important and traditionally proves that banks that offer products and services without taking into account the opinions and recommendations of customers have the opportunity to remain focused on the bank and not be successful (Keshavarz & Jamshidi, 2018). In many organizations, especially those dealing with services, customer satisfaction is considered a challenge. Customer satisfaction influences customer loyalty and a loyal customer is a constant source of revenue, and satisfied customers do not focus on replacement products found on the market. From this, we conclude that customer satisfaction increases loyalty and reduces opposition to the products and services that the company offers (Jaakkola, Helkkula, & Aarikkula-Stenroos, 2015). This study aims to measure the impact of co-creation value through the DART (dialogue, access, risk assessment, and transparency) model on customer satisfaction and customer loyalty. The method used to answer the research questions is the quantitative method, where data were collected through primary research; the population of this study is the customers of all commercial banks in Kosovo, where the sample was 300 customers of randomly selected banks. Based on the research results, referring to Spearman's rho correlation we conclude that co-creation with customer satisfaction and customer loyalty are in direct proportion. According to the ordinary least squares (OLS) model, we conclude that co-creation affects customer satisfaction and customer loyalty. Through this research, banking structures have the opportunity to increase customer satisfaction and create loyalty to customers through the co-creation process, strengthening its components such as dialogue, access, risk assessment, and transparency.

Keywords: Co-creation, Customer Satisfaction, Customer Loyalty, Banking System

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1. INTRODUCTION

The capacity of intensive economies to serve individual customers is becoming a key source of creating a competitive advantage (Mazur & Zaborek,

2014). The roles that clients and firms have are considered in a continuous flow as technological developments and the change of managerial approach affect in non-paradoxical ways and enable innovative approaches of resource integration to

create value (Saarijärvi, Kannan, & Kuusela, 2013). Operational tools that enable managers to understand and implement new models that aim to increase co-creative capacity are welcome. In this context, the DART model is considered an important step and an effort which shows the range of capabilities of companies to work effectively with their customers. Therefore, the groups of competencies that companies should develop for effective inclusion in value creation together are dialogue, access, risk assessment, and transparency, which created the acronym DART (Mazur & Zaborek, 2014).

Understanding the logic of business environments that together represent value creation as a prerequisite for remaining competitive has become an important and key concept in service marketing and business management (Di Gangi & Wasko, 2009; Saarijärvi et al., 2013). There is therefore a consensus that co-creation value is important for the introduction of innovations as banks bring radical innovations and may fail or remove customer inputs as required (Akman, Plewa, & Conduit, 2019), so the development of co-creation is emerging in the banking sector that influences organizations to create more customers who are loyal to the bank providing the services (Rashid, Yousaf, & Khaleequzzaman, 2017).

The application of co-creation is important and traditionally proves that banks that offer products and services without taking into account the opinions and recommendations of customers have the opportunity to remain focused on the bank and not be successful (Keshavarz & Jamshidi, 2018), therefore, the study of Brazilian researchers who used the DART model to analyze its effect on consumer satisfaction showed that dialogue, access, risk assessment, and transparency need to be applied for customers to be satisfied with the products and services offered (Mainardes, Teixeira, & Romano, 2017). In addition to the positive link between co-creation and consumer satisfaction, co-creation enables to gain a competitive advantage, to have competence thus influencing the acquisition of consumer loyalty (Bendapudi & Leone, 2003; Prahalad & Ramaswamy, 2004).

Since the co-creation value through the DART model has shown positive results in previous studies, this research will be analyzed the impact of co-creation value through the DART model on customer satisfaction and customer loyalty of commercial banks in Kosovo.

This research is of scientific importance as the components of the DART model are identified for co-creating value by measuring their impact on customer satisfaction and customer loyalty, which are a good basis for a company to have a positive long-term performance by having satisfied and loyal customers to the organization.

The structure of this paper is as follows. Section 1 addresses contain the correlation of the theoretical aspect of co-creating the value and purpose of research by relating them to hypotheses, and also describes the importance of research and contribution. Section 2 addresses the theoretical aspect of the DART model and how the model relates to customer satisfaction and customer loyalty. Section 3 deals with the methodology used

to answer research questions, defines the variables and samples included in the study, describes the research instrument and its reliability, and explains the data collection procedure and statistical tests used to verify research hypotheses. Section 4 describes all the results obtained from the descriptive analysis, frequency in percentage, and discusses the results of Spearman's rho correlation, multiple linear regression, and the ordinary least squares (OLS) model. Section 5 expresses a comparison of research findings and findings of other research which have treated the same phenomenon in research has been made. Section 6 summarizes all the conclusions which have been derived from the research results and gives the necessary recommendations to increase customer satisfaction and customer loyalty by strengthening the components of the DART model.

2. LITERATURE REVIEW

The common denominator of current approaches to value creation is considered to be the change of perspective, which is the broader value creation, so the focus is on value creation through the value creation system, in which different actors are involved including partners, suppliers, and customers, where all together aim to create value (Saarijärvi et al., 2013).

Different models were proposed to conceive the co-creation process. The Payne model (Ledro, Nosella, & Vinelli, 2022) was developed for service organizations, where it supported the understanding of processes, customer knowledge, and behavioral goals, while the model developed by Gronroos (2009) considered that co-creation value occurs when there is an interaction of customers and suppliers from value creation from the client's perspective. He recommended that firms share value creation by enabling clients to be involved in processes (Grönroos, 2009). The DART model from Prahalad and Ramaswamy (2004) for conceiving the co-creation process is considered to be the most practical model for conceiving and guiding the co-creation of customer value. This approach was driven by rapid developments in communication technology, which has empowered customers to make choices that provide more information about purchases enabling them to engage with suppliers in the long run. Prahalad and Ramaswamy (2004) emphasized that technological developments in communication between customers and suppliers should be used by businesses to influence the growing role of customers in innovation processes and value creation.

In this context, the DART model contains the following four elements:

1) *Dialog*: Interactive communication is considered necessary for proposing values and co-creating value with clients (Lusch & Vargo, 2006), it is a process in which clients jointly reason on issues of common interest for the creation of a unified platform of knowledge that together supports value creation (Grönroos, 2005) Dialogue means the process of interaction between companies and customers for the creation and development of new products or services and contribute to the management of co-creation (Galvagno & Dalli, 2014).

2) *Access*: Co-creation value according to Prahalad and Ramaswamy (2004) means giving access to customers by firms, this means access to their process and resources by enabling customers to experience the brand. Thus, co-creation is considered the willingness to share control over information to create an environment that has a spirit of cooperation (Ranjan & Read, 2014). According to Suh and Lee (2005), access is of paramount importance as access to virtual environments enables clients to solve problems conveniently and perform tasks easily.

3) *Risk assessment*: Risk assessment is considered the possibility of suffering injury or loss when using the product or service, which Prahalad and Ramaswamy (2004) considered as the possibility of harming the customer. Thus, risk assessment is considered the level at which customers make their choices should be based on the costs or benefits of the product or service used. According to the aforementioned authors, a prerequisite for clients to accept risk responsibility is the willingness of firms to provide clients with the opportunity to make exchanges that are informed of "risk-benefit", through transparency of risks related to products or services (Pralhad & Ramaswamy, 2004).

4) *Transparency*: Transparency is considered very important in companies' relationships with customers, thus facilitating dialogue and enabling value creation together. Co-creating value implies the presence of transparency, shared risk, and integrity (Randall, Gravier, & Prybutok, 2011). Thus, transparency means preventing companies from sharing business information, technologies, processes, products, and profits (Ojiaku, Nwaizugbo, & Nwatu, 2020).

Given that this research analyzes the impact of value creation through the DART model on customer satisfaction and customer loyalty, it is worth clarifying this effect in terms of theoretical treatment. Customer satisfaction is a business notion that identifies that the product offered by the company to customers meets the requirements and satisfies them, as in intense competition businesses tend to achieve customer satisfaction in an environment that is considered key for businesses in terms of competition (Anderson & Sullivan, 1993). Customers who have a long-term relationship with the company have a prior assessment of cumulative satisfaction and small losses (Bolton, 1998).

In many cases, customers are aware of the treatment of their complaints by the company, i.e., in the context of the seriousness of their treatment. Companies that handle customer complaints then customers think the company cares about their well-being thus increasing customer satisfaction (Neveed, Akhtar, & Cheema, 2012).

In many organizations, especially those dealing with services, customer satisfaction is considered a challenge. Customer satisfaction influences customer loyalty and a loyal customer is a constant source of revenue and satisfied customers do not focus on replacement products found in the market. From this, we conclude that customer satisfaction increases loyalty and reduces opposition to the products and services that the company offers (Jaakkola et al., 2015).

According to the literature, value creation is enabled by different actors, who operate inside or outside the firm. Customer satisfaction can be interpreted from the customer's point of view as a result of value creation (Woratschek, Horbel, & Popp, 2019).

Related to this relevant in this paper is also the interrelationship, of each component of the DART model with customer satisfaction and customer loyalty. The first component of this model is dialogue, which is considered as an interactive process through which customers reflect on issues that have a common interest based on co-creation value. Constant communication with customers to co-create value affects greater customer satisfaction and customer loyalty. Approach as a factor of value creation is very important, as customers should have access to information as much as they need from the company or other customers. From this situation, it is claimed that access has a positive impact on customer satisfaction and customer loyalty. In addition to the above two components, risk assessment is also very important, where companies constantly communicate with customers about the opportunities, resources, or risks they may encounter when using the services to gain a competitive advantage. The last component addressed within this model is transparency, as an important and much-needed factor, which affects the creation of close relationships between the firm and customers by enabling value creation together. From this critical point of view, providing open dialogue access to information, risk assessment and providing transparency creates customer trust in the organization resulting in customer satisfaction and customer loyalty (Polat, 2021). According to this, the research hypothesis has been constructed, which is claimed to be confirmed:

H1: There are statistically significant relationships that dialogue, access, risk assessment, and transparency affect co-creation value.

H2: There are statistically significant relationships that co-creation value affects customer satisfaction.

H3: There are statistically significant relationships that co-creation value affects customer loyalty.

3. METHODOLOGY

The method used to answer the research questions is a quantitative method, where data were collected through primary research.

Referring to the data obtained from the Central Bank in Kosovo, operating banks are divided by capital, i.e., banks with foreign and local capital. Based on this, the population of this study is the customers of all commercial banks in Kosovo. The sample of 300 clients was selected, based on the fact that in Kosovo there are 10 banks, for each of the 30 clients, where the selection was made randomly.

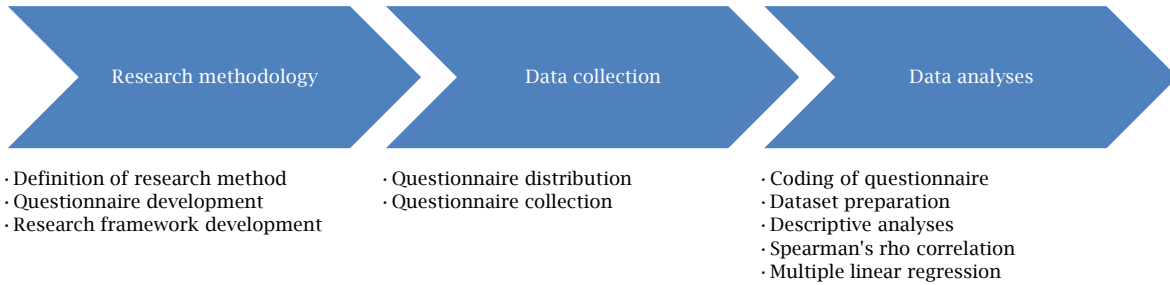
The questionnaire which was used to achieve the research objectives was formulated based on the Likert degree of compliance and satisfaction. It was categorized into 6 sessions, where part of the first session was questions about the demographics of commercial bank clients such as age, gender, and level of education. Part of the second session was four assertions made through Likert degree of agreement, from 1 = Strongly disagree to 5 = Strongly agree, about dialogue between the bank and customers. Part of

the third session was four assertions made through Likert degree of compliance about access to information from a client's perspective. Part of the fourth session was four assertions made through Likert degree of compliance about risk assessment from a client's perspective. Part of the fifth session was four statements created through Likert degree of compliance about transparency from the client's perspective, and part of the sixth session was five statements created through Likert degree of customer satisfaction, from 1 = Very unsatisfied to 5 = Very satisfied and part of the final session was

five assertions made through the same degree of consumer loyalty.

The method of data collection has been combined, so some have been collected electronically through Google forms, while the rest through commercial bank points, where customers have been surveyed in person. In this way, the impact of co-creation value through the DART model on customer satisfaction and customer loyalty through customer access will be measured. Figure 1 presents the research methodology in a flowchart.

Figure 1. Flowchart of methodology



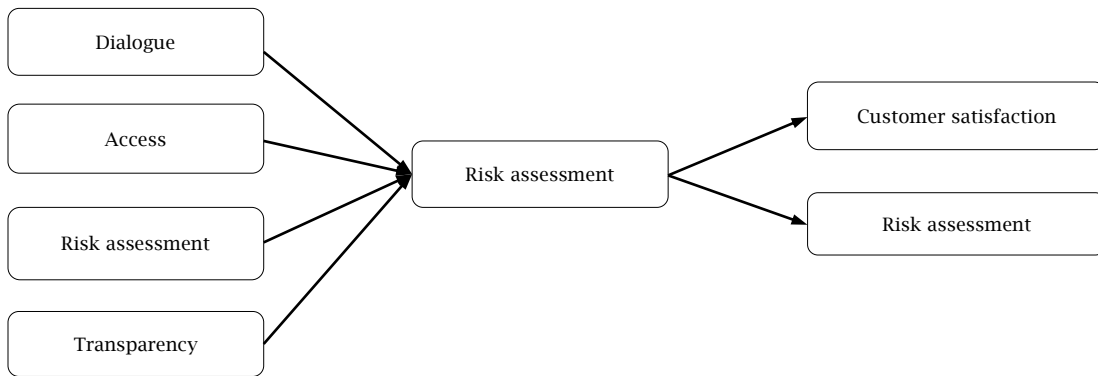
The objectives of the research are as follows:
Objective 1: To measure the impact of dialogue, access, risk assessment, and transparency on co-creation value.

Objective 2: To measure the impact of co-creation value on customer satisfaction and customer loyalty.

Dependent variables are *customer satisfaction* and *customer loyalty*, while the independent variable is *co-creation value*.

Figure 2 shows the relationship between the variables:

Figure 2. The framework of the research



Confirmation of the normal distribution of data was done through the Kolmogorov-Smirnov normality test. The presentation of the results was done through descriptive analysis and graphs that expressed frequency as a percentage, while the validation of the hypotheses was done through Spearman's rho correlation, OLS model, and multiple linear regression.

Correlation analysis is a statistical method that is used to test the linear relationship between two variables or the relationship of a variable with two or more variables as well as to measure the degree of this relationship if it exists. Spearman's Rank Order (rho) correlation is used to calculate the level of relationship between two continuous variables. This test is a nonparametric alternative to the Pearson correlation coefficient. The calculation

of the Spearman correlation coefficient is enabled through the following equation:

$$r_s = 1 - \frac{6\sum D^2}{n(n^2 - 1)} \tag{1}$$

Regression analysis represents the process of explaining the relationship between a dependent variable and an independent one (simple regression) or the relationship between a dependent variable and more than one independent variable (weighted regression) with a mathematical equation. The calculation of the regression analysis is enabled through the following equation:

$$y = \beta_0 + \beta_1x + \varepsilon \tag{2}$$

The quantitative method is an alternative to exploring value creation from a bank perspective. Combining the two methods involving more stakeholders (customers and bank staff) would increase the scientific value of the paper.

4. RESULTS

Cronbach's alpha coefficient was used to measure the reliability of the questionnaire, where the reliability of the co-creation value category is $\alpha = 0.903$, the reliability of the customer satisfaction is $\alpha = 0.991$ and the customer loyalty is $\alpha = 0.953$. Whereas the value of the total reliability of the measuring instrument turned out to be $\alpha = 0.949$, which means that the reliability of the questionnaire is acceptable.

Table 1. Questionnaire reliability

Questionnaire categories	Cronbach's alpha coefficient
Co-creation value	0.903
Customer satisfaction	0.991
Customer loyalty	0.953
Total	0.949

Out of 300 bank clients, 38% (N = 114) were female and 62% (N = 186) were male. Regarding the age distribution of respondents, we see that 3.3% (N = 10) were in the age category 18-25 years, 24.3% (N = 73) in the category 26-33 years, 40% (N = 120) of the respondents were in the category 34-41 years, 24.3% (N = 73) were in the category 42-49 years old and 8% (N = 24) of the respondents were over 50 years old. Regarding the level of education, 38.3% (N = 115) were with secondary education, 44.3% (N = 133) were with bachelor's education, 16.7% (N = 50) were with master and only 0.7% (N = 2) of the respondents had completed their doctoral studies.

Regarding the usability of banking services, 15% (N = 46) of customers use banking services in the interval of 0-1 years, 29% (N = 87) use them from 2-3 years, 11.3% (N = 34) use banking services at intervals of 4-5 years and 7.3% (N = 22) use banking services for more than 5 years.

In Table 2, the respondent characteristics is provided.

Table 2. Respondent characteristics

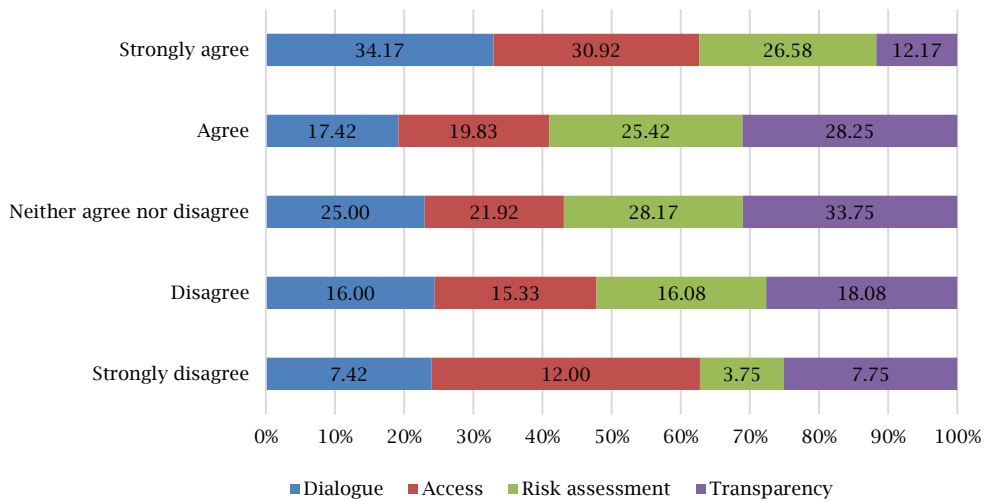
		N	%
Gender	Female	114	38.0
	Male	186	62.0
Age	18-25 years old	10	3.3
	26-33 years old	73	24.3
	34-41 years old	120	40.0
	42-49 years old	73	24.3
	Over 50 years old	24	8.0
Level of education	Secondary	115	38.3
	Bachelor	133	44.3
	Master	50	16.7
	PhD	2	0.7
How long have you been using banking services?	0-1 year	46	15.3
	2-3 years	87	29.0
	4-5 years	34	11.3
	Over 5 years	22	7.3

Note: N = 300.

According to the research results shown in Figure 3, referring to the *dialogue* category, 34.17% of customers of Kosovo banks fully agreed that bank employees dialogue about the difficulties in using banking services, they dialogue about creating facilities in the use of banking products, in providing new services as well as in redesigning services and only 7.42% disagreed. Regarding the *access* category, 30.92% of respondents agreed that they have access to information regarding the creation of new services, access to information on the creation of new operations, information on the difficulties of using banking products or services, and information regarding the redesign of banking products or services and 12% did not agree with the level of access they have to bank products and services. The *risk assessment* category showed

lower compliance than the first two categories, where 26.58% fully agreed that new products are tested with focus groups, confidentiality is maintained during the feedback process, they feel safe when using new innovative products, and trust the bank's security system, while 3.75% did not agree with this situation. The last category of co-creation value is *transparency*, where the compliance rate for this category was even lower, where 12.17% of respondents fully agreed that the bank is transparent about the difficulties in using banking services, and has a system of transparency. They are informed about the steps taken by their suggestion and that the bank creates focus groups for the treatment of new products, while 7.75% did not agree with the transparency that the bank offers to them as their customers.

Figure 3. Agreement level of co-creation value



According to data research, which traversed the level of consumer satisfaction of bank customers (Figure 4), 52% of customers stated that they are satisfied with the bank where they are provided with services, meeting their needs through bank

products, the quality of bank products, the quality of products and services to their price and responsibility for questions or concerns of customers about banking products or services, while only 16% were dissatisfied with the above.

Figure 4. Customer satisfaction level

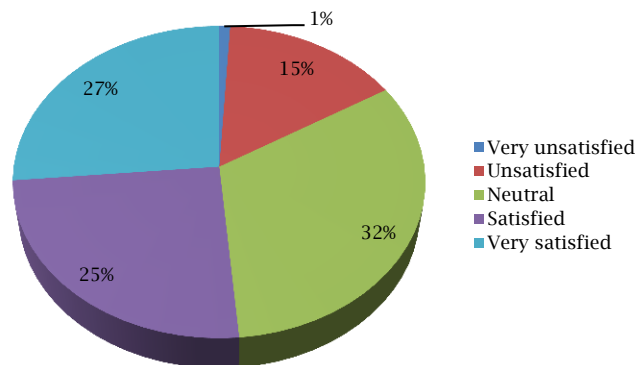
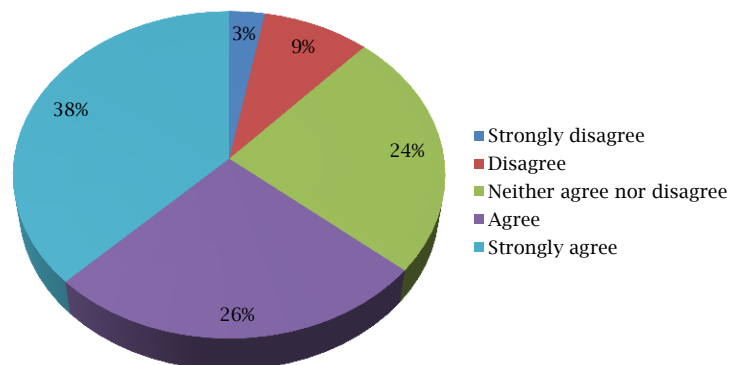


Figure 5 shows the data from research that describes consumer loyalty, where 64% of customers agreed that they are regular customers of the bank and do not think to change the bank, use the bank whenever they need to make financial transactions,

described the bank where they are customers as the solution their favorite and first, while 12% of customers did not show compliance in terms of customer loyalty.

Figure 5. Customer loyalty level



According to descriptive analysis, based on the Likert scale, from a minimum of 1 and a maximum of 5, the average *dialogue* turned out to be $\bar{x} = 3.52$ and $SD = 0.96$, which means that bank customers agreed on an average level with the dialogue between them and the bank for difficulties in using banking services, creating facilities in using banking products, providing new services, and redesigning services. The average *access* is $\bar{x} = 3.41$ and $SD = 1.00$, which also shows that customers agree on average that they have access to information about creating new services, information about creating new operations, and information about difficulties in using banking products or services. The average *risk assessment* turned out to be $\bar{x} = 3.53$ and $SD = 0.85$ which means the average level of customer compliance to maintain confidentiality during the feedback process, security when using innovative new products, and security of the banking system. The last variable that is part of the *co-creation value* is *transparency* with an average of $\bar{x} = 3.18$ and $SD = 0.71$, which as well as the above variables showed an average level of customer satisfaction for the transparency of the bank for difficulties in using banking services, for the transparency of their proposals, and for the steps in which their suggestion has gone.

Independent variables such as *customer satisfaction* and *customer loyalty* showed higher scores in terms of average. The average *customer satisfaction* is $\bar{x} = 3.57$ and $SD = 0.64$ which indicates the level of satisfaction above average in terms of the company as a bank meeting their needs through banking products, product quality, and the bank's responsibility for their questions or concerns, for banking products or services. While the average *consumer loyalty* turned out to be the highest, $\bar{x} = 3.86$ and $SD = 0.86$. So, customers have agreed on the average level that they rarely think to change the bank where they are customers to another bank, who consider the bank where they perform services as their preferred solution and as the first solution.

Table 3. Descriptive statistics

Variable	Min	Max	Mean	SD
D	1.25	5.00	3.52	0.96
A	1.00	5.00	3.41	1.00
RA	2.00	5.00	3.53	0.85
T	1.25	5.00	3.18	0.71
CS	2.00	5.00	3.57	0.64
CL	1.75	5.00	3.86	0.86
CoC	2.13	4.94	3.42	0.73

Note: D = dialogue; A = access; RA = Risk assessment; T = Transparency; CS = Customer satisfaction; CL = Customer loyalty; CoC = Co-creation value.

Table 5. Model summary^b

Model	R	R-square	Adjusted R-square	Std. error of the estimate	Change statistics					Durbin-Watson
					R-square change	F change	df1	df2	Sig. F change	
1	0.954 ^a	0.910	0.909	0.22246	0.910	747.923	4	295	0.000	1.482

Note: a. Predictors: (Constant), T, D, RS, A; b. Dependent variable: CoC.

Referring to multiple linear regression, even if *dialogue*, *access*, *risk assessment*, and *transparency* will be 0, co-creation will be $\beta_0 = 0.179$ (Sig. = 0.009),

4.1. Verification of the first hypothesis

The hypothesis validation was performed through multiple linear regression, the OLS model and Spearman's rho correlation to represent the correlation between the variables, but initially, through the normality test, we proved that the data distribution is normal and the condition to perform the above tests is completed given that $p > 0.05$.

Based on Spearman's rho correlation coefficient $r_s = 0.873$ and $p < 0.01$, we say that there is a strong linear relationship between *dialogue* and *co-creation value*; based on the value $r_s = 0.872$ and $p < 0.01$ we say that there is a strong linear relationship between *access* and *co-creation value*; based on the value $r_s = 0.833$ and $p < 0.01$ we say that there is a strong linear relationship between *risk assessment* and *co-creation value*; based on the value $r_s = 0.502$ and $p < 0.01$ we say that between transparency and co-creation value there is a moderate positive linear relationship.

Research results show that *dialogue*, *access*, *risk assessment*, and *transparency* are in direct proportion to *co-creation value*. This means that when dialogue, access, risk assessment, and transparency increase, co-creation value will increase, or vice versa.

Table 4. Correlation matrix

	D	A	RA	T	CoC
D	1				
A	0.872**	1			
RA	0.767**	0.714**	1		
T	0.267**	0.324**	0.395**	1	
CoC	0.873**	0.872**	0.833**	0.502**	1

Note: ** correlation is significant at the 0.01 level (2-tailed).

According to the R-square value, 91% of the *co-creation value* is described by *dialogue*, *access*, *risk assessment*, and *transparency*, while the remaining 9% is described by variables not included in the model. The Sig. F < 0.000 value also indicates the importance of the model, while the Durbin-Watson test value indicates that the model used has no autocorrelation problems.

Based on $F(4, 295) = 747.92$, Sig. = 0.000 we conclude that the model is significant, a conclusion drawn from the ANOVA test (Table 5).

with the increase of each unit in the independent variables, co-creation value will increase. For more see the model below:

Model 1

$$y = \beta_0 + \beta_1 * x_1 + \beta_2 * x_2 + \beta_3 * x_3 + \beta_4 * x_4 + \varepsilon \tag{3}$$

$$y_{(CoC)} = 0.179 + 0.245 * x_{(D)} + 0.245 * x_{(A)} + 0.224 * x_{(RS)} + 0.239 * x_{(T)} \tag{4}$$

Table 6. Multiple linear regression analysis

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
1	(Constant)	0.179	0.068		2.624	0.009
	D	0.245	0.030	0.322	8.086	0.000
	A	0.245	0.026	0.334	9.396	0.000
	RS	0.224	0.025	0.258	8.779	0.000
	T	0.239	0.021	0.231	11.607	0.000

Note: Dependent variable: CoC.

Based on the regression analysis, we accept H1, which states that there is a statistically significant correlation between dialogue, access, risk assessment, transparency and co-creation value.

4.2. Verification of the second hypothesis

Based on Spearman's rho correlation coefficient $r_s = 0.613$ and $p < 0.01$, we say that there is a moderate linear positive relationship between customer satisfaction and co-creation value; based on the value $r_s = 0.886$ and $p < 0.01$ we say that there is a strong linear relationship between customer loyalty and co-creation value.

Spearman's positive correlation coefficient shows that customer satisfaction and customer loyalty are in direct proportion to co-creation value. This means that increasing co-creation value will also increase customer satisfaction and customer loyalty, or vice versa.

Table 7. Correlation matrix

	CS	CL	CoC
CS	1		
CL	0.610**	1	
CoC	0.626**	0.887**	1

Note: ** correlation is significant at the 0.01 level (2-tailed).

According to the R-square value, 37.6% of the customer satisfaction is described by co-creation value, while the remaining 62.4% is described by variables not included in the model. The Sig. $F < 0.000$ value also indicates the importance of the model, while the Durbin-Watson test value indicates that the model used has no autocorrelation problems.

Based on $F(1, 298) = 179.47$, Sig. = 0.000 we conclude that the model is significant, a conclusion drawn from the ANOVA test (Table 8).

Table 8. Model summary^b

Model	R	R-square	Adjusted R-square	Std. error of the estimate	Change statistics					Durbin-Watson
					R-square change	F change	df1	df2	Sig. F change	
2	0.613 ^a	0.376	0.374	0.50728	0.376	179.472	1	298	0.000	1.563

Note: a. Predictors: (Constant), CoC; b. Dependent variable: CS.

Referring to the OLS model, even if co-creation value will be 0, customer satisfaction will be $\beta_0 = 1.749$ (Sig. = 0.009), with the increase of each unit in the independent variables, customer satisfaction will increase. For more see the model below:

Model 2

$$y = \beta_0 + \beta_1 * x_1 + \varepsilon \tag{5}$$

$$y_{(CS)} = 1.749 + 0.533 * x_{(CoC)} \tag{6}$$

Table 9. OLS model

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
2	(Constant)	1.749	0.139		12.543	0.000
	CoC	0.533	0.040	0.613	13.397	0.000

Note: Dependent variable: CS.

Based on the OLS model, we accept H2, which states that there are statistically significant relationships that co-creation value affects customer satisfaction.

4.3. Verification of the third hypothesis

According to the R-square value, 78.5% of the customer loyalty is described by co-creation value, while the remaining 21.5% is described by

variables not included in the model. The Sig. $F < 0.000$ value also indicates the importance of the model, while the Durbin-Watson test value indicates that the model used has no autocorrelation problems.

Based on $F(1, 298) = 1086.71$, Sig. = 0.000 we conclude that the model is significant, a conclusion drawn from the ANOVA test (Table 10).

Table 10. Model summary^b

Model	R	R-square	Adjusted R-square	Std. error of the estimate	Change statistics					Durbin-Watson
					R-square change	F change	df1	df2	Sig. F change	
3	0.886 ^a	0.785	0.784	0.50969	0.785	1086.714	1	298	0.000	1.375

Note: a. Predictors: (Constant), CoC; b. Dependent variable: CL.

Referring to the OLS model, even if *co-creation value* will be 0, *customer loyalty* will be $\beta_0 = -0.831$ (Sig. = 0.009), with the increase of each unit in the independent variables, *customer loyalty* will increase. For more see the model below:

Model 3

$$y = \beta_0 + \beta_1 * x_1 + \varepsilon \tag{7}$$

$$y_{(CL)} = -0.831 + 1.317 * x_{(CoC)} \tag{8}$$

Table 11. OLS model

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std. error	Beta		
3	(Constant)	-0.831	0.140		-5.933	0.000
	CoC	1.317	0.040	0.886	32.965	0.000

Note: Dependent variable: CL.

Based on the OLS model, we accept *H3*, which states that there are statistically significant relationships that co-creation value affects customer loyalty.

5. DISCUSSION

According to the research results, dialogue showed statistically significant and influential relationships with co-creation value by proving *H1*, whereas different findings were brought by Malhotra and Birks (2007), where according to them, dialogue did not show statistically significant relationships with co-creation value. According to the research of Malhotra and Birks (2007), this means that customers are not actively involved in improving future products through their ideas and suggestions. Other elements of the DART model (access, risk assessment, and transparency) showed statistically significant correlations with value creation in current research, which correspond to the findings of Malhotra and Birks (2007), Malhotra, Hall, Shaw, and Oppenheim (2006).

According to Prahalad and Ramaswamy (2004), the DART model variables enable clients to co-create. Their findings reported that elements of the DART model are positively related to co-creation and that co-creation is positively related to consumer satisfaction (Prahalad & Ramaswamy, 2004). Thus, the findings of the above authors' study are consistent with the findings of this research as it turned out that the elements of the DART model have significant positive relationships with co-creation value and that co-creation value affects higher customer satisfaction.

Also, in terms of linking access to customer satisfaction, our findings were consistent with the findings of Keshavarz and Jamshidi (2018), where organizations that provide access to their customers to information and receive suggestions and recommendations, have the opportunity to provide more innovative products and influence the expansion of their entrepreneurial field by offering better quality products and services which affect consumer satisfaction (Keshavarz & Jamshidi, 2018). These findings were also consistent with the findings of Conduit and Chen (2017), according to which, banks that focus only on one-sided and

important communication consider only supply, while demand does not matter to them, may affect the creation of unfavorable competitive positions.

The last element of the DART model is transparency, which showed a statistically significant relationship with customer satisfaction, where Medina and Rufin (2015) emphasized that transparency is an element that creates trust between the organization and customers, given that access to information influences people to be aware of the value they have for the organization by supporting risk assessment.

This research analyzed not only the impact of co-creation value through the DART model on customer satisfaction but also their impact on customer loyalty. In this regard, the findings showed significant positive correlations of the DART model with consumer loyalty, findings which were consistent with the findings of Ballantyne and Varey (2006), where according to them the effects of value creation provide support for customer loyalty. Thus, they proved that the co-creation value affects customer loyalty through the DART model (dialogue, access, risk assessment, and transparency) (Ballantyne & Varey, 2006).

6. CONCLUSION

According to the research results, we conclude that the bank's customers at the average level have shown compliance with the dialogue between them and the bank on the difficulties in using banking services, facilitating the use of banking products, providing new services, and redesigning services. It also turned out that customers agree on average that they have access to information on the creation of new services, information on the creation of new operations, and information on difficulties in using banking products or services. In terms of risk assessment, customers also stated the average level of customer compliance to maintain confidentiality during the feedback process, security when using new innovative products, and security of the banking system. The last variable that is part of the value of co-creation is transparency, which like the above variables, showed an average level of customer satisfaction for the transparency of the bank, in the use of banking services, for

the transparency of their proposals, and for the steps to which their suggestion has gone.

As for the average, from a minimum of 1 and a maximum of 5, it was concluded that customer satisfaction and customer loyalty showed a high result. Customers showed an above-average level of satisfaction in terms of the company as a bank, meeting their needs through banking products, product quality, and the bank's responsibility for their questions or concerns, for banking products or services. While the average customer loyalty turned out to be higher, so customers rarely think to change the bank where they are customers to another bank, who consider the bank where they perform services as their preferred solution and as the first solution.

Based on Spearman's rho correlation, we conclude that there is a positive linear relationship between dialogue, access, risk assessment, transparency and co-creation value. So, they are in direct proportion to each other, that the growth of one means the growth of the other. Also, there is a positive linear relationship between co-creation value, customer satisfaction, and customer loyalty.

In addition, based on the OLS model, we conclude that co-creation value with its components affects customer satisfaction and customer loyalty, thus implying that the co-creation process brings greater customer satisfaction and customer loyalty to the bank.

Co-creation should be considered by bank managers and policymakers to increase customer service and satisfaction in the banking industry. Dialogue should be given priority for the development of better communication and interpersonal

relationships with clients to invite input and better choices on the part of the client for a better creation. Further, banks that want to expand their operations and products need to consider the opinions given by customers because customers are kings and they want to buy such products that they like to form the core of their hearts. Co-creation reduces the risks of failure, builds long-term relationships, and becomes a source of sharing positive feedback and so on, so managers should consider it the most important.

Co-creation should be considered as an indicator of increased services and customer satisfaction in the banking sector. Through co-creation it is possible to reduce the possibility of failure, it is an indicator that helps build long-term relationships by increasing the entrepreneurial orientation of banks and competence in general (Al Mamun & Fazal, 2018). In this regard, banks should consider their customers as a source to improve their competitive position. In this form, the banking industry has the opportunity to pay attention to innovation and increase its performance, which is then reflected in customer satisfaction and customer loyalty.

Since in this research only four factors have been considered in the framework of co-creation value, it has influenced the results to be limited to only four factors of the DART model. Therefore, future researchers are recommended who, by studying a similar topic, include other dimensions of co-creation by measuring their effect. In addition, the study was conducted only in the banking sector, which limits all involvement, so the involvement of other industries would contribute to the literature.

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APPENDIX. QUESTIONNAIRE

Session 1. Demographic questions

1. Your gender:
 - a) Female
 - b) Male
2. Your age:
 - a) 18-25 years old
 - b) 26-33 years old
 - c) 34-41 years old
 - d) 42-49 years old
 - e) Over 50 years old
3. Level of education:
 - a) Secondary school
 - b) Bachelor
 - c) Master
 - d) PhD

Session 2. Dialogue

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

- D1. Bank employees dialogue about the difficulties in using banking services.
 1 2 3 4 5
- D2. Bank employees engage in dialogue regarding the establishment of facilities for the use of banking products.
 1 2 3 4 5
- D3. Bank employees dialogue in providing new services.
 1 2 3 4 5
- D4. Bank employees dialogue in redesigning services.
 1 2 3 4 5

Session 3. Access

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

A1. We have access to information regarding the creation of new services.

1 2 3 4 5

A2. We have access to information in creating new operations.

1 2 3 4 5

A3. We have information about the difficulties in using banking products or services.

1 2 3 4 5

A4. We have information regarding the redesign of banking products or services.

1 2 3 4 5

Session 4. Risk assessment

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

RA1. New products are tested with focus groups.

1 2 3 4 5

RA2. Confidentiality is maintained during the reprimand process.

1 2 3 4 5

RA3. We feel safe when using innovative new products.

1 2 3 4 5

RA4. I trust the bank's security system.

1 2 3 4 5

Session 5. Transparency

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

T1. The bank is transparent about the difficulties in using banking services.

1 2 3 4 5

T2. The bank has a system of transparency towards our proposals.

1 2 3 4 5

T3. We are informed about the steps our suggestion has taken.

1 2 3 4 5

T4. The bank creates focus groups for the treatment of new products.

1 2 3 4 5

Session 6. Customer satisfaction

1 = Not at all satisfied, 2 = Slightly satisfied, 3 = Moderately satisfied, 4 = Very satisfied, 5 = Completely satisfied

CS1. How satisfied are you with our company (bank)?

1 2 3 4 5

CS2. How satisfied are you with meeting your needs through our products?

1 2 3 4 5

CS3. How do you rate the quality of our products?

1 2 3 4 5

CS4. How do you evaluate the value of products and services to price?

1 2 3 4 5

CS5. How satisfied are you with our accountability for your questions or concerns about our products or services?

1 2 3 4 5

Session 7. Customer loyalty

1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

CL1. I use banking services and I rarely think about changing my banking service provider.

1 2 3 4 5

CL2. I use financial transactions whenever I need to.

1 2 3 4 5

CL3. The bank where I provide the services is my favorite.

1 2 3 4 5

CL4. My first choice to conduct financial transactions is always the bank where I am a client.

1 2 3 4 5