The Participation of Value Co-creation in the Development of Electronic Commerce

Djalel Eddine YAHIAOUI[1]
Sami MANSOURI[2]
Hadia ZARAA[3]
Lynda FADEL [4]

ABSTRACT

This paper aims to study whether and how can value co-creation work online, and what interactions customers think are highly important to continue or keep their relationship with the company.

We try to discover how to create value in an online environment requiring face-to-face interaction elements and no switching costs faced by customers to establish long-term relationships with customers. There is little research on value co-creation in the online Algerian environment and how value co-creation affects the ability to establish and maintain customer relationships.

This article uses mixed approach qualitative and quantitative research methods to investigate how these activities are perceived through case studies that thoroughly analyze marketing plans and company value creation activities, as well as structured interviews with 10 customers of the company plus a survey that contains 104 participants.

The conclusion of this study is that the activities performed by the company "X" allowed the co-creation of value to be crated. In addition, it is concluded that the services provided by the company to contribute the following important factors trying to establish and maintain relationships with customers.

KEYWORDS: *E-commerce -Value co-creation- Relationship Marketing - Sphere Model.*

JEL CLASSIFICATION: *M310, M390*

1. INTRODUCTION

The rapid growth of e-commerce in the past 20 years has been one of the most influential additions to today's enterprises. In 2020, an estimated 2 billion people worldwide purchased products online, and it is expected to grow steadily in the future (Statista, 2022) (Traditional business activities related to customers or sales in any way are mainly completed through facing communication. In e-commerce, the person –to- person dimension is eliminated, but it can be compensated by something that offline companies cannot provide, that is, 24-hour global accessibility. E-commerce removes the barriers of time and location, allowing companies to provide products/services anywhere in the world at any time.

The introduction of e-commerce has not only had a positive impact on the business environment. The negative impact of the fast-paced business environment is that since a large amount of information can be found, products are easily copied or as soon as they are launched. In order to build a sustainable competitive advantage, it's an obligation to implement a service

---

[1] Higher National School of Management, Algeria, d.yahiaoui@ensm.dz
[2] Higher National School of Management, Algeria, Mansourisami177@gmail.com
[3] Higher Business School, Algeria, hadia.zaraa@yahoo.fr
[4] Higher National School of Management, Algeria, lyndafadel.digital@gmail.com

perspective. This not only treats the customer as a source of income, but also uses it as an internal resource for building relationships (Grönroos, 2007).

Today's client is more "guilty of infidelity" than ever. Dissatisfied, overambitious, or in search of change, companies find it increasingly difficult to retain and keep it. Faced with the difficulty of building a distinctive and sustainable competitive advantage, companies insatiably seek a source of differentiation that is rare, inimitable, and non-substitutable and which makes it possible to improve company performance (Barney, 2001). For that reason, it is a major strategic axis to strengthen the competitive advantage of the company. (Woodruff, 1997).

Frequently, companies are using relationship building as a way to create value for customers. The use of relationship marketing escalated in the late 1990s, which was the result of a substantial increase in the literature on the subject (Payne & Frow, 2001). However, such efforts are lacking online. These companies are using more oriented marketing strategies. They focus on building relationships with customers and creating value, rather than pushing products to customers. Understanding how actors collaborate to create value is important, according to recent marketing and business literature (Bruce & al., 2019).

The company and the customer interact to create a common added value. Involving consumers in the process of creating their own value is seen as one of the best strategies for a business to better satisfy its customers through personalized offers (Hoyer & al., 2000) and to strengthen its competitive advantage.

Co-creating amounts to "considering customers as active actors in the work of the organization" (Lengnick-Hall. & al., 2000). It is also all the value-creating actions carried out by the customer who becomes the protagonist of his consumption experience (Chapman & Dilmperi, 2022).

Through co-creation, the customer no longer simply participates in the creation of his product or even his service, but even more; he is now an actor in his own consumption experience and a partner with the company in the process of creating its own value (Damkuviene & al., 2012).

In Algeria, the trend of ongoing e-commerce environment is to create and maintain a competitive advantage through innovation and reform. However, the problem is how to create value to build long-term relationships with customers in an online environment where there are no face-to-face interaction elements and no switching costs faced by customers. (Grönroos, 2007; Grönroos, 2008; Grönroos, C.; Ravald., 2011; Lusch & Vargo , 2004; Grönroos & Voima, 2012; Echeverri & Skalén, 2011); customer retention (Grönroos, 1994) emphasized value creation (Lusch & Vargo , 2004).

At this point, after having quickly identified the different sides of the research subject, we must ask ourselves some essential questions in the logical order of reflection to better target the study before embarking on the research.

In order to guide the research to complete this study, two specific research questions have been formed to engage and solve our problem:

So; -RQ1: How to achieve value co-creation in the online environment?

   -RQ2: Can value co-creation be used to maintain customer relationships in an online environment?

The purpose of this research is to study the applicability of the value creation domain model introduced by (Grönroos & Voima, 2012) (Sphere Model), researching where and whether value co-creation is effective online, and what kind of interaction customers think is important to their relationship with the online business.

- The first research question will specify the company's views as the field of investigation. The purpose of this question is to investigate what activities the company is carrying out can generate value and co-creation.
The second research question starts from the customer's perspective, investigating which factors they think are important for their value creation compared to the company's ongoing activities. The purpose of this question is to provide an activity framework from which customers can get enough value to maintain the relationship.

To proceed with this study, we need to mobilize three (03) data collection methods.

-We will start by collecting data through free observation in order to understand the reality experienced within the company.

The second data collection deals with the hypothesis development; which is corroborated our observations by conducting structured interviews with the clients of the company X through a phone call by the center call team; means the commercial team of the company reception.

Regarding the third method, we will follow the quantitative method through the Survey; In order to respond our hypothesis.

2. LITERATURE REVIEW

The term "co-creation" was originally a strategy proposed by Kambil and his co-authors in two articles in 1996 and 1999. In "Reshaping the Value Proposition" (1996), Kambil, Ginsberg, and Bloch used co-creation as a strategy to transform the value proposition of cooperation with customers or complementary resources (Kambil & al, 1996)Researchers agree that co-creation is a process in which customers need to be highly involved and collaborative with the company to customize (Ma & al., 2019) and innovate new products and services (Osborne, 2016).
Customer participation in the creation of the main product is achieved through innovation and is closely linked to the concept of use. «Value can only be determined by the customer".

Moreover, according to Silva & al. (2013) co-creation means that customers and suppliers create value together, which requires partners to work together to develop new quotations. According to this concept, the main business is the interaction point between the customer and the company, not the value chain. As pointed out in Reference (Silva & al., 2013), all contributors to the co-creation process are value co-creators, and they obtain new proposals through resource integration. Therefore, co-creation is considered a way to add value to customers and the company. Each value creation process (customer and provider) developed in the direct interaction process is integrated into an integrated dialogue process, in which both parties operate in the process of each other, and they have the opportunity to be proactive, coordinate action, and learn from each other ((Iglesias & al, 2013); (Khajeheian & Ebrahimi, 2020); (Karmarkar & Roels, 2015)).

This will eventually lead to direct influence of each party on each other, which shows that the interaction requires the deep involvement of customers and suppliers, as well as the ability and willingness of both parties to take action and learn from each other (Prahalad & Ramaswamy, 2004). The advent of the internet has made it possible to remove the distance barrier between the company and its customers through the development of social platforms conducive to so-called interaction social media. Social media has been widely recognized as an effective mechanism that helps the enterprise's objectives and marketing strategies, especially when it is engaging with customers, communication and customer relationship management (Filo, 2015; Saxena, 2013).

To this diversity of consumer participation, several concepts have emerged: co-production, co-creation, co-innovation, participatory marketing, and empowerment.

Research on value co-creation is usually conceptual. Most authors presented their understanding of this process relaying on research fields such as organizational theory, service marketing, strategic management, innovation, media and communication management (Buhalis & Foerste, 2015); (Khajeheian & al, 2018)). The above research helps to increase the knowledge related to different aspects of the value co- creation process.

Increasing the interests of customers means that there is some added value in the exchange that is considered beneficial by customers. This may be after-sales service or warranty. If the added value is consistent with the core product and provides added value to customers, it will have a positive impact on customer perception Quality (Ravald & Grönroos, 1996).

In order to better understand how to achieve this, the company must look at value exchange from the customer's perspective, which is the core of relationship marketing (Ravald & Grönroos, 1996; Grönroos, 1994; Gummesson, 1994).

2.1. Value Creation in Relationships:
When participating in stakeholder relationships, both suppliers and customers are faced with so-called co-creation, that is, creating value in a collaborative manner through goods and services and interaction. In addition, there is no difference in the amount of value that can be created throughhtedifferent parts of the relationship. However, when establishing a long-term relationship, the interests of both parties are much greater (Grönroos, 2008; Grönroos, C.; Ravald., 2011).

In long-term relationships, factors such as safety, security, credibility, and continuity are believed to increase trust and thereby increase customer loyalty (Grönroos, C.; Ravald., 2011). This supports the theory that customers will be satisfied with the supplier after a certain number ofsuccessful economic interactions, thereby building trust.

2.1.1. Value-Adding Strategies in Long-Term Relationships:
Increasing the interests of customers means that there is some added value in the exchange that is considered beneficial by customers. This may be after-sales service or warranty. If the added value is consistent with the core product and provides added value to customers, it will have a positive impact on customer perception grade (Ravald & Gronroos, 1996).

There are two different kinds of engagement, according to (Grönroos & Voima, 2012). Direct interaction, which often occurs in the production and delivery process.

In the process of direct interaction, the actions of suppliers and customers are likely to exert influence in the value creation process (Ma & Dubé, 2011). If the customer decides that he or she wants to customize something, they may affect the actual production process.

Indirect interaction can be expressed as a situation where a customer is using or consuming a product or service. In this category, interaction occurs only between the customer and the product or service. The indirect interaction also develops before the direct interaction.
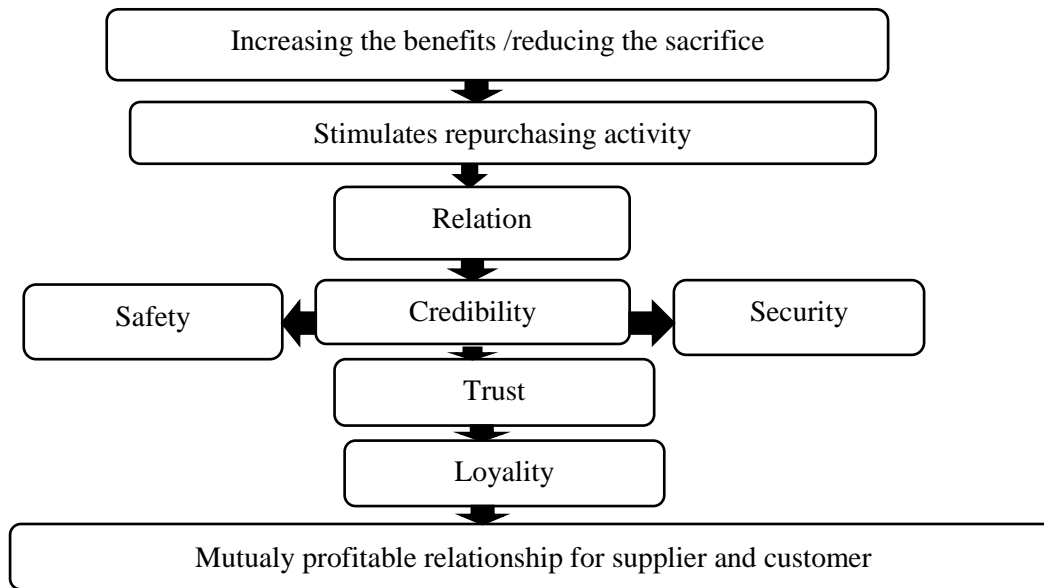
```
┌─────────────────────────────────────────────┐
│   Increasing the benefits /reducing the sacrifice │
└─────────────────────────────────────────────┘
                      │
                      ▼
┌─────────────────────────────────────────────┐
│        Stimulates repurchasing activity        │
└─────────────────────────────────────────────┘
                      │
                      ▼
              ┌──────────────────┐
              │     Relation     │
              └──────────────────┘
                      │
                      ▼
┌──────────┐   ┌──────────────────┐   ┌──────────┐
│  Safety  │◄──│   Credibility    │──►│ Security │
└──────────┘   └──────────────────┘   └──────────┘
                      │
                      ▼
              ┌──────────────────┐
              │      Trust       │
              └──────────────────┘
                      │
                      ▼
              ┌──────────────────┐
              │     Loyality     │
              └──────────────────┘
                      │
                      ▼
┌─────────────────────────────────────────────┐
│  Mutualy profitable relationship for supplier and customer │
└─────────────────────────────────────────────┘
```

Figure 1. The effect of value adding strategies in a long-term relationship
Source: (Ravald & Grönroos, 1996)

2.2. Value Creation Sphere Model

The role of the value creation domain model is to determine where value is created in the relationship between the supplier and the customer. The functions of suppliers and customers in value creation and value co-creation ultimately depend on the field in which the real or potential value is created. Regarding value creation, there is a clear emphasis on joint areas, where interaction is central and direct. The supplier field is where the company is responsible for the production process, such as development, manufacturing, design, and delivery. This is where products and services are puttogether for customers to use later. At this stage, providers of services or products can only be described as facilitators which provide potential use value through indirect interaction (Grönroos, 2008; Grönroos, C.; Ravald., 2011; Lusch & Vargo , 2004).

The customer field is where customers create value for themselves independently, which means that they are independent of suppliers. This is because the provider role is passive role in this field. In the joint field, the customer is the dominant part of the value creation process and the place where real value can be created. Despite this situation, given that the customer has invited the supplier to join the joint field, the supplier can still influence the customer's value creation through direct interactive dialogue and act as a value co-creator (Ballantyne & Varey, 2006).

In addition, the co-creation of value can only occur through direct interaction. If there is no direct interaction, there is no co-creation of value ((Grönroos, 2008); (Grönroos, C.; Ravald., 2011)). The extent towhich a company interacts with customers determines its impact on customer value creation, and the impact can be positive, negative, or meaningless.

Basically, e-commerce has long been characterized by its main focus on transactions and impressive logistics systems. However, the paradigm is shifting, and more and more companies are applying a relationship-oriented approach to their daily activities, focusing on maintaining and developing relationships with customers in order to build a competitive advantage. "The impact of value-added strategies in long-term relationships"-the model contains important factors that affect the likelihood of long-term relationships. By focusing on retaining existing customers, companies can reduce the costs associated with attracting customers by up to 7 times. One way to maintain a relationship with customers is to ensure that substantial value

creation can be experienced for customers. Proposed a value creation domain model, which illustrates how value is created in the supplier/customer two-tuple. The framework also shows where to enable value co-creation in company services.
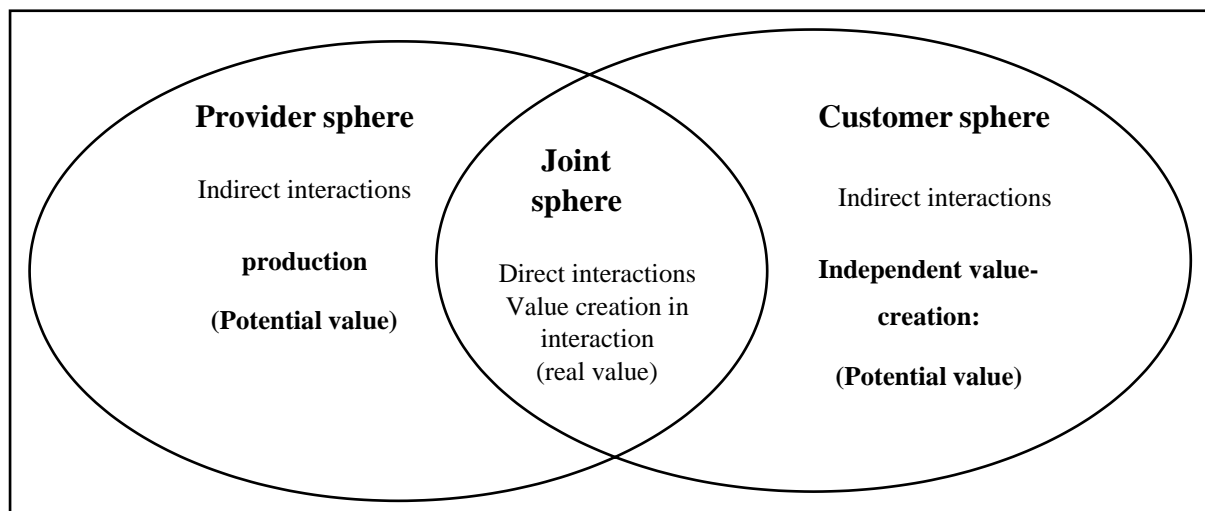

Figure 2. Value Creation spheres
Source: (Grönroos & Voima, 2012)

3. RESEARCH METHODOLOGY

The methodology part of this paper will acquaint the reader with the method that has been undertaken during the collection of data. For the purposes of this article, the most appropriate strategy is a case study. When the research requires an in-depth understanding of the background of the issues discussed, case studies are the most appropriate choice, which is the focus of this article.

The question here is how value co-creation works online, and whether it can maintain or establish customer relationships. It requires an in-depth understanding of the customer and the company's background. Get a better understanding of how and why certain actions need to be performed. Case studies are a good way to conduct empirical investigations in ordinary environments (Robson, 2002).

This case study handled by an e-commerce crew. "For the policy and privacy of the company (we named it company "X").

3.1. Qualitative approach: To collect our primary data, one of the approaches that seemed appropriate to us is the qualitative approach, insofar as it allows us to study on the spot the reality of the methods of which the company gathers the marketing information, the degree of existence of the marketing information system with its different components, mastery of relationship and the areas in which it operates.

All these questions can only be answered by following a qualitative proceed towards, which alone guarantees the understanding of the underlying reasons and motivations in a specific situation. In order to collect this data, we have used the following methods.

Participant observation: We applied this method to focus on the activity performed by the company "X" to observe the value added of the value co-creation in this company.

Interview: Directive interviews were conducted with 10 persons (Permanent customers) using an interview guide developed in advance.

This part of the study was carried out in good conditions. Regarding the interview guide, we administered it on the phone by the call center team, 10 minutes was enough for each client, and with the help of center call we started by recalling the objectives of the interviews, the different themes that will be discussed, and of course, we took the Google sheet to facilitate analysis. Then we started asking the questions according to the interview guide and tried to explore each new lead the interviewee tackled in order to enrich our data.

3.2. Quantitative approach: An inventory of the Value co-creation in e-commerce of Algerian consumers but also to measure and quantify the variables potentially linked to Value Co-creation, it therefore seemed appropriate to us to use the Survey as a data collection instrument.

The objective here is to administer the questionnaire to a representative panel (a small part of the population). The quantitative study is the second approach that appeared relevant to us for generating our primary data. To collect this data, for the sample to be representative in the general public sector, it is necessary to have a large number of respondents, but not too many to allow rapid analysis and minimize costs. We have calculated from a confidence interval of 95% and a margin of error of 7% our sample we were targeting 104 respondents. To do this, we shared the survey online via the Google Forms platform, and we called the clients from the center call. To analyze our fact input, we used IBM SPSS, V26.

4. RESULTS AND DISCUSSION:

After a presentation of the context in which the study took place, of the main writings and theoretical concepts contained in our research theme, as well as the methodology retained, we will in what follows, present and discuss the results of an interview and the survey. The study carried out on two axes; the first one: the interview and the second; the survey.

4.1. Qualitative study

In the survey that was conducted with a representative from the marketing department at of the company "X", it was evident that the company has several marketing activities that are implemented to continually improve the customers experience by providing value creating services. The firm services have been identified and divided into four different categories: Pre- purchase, Delivery, Post-purchase and Extra. The company "X" services all have the common denominator of acting as a potential value creator for the customers and are presented in Table 1.

Table1. The company "X" value creating activities, (2021)

Value Creating Activities-the company "x" E-commerce and Shopping						
Pre-purchase		Delivery		Post-purchase		Extra
-Call center	-	-Fast (48H-3Days)	-	-Customer Retention Program		-SMS
Inspiration: ads	-	Tracking	-	-Customer Service	-	
posts S.M	-	Customer Service	-	Free Returns		
Product Description	-	Half price of Delivery				
Customer Service	-					
Payment System						

Source: made by authors (result of Participant observation)

4.1.1. Result and interpretation of Qualitative interview:

The empirical data has been collected from interview with ten (10) existing male & female customers of the company "X". Additionally, the empirical data that was collected is based upon the value-adding activities and the customer's perceptions of them.

Following Table N* 2, summarizing the categories and responses of what the participants feel is essential for making a purchase at the company "X". If it is marked by a " ✓ ", the customer feels like that factor is sufficiently handled by the company "X". If a box is left blank, then the customer feels like the company "X" has not handled this sufficiently enough for them to withdraw maximum value from the experience.

Table 2. **Summarizing the categories and responses of what the participants feel is essential for making a purchase at the company "X".**

Themes	Category	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	Parentage %
Theme 01 (provided information)	Information	✓	✓	✓	✓			✓	✓	✓	✓	80%
	Credibility	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	100%
Theme 02 (value and appreciation of clients within shopping)	Direct Interaction		✓		✓	✓	✓	✓	✓	✓		70%
	Indirect Interaction	✓	✓	✓	✓			✓	✓	✓	✓	80%
Theme 03 (safety and security)	Safety		✓	✓				✓	✓	✓		50%
	Security		✓	✓				✓		✓	✓	50%
Theme 04 (communication)	Communication	✓	✓	✓		✓	✓			✓		60%
	Complement to F2F	✓			✓			✓	✓			40%
	Communication tools	✓	✓		✓					✓	✓	50%

Source: made by authors (result of interviews)

In an offline physical market, a lot of impressions and feelings are created by physically touching the products and directly interacting with certain aspects of the company such as a salesman. Therefore, a discussion was held about the possibility of replacing a salesman with a website, as it is in the online setting, and if the customer could enjoy the same value- creation this way.

Generally, 80% of the subjects were happy with the amount of information provided on the website, it minimized the direct contact that was needed to make the purchase. 60% of personal connection established by the company "X" Customer retention program, where they both were acknowledged by the company, they received gifts and discounts.

When trying to establish trust online, the element of direct communication is limited to the only telephone. 100% of participants thought that this could be replaced by the company's ability to be transparent and provide all the necessary information. There is a common belief 70% that the need for direct communication with the company can be reduced by providing all the

necessary information that answers the potential questions that might arise. Since most online shopping is done at home, in a private environment where they don't wish to be disturb or to talk to a company representative. However, when asked what type of direct communication the customers enjoy or want from the firm, the response varies. Few respondents have opinions regarding the SMS provided by the company being too impersonal or too frequent, 40 % said that. All subjects 60% agree on the point that SMS can be beneficial for them as customers since they provide information regarding current sales or releases of new collections. Even though many of the participants 70 % were reluctant to be directly contacted by the company when shopping online, it was expressed that if it could be done discreetly or be started by the clients .it could have a value-adding impact.

Controversially, a client argued that company "X" established a personal connection that made him feel appreciated by sending him a discount code on his birthday 40%. The feelings of being safe, secure, and perceived credibility of the company are usually factors that have an effect on the first purchase, and feelings associated with that purchase, in the minds of the consumer. In addition to this, available customer service or contact information had a positive impact on the participant's feelings of safety and credibility 100%. Another important factor to establish credibility and safety, as well as security, is the use of well-known third-party payment systems. There is a general belief 50% expressed by the informants that a company that uses a well-known payment system is safer to use. This is because they may have encountered the payment system before, and been able to evaluate them.

Joint Sphere of Value Creation
All the activities outlined in Table 2 will be implemented the Value Creation Sphere Model, more specifically. The activities will be characterized as Direct or Indirect in order to enable the researchers to determine which activities can be utilized in Co-Creation. Moreover, the effect of value-adding strategies in a long-term relationship will also be a vital part of the analysis in order to determine if there is a possibility of long-term relationships to emerge between the company "X" and its customers**.**
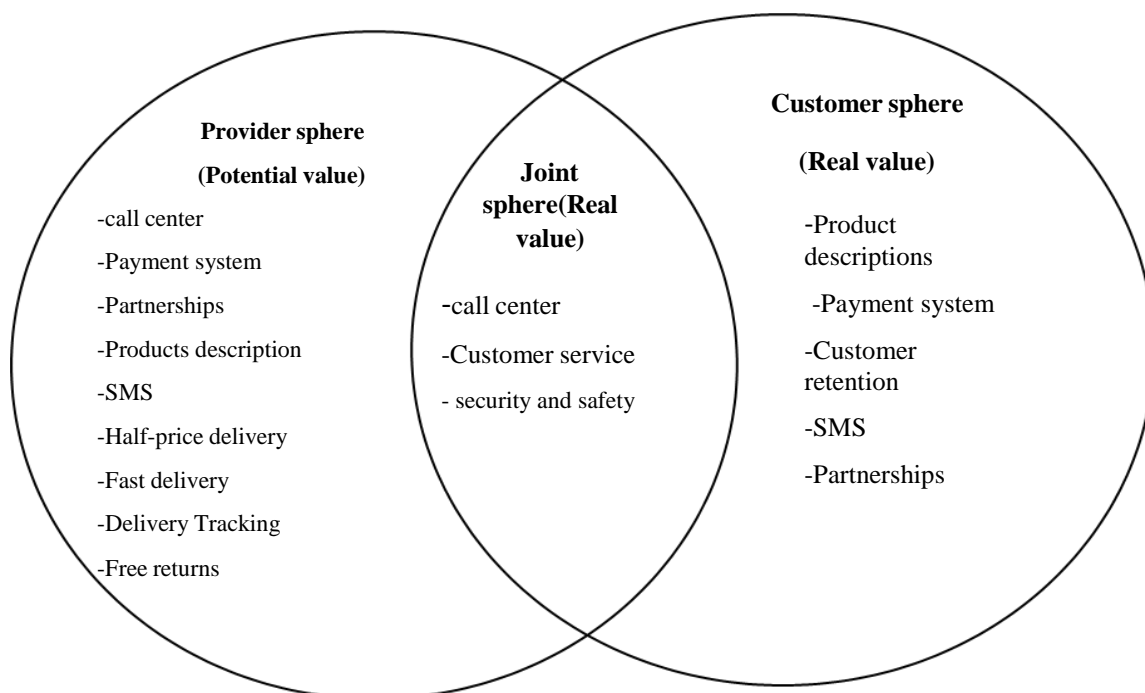
Figure 3. Value Creation Sphere Model for the company "X" After a quantitative study
Source: made by authors (result of Qualitative study)

From the results of the qualitative interview, we concluded with the following hypothesis in order to start the qualitative approach and to see if they invalidate or confirm the hypotheses of the study, depending on the objective and the type of variables for this study. For Co-Creation of value to exist, there are certain norm that need to be fulfilled. Therefore, we are putting these hypotheses to see:

- H1: The customer service (information offered) provided implemented have the capacity to invite consumers to the joint sphere of value creation in online setting.
- H2: The performance of call center can get the customer invited to the joint sphere of VCC.
- H3: Appling of security and safety System, will be essential elements in creating VCC in online setting.
- H4: These three activities (customer service, call center, security, and safety) can take the place of the face-to-face contacts that a customer receives at a physical store.
- H5: Using the co-creation value approach can contribute to create a strong relationship with customers in the online environment

4.2. Quantitative Study:
In order to collect our quantitative data, we called our clients from the host organization to better reach our target, which allowed us to obtain the following results. To begin with, a presentation of the profile of the respondents is required; we collected information such as the sex of the respondents and the age.

Table 3. Description of the sample :(Respondent Profile)

Variables	Possible reponses	Frequency	Percentage
Sex	Man	82	78.85%
	Woman	22	21.2%
Age groups	Between18 and 24	10	9.6%
	Between 25 and 34	28	26.9%
	Between 35 and 44	36	34.6%
	Between 45 and 54	24	23.1%
	Between 55 and 64	6	5.8%

Source: Developed by ourselves from the results of the analysis

The table above shows that just over half of the respondents are male with (82 people with a percentage of 78.8 %) as for the difference between women and men it is slight. Women also constitute a significant part of the sample (22 person), with a percentage that is far from that of men, at 21.2%. We also note that 34.6% of respondents are in the 35 to 44 age group.

4.2.1. Descriptive analyzes: To meet our quantitative objectives, we used frequency / percentage data, as well as descriptive statistics (mean and standard deviation). These analyzes enabled us to obtain the following results:

- **With shopping, online or against offline shopping**

The vast majority of our sample (58 people, or 55.8%) are interested in making an online purchase (positive feedback) are with shopping online, knowing that we introduced the concept differently in our questionnaire so that all categories of people can understand it, however, only 28 questioned, or 26.6% answered no as feedback ,are against online shopping and they preferred a physical shopping. 18 people or 17.3% answered that it depends on situation they

stayed neutral means they chose both methods of purchase 50/50. What we can conclude is that the host organization has an important source of information, they should focus on it.
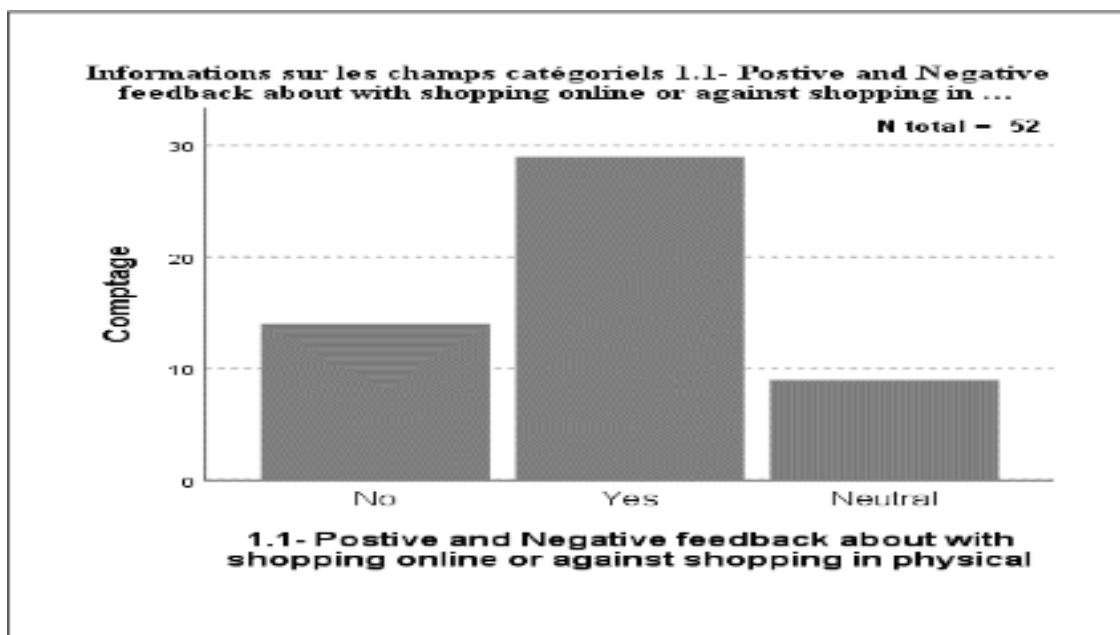

Figure 4. Positive, Negative, and Neutral Feedback
Source: SPSS output

- **Descriptive analysis of the scales used:**

At this step, we will create a new variable for some constructs which includes items measured with a Likert scale, information provided, communication, and safety / security. On the Likert scale the answer is at least 1 (Strongly disagree) and is at most 5 (Strongly agree); based on the following evaluation of the means.
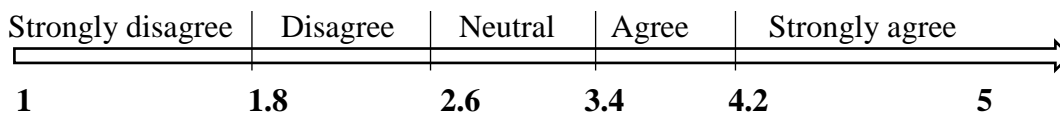

Figure 5. Evaluation method of the Likert scale
Source: (Chakrabartty, 2014)

Dimension 01: Provided information (the customer service)

We presented the descriptive statistics and calculated the average of the responses for each item then a general average for the axis of providing information:

Table 4. Descriptive statistics- mean highlighted

Theme 01	S.D	D	N	A	S.A	Mean	S.D	Evaluation
On 1 to 5 do How do you feel about the information that is provided on the company "x" website / Ads enough information provided About the products?	1.9%	3.8%	3.8%	50%	40.4%	4.23	0.850	Strongly agree
On 1 to 5 do How do you feel about the information that is provided on the company "x" website / Ads enough information provided About Delivery?	0%	3.8%	1.9%	51.9%	42.3%	4.33	0.703	strongly agree

Theme 01	S.D	D	N	A	S.A	Mean	S.D	Evaluation
On 1 to 5 do How do you feel about the information that is provided on the company "x" website / Ads enough information provided About Payment?	1.9%	1.9%	3.8%	46.2%	46.2%	4.33	0.806	strongly agree
On 1 to 5 would you say that providing information makes a company more credible?	1.9%	0%	5.8%	21.2%	71.2%	4.60	0.770	strongly agree
Total						4.37	/	strongly agree

Source: developed by ourselves from the results of the analysis

In the first cell of the table we obtained the global average 4.37, the next cell we got the standard deviation 4.782 the latter is in the fifth interval, so the rating for this average would be strongly agree. And to illustrate its results with the following figure which represents:

From the table and figure above we notice the differences in the means attributed by the respondents concerning the items, we find that it begin with an evaluation strongly agree to the last one, which refers to a perception of *strongly agree* on the information provided by the company.

Dimension 02: the value and the appreciation of clients within shopping (the customer service)
Regarding to the theme it is composed of more than one items, we presented the descriptive statistics and calculated the average of the responses for each item then a general average for the axis of the value and the appreciation of clients within shopping.

Table 5. The value and the appreciation of clients within shopping

Theme 02	S.D	D	N	A	S.A	Mean	S.D	Evaluation
On 1 to 5 do you feel like the provided information gives you as much value as when shopping in a physical store?	7.7%	9.6%	17.3%	23.1%	42.3%	3.83	1.288	agree
On 1 to 5 do you feel appreciated when are you shopping online?	1.90%	0%	5.8%	21.2%	71.2%	4.27	1.081	Strongly agree
Total						4.05	/	Agree

Source: developed by ourselves from the results of the analysis

In the first cell of the table we obtained the global average 4.05, the next cell we got the standard deviation 1.184 the latter is in the fourth interval, so the rating for this average would be *agree.* We notice the differences in the means attributed by the respondents concerning the items we find that it start with an evaluation of *agree* to the last average which refers to the same level of evaluation on the value and the appreciation of clients within shopping by the company.

Dimension 03: The security and safety (the customer service)
In connection with this theme which composed of 3 items, we presented the descriptive statistics and calculated the average of the responses for each item then a general average for the axis of security and safety.

Table 6. Descriptive statistics- mean highlighted

Theme 03	S.D	D	N	A	S.A	Mean	S.D	Evaluation
On1to5do you feel safe /secure ordering a product with the information available on the website / Ads	3,8%	0%	17,3%	46,2%	32,7%	4,04	0,924	agree
On 1 to 5 do you feel safe /secure entering your personal information when placing the order of the products	3,8%	1.9%	15,4%	46,2%	32,7%	4,02	0,955	agree
On 1 to 5 do you consider safety/security as an important for you when shopping online?	1.9%	0%	3,8%	9,6%	84,6%	4,75	0,707	strongly important
Total						4.27	/	strongly important

Source: developed by ourselves from the results of the analysis

We obtained the global average 4.27, and the next cell we got the standard deviation 0.862 the latter is in the fifth interval, so the rating for this average would be strongly agree. We notice the differences in the means attributed by the respondents concerning the items, we find that it start with an evaluation of agree to the last average which refers to the evaluation strongly agree on the security and safety by the company.

From the table above we notice the differences in the means attributed by the respondents concerning the items, we find that it start with an evaluation of agree to the last average which refers to the evaluation strongly agree on the security and safety by the company.

Dimension 04: Communication (Call center)
In the table below we obtained the global average 4.02, and the next cell we got the standard deviation 0.891 the latter is in the fourth interval, so the rating for this average would be useful. We notice the differences in the means attributed by the respondents concerning the items, we find that it start with an evaluation of *agree* to the last average which refers to an evaluation *strongly agree* on the communication of the company.

Table 7. Descriptive statistics- mean highlighted

Theme 4	S.D	D	N	A	S.A	Mean	S.D	Evaluation
about using the help of call center (the personal shopper	1,9%	1,9%	23.1%	73,1%	0%	3,67	0,614	Useful
The knowledge that a salesman possesses is missing in the online environment as tool of helping	1,9%	3,8%	19,2%	38,5%	36,5%	4,04	0,944	Useful
would you contact the company through the provided communication tools (telephone social media)	1,9%	0%	15,4%	38,5%	44,2%	4,23	0,850	strongly agree
would you research forums or other online sources	5,8%	7,7%	21,2%	44,2%	21,2%	3.67	1,074	agree
On 1 to 5 how do you feel about the company attempts to interact with you by SMS	3,8%	1,9%	5,8%	15,4%	73,1%	4,52	0,975	Strongly useful
Total						4.02	/	Useful

Source: developed by ourselves from the results of the analysis

Test of hypotheses:
In this part, we used the discriminant analysis to find out the relationship between the decision to shop online and the following variables: Information provided, Value of clients, Security and safety, and communication.
In order to start the discriminant analysis, we standardize the independent variables to put all the variables in the same weight.

4.2.2. Interpretation of the result:

Table 8. The final diagnose of the discriminant analysis

	Lambda de Wilks	F	Sig
Information provided	,421	18,296	,000
Value of clients	,402	20,678	,000
Security and safety	,468	12,760	,001
communication	,438	16,289	,000
Total	,334	25,400	,000

Source: developed by ourselves from the results of the analysis

In the last box, we notice that the Wilks Lambda test has a value = 0,334 approaches 0 and the sig less than 0.05. Then there is a relation between all the groups of explanatory changeable to be explained. The canonical correlation coefficient (0,516) similarly shows a medium relationship between the explanation-relevant variables.

We can notice that the sig in all the explanatory variables is less than 0.05, and this indicates the existence of a relationship between the starting variable "satisfaction of shopping online" and the explanatory variables,

So, we conclude that the decision to shop online is influenced by the following variables: Information provided, Value of clients, Security and safety, and communication. This conclusion is supported by the F test and the significance.

It is also crucial to take note of the ranking outcomes, which show how stable and credible the model is. In our case, we notice that the validity of the model after reanalysis and confirmation (the value to be relied on) is 69, 8 %, indicating that the model is strongly credible and reliable in determining the trends of the rest of the population studied.

5. DISCUSSION

To carry out this discussion, we have decided to repeat the results in the same order as the previous point (search results). So, first, we already discuss the qualitative results obtained with the observation and the interview guide then will follow the quantitative results obtained with the questionnaires. According to our quantitative analysis, the activities that the company provides for the customers that can be categorized in the provider sphere are; Product Descriptions, Payment systems, Partnerships, SMS, as well as half-price Delivery, Fast Delivery, Delivery Tracking, and Free Returns. These activities can all be characterized as a facilitator value, since they have the capacity potential to provide the value of customers through indirect interaction.

This service is well served either when he realizes the potential value, during the purchase, or if he wants to retract the purchase. Throughout the survey, the subjects discussed several activities, which the company provides, that they felt "value-adding" for them during the

purchasing process. The company "X" has implemented many activities in order to try to establish a relationship with their customers, in order to retain customers for a longer period.

Due to the lack of F2F interactions, online businesses face the great challenge of providing the client the best service. In order to establish and maintain relationships with the customers, the company has to provide highly functional services that can replace human expertise and versatility. Likely of answers felt that the lack of F2F interaction with a salesperson was not that big of a problem, since answers to most of their questions are usually provided on the information page of the company "X" and a phone call to the company is sufficient enough to fill the hole of a physical salesperson.

Only in the joint field the value co-creation between the company and the customer possible. Co-creation only occurs when two or more parties interact. In the joint field, the customer is the main entity in the value creation process. A service that the company "X" has been implemented, and that is being used by the A call center is a tool where the company has the possibility to influence the Value Creation process for the customer, by engaging in the Co-Creation of Value. The customer initiates the interaction with the company, by using the service and getting the possibility to utilize company expertise.

By providing his requirements, and then inviting the company for recommendations that suits his unique needs, the customer controls the experiential Value Creation process. This service can be placed in the joint sphere of Value Creation since there is a direct interaction between the customer and the company. In addition, this is an opportunity for the company to be invited by customers into the joint field, where they have the opportunity to interact with the customer's value creation process, thereby increasing or decreasing the total perceived value of the customer experience.

The security and safety; these are all factors that work together to reduce the sacrifice to the customer, which in turn is the value- added part of the relationship. Customers will be satisfied when a certain number of active transactions are made. This in turn will cause customers to begin to feel safe with the supplier, which in turn brings trust in the customer/supplier relationship. The customer trusts the supplier to meet his needs. Safety, security, credibility, and continuity are all factors that help increase trust, which in turn will lead to support for concepts that encourage customers to perceive value (Ravald & Grönroos, 1996).

Call centers and customer service are both tools provided by companies, where they have the potential to influence customers and the value creation of their experience.

For Co-Creation of value to exist, there are certain criterions that need to be fulfilled. After the result obtained; we deduce that we achieved our objective after we made the hypothesis from the qualitative study to test it in this next research. We can say that we fulfilled our point by achieving Co-creation on online setting. At this stage, we can finally validate all our previous hypotheses (H1; H2; H3; H4; H5) and we can also present the final model of value creation Sphere for an e-commerce and shopping companies in Algeria.
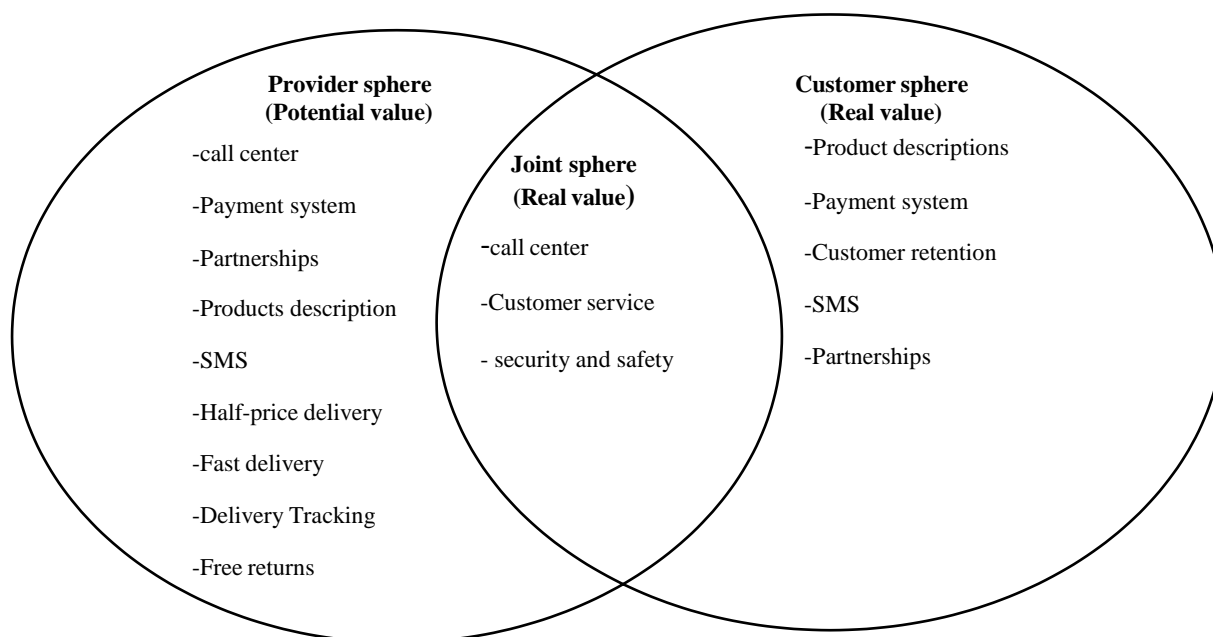
**Figure 5. Model of value creation Sphere for an e-commerce
and shopping companies in Algeria**
Source: Developed by ourselves from the results of the analysis

6. CONCLUSION

The main task of this research is to contribute to the theory of value co-creation, but we also hope that it will be helpful to company "X" and other similar companies. The survey and interview results show that company management needs to understand the customer's value creation process. In addition, they need to understand where and how they can influence the process, and where they might be invited by customers to participate in value co- creation. It is important to work systematically with customers and understand how and why they use the tools provided by the website. In addition, the interaction between the company and its customers have the capacity of positive or negative impact. Therefore, it is very important for companies to use their expertise and minimize the possibility of a negative impact on value creation. These new insights will provide managers of e-commerce companies with knowledge on how to further influence relationships with customers.

REFERENCES

Ballantyne, D., & Varey, R. (2006). Creating value-in-use throught marketing interaction: the exchange logic of relating,communicating and knowing. *Marketing Theory*, 335-348.

Barney, J. (2001). Is the Resource-Based Theory a Useful Perspective for Strategic Management Research? Yes. *Academy of Management Review*, pp. 41-56.

Bruce, H., & al. (2019). Relation marketing: looking backwards towards the future. *Journal of service marketing*, 11-15.

Buhalis, D., & Foerste, M. (2015). SoCoMo marketing for travel and tourism: Empowering co-creation of value.Doi:10.1016/j.jdmm.2015.04.001. *Jornal of destination Marketing and Management, 4*(3).

Grönroos Cermak, D., & File, K. (1994). Customer participation in service specification and delivery. *Journal of Applied Business Research*, 90-100.

Chakrabartty, S. (2014). Scoring and Analysis o Likert Scale: Few Approaches. *Journal of knowledge Manangement and information Tehnology*.

Chapman, A., & Dilmperi, A. (2022, May). Luxury brand value co-creation with online brand communities in the service encounter. *Journal of Business Research, 144*, 902-921.

D. Hoyer, W., Dorotic, M., & Krafft, M. (2010). Consumer Cocreation in New Product Development. *Journal of Service Research* .

Damkuviene, M. T., & al. (2012). Customer Perceived Co-creation Value: Synthesis of the Extant Literature. *Social Research*, 59-68.

Echeverri, P., & Skalén, P. (2011). co-creation and co-destruction: A practice-theory based study of interactive value formation. *Marketing Theory*, 351-373.

Filo, K. L. (2015). Sport and social media research: Areview. *Sport management review*, pp. 166-181.

Grönroos. (1994). From Scientific Management to Service Management. *International Journal Of Service Industry Management. http://dx.doi.org/10.1108/09564239410051885*, 5(1) 5-20.

Grönroos. (2007). *Service Management and Marketing: Customer Management inService Competition.* (3rd ed.) Chichester: John Wiley & Sons.

Grönroos. (2008). Service logic revisited: who creates value? And who co-creates? *European Business Review. http://dx.doi.org/10.1108/09555340810886585, 20*(4), 298-314.

Grönroos, C. .. (1978). A Service-Orientated Approach to Marketing of Services. European. *Journal of Marketing, 588-601. http://dx.doi.org/10.1108/eum0000000004985*.

Grönroos, C. (1990). Service Management: A Management Focus for Service Competition. *International Journal Of Service Industry Management).* http://dx.doi.org/10.1108/ 09564239010139125, 6-14.

Grönroos, C. (1997). Keynote paper From marketing mix to relationship marketing - towards a paradigm shift in marketing. Management Decision. *International Journal Of Service Industry Management. http://dx.doi.org/10.1108/00251749710169729*, 35(4), 322-339.

Grönroos, C., & Ravald. (2011). Service as business logic: implications for value creation and marketing. Journal Of Service Management, http://dx.doi.org/10.1108/0956423111 1106893. *International Journal Of Service Industry Management, 22*(1), 5-22.

Grönroos, C., & Voima, P. (2012). Criticalservice logic: making sense of value creationand co-creation. *Journal Of The Academy Of Marketing Science,* http://dx.doi.org/10.1007 /s11747-012-0308-3, 41(2), 133-150.

Gummesson. (1994). Making Relationship Marketing Operational. *International Journal of Service Industry Management*, 5(5), 5-20.

Gummesson, E. (1987). The new marketing—Developing long-term interactive. *International Journal Of Service Industry Management*.

Hoyer, W., & al. (2000). consumer co-cretion in ne product development. *Journal of Service Research, 13*(3), 359-383.

Iglesias, O., & al. (2013). The organic view of the brand: A brand value co-creation model. J. BrandManag. 20, 670-688.

Kambil, A., & al. (1996). Re-inventing value propositions. *New York Paper*.

Karmarkar, U., & Roels, G. (2015). An Analytical Framework for Value Co-Production in Services. Serv. Sci. 7,163-180.

Khajeheian, D., & al. (2018). Effect of Social Media on Child Obesity: Application of Structural Equation Modelingwith the Taguchi Method. Int. J. Environ. Res. Public Heal. 15, 1343.

Khajeheian, D., & Ebrahimi, P. (2020). Media branding and value co-creation: Effect of userparticipation in social media of newsmedia on attitudinal and behavioural loyalty. *Eur.J. Int. Manag.*

Khalifa, M., & Liu, V. (2007). Online consumer retention: contingent effects of onlineshopping habit and online shopping experience. *European Journal Of InformationSystems,* http://dx.doi.org/10.1057/palgrave.ejis.3000711, 16(6), 780-792. .

Lengnick-Hall, C., Claycomb, V., & Inks, L. (2000). From Recipient to Contributor: Examining Customer Roles and Experienced Outcomes. *European Journal of Marketing*, 359-383.

Lusch, R. F., & Vargo , L. (2004). Evolving to a new dominant logic for marketing. *Journal of marketing*, 68(1), 1-17.

Ma, Y., & al. (2019). Value Co-creation forsustainable consumptionand production in the sharing economy in China. J. Clean. Prod. 208, 1148-1158.

Ma, Z., & Dubé, L. (2011). Process and Outcome Interdependency in Frontiline Service Encounters https://doi.org/10.1509/jmkg.75.3.83. *Reaserch Article*.

Osborne, S., & al. (2016). Co-production and the Co-creation of value in Public services: Asuitable case for treatement? *public Manag*, pp. 18, 639-653.

Payne, A., & Frow, P. (2001). Is the ressource-Based Theory a Useful Perspective for Strategic Management Research?Yes. *Academy of Management Review*, 41-56.

Prahalad, C. K. (1986). The dominant logic: A new linkage between diversity and performance. *Strategic management journal*, 7(6), 485-501.

Prahalad, C., & Ramaswamy, V. (2004). Co-creating unique value with customers. *Strategy and Leadersh. doi:10.1108/10878570410699249, 3*(32), 4-9.

Qin, Z., Li, S., Chang, Y., & Li, F. (2014). *E-Commerce Strategy.* Berlin, Heidelberg :.

Ravald, A., & Gronroos, C. (1996). The value concept and relationship marketing. *European Journal of Marketing, 2*(30), 19-30.

Robson, C. (2002). *Real World Research.* (2nd ed.). Malden Blackwell publishing.

Saunders, M., Lewis, P., & Thornhill, A. (2012). Factors That Affect Staff Morale in Tertiary Hospitals in Malawi: A Case Study of Kamuzu Central Hospital. *Journal of Human Resource and Sustainability Studies, Vol. 2 No. 4*.

Saxena, A. &. (2013). Advertising on social network sites: A structural equation modelling approach. . Vision, 17(1), 17-25.

Silva, F., & al. (2013,). Heterogeneity of customers of personal image services: Asementation based on value co-creation. *Int. Entrep. Manag. J*, 9, 619-630.

Statista. (2022, july 28). Retrieved from E commerce world wide: https//www.statista.com

Wang, Y. a.-c.-C.–6. (n.d.).

Woodruff, R. (1997). Customer Value: The Next Source of Competitive Advantage. *Journal of the Academy of Marketing Science*, 25, 139-153.

Zhang, X., & Chen , R. (2008). Examining the mechanism of the value co-creation with customers. *International Journal Production Economics*, 116, 242-250. 95.

Zhen, Y., Pan , W., Yong, F., Wenlang, Q., Yan , Q., Chao, L., Long, W. (2022, April). *Coupling of the redox history and enrichment of Ni-Mo in black shale during the early Cambrian: Constraints from S-Fe isotopes and trace elements of pyrite, South China.* Retrieved from sciencediret: https://www.sciencedirect.com/