

# A CUSTOMER EXPERIENCE MODEL FOR THE HEAVY INDUSTRIAL INDUSTRY

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## ABSTRACT

Customer experience is a well-studied and applied field in B2C environments. Many organizations have reaped the benefits for their continuous focus on customer experience and the implementation thereof in their strategies. However, customer experience as a competitive element is highly neglected for B2B environment, and even more so in the heavy industrial industry. For vendors in heavy industry to reap the same benefits as their B2C counterparts, they need to understand their customers' perceptions of customer experience and what the consequences of these are. This study aimed to identify the important antecedents and its relevant measuring criteria of customer experience in the heavy industry from the literature, and then empirically test these in a customer experience model that can be used by the industry. Four antecedents were selected for further investigation; they are trust, commitment, product and service quality, and satisfaction. Questionnaires measured the antecedents of customer experience on a five-point Likert scale. Resultant to the limited senior buyers (customers) in this industry, the population was targeted rather than to draw a sample. Results indicated that antecedents of customer experience in the heavy industry consist of constructs or sub-antecedents which indicate that customer experience, though a process followed by every customer naturally in any industry without thinking about the process,

is complicated. Due to the complexity of customer experience, each construct needs to be studied to understand the full impact of customer experience in the heavy industry on buying behavior. Results further indicated that there are significant positive correlations between commitment and trust, and between commitment and service and product quality, but surprisingly, no correlation with satisfaction.

**Key terms: Customer experience, B2C, B2B, heavy industry, trust, commitment, product and service quality, satisfaction, antecedents, buying behavior.**

## 1. INTRODUCTION

Heavy industry is mainly involved in the primary economic activities extractive in nature which is limited by natural growth factors and secondary activities involved with production and manufacturing activities. It can be described as capital-intensive business, involves large quantities of products, heavy products, requires large equipment or facilities for production, or complex and numerous processes (Kenton, 2018). Bhavani (2018) divided the heavy industry into three branches: extraction, smelting and or processing, and machine building to equip the national economy. It includes companies like Sasol, ArcelorMittal, Sappi, Mondi, SAPREF, Anglo American and manufacture products such as petroleum, coal, chemicals, fertilizers, pesticides, timber, pulp, and paper, metals, non-metal ores, and raw mining materials (Bhavani, 2018).

These industries are limited by mechanical, resource, and technical factors (Schafran et al., 2018). This phenomenon can be seen practically in one of South Africa's largest fuel and chemical manufacturers mining coal for their coal-to-liquid plant process to manufacture low sulfur-containing fuels, waxes and oils, fertilizers, and a wide variety of chemical products. The same phenomena can be seen at large paper mills extracting trees from their own plantations as raw material for their pulp and paper processes.

Not all heavy industrial organizations are closely involved in providing main raw materials; it is a common practice in South Africa to choose an effective partner who provides materials in the supply network.

Other important characteristics of heavy industry are that products from these large enterprises serve as raw materials for the secondary industry sectors and organizations. Vendors in this industrial segment are geographically far removed from consumers and operate in relative inelastic business markets. (For example, fuel, paper, water, electricity, food, and beverages). These heavy industry enterprises are also characterized by their complexity and highly segmented workforce. A lot of role players or segments are involved in purchasing decisions in a typical large enterprise transaction; for example, technical, commercial, production, and customer services (Lilien, 2016).

## **2. LITERATURE REVIEW OF CUSTOMER EXPERIENCE**

Customer experience can be explained as the impression left with a customer because of an interaction with a business, from visiting a website, visiting a store, talking to customer services, interacting with salespeople, receiving a service, purchasing of a product up to using a product (McLean, 2017). Customer experience is, therefore, a holistic perception that customers have of a business or a brand. Businesses should approach customer experience as such and realize that customer experience is the responsibility of everyone in their organization and not only the responsibility of the customer services department (Wolfe, 2019). Customer experience is enormously important for any business as both negative and positive customer experiences will influence businesses' bottom line. Businesses that are truly customer focussed utilize the knowledge they have of their customers' experience as a competitive advantage and differentiator.

The environment a business operates in

will determine the organization's focus and strategy concerning customer experience. Businesses that supply products through retail are typically referred to as business to customer (B2C). Entities' businesses that supply products or services to other businesses are referred to as business to business (B2B) entities. This will also cause differentiation concerning customer experience. Key differences between B2C and B2B customer experience is that with B2C customer experience customers act to meet their personal needs, can be affected by product design, advertising, branding, and lifestyle, customers can make rational or impulse decisions, are motivated by emotion, intuition and impulse. Conversely, B2B customers are acting on behalf of a business to meet a need, objective or goal; purchasing is part of the customer's job and is unlikely to use the product personally – the product is purchased to add value to the business (Hollyoake, 2009). According to Wolfe (2019), there are additional factors influencing heavy industry purchasing behaviors such as demand, price, economy and technological changes (Wolfe, 2019).

### **2.1 Defining customer experience**

Historically, customer experience started to attract the attention of managers as a competitive management tool in the seventies (Jain et al., 2017). It soon became an area of rigorous research by 1974 after a seminal study by Mehrabian and Russells reported that experiential marketing positively influences growth in an experience economy (in Kumar & Anjaly, 2017). This study also emphasized the importance of customer experience and how organizations can benefit from it. Later researchers such as Pine and Gilmore (1998) and Schmitt (1999) confirmed the initial results and continued to explore the importance and impact of customer experience in an organization's competitive strategy (Lemon and Verhoef, 2016). Pine and Gilmore (1998) described "experiences" as the fourth wave of economic progressions known as the "experience economy" (Jain et al., 2017) and



considered it to be of the utmost importance to organizations to include in their competitive advantage. Furthermore, these researchers emphasized that organizations should manage their competitive advantage so that they move beyond that of merely assessing and managing service quality (McLean, 2017).

Today researchers define customer experience as “Customer experience is the impression your customers have of your brand as a whole throughout all aspects of the buyer’s journey.” (Bordeaux, 2021). The customer journey is essentially a description of a customer’s encounter with a service, beginning with emotions of excitement as they approach the service, followed by a possible low point as they have to wait for service, the eagerness of the delivery, surprise of the bill and the overall emotions they have when they leave (Palmer and Bejou, 2016). Gartner (2020) defines it as “the customer’s perceptions and related feelings caused by the one-off and cumulative effect of interactions with a supplier’s employees, systems, channels or products” while Franz (2021), in support of Bordeaux’s view of the brand, defines it as “Customer experience is the sum of all the interactions that a customer has with an organization over the life of the relationship with that company or with that brand”. Jain (2017) stated that “customer experience is perhaps the most important ingredient in building customer loyalty” while post-purchase experience is also regarded to be a vital part of customer experience (Kumar & Anjaly, 2017). Loyal and engaged customers are important as they are anticipated to play a vital role in new service and product development and co-creating value and experience (Mohd-Ramly & Omar, 2017). Other authors have similar definitions and include the strategic process as a concept (Carbone & Haeckel as cited by Jain et al., 2017), differentiation to obtain a competitive advantage (Jain et al., 2017), and experience-orientated business models as a strategy (Ponsignon et al., 2015).

## 2.2 Dimensions of customer experience

Customer experience occurs when customers interact, consume, use products or with the physical environment of the experience provider including its personnel, policies, and practices (Bustamante and Rubio, 2017). According to Bagdare and Jain (2013), customer experience has four descriptive dimensions:

- **Joy:** customers often experience a pleasurable state while shopping, but the experience of involving, engaging and entertaining is of interest for this study.
- **Mood:** the feelings of positive emotions such as excitement, happiness and goodness.
- **Leisure:** the perception of enjoyment, pleasure, and perceived freedom.
- **Distinctive:** each interaction is subjective to the customer’s evaluation and should therefore be “unique, memorable and sustainable over time” (Bagdare & Jain, 2013).

## 2.3 Elements of customer experience

Customer experience is multidimensional, although most studies only explored one aspect of customer experience (Roy, 2018). Researchers do differ in their focus and understanding of the elements of customer experience as illustrated in Table 1. It is also possible that not all of the components are equally important in every situation as some components are more influential than others (Izogo et al., 2018).

## 2.4 Factors of customer experience

It is important to focus on the factors which are critical to influencing customer behavior to prioritize service-related investments and identify the factors of customer experience as follow (Wasan, 2018):

- **Functional clues:** customer experiences with the technical performances of the service in terms of reliability and competence within aspects such as:
- Customization: the ability of an

**TABLE 1: ELEMENTS OF CUSTOMER EXPERIENCE AS INTERPRETED BY RESEARCHERS**

<b>Research Reference</b>	<b>Elements of customer experience</b>	<b>Definition</b>
<b>Bustamante and Rubio (2017); Keiningham et al. (2017)</b>	Cognitive experience	Progression thinking people use to process information acquired through perception and knowledge gained about products and services which affect the expectations, beliefs and demand for the product.
	Affective experience	Responses of mood and emotions that differ in intensity varying from positive to negative.
	Social experience	Experience co-created through interaction with other people such as customer-employees and customer-customer. Interaction ranges from receiving advice, giving an opinion and assistance.
	Physical experience	Refers to the physiological responses of the customer such as comfort or vitality through interaction with the environment.
<b>(Babin and Attaway, 2000)</b>	Utilitarian value	Cognitive in nature and reflects task-related worth.
	Hedonic value	An emotional experience and is reflected in the value of the shopping experience.
<b>(Gentile et al., 2007)</b>	Sensorial	A component that affects senses by providing a good sensorial experience.
	Emotional	Involves the generation of moods and feelings by the creation of an affective relation and strong emotional link.
	Cognitive	An experience connected to thinking engaging customers to use creativity.
	Pragmatic	Experience through the practical act of doing something.
	Lifestyle	Adoption of behaviors through an affirmation of the value system and personal beliefs.
	Relational	Experience that involves the person and the relationship with other people.
<b>(Lemke et al., 2011)</b>	Product quality	Incorporation of features into services and products to meet the needs of customers and to create satisfaction by making them free from defects (Akarni, 2013).
	Communication	Two-way process of exchanging information to reach a mutual understanding (Oxford, 2019).
	Social image	What do people think of a business when they hear the name (Entrepreneur).



<b>(Orange Business Services, 2016)</b>	Reliability	Management of unforeseen events to support critical and non-critical business activities.
	Availability	Timely answer to an inquiry according to the customer's terms.
	Simplicity	The easy way of doing business every step of the way.
	Adaptation	Services tailored to the specific needs of customers.
	Anticipation	Development of latest innovations to react fast in a changing environment.
	Accountability	Delivery to promise.

experience or service provider to match the customer's needs and expectations.

- Convenience: the ability to reduce customer's time, energy, and efforts in purchases and use of services.
- Credibility: purchase of services or products can involve uncertainty with regards to performance and risk. Credibility can influence customers' behavior as trust is a significant factor to build customer relations.
- **Mechanic clues:** the non-living touchable constituents of service offerings, termed by Kotler (cited by Wasan, 2018) as "atmospherics" in the Service context. This includes visuals, physical layouts, or website layouts, that appeal to the senses of customers that will cause customers to associate their feelings and mood with the service.
- **Humanic clues:** reflected by employees' appearance and behavior and includes:
  - Compassion: the willingness of a service provider to address the concerns and needs of the customers.
  - Competence: the ability to perform work efficiently and the ability to give sound advice to customers (Wasan, 2018).

### **2.5 Domains of previous research on customer experience**

The domains of customer experience are multiple due to the complexity of

the experience. The topic of customer experience is multidisciplinary and dynamic (Lemon & Verhoef, 2016). Customer experience has been traditionally studied by scholars in terms of moments of truth and service blueprint in B2C interactions. According to McColl-Kennedy et al. (2015) these research approaches leave the customer essentially passive as a snapshot view is taken with one survey at a point in time requiring the respondent to build on a memory of the transaction process. This is also problematic as the focus is not from the customer's perspective, but largely from that of the organizations. McColl-Kennedy et al. (2015) broaden their domain of study to the broadening customer role, taking a practice-based approach and recognizing the holistic and dynamic nature of customer experience. The conclusion of the study reiterates the importance to measure customer experience across touchpoints over time as customer practices broaden.

De Keyser et al. (2015) studied customer experience through the principles of cognitive, emotional, physical and sensorial, and social elements. Keiningham et al. (2017) used the study of De Keyser et al. (2015) as a starting point by using customer satisfaction as a representation of customer experience. The study identified a need to identify empirically the most prominent attributes of customer experience.

Lemon and Verhoef (2016) studied



customer experience through the customer journey, customer experience measurement and management also taking cognizance of the elements of customer experience as identified by De Keyser et al. (2015). The study indicated the importance in identifying critical touchpoints that would have a significant influence on customer experience by integrating multiple business functions (Lemon and Verhoef, 2016).

Customer experience is an antecedent of brand association according to Zhang et al. (2016). Concluded from the research is that customer experience has an impact on brand equity and employees influence the perception of brand equity in the context of B2B marketing. Should customers associate positively with a brand they will be attracted and retained as loyal customers are willing to pay premium price (Zhang et al., 2016).

Lemke (cited by Almoraish et al., 2016) developed customer experience models for B2B and B2C by using objective measures and service performance as factual judgment, a cognitive component that is open for interpretation and a social component. Lemke concluded that B2B customers pay greater attention to firms that realize and provide value-in-use (Almoraish et al., 2016).

## **2.6 Antecedents of customer experience**

The antecedents of customer experience described by Lemon and Verhoef (2016) as customer satisfaction, service quality, relationship marketing such as trust and commitment, brand experience, and customer engagement are more applicable to this study than studies in the retail environment. Typically, antecedents of customer experience in retail include the store atmosphere, store convenience, store staff, and relationship orientation (Bagdare, 2013). However, these antecedents are not relevant to the heavy industry and, therefore, not included in the focus of this study.

Researchers agree that customer experience can increase customer satisfaction, commitment, and loyalty (Bustamante and Rubio, 2017, Keiningham et al., 2017). Fullerton and Taylor (cited by Wasan, 2018) stated customer satisfaction to be “the outcome of a customer’s comparison of the perceived performance of service with the expected performance” and is seen as an antecedent of customer behavior and loyalty (Wasan, 2018). Customer satisfaction is only one of many common features of customer experience (Jain et al., 2017) as it is the level of fulfilment achieved (Keiningham et al., 2017). Customer satisfaction focuses on the customer’s cognitive evaluation of the experience (Lemon and Verhoef, 2016) which accumulates to play a major role in new information and subsequent transactions (Koufteros et al., 2014). Fawcett et al. (2014) included competence, problem resolution, performance to promises, and honesty under satisfaction.

Service quality measures how a service is provided matches customers’ expectations and can therefore be seen as an antecedent of customer satisfaction (Carlos, Martín and Román, 2017). Koufteros (2014) indicated in his study on e-tailing that service quality relies heavily on three dimensions: timeliness, whether products or services are delivered on time; availability, full shipment of goods is available, and if the product or service arrived in the expected condition. Service quality has an “impact on customer retention, market share, and profitability (Carlos Martín and Román, 2017). Service quality gives focus to customer experience to understand the background in which experience arises and how to assess and measure the customer experience (Lemon and Verhoef, 2016).

Morgan and Hunt stated in their study that “trust and commitment are at the core of managing customer relationship” (cited by Bagdare, 2013) with the main focus of building a strong relationship with the customer (Lemon and Verhoef,



TABLE 2:A SUMMARY OF RELEVANT CUSTOMER EXPERIENCE MODELS

Customer experience model	Measures	Reference
Human activity modelling	Customer activities, Support tools	(Teixeira et al., 2012)
Customer experience requirements	Customer's desired qualities of an experience on 1) Affordability, 2) Engagement, 3) Content 4) Convenience, 5) Reliability, 6) Reward, 7) Speed	
Multilevel service design	Value constellation experience, Service experience, Service encounter experience	
Customer experience quality (EXQ)	Product experience, Outcome focus, Moments-of-truth, Peace of mind	(Deshwal, 2016, Rageh et al., 2013, Milman et al., 2017, Havíř, 2017, Klaus and Maklan, 2013)
Economics models	Value	(Benson, 1955)
Consumption experience model	Sensorial/Perceptual, Affective, Physical, Behavioral, Social, Cognitive	(Havíř, 2017, Fornerino et al., 2006)
Conceptual model of customer experience	Social environment, Service interface, Retail atmosphere, Assortment, Price, Customer experience in alternative channels, Retail brand	(Havíř, 2017, Verhoef et al., 2009)
SERVQUAL	5 dimensions of service quality: Reliability, Responsiveness, Assurance, Empathy, Tangibility	(Parasuraman et al., 1988, Havíř, 2017)
E-S-QUAL	Efficiency, Fulfilment, System availability, Privacy	(Havíř, 2017, Parasuraman et al., 2005)
Three-stage model of service consumption	Pre-purchase stage, Service encounter stage, Post-encounter stage	(Sultan, 2018, Tsiotsou and Wirtz, 2015)
Net promoter score (NPS)	Customer satisfaction, Loyalty	(Mbama et al., 2018, Schneider et al., 2008, Laitinen, 2018)
Service profit chain (SPC)	Service quality, Employee satisfaction, Customer satisfaction, Loyalty, Profitability	(Mbama et al., 2018, Heskett et al., 1994)
Customer experience model	Sensorial, Emotional, Cognitive, Pragmatic, Lifestyle, Relational	(Havíř, 2017, Gentile et al., 2007)

2016). Relationship marketing was mainly developed “in B2B and marketing channels research” and include trust, commitment, passion, intimacy, and relationship quality as constructs in an attempt to increase customer acquisition and customer retention (Lemon and Verhoef, 2016). Trust is seen as a positive outcome of customer experience as it gives a perception of lower risk from the customer’s point of view (McLean, 2017) and is the center of a bonded experience (Hollyoake, 2009). Communication, interdependence, and integrity are seen as areas that support trust (Hollyoake, 2009). Commitment on the other hand is a component of loyalty developed after an experience (Keiningham et al., 2017).

Brakus, Schmitt and Zarantonello (cited by Lemon and Verhoef, 2016) stated that brand experience is subjective and consists of four dimensions: sensory, affective, intellectual and behavioral. A brand can be brought to life by employees’ performance (Bagdare, 2013).

Customer engagement focuses on attitude, behaviors and value extraction when customers connect with an organization going beyond the mere customer purchase (Lemon and Verhoef, 2016) as they have something of value to offer the organization (Harmeling et al., 2017). Small and medium enterprises demand personalized engagement, tailored solutions based on their unique preferences (Helliwell, 2015). Harmeling et al. (2017) found in their experimental engagement initiatives that transformation of the customer’s self-perception had an increase on customer engagement by making voluntary resource contributions. Table 2 shows a summary of the relevant models consulted in the literature to serve as the basis of the questionnaire for this study.

### **3. PROBLEM STATEMENT**

Suppliers in the heavy industry cannot rely only on their customer services departments to ensure heavy industrial customers are

satisfied with their delivered products and services. Although price and product quality and specialized services are of importance to heavy industrial enterprises, the customers do require more from their suppliers. Heavy industrial enterprises want to have a good experience during business interactions with their suppliers. However, few of the heavy industrial suppliers seem to incorporate customer experience as part of their strategies, either because they do not understand how they can deliver a good experience to their customers, which components to deliver on, or they simply do not understand the value customer experience can add in their competitiveness (Wollan, 2016).

Research shows that customer experience is perceived to be one of the top three most important drivers of buying behavior in a B2C environment; that is, after price and product quality (Clark and Kinghorn, 2018). Customer experience, as a driver of buying behavior in consumer markets, is well established, researched and understood in the B2C markets, and many companies do implement managerial interventions to enhance the customer experience as part of their competitive strategy. This is, however, not the case in industrial market strategies where B2B marketing realizes (Lilien, 2016). Industries tend to over-estimate the first two antecedents (product quality and price) and not regard other antecedents as important in the industrial buying behavior, thereby missing the opportunity to engage industrial buyers competitively on the third antecedent (customer experience). Therefore, it is vital to determine if customer experience and its antecedents are regarded as a competitive strategy. If so, customer experience can be used as a potential competitive management strategy?

### **4. RESEARCH QUESTIONS AND RESEARCH OBJECTIVES**

The problem statement on non-comprehension of customer experience culminates from three research questions. They are:





1. Which antecedents are important for the customer experience in the complex and segmented business environment of large enterprises in the heavy B2B industry?
2. Can customer experience be measured in the heavy B2B industry?
3. How can the customer experience be managed in the heavy B2B industry?

Based on the research questions, the study formulated the following research objectives:

- Identify the relevant antecedents of customer experience in the heavy B2B industry environment from the literature.
- Develop relevant measuring criteria from the literature to measure the respective antecedents of customer experience in the heavy B2B industry environment.
- Validate the antecedents and measuring criteria statistically.
- Determine the importance of the customer experience antecedents in the heavy B2B industry environment.
- Examine if the demographic profiles age, experience, or managerial position play a role in customer experience.
- Develop a model to manage the customer experience in the heavy industry.

## 5. HYPOTHESES

- **H0:** There is no positive relationship between customer experience antecedents that influence buying behavior intention in the heavy B2B market.
- **H1:** The antecedents of customer experience differ in importance towards their influence on buying behavior intention in the heavy B2B market.
- **H2:** The antecedents of customer experience towards buying behavior intentions are influenced by the demographic profiles age, experience, or managerial position in the heavy B2B market.

## 6. RESEARCH METHODOLOGY

The literature study identified four key antecedents from the theory, namely *Commitment*, *Trust*, *Product and Service Quality*, and *Satisfaction* to determine customer experience. These antecedents are measured by 66 measuring criteria on a five-point Likert scale.

The population consisted of full-time employees working in a commercial, technical, mechanical, electrical, instrumentation or production department at an international heavy industrial company. They had to be knowledgeable and actively involved in purchasing decisions and/or awarding contracts to service providers as a prerequisite and criteria for the study. As a result, the population was targeted (N=109); no sample was drawn. The questionnaire collected quantitative data on a 5-point Likert scale. Questionnaires were distributed to the population consisting of 109 prospective respondents. Some 46 completed the online questionnaires contributing to a 42.2% successful participation rate after the data collection period of 73 days.

## 7. RESULTS

The results consist of a demographic profile of the respondents, the validation of the antecedents and their respective measuring criteria, the determination of the reliability and internal consistency of the data, and then the importance of the antecedents as measured by the criteria.

### 7.1 Profile of respondents

The demographic profile of the respondents is shown in the table below. Only selected variables were used to gather data because of their potential influence on intention to buy. The respondents' profile is shown in Table 3.

In summary, it is evident from the table that most of the respondents are operational and technical in a management or supervisory position. They are between 30 and 50 years old and their influence in the purchasing decisions is equally spread.

**TABLE 3: PROFILE OF THE RESPONDENTS**

Department of operation					
		Frequency	Percent	Valid Percent	Cum. %
Valid	1 Commercial/ Finance	5	10.9	10.9	10.9
	2 Electrical	5	10.9	10.9	21.7
	3 Mechanical	5	10.9	10.9	32.6
	4 Operations	13	28.3	28.3	60.9
	5 Technical/Engineer	18	39.1	39.1	100.0
	<b>Total</b>	<b>46</b>	<b>100.0</b>	<b>100.0</b>	
Position (employment)					
		Frequency	Percent	Valid Percent	Cum. %
Valid	1 Junior Management	4	8.7	8.7	8.7
	2 Middle Management	14	30.4	30.4	39.1
	3 Plant Owner	5	10.9	10.9	50.0
	4 Senior Management	11	23.9	23.9	73.9
	5 Supervisor	12	26.1	26.1	100.0
	<b>Total</b>	<b>46</b>	<b>100.0</b>	<b>100.0</b>	
Years in level of position					
		Frequency	Percent	Valid Percent	Cum. %
Valid	1 >20	6	13.0	13.0	13.0
	2 1–5	12	26.1	26.1	39.1
	3 11–15	12	26.1	26.1	65.2
	4 16–20	7	15.2	15.2	80.4
	5 6–10	9	19.6	19.6	100.0
	<b>Total</b>	<b>46</b>	<b>100.0</b>	<b>100.0</b>	
Age group					
		Frequency	Percent	Valid Percent	Cum. %
Valid	1 20–29	3	6.5	6.5	6.5
	2 30–39	11	23.9	23.9	30.4
	3 40–49	22	47.8	47.8	78.3
	4 50–59	9	19.6	19.6	97.8
	5 60–69	1	2.2	2.2	100.0
	<b>Total</b>	<b>46</b>	<b>100.0</b>	<b>100.0</b>	



Level (weight) of influence in purchasing decisions					
		Frequency	Percent	Valid Percent	Cum. %
Valid	1 <5	4	8.7	8.9	8.9
	2 >50	14	30.4	31.1	40.0
	3 20–34	9	19.6	20.0	60.0
	4 35–50	13	28.3	28.9	88.9
	5 5–19	5	10.9	11.1	100.0
	<b>Total</b>	<b>45</b>	<b>97.8</b>	<b>100.0</b>	
<b>Missing</b>	6	1	<b>2.2</b>		
<b>Total</b>	46	100.0			

### 7.2 Validity of the questionnaire

Content validity was ascertained by distributing the questionnaire to five senior managers. Their corrections and suggestions have been implemented in the questionnaire design and content. Next, construct validity was used to statistically assess the validity of the questionnaire. This was done by using exploratory factor analysis which determined if the measuring criteria indeed do measure each of the customer experience antecedents. The

results (see Table 4) showed that all four customer experience antecedents are valid. Also, the results showed that the theoretical model measures more than just the four antecedents and that these antecedents consist of sub-antecedents. This is satisfactory as each antecedent can now be measured more accurately across the sub-antecedents. Each antecedent and its variance explained is shown in Table 4.

**TABLE 4: VALIDITY OF CRITERIA AS PER EXPLORATORY FACTOR ANALYSIS ON THE INDIVIDUAL LOYALTY ANTECEDENTS**

COMMITMENT	Var %	TRUST	Var %
Loyalty	23.0	Competence/problem resolution	31.1%
Alternative supplier	18.4	Communication	19.9%
Value	16.1	Importance	15.7%
<b>Variance explained</b>	<b>57.5%</b>	<b>Variance explained</b>	<b>66.7%</b>
SERVICE/PRODUCT PRICE	% Var	SATISFACTION	% Var
Competence	13.2%	Customer engagement/value extraction	15.6%
Intimacy	12.9%	Probability to recommend	13.2%
Service quality	12.8%	Continuous improvement (CI)	9.9%
Informed	12.6%	Personal attention	7.7%
Relationship quality/Intimacy	9.1%	Relationship quality	7.0%
Intimacy	7.9%	Interdependence	6.6%
Speed of response	7.1%	Relationship quality/Intimacy	6.2%
		Visual appearance	5.7%
		Price	5.1%
<b>Variance explained</b>	<b>75.6%</b>	<b>Variance explained</b>	<b>77.1%</b>

### 7.3 Reliability of the data

The reliability of the data was determined by using the Cronbach Alpha coefficient ( $\alpha$ ). Coefficients are interpreted to provide a measure of the internal consistency of a test or scale and are typically used to determine the reliability of multiple-question Likert scale surveys and are expressed as a value between zero and one (Tavakol and Dennick, 2011; Stephanie, 2014b). Cronbach's Alpha is used to determine if the designed test is measuring the variable of interest accurately (Stephanie, 2014b). An alpha coefficient of 0.70 and higher is desirable (Field, 2013). The reliability results of the dataset and the four antecedents appear in Table 5 below.

TABLE 5: RELIABILITY STATISTICS

Antecedent	Cronbach's Alpha	N of Items
Total data set	0.918	68
Commitment	0.476	9
Trust	0.725	8
Product and Service quality	0.868	23
Satisfaction	0.832	26

From the table, it is evident that all the antecedents except *Commitment* ( $\alpha=0.48$ ), have satisfactory reliability coefficients ( $\alpha \geq 0.70$ ) (Field, 2013). It is also important to determine if an adequate sample (or in this case an adequate response from the population) is realized. Kaiser, Meyer and Olkin's test of sample adequacy statistically tests the responses for adequacy. The results appear in Table 6. A value above 0.5 is required, but one above 0.7 is preferable (Field, 2013).

Given that the total population is limited in this study, it was expected that not all the KMO values would exceed 0.70. From the table, it is evident that the antecedents *Commitment* and *Satisfaction* have marginally acceptable adequacy levels ( $KMO \geq 0.50$ ), while *Product and service quality* has an acceptable ( $KMO \geq 0.60$ ) level of responses. Only *Trust* has a

satisfactory KMO value that exceeds 0.70. All, however, do exceed the cut-off value of 0.5 (Stephanie, 2016). Bartlett's test of sphericity determines if there is redundancy between variables, which can be condensed with some factors, by comparing a matrix of Pearson correlations to the identity matrix (Stephanie, 2014a). The test provides a chi-square output and should be  $< 0.05$  to be considered significant. In short, because the test indicates the item correlation in this study is not an identity matrix, factor analysis can be performed (Taherdoost et al., 2014).

### 7.4 Importance of the antecedents

The antecedents of customer experience and their measuring criteria are listed in the table below. The table also shows the mean scores and standard deviations of the antecedents and their respective criteria.

Mean values of the Likert scale are commonly used in data analysis. In this case, the suggested interpretation of Bisschoff and Hough (1995) is used to categorize the results:

- $< 3$ : Lower importance; Dissatisfaction; Immediate action required
- 3.0–3.5: Important; Satisfaction; Develop to become excellent
- $> 3.5$ : Very important; Very satisfied/ Excellent; Maintain to stay on top

The standard deviation is used as a secondary measure because it indicates to what extent respondents agree with the specific measuring criterion (Bisschoff & Hough 1995).

The results of the table above are discussed next.

#### 7.4.1 Commitment

*Commitment* is the effort customers make to use a product in terms of resources (Gentile et al., 2007). From table 8 *commitment* showed satisfactory performance (3.49). From statement B1.8 "I will stay with a service provider though I'm not 100%



**TABLE 6: KAISER-MEYER-OLKIN MEASURE OF SAMPLING ADEQUACY AND BARTLETT'S SPHERICITY TEST**

		All data	Commitment	Trust	Product Service quality	Satisfaction
<b>KMO Measure of Sampling Adequacy</b>		.579	.522	.794	.639	.579
<b>Bartlett's Test of Sphericity</b>	<b>Approx. Chi-Square</b>	699.350	71.447	163.181	483.230	699.350
	<b>df</b>	378	36	45	210	378
	<b>Sig.</b>	.000	.000	.000	.000	.000

satisfied as I am not confident to use an alternative service provider." a mean of 4.41 out of 5 was achieved. Though the mean was of average score certain aspects of the antecedent *commitment* are of importance to customer experience.

#### **7.4.2 Trust**

Customers follow-on experiences are influenced by *Trust*. Trust develops over some time and influences experience as it reduces attention paid to monitor a relationship and cognitive effort (Lemon and Verhoef, 2016). Although the Likert mean

**TABLE 7: DESCRIPTIVE STATISTICS OF CUSTOMER SATISFACTION ANTECEDENTS**

<b>Antecedents</b>	<b>Mean</b>
<b>B1. Commitment</b>	<b>3.49</b>
B1.1: I am a loyal customer to one specific service provider	2.52
B1.2: I have developed a good relationship with one specific service provider	4.07
B1.3: I choose between different companies that provide a similar service based on price alone	2.63
B1.4: I choose between different companies that provide a similar service based on the quality of goods/services alone	2.22
B1.5: I choose between different companies that provide a similar service based on attributes that do not include price or quality	2.51
B1.6: The way a service provider dealt with me when things went wrong will determine if I continue to do business with him.	4.30
B1.7: If an advisor at a service provider changes company, I will consider moving my business to the new company.	4.32
B1.8: I will stay with a service provider although I'm not 100% satisfied as I am not confident to use an alternative service provider.	4.41
B1.9: I do not care about the relationship I have with a service provider as long as they supply products/services as agreed.	4.39
<b>B2. Trust</b>	<b>3.76</b>
B2.1: I want to deal with a company that reduces my risks.	3.63
B2.2: It is important that the service provider understands my processes.	3.13
B2.3: It is important that the service provider understands my problems and concerns.	3.63
B2.4: It is important that my service providers are looking out for my needs.	3.54



B2.5: I will award a contract to a service provider because he has my best interest at heart.	4.00
B2.6: I will contact a service provider because it was recommended by an associate or friend.	4.07
B2.7: I would choose a service provider because I have more knowledge of its products/services compared to other service providers.	2.50
B2.8.I prefer a service provider that:	
B2.8.1: ...shares the cost	4.39
B2.8.2: ...shares the delivery status on a regular basis	4.27
B2.8.3: ...shares information on a regular basis	4.43
<b>B3. Service/Product quality</b>	<b>3.89</b>
B3.1: I don't want to shop around for the service provider with the best offer.	4.35
B3.2: My service provider's expertise is important to me.	4.39
B3.3: It is important that my service provider keeps me up-to-date about new products.	3.87
B3.4: It is important that my service provider keeps me up-to-date about new technologies.	3.60
B3.5: It is important that my service provider keeps me up-to-date about changes in my process/plant.	3.59
B3.6: It is important that the service provider is a good listener.	3.96
B3.7: It is important that the service provider is polite.	3.85
B3.8: I will use a service provider because of its employees' caring attitude.	4.37
B3.9: I will change from service provider if another service provider's employees are more knowledgeable.	4.24
B3.10. It is important to me to be guided through a service provider's processes.	3.89
B3.11: It is important that the service provider makes me feel comfortable.	4.39
B3.12: I prefer a supplier that can ensure continuity of supply.	4.30
B3.13: I prefer a supplier where I receive regular visits by a representative to solve specific problems or a service complaint.	3.96
B3.14: I prefer a supplier that gives me sufficient face-to-face time.	3.83
B3.15: I am more committed to being a service provider who invests in continuous improvement and innovation.	3.85
B3.16: I am more committed to a service provider who invests in product/ service development.	3.83
B3.17: I am more committed to a service provider who invests in customer training.	3.74
B3.18: I would rather use a service provider whose employees have good people skills.	4.15
B3.19: I will choose a service provider on its quotation accuracy.	3.12
B3.20: I will choose a service provider on its invoice accuracy.	3.65
B3.21: I will award a contract to a service provider because they are known to be proactive.	4.04
B3.22: I will buy from a service provider by its ability to deliver on time.	3.49



B3.23: I will award a contract to a service provider because his installations are visually more appealing.	2.98
<b>B4. Satisfaction</b>	<b>3.76</b>
B4.1: I won't go and look for another service provider if my current service providers are taking good care of me.	4.07
B4.2: It is important that my service providers are flexible in dealing with me.	3.74
B4.3: I need guidance from my service provider to enable me to make a purchasing decision.	4.24
B4.4: I will change from one service provider to another though I'm satisfied with the service I have received up to date.	4.28
B4.5: The overall experience I receive from my service provider determine on my satisfaction with him.	4.07
B4.6: I will not do business with a forceful salesperson.	3.30
B4.7: I'm likely to say good things about a service provider I'm satisfied with.	4.12
B4.8: I will recommend a good service provider to an associate.	2.13
B4.9: I will recommend a good service provider to people outside my organization.	4.30
B4.10: I prefer to deal with only one designated contact person at a service provider's company.	2.76
B4.11: It is important to receive offers from different service providers.	3.13
B4.12: All I care about is which service provider gives me the lowest price.	4.04
B4.13: I do not make my decision on price alone, there are other important factors that I also take into consideration.	3.18
B4.14: All I care about is which service provider can provide me with the latest technology.	3.96
B4.15: All I care about is which service supplier has a sufficient product range to match my requirements.	3.59
B4.16: Product quality is key when I make purchasing decisions.	3.20
B4.17: Dealing with different sales associates from one service provider company is not 'customer-friendly'.	4.15
B4.18: I prefer a service provider that takes care of everything during a business transaction.	3.72
B4.19: I prefer a service provider that can take care of problems outside his scope of work.	3.74
B4.20: Price is a key differentiator when purchasing products.	4.01
B4.21: I will more likely use a service provider that responds quickly to my inquiries.	4.17
B4.22: I prefer to use a specific service provider due to the expertise of its sales team.	4.00
B4.23: I prefer a specific service provider as their systems are more user-friendly in comparison to other service providers.	3.74
B4.24: I would rather purchase from a service provider where I can place orders quickly and efficiently.	4.02
B4.25: I will award a contract to a service provider that is action-orientated.	4.17
B4.26: I prefer a service provider that gives me customized information and reports.	4.00

for *Trust* is 3.76 it is clear from statement B2.8.3 “Shares information on a regular basis” that customers do trust suppliers that share information more regularly.

### Service/product quality

According to the results obtained service and product quality is of high importance (3.89). Quality needs to be defined about customers’ requirements (Rowley, 1999). The accompanying products and services are important attributes to customer experience in the heavy industry because they put customers at ease regarding the value proposition.

### 7.4.3 Satisfaction

Customers in heavy industry deem

*satisfaction* of high importance (3.76) serving as an antecedent of customer experience. *Satisfaction* is influenced by the duration of the relationship as there is a strong relationship between the duration of a customer relationship and more experienced customers (Dagger and O’Brien, 2010). Experienced customers are also more likely to advocate for suppliers as indicated by statement B4.9: “I will recommend a good service provider to people outside my organization”.

## 8. A MODEL TO MANAGE CUSTOMER EXPERIENCE IN HEAVY INDUSTRIES

The theoretical study founded a model with four antecedents of customer experience. However, after statistical scrutiny, it became



FIGURE 1: A MODEL OF CUSTOMER EXPERIENCE IN THE HEAVY INDUSTRY



clear that the model also consists of several sub-antecedents. This means that for the heavy industry, each theoretical antecedent also has sub-antecedents that need to be managed individually. The model of antecedents and their sub-antecedents are shown in the figure below. The relative importance and internal consistency of the (as measured by the reliability coefficient Cronbach's alpha) are also shown in the figure.

## 9. ACCEPTANCE/REJECTION OF HYPOTHESES

H0: There is no positive relationship between customer experience antecedents that influence buying behavior intention in the heavy B2B market. This hypothesis is **rejected**.

H1: The antecedents of customer experience differ in importance towards their influence on buying behavior intention in the heavy B2B market.

This hypothesis is partially **accepted**. The analysis showed that statistically significant correlations do exist between the antecedents *Commitment* and *Trust* ( $r=0.372$ ;  $p\leq 0.05$ ) and the antecedents *Commitment* and *Product & Service quality* ( $r=-0.421$ ;  $p\leq 0.10$ ). No significant correlations exist ( $p\leq 0.05$ ;  $p\leq 0.10$ ) between the other antecedents. This supports the reasoning for a partial acceptance of the hypothesis.

H2: The antecedents of customer experience towards buying behavior intentions are influenced by the demographic profiles age, experience, or managerial position in the heavy B2B market. This hypothesis is **rejected**. The analysis showed that no significant correlations exist ( $p\leq 0.05$ ;  $p\leq 0.10$ ) at neither the 95% nor 90% confidence levels.

## 10. IMPLICATIONS FOR MANAGEMENT AND BUSINESS

The first implication for both management and business is that the study showed that

customer experience is just as important in B2B interactions in heavy industry, as it is in B2C business interactions. This means that the management of suppliers should take the necessary due diligence to ensure their customer experiences are such that they will be perceived as the preferred supplier. Secondly, managers should note that if the suppliers focus on the antecedents their customers value most, they will positively influence their customers purchasing behavior. This in turn will have a positive business implication, namely to improve returns and also affect the bottom line positively. Furthermore, this managerial action should also have a positive business implication; satisfied customers will become more loyal and regard the business as the supplier of choice. The study also developed a model that can be used by managers to measure their business's customer experience. This is an important implication; the model empowers managers to apply and improve the competitiveness of their business using a validated model. A final implication for managers is to realize that the strong significant correlations (between *commitment* and *trust*, and between *commitment* and service and product quality) mean that if they successfully manage one of the components, there would be a positive result in the correlated antecedent. This means they could, by astute management, swot two flies simultaneously. This will yield a higher return on managerial intervention energy spent.

## 11. CONCLUSION

The antecedents of customer experience seem to be relatively similar across various industries. The antecedents of *Trust*, *Commitment*, *Service and Product Quality*, and *Satisfaction*, as identified in the study, are supported by the outcomes of studies performed by researchers although no complete correlation of antecedents could be found within a single study. It is also important to note that the outcomes of the research performed by researchers differ because of differences in industry sectors. It is evident that customer experience is



complex and that the sub-antecedents of customer experience in the B2B environment of the heavy industry also differ from those of other industries.

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