

EVALUATING CX IN THE RETAIL SPACE WITH DESIGN THINKING AND DOUBLE DIAMOND DESIGN PROCESS

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Abstract. This paper questions the advantages of the design thinking approach to the brands through a holistic examination of the CX in the physical space. It analyses the CX management process of an important wholesale and retail market chain brand in Turkiye using the first three steps (discovery, identification and development) of the Double Diamond Design Model (DDDM). Different customer needs are identified to create future services and experiences that will determine further improvements in the design of a retail interior. The opportunities and solutions developed via DDDM, reveal the potential of design thinking for brands seeking empathy and innovation in their retail interiors.

Keywords: design thinking, retail space, customer experience, customer journey.

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1. Introduction

In retailing, where competition is intense, low prices and innovative products are no longer sufficient for success. Lately, consumers have moved from purchasing products to purchasing solutions and finally purchasing experiences (Prahalad & Ramaswamy, 2003). To compete effectively, brands need to focus on the customer's shopping experience and even beyond. That is, every moment in the customer's life that intersects or may intersect with the brand, in short, every occasion.

Today brands are shifting from products to customers since a positive customer experience (CX) strengthens the emotional bond with the brand and increases loyalty (Gentile *et al.*, 2007). Hence, most retailers seek to offer new experiences in their physical stores as well as multi-channel options to their customers who are prone to digital technologies (Neslin *et al.*, 2006; Accenture, 2015). Today, while many marketing tools of brands such as products, marketing communication messages, technology and prices have become very similar to each other, the biggest difference is the customer's experience (Shaw & Ivens, 2002). Thus, the most important tool for creating a competitive advantage and having satisfied customers is to create a meaningful CX (Bolton *et al.*, 2014; Verhoef *et al.*, 2009; Varnali, 2017). In the marketing field various design thinking methodologies, such as the IDEO, Plattner, Google Design Sprint, AC4D,

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Deep, SAP, Double Diamond and E6, etc. models, are employed to discover, define, develop and offer new experiences to users. Lately, CX and service design have gained a transdisciplinary nature that urges professionals to borrow marketing-specific concepts and tools in their projects such as spatial design professionals dealing with the design of servicescapes.

In this paper, the advantages of the design thinking approach and the Double Diamond Design Model (DDDM) tool to the brands are questioned through a holistic examination of the CX in the physical space. Among other models, the DDDM has been preferred since its stages work as a map that designers use for organizing their thoughts in creative processes. In the field study, the operations inside one of the stores of the world's largest wholesale and retail market chain in Istanbul are observed. Data about in-store experience, end-to-end CX, customer emotional state and deep-seated/unsatisfied needs are collected to answer the research questions below:

- Using the Double Diamond design process (DDDP),
 - What can we discover about customers and their needs?
 - What can we find out about end-to-end CX?
 - What can we find out about the in-store experience?
 - What solutions can we develop for the services and the physical space?

This paper is organized as follows: first, a brief literature review of the concepts related to CX and design thinking for a better CX are introduced. Next, a CX research for a global retail brand is explained with its methodology, limitations and findings. The conclusion part includes some new experiences realized and offered by the brand based on the outcomes of this research, which might pave the way for such a transdisciplinary perspective on the CX design research in the future.

2. Literature review

2.1. Customer experience (CX)

CX is the cognitive, sensory, emotional, social and physical consumer responses at multiple touchpoints in direct or indirect relationships with the brand (Gentile *et al.*, 2007; Meyer & Schwager, 2007; Bolton *et al.*, 2014; De Keyser *et al.*, 2015; Grewal & Roggeveen, 2020). The more positive and meaningful this experience is for the consumer, the stronger the bond with the brand. There are many definitions of CX in the literature (Table 1).

Schmitt (1999) pointed out that brands could realize experiences with elements such as communication, visual and verbal identity, product and media. Experience occurs when behavioral, emotional, social or cognitive elements come together with the participation of the consumer in the consumption process (Gentile *et al.* 2007, O'Sullivan & Spangler, 1998).

The concept of a customer in CX is sometimes expressed as a consumer, user, participant, or co-creator (Bolton *et al.*, 2014), and sometimes as a guest or actor (Lusch, 2011). Many marketing professionals see CX management as the most promising marketing approach to meet the challenges in today's and tomorrow's consumer markets (Homburg *et. al.*, 2017). When customers interact with a product, they actually experience their consumption through a complex journey (Varnali, 2019).

CX is created not only by factors that can be controlled by the service provider (service, atmosphere, product variety, price, etc.) but also by factors beyond its control

such as the influence of other customers, or the type of device the customer uses (McColl-Kennedy *et al.*, 2015). Understanding the role of experience at every step of the customer journey (CJ), especially in a technology-intensive environment, is of great importance for manufacturers, service providers and retailers (Grewal & Roggeveen, 2020).

Therefore, creating a strong CX throughout the entire purchasing cycle and across all touchpoints has become one of the foremost goals of managers. Valuable brands such as KPMG, Amazon, and Google today employ CX heads, managers, and experts responsible for creating and managing CX (Lemon & Verhoef, 2016). For such a holistic understanding, businesses need to collect customer data on interactions at each touchpoint with a long-term approach (Kennedy *et al.*, 2015). When customers interact with a product, brand, service or technology, they go through many steps and embark on a complex journey that will define their total experience (Varnali, 2019).

According to Shaw and Ivens (2002) stages of CX take place in five different settings including expectations, prepurchase, purchase, product/services consumption and post-experience review. Thus, designers aim to combine people's needs, the possibilities of technology, and the business world's needs for success (Brown, 2018). They employ a wide range of tools that enable data collection, user testing, data analytics, metrics and reporting, design thinking and presentation tools for practical and creative problem-solving.

2.2. Design thinking and service design methodology: The Double Diamond Design Process

Design thinking is defined as a methodology based on generating solution-oriented ideas from different perspectives. Design thinking is an iterative process that aims to understand individuals, challenge assumptions, re-recognize problems and create innovative solutions by exploiting design capability (Tuncer Manzanoğlu, 2022). It aims to reach design by putting the individual in focus. The process continues until the individual gives the best answer. Besides reaching a solution, design thinking aims to search for different ways to reach the solution. Within the scope of design thinking, various models are similar to each other but the process and tools differ. Among them, The Double Diamond Design Process (DDDP) is defined by two diamonds that represent a process of exploring an issue more widely or deeply (divergent thinking) and then taking focused action (convergent thinking) (Design Council, 2019). The DDDP has four phases:

- **Discover:** Understand the issue rather than merely assume it. It involves speaking to and spending time with people who are affected by the issues.
- **Define:** The insight gathered from the discovery phase can help to define the challenge differently.
- **Develop:** Give different answers to the clearly defined problem, seeking inspiration from elsewhere and co-designing with a range of different people.
- **Deliver:** Involves testing out different solutions at a small scale, rejecting those that will not work and improving the ones that are likely to fail.

Double Diamond shows that idea generation in the creative process happens twice: first to create the problem definition and second to generate the solution. The creative process must be iterated to find which ideas are the best. Ideas are developed and tested over and over, and the process is iterated by eliminating weak ideas. This cycle is an

essential part of a successful design (innovationtraining.org). Practical design methods; for example, user logs, journey and empathy maps, personas (character profiles), and storyboards all help to think up different customer scenarios and advance a project through DDDP.

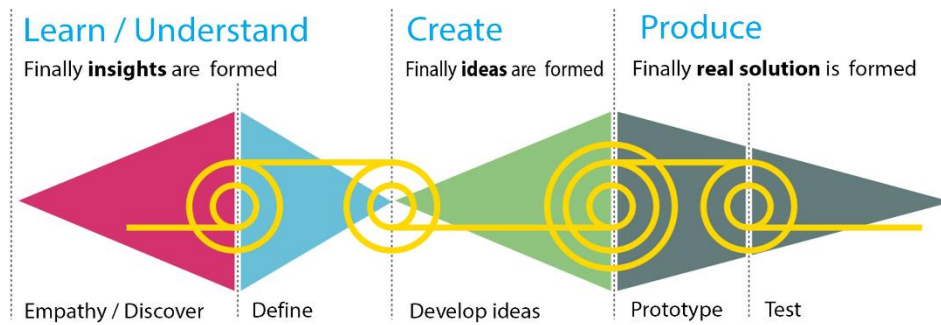


Figure 1. Double Diamond Design Model
(sourced by Design Council UK (2019) and revisualized by the authors)

2.2.1 Practical design methods for the DDDP: Customer journey, touchpoint and persona

Customer journey (CJ) management aims to understand and manage customers' experiences throughout the entire shopping journey (Grewal and Roggeveen, 2020). Since each CX is personal and unique, it is extremely important to model CJs based on individual customers (Halvorsrud et al., 2016). CX design aims to visualize the process that a customer goes through with different design methods ie. the CJ, touch point and persona.

Customer Journey (CJ)

The more touchpoints the brand has, the more complicated but necessary such a map becomes (Richardson, 2010) (Table 1). The concept of the CJ helps to unlock the multidimensional nature of services and is particularly helpful in assessing service quality in omnichannel environments. It is not only a valid tool in the design and valuation of services but also an inspiring approach that supports customer orientation (Halvorsrud et al., 2016).

Customers can experience very different CJs under the influence of contextual, dynamic and subjective elements (Halvorsrud et al., 2016) as well as digital elements, marketing tools, packaging cues, cultural factors, political factors and new technologies in the retail atmosphere (Grewal & Roggeveen, 2020). Retailers invest heavily to create the atmosphere that they want their customers to experience throughout their shopping journeys. Satisfying and inspiring customers along their journey are vital for retailers to gain a competitive advantage (Edelman & Singer, 2015). Positive CJ experiences bring not only short-term sales but also customer loyalty (Court et al., 2009). Today, marketers acknowledge that the CX is part of a long journey and that it will not always be experienced in-store (Roggeveen et al., 2020). CJ maps are used to map the brand's relationship with a customer over time and across all channels. Using CJ maps, design

teams determine to what extent CXs meet customer expectations and at what points the designs need to be improved (Rosenbaum *et al.*, 2017).

Touchpoint

The concept of “touch point” in the CJ terminology was first used by Bitner *et al.* (2008) in the field of service marketing (Table 1). Since then, it has been used in the context of “service encounter”, and “communication channel” (Clatworthy, 2011). Touchpoints can be conceptualized as clusters of experiential elements that foster product or service experiences (Berry *et al.*, 2006; Zomerdijk & Voss, 2010). Direct contacts typically occur through physical interactions with touchpoints, whereas indirect contacts occur around encounters with representations of the value proposition in the forms of word-of-mouth, advertising, news, or other types of editorial content (Meyer & Schwager, 2007). Previous studies suggest that different customer touchpoints can be identified including brand-owned, partner-owned, customer-owned, and social/external/independent (Baxendale *et al.*, 2015; De Haan *et al.*, 2016). The customer might interact with each of these touchpoint categories at each stage of the experience. Depending on the nature of the product/service or the customer’s journey, the strength or importance of each touchpoint category may differ at each stage. Attribution models can help identify the most critical touchpoints at each stage for each customer. Once they are identified, firms then need to determine how key touchpoints can be influenced (Lemon & Verhoef, 2016).

Persona

CJs are generally developed from a persona (Stickdorn & Schneider, 2011). Varnali (2017) defines persona as “a representative human prototype formed from the common denominator of people in a particular customer segment”. A persona is a fictional character created in user-centered design or marketing to represent an audience of users who may use a person, a site, a brand, or a product in a similar way (ajansara.com). While personas help to take a two-dimensional, static picture of the user more focused on demographic characteristics, journey maps have become useful tools by adding the third dimension to traditional personas by adding the time dimension. CJ maps represent changes in the user's needs, satisfaction levels, and metrics at every stage of the experience. CJ maps were first used in service marketing to improve service businesses (Howard, 2014) and promote service innovation (Rosenbaum *et al.*, 2017).

Creating a character with a fictional name and background information can help marketers or designers develop greater empathy and a more intimate relationship with the customer (Schäfer *et al.*, 2014). In addition, personas provide a common basis for collaboration and internal communication at all levels of the company. Shared representation induces a customer-centered perspective. Although a persona for marketing purposes may have different attributes than that for product development (Pruitt & Grudin, 2003), all the attributes are combined to form a single view of the customer. Rather than raw sketches, personas are much more detailed characters that help make the needs of customers salient and intelligible.

Personas are created from data collected from customer databases and through ethnographic methods such as interviews or observations (Pruitt & Grudin, 2003). Although the early persona data were mainly ethnographic, recent studies also use other methods, such as factor analysis (McGinn & Kotamraju, 2008) or grounded engineering theory (Dupree, Lank, & Berry, 2018). Personas typically include demographic and

behavioral variables, as well as general information, such as the user environment, current frustrations, relevant relationships, and goals (Goodwin, 2008; Stickdorn *et al.*, 2018).

Table 1. Summarizing key terms

<i>Author</i>	<i>Main focus</i>	<i>Definition</i>
Customer experience		
Abbott (1955) and Alderson (1957)	Experiences vs product	What people really demand is not products but satisfying experiences
Hirschman & Holbrook (1982); Holbrook & Hirschman (1982); Thompson et al. (1989)	Role of emotions	draws attention to the role of emotions in decision-making and experience by looking at human behavior from a broader perspective.
Schmitt (1999)	Consumer's multidimensional responses to marketing	A customer's sensory, emotional, cognitive, behavioral and relational, i.e. multidimensional responses to the company's marketing stimuli (pre-purchase and post-purchase)
Holbrook and Hirschmann (1982)	Hedonistic, symbolic and aesthetic dimensions	An individual situation with hedonistic, symbolic and aesthetic dimensions, created through consumers' fantasies, emotions, and enjoyment
Lemon and Verhoef (2016)	Multiple touchpoints	A customer's journey with a brand throughout the purchasing cycle and multiple touchpoints
Varnali (2017)	Life experience	covers the part of a person's life experience that is visible from the perspective of the institution and evaluates all his contacts with the institution.
Customer Journey Map		
Richardson, 2010	Engagement with the company	represents the CJ map as a diagram that illustrates the steps the customer(s) goes through in engaging with a company
Varnali, 2017	Customer touchpoints	inspects the approach that brings together customer touchpoints and analyzes them in cross sections.
Halvorsrud et al., (2016)	Brand plan and customer journey	defines the CJ concept that allows an individual CJ to be compared with what the brand has planned for the customers and/or different individual journeys taken by the customers. It helps to visualize the real-life counterpart of the service delivery processes planned by the brand.
Micheaux & Bosio (2019)	Illustration of moments	explains the CJ map, illustrates the interaction at a particular moment and how this moment affects other moments through visualization of individual interactions with a product, service or brand.
Touchpoints		
Zomerdijsk and Voss (2011)	Contact	"Moments of contact between the customer and the organization"
(Halvorsrud et al., 2016).	Communication	"The moment of communication between a customer and a service provider"
Varnali (2017)	Situational factors	Touchpoints are the articulation points of CJs represented cyclically by coding the situation and the features of the moment.

3. Methodology

The research aims to explore the advantages of using the DDDP to improve the end-to-end customer experience (CX) of a brand. For this purpose, CX research was carried out in a wholesale and retail market chain in Istanbul. To identify the needs of customers in the current system, in-depth interviews with 256 participants and shadowing observations during two full days were held in a flagship store. Using design thinking methodologies and tools including customer journeys, touchpoints and personas, the customers' shopping experience, emotional states, needs and expectations were analyzed

in depth (Table 2). The sample consisted of 16 HORECA customers and 8 individual customers that were categorized according to a number of criteria including their businesses and purchased product types, shopping amount, number of annual visits, product structure and basket size were taken into account.

Later, idea-generation workshops were organized with the participation of more than 20 brand employees to produce a large number of solution proposals. In these 2-day workshops, more than 500 service ideas were created, such as extracting online customer profiles and shopping history, order prediction based on customer data, and evaluation of organic waste. Thus, employing the first three steps (discovery, definition and development) of the DDDP, the CX of the selected brand was analyzed holistically to enable: (i) Evaluation of the in-store experience through understanding the end-to-end customer experience and examining the customer's emotional state, (ii) Identification of different customer types and their deep-seated and unsatisfied needs, (iii) Comprehension the physical (spatial) and systematic needs of the brand, (iv) Design of future-oriented experiences for the customers as shown in Figure 2.

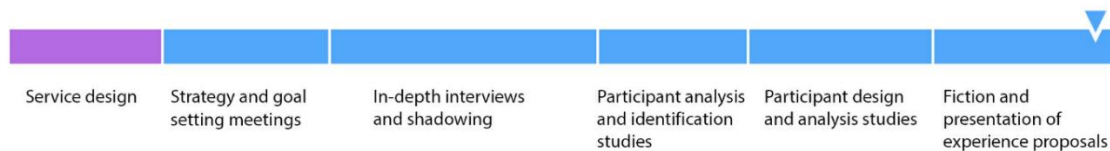


Figure 2. Flow chart of DDDP in the case study

4. Findings

The analysis of the data collected in the field study revealed the characteristics of the customers, their expectations and the problems they encounter, the steps of the CJ and the points that make their experience negative, as well as the personas and points open to improvement. Determined for both HORECA (hotel, recreation, catering) professionals and individual customers, all findings are stated in the three sub-headings of the discover, define and develop stages of the DDDP.

4.1. Discovering Customer Profiles, Expectations and Problems Encountered

According to surveys held with 256 customers about their opinions of the brand, the top 3 reasons for not preferring the retail brand were found as «Not easy to reach/store locations», «not widespread stores» and «high prices». A significant increase in «offering the same prices» indicated that the brand's shoppers would like to feel more special. On the other hand, broad assortment, giving value to humans, campaigns and promotions came out to be the most important criteria for the HORECA segment. The retail brand owned above the average score for these latter attributes (Table 2).

Despite the differences between HORECA and individual customer groups (Table 3), they could behave similarly in terms of time, quality, price and service (Table 4). Therefore, customers were further classified according to their rationale in the creation of personas at the development stage.

As a result of customer interviews on the image of the brand, it was discovered that the brand was insufficient to meet the operational needs of its professional customers and the shopping expectations of individual customers. The problems identified were:

1) A system that did not follow HORECA's routine

When the problems were examined, it was determined that the working hours and services of the brand do not comply with the shopping routine of HORECA, and the shipments could not keep up with the preparation hours of the restaurants. Other problems were the lack of a corporate communication channel between the brand and the customers, the wrong/missing delivery of the products via shipment, and the stocking of shelves during HORECA's shopping hours. On the other hand, customers stated that the financial advantage provided by the brand to HORECA was not sufficient.

2) A shopping experience that did not fit the habits of individuals

Customers mostly experienced uncomfortable shopping experiences. One of the problems was that there was no option to buy fruit and vegetables in small quantities according to need. Another problem was that the brand's stores did not fit the individual's buying habits of exploring and trying. Due to the difficulty of commuting, it became difficult to choose the stores of the brand for daily shopping. Other problems were the confusion of price tags, the influence of individuals upon HORECA at the cash desks, individuals giving up on purchasing products after seeing the density in the cashier desks, individuals buying products from the boxes when they saw that the single products in the aisle were finished, and individuals buying products from the boxes in the fruit/vegetable section.

3) Poor and not well-managed customer relations

The problems with customer relations were the attitudes of the employees towards the customer and the absence of systems that controlled it, customers leaving the store unhappy as a result of the security controls that made them feel uncomfortable, the customers' need for help not being met immediately, the sales consultants' inability to deal with their customers actively, and the customer experience not being the priority of the personnel.

4) Inaccessibility of product, price and campaign information

It was found that price advantage depended on one's own effort. Sending SMS and e-mails about unrelated products did not work for the customer. In addition, the inadequacy of channels where customers could get information about products, prices and campaigns besides irregularity or lack of announcements were among the problems.

5) Lack of value-added services

The absence of additional service or a benefit that would make the customers of the brand feel valuable for a long time, the lack of motivational resources to attract the customer to the brand other than the promotional products and new concepts specific to the brand appealing to a very limited audience or having a very low awareness, indicated the lack of value-added services.

6) Major experience problems within the store

Chaotic and dark storefronts, entrance and exit areas, forklifts working during store working hours, lack of parking loading areas and lack of greetings and farewells were among the problems. In addition, the lack of comfort in areas such as the butcher and delicatessen areas, insufficient in-store directions, lack of guides to indicate the location of the product other than the employees seeking products, the lack of attention to the information in the aisles, the inadequacy of the elements showing the product variety and the difficulty in reading the invoices were issues to be improved.

Table 2. Functional Image of the brand and by Horeca Segment (#interviews:256)

Attributes %	Importance	Horeca (n: 164)
They have a broad assortment, I can find there all I need	20	72
Brand that values human	18	68
They have attractive campaigns and promotions	15	70
They offer variety in ordering process (by telephone or online)	14	43
Staff are friendly and helpful	13	67
They offer products which I can't find anywhere else	8	71
They offer good value for money	7	66
Brand that looks after the values of Turkish Cuisine	3	64
High product and service standards	2	65
Brand that is environmentally friendly and gives importance to sustainability projects	-	68
Brand that introduces Turkish Cuisine to the world and contributes to the improvement of the Turkish chefs	-	64
Brand that supports geographically indicated and local products	-	61

Table 3. Defining customer segments, features and needs












	Participant analysis		Features	Needs
Individual customers		One-person household Mid basket	They go shopping after work or on the weekend. They usually eat out.	<ul style="list-style-type: none"> To shop without wasting time To buy a small amount of product enough to sleep on oneself.
		Large family High Basket	A large amount of food is cooked every day. If there is enough place at home, they stock affordable products or buy large quantities and consume them in a short time.	<ul style="list-style-type: none"> To receive instant news and benefit from promotional products Affordable access to wholesale products
		Niche customer Niche Basket	They buy quality and special products. They explore alternative tastes and can bring products from abroad if necessary.	<ul style="list-style-type: none"> To find and demand more products To receive a more professional service
HORECA professionals		Fish restaurant	They buy materials from familiar and trusted places.	<ul style="list-style-type: none"> To find fresh fish early in the morning and/or late at night To receive the fish at the exact time through To receive a qualified fish cleaning service
		Kebab restaurant		<ul style="list-style-type: none"> To buy meat from a familiar and trusted place To have access to detailed information on fresh products especially meat
		Brasserie		<ul style="list-style-type: none"> To quickly supply missing items as they shop more often To be able to get a proper shipping service due to limited time To track prices for a wide variety of products
		Local restaurant		<ul style="list-style-type: none"> To supply all the materials early in the morning To receive preparing services (butcher, fish etc.) in exactly desired portions.

Table 4. Comparing features and expectations of HORECA professionals and individual customers

Customer features		
Criteria	HORECA professionals	Individual customers
		
Time	<ul style="list-style-type: none"> Time is very precious for them. It is important to finish shopping at once. They develop and expect shopping behaviors that will save time in all processes. For example, they know the aisle layout by heart, and they pre-set barcodes at the cash registers. 	<ul style="list-style-type: none"> Time is valuable, but they are more open to exploration. They usually prefer to go shopping in the evening and on weekends.
Quality	<ul style="list-style-type: none"> They do not prefer to use a poor-quality product even if it is cheap. 	<ul style="list-style-type: none"> They want to buy healthy and quality products.
Price	<ul style="list-style-type: none"> They learn about the prices in the market by seeing them on the spot or from the people they are in contact with in other stores. They follow past shopping lists and create price lists. 	<ul style="list-style-type: none"> As a general habit, they want to buy as many products as he needs. Whenever affordable, they can buy products that can be stocked in large quantities.
Service	<ul style="list-style-type: none"> They have a certain working order and this order shall not be disturbed. They like to work with suppliers because they bring the products to their feet, but they have to go to the store since not every product comes with the shipment. 	<ul style="list-style-type: none"> They expect the shopping service quality that they are used to in every medium. They feel comfortable completing the missing products from places close to their surroundings.
Added value		<ul style="list-style-type: none"> They are more sensitive to the environment.
Customer expectations		
Criteria	HORECA professionals	Individual customers
		
Time	<ul style="list-style-type: none"> To find the products they are looking for in one place To supply the missing products quickly, easily and freshly. 	<ul style="list-style-type: none"> To find many different branded products in one place To have easy access to information about where to find a product To have easy access to shopping places
Quality	<ul style="list-style-type: none"> To find high-quality products at affordable prices 	<ul style="list-style-type: none"> To learn in detail information such as product information about expiration and production, etc., especially in fresh products.
Price	<ul style="list-style-type: none"> To find customized pricing (Discount for the most frequently purchased products) 	<ul style="list-style-type: none"> To find promotional products easily To choose the products and get as much as they need
Service	<ul style="list-style-type: none"> To get instant news about prices and campaigns To find continuity in products bought frequently To try the product when they want to switch to an alternative product To receive the shipment on time and properly. 	<ul style="list-style-type: none"> To reach premium, events, loyalty programs and personal priorities To get instant help To receive the products to their feet when necessary To have a problem-free return process
Added value		

4.2. DEFINE: CJ steps and issues that make the experience negative

After the initial discovery of customer profiles, expectations and problems encountered, the focus was shifted to the evaluation of end-to-end customer experience. The main CJ steps of the brand experience were found to be the exploration, planning, pre/online ordering, accessibility, in-store experience, resting, loading/departure, transport/placement, information, return/delivery and added value. By mapping the CX data to relevant CJ steps, the needs, problems, and opportunities encountered at each interaction point were defined, determined and prioritized by the design team (Table 5).

Table 5. Analysis of end-to-end CX with contextual observation (shadowing)

CJ steps	Key problems in end-to-end customer experience
Exploration	Stores are not common. Prices are high.
Planning	The distinction between corporate and individual customers does not differ in all areas. Hence many problems arise when this distinction is not clear, ie., customized pricing depends on one's own effort. Products, prices and campaign information are not accessible. Channels are insufficient to get information about products, prices and campaigns. Posts / SMS / e-mails are irrelevant and irregular.
Pre/online ordering	Going to the store to pick up the pre-orders take time, especially during high-traffic times.
Accessibility	Not convenient to reach
In-store experience	Chaotic and dark storefronts, entrance and exit areas Visual confusion due to campaign posters hung at the entrance led to security and comfort problems to shop inside, since the shopping area also functions as a warehouse. Operation of forklifts during store working hours Lack of parking loading areas Lack of welcome and farewell Problems about entering the area: delays in card issues/customer service, lack of animal waiting areas Insufficient comfort of fresh product aisles such as butchers and delicatessen areas Not enough in-store directions No router indicating the location of the searched product other than the employees. Access issues in display layouts Unclear separations on the shelves, so individual customers think that they can buy boxed products. Unconceivable or incomprehensible information in the sections Lack of items showing product variety Inability to read invoices easily and access priority information Problems with the use of shopping carts Delay of help Poor customer relations and poor management
Resting	Lack of directions: ie., to toilets
Loading/Departure	Inability to understand availability at checkouts Density at checkouts, especially on weekends Delay due to packaging
Transport/Placement	Shopping carts are left unattended in the loading area
Information	Inaccessibility of products, prices and campaign information Price customization is achieved through one's own effort. Posts / SMS / e-mails coming are about irrelevant products and not helping the customer. Channels are insufficient to get information about products, prices and campaigns. Irregularity or no delivery of posts / SMS / e-mails
Return/Delivery	When entering from the entrance, the return place is downstairs and thus is not visible. The inability to meet the customer's need for assistance immediately The inability of sales consultants to actively engage with their customers Customer experience is not the priority of the staff. Employees' attitudes toward customers can be problematic and there are no systems to control this. Customers leave unhappy as a result of the security controls making the customers feel uncomfortable.
Added values	The chef's kitchen doesn't appeal to anyone Not providing an additional service/benefit that will make long-time customers feel valuable Lack of motivational resources to attract customers to the brand except for promotional products. The Gastro Academy section appeals to a very limited audience, so it is not known. Geographically indicated products attract the attention of only a few people.

4.3. DEVELOP: New personas and points of improvement

After defining the key problems in customer experience, the features and needs of the customers were associated with their personas (customer cards). This helped to determine the areas that needed focus. At this step, it was essential to define new customer types according to their different thinking structures thus their consumer behaviors such as the technology-friendly, planner, explorer, money giver, old-style buyer, stock exchanger, skeptical and gourmet customer. It was envisaged that these eight new might be differentiated or combined in the future to allow the creation of new characters/personas (Table 6).

Table 6. New personas according to different thinking structures: Features and areas to focus

Personas	Features	Points of improvement
Technology friendly	He is very proficient in new technologies and digital products. He prefers to work online or on mobile.	<ul style="list-style-type: none"> • Technological/digital products that will ease the shopping experience • A channel to follow processes such as shipment and return • Channels integrated with their systems
Planner	His shopping preparation and process are extremely planned. He likes to stick to his list. He accepts any tool to help him plan his shopping.	<ul style="list-style-type: none"> • Being able to learn quickly the location of the products in the list • Completing his shopping according to the plan, not being detained for various reasons. • Completing shopping quickly and efficiently
Explorer	He likes to wander around the store and explore the aisles. He can shop responsively.	<ul style="list-style-type: none"> • Being able to understand the contents of the in-store sections easily • Discovering different products
Money giver	He is open to paying more for a quality product. He does not easily prefer a product whose taste/quality does not suit him, just because the price is affordable. He does not hesitate to pay more for services that create added value.	<ul style="list-style-type: none"> • Being convinced of the quality while choosing a new product • Services that will provide convenience, speed and priority
Old style buyer	Since he cannot use technological tools and digital products very easily and is used to them, he does shopping with traditional methods such as campaign tracking and list creation.	<ul style="list-style-type: none"> • Being able to understand physical directions easily • Ability to follow all promotional products • Finding contact points within the store where they can get help quickly and easily
Stock exchanger	He follows the prices like the stock market. He is always in search of the best price. He wants to have very up-to-date and detailed information about products, prices and campaigns.	<ul style="list-style-type: none"> • Being able to follow the prices of the same product in different places • Being able to receive instant news about product campaigns/discounts • Being able to identify products that are affordable compared to the market
Skeptical	He prefers to buy selectively to ensure the freshness of the products. He tends to think that any defect is immediately malicious.	<ul style="list-style-type: none"> • Detailed information about products/services • To be convinced of the freshness of the products
Gourmet	He knows everything about food. He hardly believes that anyone can teach him anything. He is open to innovations, but he is not easily convinced due to his high knowledge. He is open to events.	<ul style="list-style-type: none"> • Giving products/recipes that will contribute to their knowledge • Content that may be of interest other than the subject in which he is an expert. • Being able to find rare and high-quality products

Develop: Opportunities and Solutions

Upon defining CJ's steps and issues that make the experience negative and developing new personas and points of improvement, the development step of DDDM was followed. More than 500 recommendations and strategies for enhanced customer experience were questioned according to their priority and availability at each touchpoint

(Table 7). Beyond the explicit problems what customers desired was to feel more special and receive personalized service from the brand. Their comments included "The brand offers no difference between a client who comes every day and occasionally..." and "In previous years, you had quality products and affordable prices. Now your general price average (food, clothing, electronic product ... etc) is above the similar express markets. We are having difficulty getting information from the department staff. When we ask them they are unwilling to answer questions". They also were not satisfied with the design of the physical space. "Boring market with very very high ceilings and shelves as high as those ceilings. Everything is sold in boxes and without exception, there are always long queues in front of the cash registers".

Table 7. Questions developed in idea-generation workshops according to CJ touchpoints

Exploration	<ul style="list-style-type: none"> • How can we help customers shop cheaply from the brand? • How do we ensure that HORECA finds all the products it needs from the brand?
Planning	<ul style="list-style-type: none"> • How can we make the brand more attractive to retailers?
Pre/online ordering	<ul style="list-style-type: none"> • How can we ensure that HORECA reaches the right product at the right time?
Accessibility	<ul style="list-style-type: none"> • How can we facilitate customers' access to the brand?
In-store experience	Login/ Registration <ul style="list-style-type: none"> • How can we avoid congestion and delays at the entrance? Shopping/ Discovery/ Departments <ul style="list-style-type: none"> • How can we emphasize the quality and freshness of the products? • How can we introduce new products to customers? • How can we meet customers' information/help needs in-store? • How can we offer a more personalized shopping experience? • How can we offer a more comfortable shopping experience at the Brand? • How can we improve logistics and customer flow within the store? • How can we offer a smooth, fast and accurate payment experience?
Resting	<ul style="list-style-type: none"> • How can we meet the orientation/information/help needs of the customers in the store?
Loading/ Departure	<ul style="list-style-type: none"> • How can we avoid the density and confusion at the exit? • How can we ensure store security without accusing customers?
Transport/ Placement	<ul style="list-style-type: none"> • How can we maintain order at the exit?
Information	<ul style="list-style-type: none"> • How can we make the retail/wholesale distinction more evident within the store? • How can we communicate campaigns and discounts more effectively?
Return/ Delivery	<ul style="list-style-type: none"> • How can we improve product delivery to customers? • How can we improve the exchange/return processes?
Added Values and Services	<ul style="list-style-type: none"> • What would the brand be like if it were an academy? • How can we offer professional support to HORECA? • How can we make the brand more environmentally friendly? • How can we improve the customer experience after shopping? • How we can strengthen the bond between customers and the brand?

According to customer comments, to create a higher level of satisfaction for the customers and turn them into loyal customers, in-store activities emerged to be important. Among the total eleven CJ steps that came to the forefront were the 'in-store activities', 'information' and 'return and delivery' supported by the store personnel. The brand had to take action regarding these three touchpoints. Improving the physical retail space through more efficient planning of the layout and the visuals, providing more personalized service through SMS communication and training staff for empathy with the customers could help to increase customer satisfaction. According to customer surveys, the major reasons for not visiting the store came out to be the inconvenience and high

prices. In terms of convenience, the location of the store and the easiness of access was the most important factor for determining a store and/or mall for shopping. The store was at the forefront of the brand in the entire Istanbul therefore focusing on its accessibility issues in communication could be useful to increase its convenience. Thus, the brand's weekly post was an important touchpoint in terms of information channels and could inform the customers of its strength on price and campaign-related issues.

The potential solutions for enhanced customer experience pointed out a wider customer segmentation, more customized HORECA services, more efficient data handling and personalization, a more accessible brand, a new generation of the brand store formats and building the brand academy (Table 8).

Table 8. Potential solutions developed in idea-generation workshops

A wider customer segmentation: <i>To establish a customer-focused structure, it was necessary to define the customers in detail to design which services to be provided for each and how.</i>	
Premium quality service <i>targeting all individual and professional customers</i>	<ul style="list-style-type: none"> • Fast-track right to the cash registers • Events, training, tastings, gourmet tours • Offering premium options in the app • More discount rates • Restaurant discounts • Special line and a customer representative • Night/ Opportunity to shop 24 hours • Same-day express delivery without the need to come to the store • Right to participate in Gastro Academy meals, workshops, courses or starred meetings • Brand partnerships such as Platinum (Lounge use, car rental, etc.) • Customer services such as Uber could be arranged • Payment facilities
Brand loyalty programs <i>targeting all individual and professional customers</i>	<ul style="list-style-type: none"> • Special advantage cards for customer groups • Accumulation/redemption of points • Special communication and campaigns/instant discounts • Right to participate in 'Gastro Academy' training • Access to special/premium products • Exclusivity at the cash register • Package programs • Gamification
Customer communities and content sharing <i>targeting all individual and professional customers</i>	<ul style="list-style-type: none"> • Creating customer platforms • Groups for chefs, premium customers and restaurant owners • Restaurant promotions • Social / print media content • Community events • Influencer, professional and individual content sharing • Content management units • TV content for the brand
Seamless service for HORECA: <i>It was important to design customer journeys without problems delays, or setbacks. customer experience had to be efficient, smooth, and enjoyable</i>	
Setting up a HORECA/ customer portal <i>targeting professional customers</i>	<ul style="list-style-type: none"> • An online customer portal • Customer profile, shopping history • Product recommendation with product shopping tracking • Shopping list creation • Periodic product ordering/ Pre-order creation • New product notification • Payment/ return/ complaint management • Direct campaign creation and communication based on customer shopping history • Customer representative/ call center communication • Information management • Presenting industry news • Presenting content suitable for customer profile

Setting up a HORECA delivery/supply chain <i>targeting professional customers</i>	<ul style="list-style-type: none"> • Providing complete supply suitable for the customer segment • Delivery tracking system • Time of delivery return option • Delivery time, conditions, period planning • 24-hour accessible ordering system • Customer representatives on duty • Express delivery options • Predictive order planning based on data • Pre-order system • Click & Collect structure and delivery points • The intelligent route planning system
Providing more qualified customer representatives <i>targeting professional customers</i>	<ul style="list-style-type: none"> • Active pricing and product recommendations based on customer data • Customer representation by customer segment (special representative, customer representative, call center, online representative, chatbot) • Recorded customer conversations • Customer representatives' sales and communication platform (detailed shopping tracking) • Representative notifications and alerts / Customer behavior tracking • Representative access via APP and portal • Selecting/replacing a customer representative • Customer representative trainings <p>In-store customer representatives</p>
Potential solutions for more efficient data handling and personalization: <i>The effective use of all channels that could help collect customers' data was important.</i>	
The brand data lab <i>targeting all individual and professional customers</i>	<ul style="list-style-type: none"> • Increasing data collection points (in-store, app, portals, social media, customer representatives, supply chain, etc.) • Shopping histories • Shopping habits • Purchasing and behavior change tracking/notifications • Customer's sales/management systems to be integrated • In-store traffic data • Customer mood measurements • Customer experience measurements • Use of predictive models
Personalization in shopping <i>targeting all individual and professional customers</i>	<ul style="list-style-type: none"> • Immediate recognition of customers entering the store, addressing them by name • Waiting and cashier management by customer segment • Dynamic pricing according to customers' shopping history • Post-shopping benefit/earnings notifications • Personalized information from in-store screens via the brand card/app • Presenting content according to the customer sector (fish, kebab, etc..) • Tastings and events suitable for customer segments in the experience areas • Notification and campaign setup/communication suitable for the interests of the customers • Social responsibility projects that can appeal to different customers
A more accessible brand <i>targeting all individual and professional customers</i> <i>It was important to enable all customers fully experience the brand, receive and understand communication, and take advantage of opportunities.</i>	
<ul style="list-style-type: none"> • Instant access to all products, prices, campaigns and information on digital media • Working/stocking hours suitable for HORECA working hours • Store help desk and customer experience representatives • Help buttons, app, in-store help screens • Improvement of physical transportation • Customer services, taxi calling opportunities, partnerships with Uber, etc. • Rental of baskets/ electric bikes • A more transparent, open, bright and inviting storefront • Dealing with gas stations/ Discount/points campaigns for The brand customers • Home delivery for individuals • HORECA customer onboarding and warm handover • Service recovery • Availability of the Gastro Academy for special events and training 	

Potential solutions for new-generation brand stores: <i>It was important to inspire customers every time they visited the shop and make them wish to come back.</i>	
Improved “chef’s kitchen” with more experience field <i>targetting ‘professionals’ and and ‘gourmet’ individuals</i>	<ul style="list-style-type: none"> • Relaxation and dining area • Longer working/open hours • Offering a single point for product tastings/promotions • Monthly, scheduled content and training for HORECA (fish or pie month, etc.) • Pre-planned training • Digital recipes for prepared meals • Information sessions for individuals • HORECA demo area in the chef’s kitchen • HORECA’s ability to use the chef’s kitchen • Food competitions, tv shoots • Wine, whiskey, delicatessen, tastings, premium events • A practice restaurant, providing training for the brand • A consulting area for chefs and customers
Self service the brand <i>targetting ‘professionals’ and ‘technology-friendly’, ‘planner’, ‘money giver’, ‘stock exchanger’ individuals</i>	<ul style="list-style-type: none"> • Online ordering • Information interactive screens (Product information, map, stock, campaigns, contents) • Foreign language support • First registration, information update, points check, points usage, shopping history • Pre-order tracking • Complaint management • Support Center • Help desk, customer representatives • Self-checkout • Vending machines (food/non-food) • Ease of buying and leaving a single product (water, cigarette, etc.) • Lockers with card
A more environmental brand <i>targetting ‘technology-friendly’ ‘explorer’ ‘moneygiver’ individuals</i>	<ul style="list-style-type: none"> • Recycling incentive • Recycling machines • Multi-use shopping bags (they could be a gift for the Premium customers) • Electric vehicle charging stations • “Made with minimal carbon impact” labels • Partnerships with environmental protection organizations • Collection areas for returnable products • Organic waste compost production and sharing • Fresh vegetable greenhouse/ orchard • Minimizing carbon footprint in logistics • Electric delivery trucks/ shuttles/ forklifts • Solar-powered roofs/ parking lots • Cycling campaigns/ sharing • Less paper consumption
A gastro academy for the brand <i>targetting ‘professionals’ and and ‘gourmet’ individuals</i>	<ul style="list-style-type: none"> • Corporate training center for all the brand employees • Customer communication training • Quality control training • Product Training • Online training/ informative videos • Technology training • Partnerships with gastronomy schools • Masterclasses with famous chefs • Workshops for individuals • Sectoral gastronomy training • Chef, waiter, barista training/certification • Restaurant management training • Leadership training • Career pool platform/employment area • A kickstart - incubator system for the brand

5. Conclusion

This paper introduced the use of the DDDM in a real-life case study to show how design thinking might provide an understanding of physical/spatial and systemic needs beyond the surface problems and be used as an effective tool in designing sales spaces

with more personalized service, more inclusive customer experiences and high customer satisfaction. The detailed solutions recommended for enhanced CX revealed why many firms have become competent at understanding the journeys their customers take and optimizing their experience with individual touchpoints along the way. As customers have realized their power to desire more, merchandising concepts have begun to change. Stores are more than physical environments but rather have become ‘experience centers’. Therefore, service design has to deal with the end-to-end customer experience considering all possible touchpoints and stakeholders, with a customer-oriented approach.

During the discovery phase, through in-depth interviews and observations with 24 customers, data on shopping experiences, moods, needs and expectations were collected. During the identification phase classification of the data as end-to-end journey maps and personas demonstrated that the brand was insufficient to meet the operational needs of its professional HORECA customers and the shopping expectations of individual customers. During the development phase, idea-generation workshops were held with the participation of more than 20 brand employees. New strategies and roadmaps for the future of brand experience were created, ie. personalizing the service offered through efficient data use, diversifying communication channels, creating a more inclusive customer experience and establishing a gastro academy. During the CX research, DDDM could provide an understanding of physical/spatial and systemic needs beyond the surface problems and could be used as an effective tool in designing sales spaces with more personalized service, more inclusive customer experiences and high customer satisfaction.

In the case study, DDDM enabled a holistic examination of customer experience, identification of different customer needs, and creation of services and experiences that may be offered by the global retail chain in the future. During idea-generation workshops, more than 500 service ideas were created ie. the creation of online customer profiles and their shopping histories, forecast of orders based on customer data, evaluation of organic waste, personalization of the service via efficient data use, diversification of communication channels, setting up a gastro academy. The ideas were categorized into short, medium and long-term strategies to be developed for final evaluation and acceptance.

After the evaluation of CX in the retail space, the brand offered fast, mobile and digital experiences from the entrance to the exit of their stores (end-to-end) to meet the need for contactless, fast and easy shopping, especially with the pandemic (Figure 3). With a mobile application, which owned machine learning technology and was a pioneer in Türkiye in this respect, customers were able to add their products to their shopping carts by scanning the barcode, and at the end of the shopping, they were able to make direct payments by verifying the basket within seconds. The app made it possible to pay without waiting at the cash register and reduced the time spent at the cash register from minutes to seconds. In addition, with the mobile application, the total amount of the shopping could be seen before coming to the cashier. The total time for the customers to add their products to their shopping carts and make the payment from the moment they enter the door was reduced to a much shorter time, approximately fifteen minutes. The aim was to ensure that one out of every three customers shopping at their stores would use the app. With this solution, the increasing need for fast and contactless payments during the pandemic period could be met.



Figure 3. Fast, mobile and digital services for the customers

Following this CX research, a gastro academy was set up as an education, development and activity center. Since then it has contributed to the development of gastronomy in Türkiye and has become a meeting point for all parties of the industry, from chefs to students, from suppliers to buyers; from restaurant and hotel operators to taste lovers from gastronomy writers to researchers. It has become a physical and online education platform for sustainable products and service solutions such as waste management, responsible energy use and menu recommendations (Figure 4).



Figure 4. Realized Gastro Academy project

In the wholesale and retail market, competition in understanding and strategically managing the customer experience (CX) is increasing day by day. Chain brands are seeking to strengthen the bond they establish with their customers and their brands. Determining the strategies for the future of the brand experience in the short, medium and long term requires focusing on the customer rather than the product. Experienced design professionals employ a design-oriented thinking approach that aims to better understand the customers, create effective service scenarios and improve the physical spaces. Similar field studies, via their motivations and outcomes, might inspire brands to adopt design thinking as a strategy for creativity and innovation. This research is limited to a global wholesale and retail brand and its customer sample of professionals and individuals shopping in a flag store in Turkey. Further research shall seek to reveal the competitive advantage of CX and service design for business from other field studies differing in terms of sectors, customer groups and locations, etc.

This paper underlines the transdisciplinary nature of CX research. CX analysis tools that were once innate to the marketing field, contributed substantially to the interior design of retail spaces. The tailoring of the new retail space according to the findings,

proves the potential of design thinking and DDDM for the design of retail interiors which await as blank canvases for creativity. The innovative solutions delivered at the end of CX research have also helped the selected brand to establish a stronger bond with its customers. For more personalized service, more inclusive customer experience and more diverse customer groups in local and global markets, brands shall seek such design-oriented transformations. On the way to innovation, design thinking and its tools can offer the essential human-centered approach to be employed during the design of services and servicescapes.

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Appendix 1. Interview questions about the overall shopping experience

Overall Shopping Experience	
What are their habits?	How do they see themselves as characters while shopping/managing? <ul style="list-style-type: none"> ○ Planned - spontaneous ○ Hasty – relaxed ○ Novelty seeker – with certain routines ○ Comfort seeker ○ Efficiency seeker ○ Price oriented – product oriented ○ Control freak ○ Other...
What is the context like?	Store experience <ul style="list-style-type: none"> ○ Login experience (card/ registration/ recognition, etc.) ○ Experience while shopping <ul style="list-style-type: none"> ▪ Orientation and product search, continuity ▪ Circulation and traffic ▪ Aisle experiences (meat, vegetable, refrigerator, fish alcohol) ▪ Importance of product information? (origin, farm, preparation) ▪ Pre-orders/preparations ▪ Competence and service of employees ○ Payment experience ○ Installation experience ○ Overview of delivery to address/ pick up event/ online order? <ul style="list-style-type: none"> ▪ Pros ▪ Cons ○ Relationships between Professionals – Retailers <ul style="list-style-type: none"> ▪ Overview of retailers coming to the store ▪ Do they shop individually? ▪ Interaction during shopping ▪ Interaction at checkout ▪ Positive aspects ▪ Negative aspects ▪ Shopping differences between professional and retailer ○ Shopping experience with other brands and channels <ul style="list-style-type: none"> ▪ Vegetable Market ▪ Wholesalers ▪ Grossmarkets ▪ Markets ▪ Suppliers ○ Business management and growth needs

	<ul style="list-style-type: none"> ▪Expanding a store/opening a branch ▪Promotion and customer relations ▪Kitchen and stock management ▪Personnel training ▪Research and Development (new ingredients, dishes, recipes, methods)
What do they need/ expect/ want?	<ul style="list-style-type: none"> ○ What would you change if you knew you had three wishes and they would come true?
What makes them happy?	<ul style="list-style-type: none"> ○ Best recent experiences? ○ The services/services/applications you like to use most recently, etc. ○ Best experience in shopping?
What frustrates them?	<ul style="list-style-type: none"> ○ Worst recent experience? ○ Worst shopping experience?
What would make them change their routine?	