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# **Customer Satisfaction in the Pet Food Subscription-based Online Services**

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A Satisfação do Cliente de Serviços Online de Subscrição de Comida para Animais de Estimação

Mestrado em Marketing e Comunicação, na especialização em Comunicação de Marketing apresentada ao Departamento de Comunicação da Escola Superior de Educação de Coimbra e ao Departamento de Gestão da Escola Superior de Tecnologia e Gestão de Oliveira do Hospital para obtenção do grau de Mestre

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## **A Satisfação do Cliente de Serviços Online de Subscrição de Comida para Animais de Estimação**

Resumo: A consciencialização face ao bem-estar dos animais de estimação cresce cada vez mais. Neste âmbito, os Serviços Online de Subscrição (SOS) de comida para animais de estimação respondem à procura por comida que atenda às características e necessidades de saúde dos animais de estimação. A presente pesquisa explora os antecedentes da Satisfação do Cliente de SOS de comida para animais de estimação e o seu efeito na Intenção de Continuidade. Para tal, 29,723 online reviews de 10 marcas de SOS de comida para animais de estimação foram extraídas do Trustpilot. Uma matriz de frequência de palavras foi desenvolvida por meio de técnicas de text mining e utilizada como input para criar um modelo de equação estrutural. Os resultados sugerem que a Qualidade do Serviço Eletrónico, a Salubridade, os Ingredientes e Nutrição, e os Atributos Extrínsecos influenciam positivamente a Satisfação do Cliente. Adicionalmente, a Satisfação do Cliente afeta positivamente a Intenção de Continuidade. Estes resultados fornecem conhecimentos aos gestores destes serviços, que podem ser utilizados de modo a implementar medidas para alcançar a Satisfação do Cliente e, conseqüentemente, garantir que os clientes continuam a usar os SOS de comida para animais de estimação.

**Palavras-chave:** comida para animais de estimação; serviços online de subscrição; qualidade do serviço eletrónico; satisfação; intenção de continuidade; mineração de texto

### **Customer Satisfaction in the Pet Food Subscription-based Online Services**

Abstract: Pet owners are becoming increasingly aware of their pets' well-being. Pet food Subscription-based Online Services (SOS) fulfill the demand for pet food that fits pets' characteristics and health necessities. The present research explores the antecedents of pet food SOS Customer Satisfaction and its effect on Continuance Intention. To achieve our goal, 29,723 online reviews from 10 pet food SOS brands were collected from Trustpilot. A term frequency matrix was developed through text mining techniques and used as an input to construct a structural equation model. Results suggest that E-Service Quality, Healthfulness, Ingredients and Nutrition, and Extrinsic Attributes positively influence Customer Satisfaction. Additionally, Customer Satisfaction positively affects Continuance Intention. These findings provide pet food SOS managers insights that can be used to implement measures to achieve Customer Satisfaction and, consequently, ensure that customers continue to use the pet food SOS.

**Keywords:** pet food; subscription-based online services; e-service quality; satisfaction; continuance intention; text mining

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**List of Abbreviatures**

**ECT** - Expectation-Confirmation Theory

**E-SQ** – E-service Quality

**PLS-SEM** - Partial Least Square Structural Equation Modeling

**SOS** – Subscription-based Online Services

## **INTRODUCTION**

## 1. Introduction

The pet food industry is rapidly growing (Kwak & Cha, 2021). Evaluated at USD 115,50 billion worldwide in 2022 and estimated to reach 163,70 billion by 2029 (Fortune Business Insights, 2022), this growth is attributed to the relationship between pets and owners (Fox & Gee, 2019). Pet owners are more aware of their pets' well-being (Vinassa et al., 2020). Thus, pet owners seek pet food that fits their pets' characteristics, such as breed, age-specific, or food adapted to their health conditions (Viana et al., 2020). Food characteristics such as ingredients, health, and nutrition have been identified as essential factors for pet food buyers (Kwak & Cha, 2021; Schleicher et al., 2019). Accordingly, pet food subscription boxes, a business model that fulfills these demands, are rising in popularity set to register a Compound Annual Growth Rate (CAGR) of 20.40% between 2023 and 2033 (Persistence Market Research, 2023). These subscriptions allow customers to periodically receive a pet food box tailored to their dogs' or cats' nutritional needs upon providing information such as age, weight, breed, activity level, health conditions, and taste preferences on the brand's website.

Subscription-based online services (SOS), or subscription box retailing, are an e-commerce business model that provides a periodical delivery of customized boxes of products directly to consumers upon payment of a subscription fee (Woo & Ramkumar, 2018). In recent decades subscriptions started to include online processes (Bray et al., 2021). Due to its convenience and cost-saving characteristics (Bray et al., 2021), the subscription economy is experiencing massive growth (Toteva et al., 2021). Valued at USD 72,91 billion in 2021, the growth rate of the global subscription e-commerce market is 65.67%, with an estimated value of USD 904,28 billion by 2026 (Research and Markets, 2022). Moreover, the decreasing interest in in-store shopping and the rise of online retailing have led to the increase of SOS in a wide range of products, such as pet food (Andonova et al., 2021; Woo & Ramkumar, 2018).

Driven by customers' attachment to their pets, pet food subscriptions fulfill the increasing need for pets' well-being. This particularity requires understanding how this necessity affects perceptions of satisfaction towards this subscription model. Moreover, pet food SOS' growth prospects and the high churn rates regarding subscription business

models (Andonova et al., 2021; Bischof et al., 2020) reinforce demand for an analysis of its customer satisfaction impact on continuance intention. Customer satisfaction positively affects SOS adoption, and it is a crucial enabler for competitive advantage in e-commerce (Gajewska et al., 2020; Kerschbaumer et al., 2022). Furthermore, satisfaction is a driver of service continuance intention (Hepola et al., 2020).

Previous studies have found pet food attributes, both intrinsic and extrinsic, to be relevant factors in buying behavior (Rombach & Dean, 2021a; Schleicher et al., 2019). Although SOS' customer behavior literature is emerging (Bischof et al., 2020; Bray et al., 2021), studies have yet to approach pet food-buying behavior in the SOS context. Despite the wide variety of subscription boxes (Andonova et al., 2021), literature mainly addresses fashion (Ramkumar & Woo, 2018), beauty (Lee et al., 2019), and subscription adoption motivations (Bhatt et al., 2021; Kerschbaumer et al., 2022). However, a study on pet food as part of household goods subscriptions found convenience, ease of use, and value for money to be the main motives for adoption (Bray et al., 2021). These findings do not reflect the crescent interest in pets' well-being. Despite its growth prospects, research has yet to study the antecedents of pet food SOS customer satisfaction and continuance intention.

Considering the aforementioned gap, the present research aims to study the antecedents of customer satisfaction and continuance intention regarding the pet food SOS market. Given the growing importance of pet food attributes (Schleicher et al., 2019), and the well-reported importance of e-service quality in e-commerce (Rita et al., 2019), e-service and product-related variables are addressed. This study is based on online reviews analysis, a widely used method to study customer satisfaction (Furtado et al., 2022). Therefore, 29,723 online customer reviews from the ten most reviewed pet food SOS brands on Trustpilot were collected. Following the approach of Ramos et al. (2022), a term frequency matrix was created through text mining techniques by pairing every review with a validated dictionary. The matrix was used as an input to evaluate the model relationships using partial least square structural equation modeling (PLS-SEM). With the present research, we aim to enrich knowledge on pet food SOS' customer satisfaction and its subsequent impact on continuance intention and provide pet food SOS managers practical measures to achieve customer satisfaction and strengthen their business.

## **LITERATURE REVIEW**

## 2. Literature Review

### 2.1. E-service Quality and Pet Food SOS Customer Satisfaction

Electronic service quality (E-SQ) has emerged as an adaptation of service quality to the digital environment (Lionello et al., 2020; Parasuraman et al., 2005). E-SQ comprehends the whole transaction from the beginning to the end, including post-interaction services (Suhartanto et al., 2019; Wolfinbarger & Gilly, 2003). It is the extent to which a website allows the shopping, purchasing, and delivery experience to be efficient and effective (Zeithaml et al., 2002). E-SQ's positive relationship with customer satisfaction has been established in pet food SOS-related e-commerce contexts, such as online shopping and delivery services (Rita et al., 2019; Suhartanto et al., 2019). Different scales comprehending different dimensions have been developed to measure E-SQ (Blut et al., 2015; Lopes et al., 2019). Given the delivery nature of pet food SOS, two E-SQ dimensions expected to affect customer satisfaction are customer service and fulfillment (Annaraud & Berezina, 2020).

Customer service refers to the online store's overall service level and return/handling policies during and after the sale (Blut, 2016). In the subscription context, customer service can relate to sales and after-sales services, including the return and replacement/refund processes (Xu, 2020). For the present framework, customer concerns are expected to address different stages, such as pet food production, subscription payment, and delivery. In the absence of face-to-face contact, online stores can provide a phone number, an email, or synchronous media (e.g., live chat, chatbots, and online help desks), for customer service contact (Rita et al., 2019). Meeting or exceeding customer service expectations is crucial for the success of an online service (Annaraud & Berezina, 2020). Timely and effective management of customers' concerns increases online customer satisfaction (Al-Adwan & Al-Horani, 2019; Blut, 2016).

Fulfillment concerns activities that ensure customers receive the product within the estimated time frame for delivery, at the expected price, and in mint condition (Blut, 2016; Wolfinbarger & Gilly, 2003). In the SOS context, fulfillment encompasses the order and delivery processes of the subscription box (Xu, 2020). Regarding the food delivery business, fulfillment activities such as preparation and delivery details are key factors that

positively affect satisfaction (Annaraud & Berezina, 2020). It is crucial to provide accurate and positive product information on websites, as well as timely deliveries to prevent adverse outcomes such as post-payment dissonance or order cancelation (Liao, 2017; Pham & Ahammad, 2017).

Considering the above, the following hypothesis is proposed:

**H1:** *E-Service Quality positively influences Pet Food SOS Customer Satisfaction.*

## **2.2. Pet Food Attributes and Pet Food SOS Customer Satisfaction**

Product attributes are important factors for assessing SOS and food consumer behavior (Lee et al., 2019; Symmank, 2019). Customer evaluation of a product can be holistic, concerning the whole product, or differentiated, concerning different product attributes (Antonides & Hovestadt, 2021). Pet owners commonly evaluate a combination of intrinsic and extrinsic product attributes when purchasing pet food. Intrinsic product attributes refer to physical aspects of the product, while extrinsic attributes are not physical parts of the product itself (Rombach & Dean, 2021a). As the concerns over pet well-being grow, ingredients, healthfulness, and nutritional content become important intrinsic attributes for pet owners (Schleicher et al., 2019; Xiao et al., 2021). Regarding extrinsic attributes, the packaging is a relevant product and quality maintenance attribute (Müller & Schmid, 2019), and the price is a vital attribute of pet food purchasing (Banton et al., 2021).

### **2.2.1. Healthfulness, Ingredients and Nutrition**

One of the most critical attributes for pet food buyers is health (Schleicher et al., 2019). Due to the humanization of pets (Fox & Gee, 2019), customers' concern over pets' health has grown along with the concern for human health (Viana et al., 2020). As pets become part of families (Hoummady et al., 2022), owners are more aware of the well-being of their pets (Vinassa et al., 2020). Therefore, customers want pet food that helps them face specific pet health problems, such as being overweight, skin allergies, or digestive health (Banton et al., 2021; Spence, 2022). Many authors have found healthiness

to be an essential attribute that customers prioritize regarding pet food (Kwak & Cha, 2021; Morelli et al., 2020).

As an essential way of protecting pets' health (Viana et al., 2020), pet food ingredients and nutritional composition are among the most critical factors regarding pet food selection (Banton et al., 2021). Pet food can be made of many ingredients, such as meat (e.g., chicken or pork), fish (e.g., salmon and tuna), grains, or vegetables (Souza et al., 2020; Viana et al., 2020). Due to the wide range of information (e.g., the Internet, veterinarians, books, and other pet owners), owners are now more aware of the importance of pet food ingredients and pets' nutrition (Vinassa et al., 2020). Some ingredient attributes, such as "natural" or "organic," are perceived as healthier (Vinassa et al., 2020). In contrast, other ingredients, such as grains, are perceived as harmful and unsafe (Prata, 2022; Rombach & Dean, 2021a). Accordingly, some pet owners prioritize targeted nutrition options, such as size, breed, or age-specific nutrition (Banton et al., 2021; Prata, 2022). Nutrition deficiencies and unbalanced diets are related to health problems (Shoveller et al., 2021; Wang et al., 2022). Thus, pet owners are more likely to buy pet food containing ingredients perceived as healthy while also avoiding questionable ingredients (Rombach & Dean, 2021a).

Considering this, we can assume that customers expect pet food to have characteristics that meet their concerns over healthiness and well-being. Therefore, the following hypotheses are considered:

**H2:** *Healthfulness positively influences Pet Food SOS Customer Satisfaction.*

**H3:** *Ingredients and Nutrition positively influence Pet Food SOS Customer Satisfaction.*

### **2.2.2. Extrinsic Attributes**

Extrinsic attributes are crucial enablers for customer satisfaction (Malekpour et al., 2022). From a marketing perspective, extrinsic attributes can be used to increase a product's attractiveness without changing the physical properties of the product (Plasek et al., 2021). For food products, when there is no access to sensory perceptions (e.g., taste), consumers' decisions tend to be based on extrinsic product attributes (Symmank,

2019). Regarding pet food and food delivery, price and packaging are some of the most relevant extrinsic attributes (Banton et al., 2021; Müller & Schmid, 2019).

In an e-commerce context, price refers to the money a customer pays for an item on an online platform (Antwi, 2021). There is a positive relationship between price and customer satisfaction in online shopping environments (Alam et al., 2020). Previous studies have identified price as an essential attribute for in-store and online pet food purchasers (Kwak & Cha, 2021; Rombach & Dean, 2021a). Furthermore, cost saving is an important motivation to pet food subscription adoption and to continue using subscription services (Bhatt et al., 2021; Bray et al., 2021). This is particularly important, as pet food SOS is usually more expensive than traditional pet food.

Besides a subscription service, pet food SOS is also a delivery service. In this regard, the packaging ensures that the delivery product arrives at its destination in the best conditions (Müller & Schmid, 2019). Packaging importance relies on containment, communication, convenience, and protection from the external environment (Müller & Schmid, 2019). Regarding food products, protection is vital, as food cannot be promptly restored or replaced (Annaraud & Berezina, 2020). Studies concerning in-store pet food have found the packaging to be less critical for customers purchasing decisions than other attributes (Schleicher et al., 2019; Vinassa et al., 2020). However, when comparing online and offline pet food buyers, package design is critical for those who use online channels (Kwak & Cha, 2021). Additionally, food packaging characteristics positively impact customer satisfaction (Ferreira, 2019).

Extrinsic attributes are strongly associated with a product and must be considered when evaluating it (Hoffmann et al., 2020). Thus, the following hypothesis is proposed:

**H4:** *Extrinsic Attributes positively influences Pet Food SOS Customer Satisfaction.*

### **2.3. Customer Satisfaction and Continuance Intention**

Customer satisfaction is widely studied in marketing (Oliver, 1980; Otto et al., 2020) and in modern e-commerce (Rita et al., 2019). Customer satisfaction is the judgment of the consumption-related fulfillment provided by a product, service, or its

features (Oliver, 1999, 2015). It corresponds to the customers' comparison between the outcomes of the purchase and the anticipated expectations (Churchill & Surprenant, 1982; Otto et al., 2020). According to the ECT (Oliver, 1980), satisfaction arises from the disconfirmation of expectations, given the perceived performance of the product or service (Oliver, 1980). If the perceived performance meets the customer's expectations, there is a positive disconfirmation, and the customer is satisfied. Otherwise, if a negative disconfirmation occurs, the customer is dissatisfied, and it can lead to negative emotions (Furtado et al., 2022; Oliver & DeSarbo, 1988).

Customer satisfaction is crucial in e-commerce environments (Gajewska et al., 2020; Rita et al., 2019), such as the pet food SOS. Satisfaction impacts SOS adoption (Kerschbaumer et al., 2022), and online customers' future behavior (Rita et al., 2019). Furthermore, customer satisfaction is an antecedent of service continuance intention (Hepola et al., 2020). Continuance intention is the consumer's intention to continue using a service in the post-adoption phase (Hepola et al., 2020; Yan et al., 2021). This is relevant in the subscription business because of the high churn rates associated (Bischof et al., 2020). Due to the recurring monthly fees, subscription cancellations are common among customers (Andonova et al., 2021). If customers are satisfied, they will keep using a service (Cao et al., 2018; Hepola et al., 2020). Thus, the following hypothesis is proposed:

**H5: Customer Satisfaction positively affects Pet Food SOS Continuance Intention.**

Grounded in the previous hypotheses, the following conceptual model is presented (Figure 1).

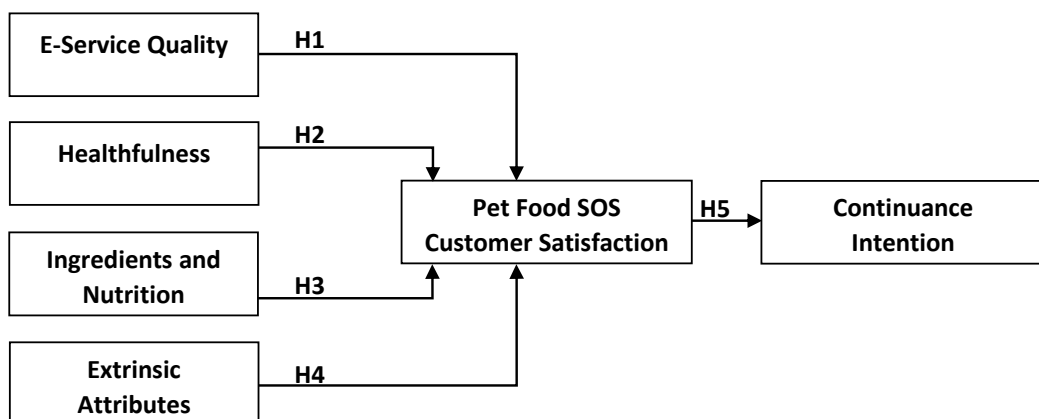


Figure 1 - Conceptual Model

## **METHODOLOGY**

### **3. Methodology**

Technological advances allow consumers to express their opinions online about purchased products and services while providing large quantities of data to marketing managers (Moro et al., 2019). This data can be used to evaluate, measure, understand, and interpret consumers' behaviors (Berger et al., 2020). Therefore, we focused on online customer reviews to study pet food SOS customer satisfaction. Following Ramos et al. (2022), this study involved a mixed approach comprising text mining and PLS-SEM. To analyze these reviews, we applied a text mining approach, as it has been widely used in literature to study customer satisfaction through online reviews (Moro et al., 2021; Moro & Rita, 2022). Furthermore, to measure relations in the conceptual model, we used PLS-SEM, a widely used regression-based technique in marketing (Sarstedt et al., 2022).

#### **3.1. Population and Sample**

The target population of this study is pet food SOS customers. The sample is composed of customers that published their reviews on Trustpilot between January 1<sup>st</sup>, 2020, and June 30<sup>th</sup>, 2022, regarding their experiences with the service. Trustpilot is a rapidly growing consumer review website widely used to share opinions on businesses (Littlechild, 2021), such as the pet food SOS. This platform delivers rich and valuable insights to understand customers' opinions (Trustpilot, 2022). The brands used for this analysis were selected based on two criteria: (1) only brands that work exclusively with pet food SOS were selected to guarantee that the analyzed reviews concern only pet food SOS; (2) only the ten most reviewed brands were chosen.

#### **3.2. Data Collection**

For the data collection process, we used Octoparse, a web scraping software (Octoparse, 2022). This type of software allows the extraction of large quantities of data from web pages into a structured spreadsheet, allowing easy management in a posterior analysis (Gallagher & Beveridge, 2021). We extracted 29,723 reviews from the Trustpilot

platform through a web scraping process. The number of reviews extracted for each brand is presented in Table 1.

*Table 1 - List of the 10 Pet Food SOS Brands and the Number of Extracted Reviews*

<b>Pet Food SOS Brands</b>	<b>Number of Extracted Reviews</b>
Tails	12 214
Butternut Box	5 888
Bella Duke	5 143
Pure Pet Food	1 901
Republic of Cats	1 078
The Farmers Dog	990
Ollie	737
Different Dog	690
Smalls	653
Nom Nom	429
<b>Total</b>	<b>29 723</b>

### 3.3. Data Analysis

#### 3.3.1. Data Pre-processing

Online reviews are data in a non-structured text format (Guerreiro & Rita, 2020). Once the data collection was completed, we proceeded to structure and organize the data to meet each model's construct. We used the open-source R software, an integrated suite of packages that provides various statistical and graphical techniques (R-project, 2022). This coding-based tool offers more flexibility and tailored solutions for data analysis (Calheiros et al., 2017).

As the reviews were in different languages, we translated them into English using the R package 'translateR' with the Google Translate API. A package used by previous authors when analyzing data in a different language (Do et al., 2018; Ohri, 2014). Then, the data was structured through the following steps: (1) tokenization, which consists of breaking the text into units (e.g., words and sentences); (2) cleaning non-text data, like images or HTML links; (3) removing stop words, articles, and adverbs with no significant meaning; (4) converting all words to lowercase; (5) and stemming, which consists of merging similar words into its radical term (e.g., "dog" and "dogs" will both be read as

“dog”) (Berger et al., 2020). This process was completed using the ‘tm’ package, a widely used package for text mining applications in R (Lemos et al., 2022; Moro et al., 2019).

### 3.3.2. Dictionary Building

A structured dictionary was created using terms clustered into items related to the constructs of the conceptual model. To confirm the context of each term, we randomly selected and analyzed 5% of our sample. Since the definition of a dictionary and its terms is subjective (Calheiros et al., 2017; Ramos et al., 2022), the structured dictionary (Table 2) was validated by a panel of three independent multidisciplinary experts: a food engineer, a marketing professional, and a marketing academic.

*Table 2 - Dictionary for the Model Variables*

<b>Construct</b>	<b>Items</b>	<b>Sample of terms</b>
<b>E-Service Quality</b>	Service Level	service, email, contact
	Return / Handling Policies	change, switch, replace
	Timeliness of Delivery	arrive, delay, schedule
	Order Accuracy	delivery, order, shipment
<b>Healthfulness</b>	Health	health, healthier, ill
	Digestive Health	stomach, digestion, intestine
	Weight Control	weight, overweight, fat
	Skin Allergies	skin, allergies, allergy
<b>Ingredients and Nutrition</b>	Meat	chicken, meat, beef
	Fish	fish, salmon, tuna
	Vegetables	vegetal, potato, carrot
	Cereals	grain, rice, cereal
	Nutrition	nutrition, protein, vitamin
<b>Extrinsic Attributes</b>	Price	price, money, expensive
	Package	package, bag, pack
<b>Customer Satisfaction</b>	Satisfaction	great, good, thank
	Emotions	love, like, happy
<b>Continuance Intention</b>	Continuance Intention	return, continue, future

### 3.3.3. Term Frequency Matrix

After the validation, the online reviews were paired against the dictionary to create a term frequency matrix (Ramos et al., 2022). This matrix was used to mimic individual responses to the questions imposed by our model. Each line in the matrix corresponds to one of the extracted reviews, and each column to an item tied to a model construct. One cell in the matrix represented the number of times a specific item was mentioned in each review. Following this rationale, 937 reviews were removed from our dataset for having no hits. Our final dataset was composed of 28,786 reviews.

### 3.3.4. PLS-SEM

The term frequency matrix was used as an input for PLS-SEM analysis to measure the relations between the data collected and the model's constructs. The PLS-SEM is a method that provides the interchange between theory and data (Hair et al., 2020). We opted for this method as it allows users to estimate complex models comprising many constructs, indicators, and structural paths without any assumptions on data distributions (Becker et al., 2022; Hair et al., 2019). PLS-SEM enables unrestricted use of single-item and formative measurement models while considered superior with secondary data (Hair et al., 2017, 2019). The proposed relationships were assessed using Smart-PLS 4, a software for data analysis using the PLS-SEM method (Ringle et al., 2022).

For the PLS analysis, we followed a formative measurement model, as our model constructs derived from the cumulative effect of each unique indicator present in the created dictionary. Formative assessment is preferable to a reflective approach as it allows for unique indicators not to be conceptually interchangeable nor correlated (Hair et al., 2020). For example, consumers can experience a good service level while having a poor opinion of the order accuracy, both essential measures of E-SQ. Following this rationale, E-SQ, Healthfulness, Ingredients and Nutrition, Extrinsic Attributes, and Customer Satisfaction were formatively measured. Continuance Intention was assessed using a single-item measure.

The model was evaluated following the procedures recommended by Hair et al. (2019, 2020). Convergent validity was measured to verify the correlation between the formative measure with the reflective measure of the same construct for each variable. Values of path coefficients greater than 0.80 should be verified. To assess collinearity, the variance inflation factor (VIF) was calculated. A value below the critical threshold of 5 is recommended, with an ideal value below 3 (Hair et al., 2019). A Bootstrap procedure of 10.000 subsamples was applied to test path model coefficients and significance. A significance level of 5% was defined to investigate critical path coefficient t-values (t-value > 1.96 for two-tailed tests). The model's internal multicollinearity and direct effects were evaluated through a regression analysis, examining the size and significance of the path coefficients between the variables. Finally, the predictive capacity was evaluated based on R<sup>2</sup> and Q<sup>2</sup> values. Q<sup>2</sup> values were obtained following a PLSpredict test for a K value of 10 (Hair et al., 2020; Shmueli et al., 2019). The results obtained with the described analysis were the basis for the discussion and conclusions of the present study. A summary of our methodological approach is depicted in Figure 2.

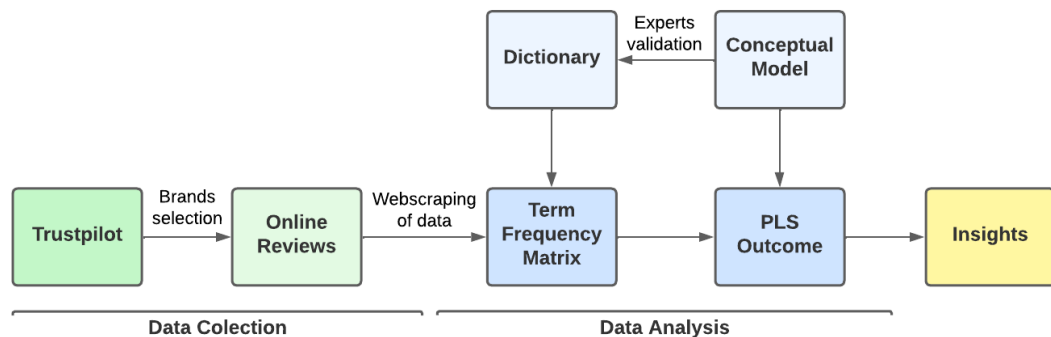


Figure 2 - Undertaken Approach Scheme

## **RESULTS**

## 4. Results

### 4.1. Measurement Model Evaluation

The convergent validity assessment revealed that formative measured constructs highly correlated with their reflective measure as their path coefficients ( $\beta$ ) were all above 0.80 ( $1.000 < \beta < 1.000$ ). All indicators heavily contributed to the variable explanation. Moreover, VIF values for all indicators were below 3.0 ( $1.000 < VIF < 1.199$ ). Multicollinearity proved not to be an issue.

The measurement model showed that all the indicators associated with the E-SQ variable were significant. Service level, Return / Handling Policies, and Order Accuracy had outer loadings values higher than 0.5 (0.827; 0.686, 0.512, respectively). Although the item Timeliness of Delivery (0.403) was lower than the recommended 0.50 (Hair et al., 2019, 2020), it was statistically significant for the formative measure of E-SQ. Besides Health (0.846), the remaining items were below the 0.50 value in the Healthfulness construct. Nevertheless, all of these items were significant for the formative measure of Healthfulness. Concerning the Ingredients and Nutrition variable, all indicators were significant. Nutrition (0.733) and Meat (0.602) presented the highest outer loadings of the aforementioned variable. Additionally, the two indicators of the Extrinsic Attributes variable had outer loadings higher than 0.50 (Price = 0.816; Package = 0.690). Finally, concerning the Customer Satisfaction variable, outer loadings from the two associated indicators were higher than 0.50 (Satisfaction = 0.824; Emotions = 0.640), suggesting a significant influence in explaining consumer satisfaction.

An indicator should be removed from the model when there is no significance, and its outer loading is below 0.50 (Hair et al., 2020). When an indicator is significant ( $p$ -value  $< 0.05$ ) but the respective outer loading is below 0.50, its removal should be considered (Hair et al., 2019, 2020). The removal of the indicator must be pondered since its elimination may omit unique parts of the composite variable and reduce its theoretical validity (Ramos et al., 2022). Based on this rationale, indicators with outer loadings lower than 0.50 but with significance ( $p$ -value  $< 0.05$ ) were held. This was the case for Weight Control (outer loading=0.439), Cereals (0.439), Fish (0.436), Digestive Health (0.432), Timeliness of Delivery (0.403), Vegetables (0.357) and Skin Allergies (0.271). Therefore,

no indicator was removed from the model. Table 3 shows the outer weights, outer loadings, and t-values previously discussed.

*Table 3 - Outer Weights, t-values (p-values) and Outer Loadings*

<b>Variable / Indicators</b>	<b>Outer Weights</b>	<b>t-values (p-values)</b>	<b>Outer Loadings</b>
<b>E-Service Quality</b>			
Service Level	0.643	15.704 (0.000)	0.827
Return / Handling Policies	0.446	11.069 (0.000)	0.686
Timeliness of Delivery	0.161	4.095 (0.000)	0.403
Order Accuracy	0.190	4.446 (0.000)	0.512
<b>Healthfulness</b>			
Health	0.768	33.412 (0.000)	0.846
Digestive Health	0.359	10.659 (0.000)	0.432
Weight Control	0.327	10.702 (0.000)	0.439
Skin Allergies	0.188	5.685 (0.000)	0.271
<b>Ingredients and Nutrition</b>			
Meat	0.380	7.829 (0.000)	0.602
Fish	0.259	5.521 (0.000)	0.436
Vegetables	0.168	3.453 (0.001)	0.357
Cereals	0.312	6.763 (0.000)	0.439
Nutrition	0.630	16.173 (0.000)	0.733
<b>Extrinsic Attributes</b>			
Price	0.731	23.895 (0.000)	0.816
Package	0.584	16.429 (0.000)	0.690
<b>Customer Satisfaction</b>			
Satisfaction	0.772	30.394 (0.000)	0.824
Emotions	0.559	17.702 (0.000)	0.640
<b>Continuance Intention</b>			
Continuance Intention	1.000	0.000 (0.000)	1.000

#### 4.2. Structural Model Evaluation

Internal VIF values for all variables of the structural model were less than 3.0 ( $1.000 < VIF < 1.140$ ), suggesting the absence of multicollinearity (Hair et al., 2019, 2020). The structural model explained 10.90% ( $R^2 = 0.109$ ) of the Customer Satisfaction variance and 1.30% ( $R^2 = 0.013$ ) of Continuance Intention.  $R^2$  values should be interpreted based on context (Hair et al., 2019). Since the present research concerns consumer behavior, values of 0.20 are considered high. Therefore, these values reflect the model's moderate explanatory power on Customer Satisfaction and a lower explanatory power concerning

Continuance Intention (Hair et al., 2019, 2020). The  $Q^2$  values concerning the same variables were above 0, reinforcing the predictive model's capacity (Table 4).

*Table 4 -  $R^2$  and  $Q^2$*

<b>Variable</b>	<b>Explained Variance</b>	<b>Predictive Capacity</b>
	<b><math>R^2</math> Value</b>	<b><math>Q^2</math> Value</b>
<b>Customer Satisfaction</b>	0.109	0.019
<b>Continuance Intention</b>	0.013	0.107

Regarding the relationship between variables and the validity of the model hypotheses, path coefficients showed significant relationships between all model variables. The results suggest that both E-SQ ( $\beta=0.131$ ,  $p < .001$ ), Healthfulness ( $\beta=0.160$ ,  $p < .001$ ), Ingredients and Nutrition ( $\beta=0.123$ ,  $p < .001$ ), and Extrinsic Attributes ( $\beta=0.110$ ,  $p < .001$ ), were positive predictors of Customer Satisfaction. Thus, H1, H2, H3 and H4 were supported. In addition, Satisfaction was positively related to Continuance Intention ( $\beta=0.115$ ,  $p < .001$ ), supporting H5. Path coefficient values ( $\beta$ ) between the constructs and the significance for each tested relationship are present in Table 5.

*Table 5 - Path Coefficients*

<b>Path</b>	<b>Path coefficient (<math>\beta</math>)</b>	<b>t-value</b>	<b>p-value (95%)</b>	<b>Conclusion</b>
E-Service Quality -> C. Satisfaction	0.131	11.097	$p < 0.001$	H1 Supported
Healthfulness -> C. Satisfaction	0.160	20.162	$p < 0.001$	H2 Supported
Ingredients and Nutrition -> C. Satisfaction	0.123	13.084	$p < 0.001$	H3 Supported
Extrinsic Attributes -> C. Satisfaction	0.110	12.786	$p < 0.001$	H4 Supported
C. Satisfaction -> C. Intention	0.115	13.485	$p < 0.001$	H5 Supported

## **DISCUSSION AND IMPLICATIONS**

## 5. Discussion and Implications

According to the results, all relationships between the studied variables are significant. E-SQ, Healthfulness, Ingredients and Nutrition, and Extrinsic Attributes had a statistically significant positive effect on Customer Satisfaction. Additionally, Customer Satisfaction positively affects Continuance intention.

The structural model results indicate that E-SQ positively influences Customer Satisfaction, supporting H1. This is consistent with previous findings on SOS-related contexts, such as online shopping (Khan et al., 2019; Rita et al., 2019) and delivery services (Suhartanto et al., 2019), while advancing the knowledge on pet food services. These results indicate the importance of the studied E-SQ dimensions, Fulfilment, and Customer Service. Order Fulfilment is essential in a subscription business model, as delivery is one of its main processes (Bischof et al., 2020). In this regard, our findings suggest that companies must ensure that customers receive the product they ordered within the estimated time frame, at the expected price, and in good condition (Blut, 2016). Results also show that the indicators with a higher impact on E-SQ were Service Level and Return / Handling Policies, both related to Customer Service. Therefore, pet food SOS must seek to provide timely and effective customer service management of customers' concerns (Rita et al., 2019). Pet food SOS customers' concerns can arise from multiple stages: pet food production, subscription payment, and delivery. Companies should identify and provide staff with the knowledge to help with those concerns. Furthermore, while some of the studied companies already have chatbots and online help desks, a further investment could help companies conduct customer service promptly and increase customer satisfaction (Hsu & Lin, 2023).

A positive relationship between Healthfulness and Customer Satisfaction was also verified, validating H2. This supports the idea that pet owners expect pet food to contribute to the well-being of their pets (Banton et al., 2021; Vinassa et al., 2020). All the studied health problems proved significant to our study. This confirms that customers want pet food that helps them face specific health problems (Banton et al., 2021). The tailored nature of pet food SOS can explain our results. These services provide pet food according to pets' characteristics and health conditions. Thus, healthfulness is expected

to influence customers' expectations greatly. Following the ECT (Antonides & Hovestadt, 2021; Oliver, 1980), companies must achieve or exceed customers' expectations of pet food healthfulness to achieve customer satisfaction. To this end, pet food SOS companies must understand their customers' health concerns and provide the right recipe for each pet. Veterinarian know-how is crucial to achieving the desired health benefits from pet food (Sanderson, 2021). Most companies have their pet food production supervised by veterinarians and pet food nutritionists. Given the achieved results, it is expected that this process will lead to health benefits and, therefore, to customer satisfaction. Thus, pet food SOS marketing and communication strategies should emphasize the experts' participation in pet food production.

Another important finding is that Ingredients and Nutrition positively affect Customer Satisfaction, validating H3. Customers with a positive perception of pet food Ingredients and Nutrition will be more satisfied with the pet food SOS. This finding aligns with previous studies that found ingredients and nutrition influential attributes in pet food consumer behavior (Banton et al., 2021; Schleicher et al., 2019). Additionally, these results reflect the rising interest in pet nutrition (Banton et al., 2021), as the item Nutrition had the highest impact. Following the ECT (Antonides & Hovestadt, 2021; Oliver, 1980), this result suggests that, as with healthfulness, the personalization provided by pet food SOS generates customers' expectations that companies must seek to fulfill. As customer pet food knowledge increases, pet owners are more conscious about pet food ingredients and nutrition (Vinassa et al., 2020). Pet owners see pet food SOS as a way of providing their pets with the right ingredients and nutrients.

The research model also indicates that Extrinsic Attributes positively affect Satisfaction, confirming H4. Extrinsic Attributes, Price, and Packaging highly impacted the studied variable. Concerning the price, our research follows previous studies on online shopping environments (Alam et al., 2020; Antwi, 2021). This result can be explained due to the importance of cost-saving in subscription adoption (Bray et al., 2021) and the relevance of price for online pet food purchasers (Kwak & Cha, 2021). Our findings also corroborate previous studies that suggest food packaging positively impacts satisfaction (Ferreira, 2019). Nevertheless, these results challenge previous research on pet food packaging, as it is suggested to have little impact on customers' decisions (Schleicher et

al., 2019). However, those findings relate to offline shops. With no access to sensory perceptions, online customers' decisions tend to be based on extrinsic attributes (Symmank, 2019). Our results suggest that companies must incorporate extrinsic attributes in their marketing strategies to achieve and improve customer satisfaction. Pet food SOS must study the market and its competitors to ensure their prices provide the desired cost-benefit. As pet food SOS is more expensive than traditional pet food, customers expected an excellent cost-benefit. Furthermore, companies must provide adequate packaging to ensure the pet food arrives at its destination in the best conditions.

Finally, our findings suggest that Customer Satisfaction positively influences Continuance Intention, supporting H5. This analysis supports previous studies concerning services (Hepola et al., 2020) and fosters knowledge of pet food subscriptions. Our findings suggest that satisfied customers will continue to use pet food SOS services. This is particularly important as, due to the recurring monthly fees, subscription business experience high churn rates (Andonova et al., 2021; Bischof et al., 2020). Pet food SOS companies must keep customers satisfied because if customers are satisfied, they will keep using the service (Cao et al., 2018; Hepola et al., 2020). It is essential to incorporate in marketing strategies these customer satisfaction antecedents.

## **CONCLUSIONS**

## 6. Conclusions

Pet food SOS fulfills the demand for pet food that fits pets' characteristics and health necessities (Banton et al., 2021; Viana et al., 2020). The peculiarity of this business model raises expectations that demand an understanding of customer satisfaction. Moreover, the high churn rates associated with subscription models (Andonova et al., 2021) demand an analysis of pet food SOS continuance intention. The present research aimed to study the antecedents of pet food SOS satisfaction and its effect on continuance intention. For this, we combined a text mining approach with the PLS-SEM method to explore the relationships among E-SQ, Healthfulness, Ingredients and Nutrition, Extrinsic Attributes, pet food SOS Customer Satisfaction, and Continuance Intention.

Results suggested that all studied variables, E-SQ, Healthiness, Ingredients and Nutrition, and Extrinsic Attributes, positively influenced Customer Satisfaction. All the items of the studied E-SQ dimensions (Fulfilment and Customer Service) proved to be significant, highlighting the importance of E-SQ on pet food SOS. Our results suggested that Healthfulness and, Ingredients and Nutrition positively relate to Customer Satisfaction. Additionally, all the studied health issues proved significant to our study. The tailored nature of pet food SOS may result in expectations that customers want to fulfill. Regarding Extrinsic Attributes, items, price, and packaging positively impacted the studied variable. Finally, Customer Satisfaction was found to affect Continuance Intention positively, suggesting that satisfied customers will continue to use pet food SOS. Overall, our findings support that health, ingredients and nutrition are fundamental aspects of pet food consumer decisions (Banton et al., 2021; Vinassa et al., 2020) and corroborate previous findings on the relationship between satisfaction and E-SQ (Khan et al., 2019; Suhartanto et al., 2019), extrinsic product attributes (Alam et al., 2020; Ferreira, 2019), and service continuance intention (Hepola et al., 2020).

From a theoretical point of view, this research supports spreading the knowledge on pet food SOS' customer satisfaction and its subsequent impact on continuance intention. At a practical level, pet food SOS managers can use this knowledge to strengthen their business and understand the measures that can be implemented to achieve customer satisfaction. Regarding customer service, pet food SOS staff must be

provided with the necessary know-how to answer customers' questions. Additional investment in chatbots and online help desks can be helpful in promptly solving customers' concerns. Furthermore, pet food SOS must guarantee that the pet food arrives on time and in the best condition to the customers. In this regard, it is essential to offer an adequate packaging solution. Moreover, pet food SOS should work with specialists to provide suitable nutritional composition and ingredients for each pet's need or health problem. Pet food SOS could promote these partnerships in their communication strategies. Furthermore, marketing departments should study the market and its competitors to ensure their prices provide the expected cost-benefit for a tailored service. In sum, these guidelines are expected to help keep customers satisfied, and satisfied customers will continue to use pet food SOS.

Despite the insights and contributions, some limitations may have influenced our findings and should be considered in future research. First, all pet food SOS customer reviews were collected from the ten Trustpilot pet food SOS with more reviews, limiting the dataset to the features available on the platform. Secondly, although an independent expert panel validated the dictionary, this process is always subjective (Ramos et al., 2022). Using primary data may diminish the limitations of a dictionary. Thirdly, the analyzed period comprehends the Covid-19 pandemic lockdowns, which heavily impacted pet food customer behavior (Rombach & Dean, 2021b), and the online subscription market (Andonova et al., 2021). Some of our findings may have been influenced by this scenario. Fourth, the model may not include important variables that influence customer satisfaction and continuance intention. The model's moderate and low explanatory power concerning customer satisfaction and continuance intention, respectively, may be explained by these variables. Scholars could explore other antecedents of pet food SOS customer satisfaction in the future, such as convenience and ease of use (Bray et al., 2021). As well as antecedents of continuance intention, such as perceived usefulness and trust (Yan et al., 2021). Fifth, we did not differentiate first-time customers from long-time subscribers. Future researchers could study how customer longevity impacts pet food SOS continuance intention. Additionally, studies could explore how the studied antecedents in this paper affect customer churn. Finally, in our research, we did not distinguish the type of pet food (e.g., kibble, raw, fresh), nor the type of pet for which the food is intended

(e.g., dog food, cat food). Future studies could try comparative approaches. For example, it would be interesting to understand how pet food SOS customer satisfaction differs between cat owners and dog owners.

## REFERENCES

## References

- Al-Adwan, A. S., & Al-Horani, M. A. (2019). Boosting Customer E-Loyalty: An Extended Scale of Online Service Quality. *Information, 10*(12), 380. <https://doi.org/10.3390/INFO10120380>
- Alam, S. S., Ali, M. H., Omar, N. A., & Hussain, W. M. H. W. (2020). Customer satisfaction in online shopping in growing markets: An empirical study. *International Journal of Asian Business and Information Management, 11*(1), 78–91. <https://doi.org/10.4018/IJABIM.2020010105>
- Andonova, Y., Anaza, N. A., & Bennett, D. H. S. (2021). Riding the subscription box wave: Understanding the landscape, challenges, and critical success factors of the subscription box industry. *Business Horizons, 64*(5), 631–646. <https://doi.org/10.1016/J.BUSHOR.2021.02.024>
- Annaraud, K., & Berezina, K. (2020). Predicting satisfaction and intentions to use online food delivery: What really makes a difference? *Journal of Foodservice Business Research, 23*(4), 305–323. <https://doi.org/10.1080/15378020.2020.1768039>
- Antonides, G., & Hovestadt, L. (2021). Product Attributes, Evaluability, and Consumer Satisfaction. *Sustainability, 13*(22), 12393. <https://doi.org/10.3390/SU132212393>
- Antwi, S. (2021). “I just like this e-Retailer”: Understanding online consumers repurchase intention from relationship quality perspective. *Journal of Retailing and Consumer Services, 61*, 102568. <https://doi.org/10.1016/J.JRETCONSER.2021.102568>
- Banton, S., Baynham, A., Pezzali, J. G., von Massow, M., & Shoveller, A. K. (2021). Grains on the brain: A survey of dog owner purchasing habits related to grain-free dry dog foods. *PLoS ONE, 16*(5 May). <https://doi.org/10.1371/JOURNAL.PONE.0250806>
- Becker, J. M., Cheah, J. H., Gholamzade, R., Ringle, C. M., & Sarstedt, M. (2022). PLS-SEM’s most wanted guidance. *International Journal of Contemporary Hospitality Management, 35*(1), 321–346. <https://doi.org/10.1108/IJCHM-04-2022-0474/FULL/XML>
- Berger, J., Humphreys, A., Ludwig, S., Moe, W. W., Netzer, O., & Schweidel, D. A. (2020). Uniting the Tribes: Using Text for Marketing Insight. *Journal of Marketing, 84*(1), 1–25. <https://doi.org/10.1177/0022242919873106>
- Bhatt, D., Kim, H. S., & Bhatt, S. (2021). Shopping motivations of fashion subscription service consumers. *International Review of Retail, Distribution and Consumer Research, 31*(5), 549–565. <https://doi.org/10.1080/09593969.2021.1990104>
- Bischof, S. F., Boettger, T. M., & Rudolph, T. (2020). “Curated subscription commerce: A theoretical conceptualization.” *Journal of Retailing and Consumer Services, 54*. <https://doi.org/10.1016/J.JRETCONSER.2019.04.019>

- Blut, M. (2016). E-Service Quality: Development of a Hierarchical Model. *Journal of Retailing*, 92(4), 500–517. <https://doi.org/10.1016/J.JRETAI.2016.09.002>
- Blut, M., Chowdhry, N., Mittal, V., & Brock, C. (2015). E-Service Quality: A Meta-Analytic Review. *Journal of Retailing*, 91(4), 679–700. <https://doi.org/10.1016/J.JRETAI.2015.05.004>
- Bray, J., de Silva Kanakarathne, M., Dragouni, M., & Douglas, J. (2021). Thinking inside the box: An empirical exploration of subscription retailing. *Journal of Retailing and Consumer Services*, 58. <https://doi.org/10.1016/J.JRETCONSER.2020.102333>
- Calheiros, A. C., Moro, S., & Rita, P. (2017). Sentiment Classification of Consumer-Generated Online Reviews Using Topic Modeling. *Journal of Hospitality Marketing and Management*, 26(7), 675–693. <https://doi.org/10.1080/19368623.2017.1310075>
- Cao, Y., Ajjan, H., & Hong, P. (2018). Post-purchase shipping and customer service experiences in online shopping and their impact on customer satisfaction: An empirical study with comparison. *Asia Pacific Journal of Marketing and Logistics*, 30(2), 400–416. <https://doi.org/10.1108/APJML-04-2017-0071>
- Churchill, G. A., & Surprenant, C. (1982). An Investigation into the Determinants of Customer Satisfaction. *Journal of Marketing Research*, 19(4), 491. <https://doi.org/10.2307/3151722>
- Do, H. X., Gudmundsson, L., Leonard, M., & Westra, S. (2018). The Global Streamflow Indices and Metadata Archive (GSIM)-Part 1: The production of a daily streamflow archive and metadata. *Earth System Science Data*, 10(2), 765–785. <https://doi.org/10.5194/ESSD-10-765-2018>
- Ferreira, B. M. (2019). Packaging texture influences product taste and consumer satisfaction. *Journal of Sensory Studies*, 34(6). <https://doi.org/10.1111/JOSS.12532>
- Fortune Business Insights. (2022). *Pet Food Market Size, Growth, Trends | Industry Analysis [2029]*. <https://www.fortunebusinessinsights.com/industry-reports/pet-food-market-100554>
- Fox, R., & Gee, N. R. (2019). Great expectations: changing social, spatial and emotional understandings of the companion animal–human relationship. *Social and Cultural Geography*, 20(1), 43–63. <https://doi.org/10.1080/14649365.2017.1347954>
- Furtado, A., Ramos, R. F., Maia, B., & Costa, J. M. (2022). Predictors of Hotel Clients' Satisfaction in the Cape Verde Islands. *Sustainability*, 14(5), 2677. <https://doi.org/10.3390/SU14052677>
- Gajewska, T., Zimon, D., Kaczor, G., & Madzik, P. (2020). The impact of the level of customer satisfaction on the quality of e-commerce services. *International Journal of Productivity and Performance Management*, 69(4), 666–684. <https://doi.org/10.1108/IJPPM-01-2019-0018>

- Gallagher, J. R., & Beveridge, A. (2021). Project-Oriented Web Scraping in Technical Communication Research: *Journal of Business and Technical Communication*, 36(2), 231–250. <https://doi.org/10.1177/10506519211064619>
- Guerreiro, J., & Rita, P. (2020). How to predict explicit recommendations in online reviews using text mining and sentiment analysis. *Journal of Hospitality and Tourism Management*, 43, 269–272. <https://doi.org/10.1016/J.JHTM.2019.07.001>
- Hair, J. F., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. *Industrial Management and Data Systems*, 117(3), 442–458. <https://doi.org/10.1108/IMDS-04-2016-0130>
- Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101–110. <https://doi.org/10.1016/J.JBUSRES.2019.11.069>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hepola, J., Leppäniemi, M., & Karjaluoto, H. (2020). Is it all about consumer engagement? Explaining continuance intention for utilitarian and hedonic service consumption. *Journal of Retailing and Consumer Services*, 57, 102232. <https://doi.org/10.1016/J.JRETCONSER.2020.102232>
- Hoffmann, N. C., Symmank, C., Mai, R., Stok, F. M., Rohm, H., & Hoffmann, S. (2020). The influence of extrinsic product attributes on consumers' food decisions: review and network analysis of the marketing literature. *Journal of Marketing Management*, 36(9–10), 888–915. <https://doi.org/10.1080/0267257X.2020.1773514>
- Hoummady, S., Fantinati, M., Maso, D., Bynens, A., Banuls, D., Santos, N. R., Roche, M., & Priymenko, N. (2022). Comparison of canine owner profile according to food choice: an online preliminary survey in France. *BMC Veterinary Research*, 18(1), 1–9. <https://doi.org/10.1186/S12917-022-03258-9>
- Hsu, C. L., & Lin, J. C. C. (2023). Understanding the user satisfaction and loyalty of customer service chatbots. *Journal of Retailing and Consumer Services*, 71. <https://doi.org/10.1016/J.JRETCONSER.2022.103211>
- Kerschbaumer, R. H., Kreimer, D., Foscht, T., & Eisingerich, A. B. (2022). Subscription commerce: an attachment theory perspective. *International Review of Retail, Distribution and Consumer Research*. <https://doi.org/10.1080/09593969.2022.2134173>
- Khan, M. A., Zubair, S. S., & Malik, M. (2019). An assessment of e-service quality, e-satisfaction and e-loyalty: Case of online shopping in Pakistan. *South Asian Journal*

- of Business Studies*, 8(3), 283–302. <https://doi.org/10.1108/SAJBS-01-2019-0016/FULL/XML>
- Kwak, M. K., & Cha, S. S. (2021). A Study on the Selection Attributes Affecting Pet Food Purchase: After COVID-19 Pandemic. *International Journal of Food Properties*, 24(1), 291–303. <https://doi.org/10.1080/10942912.2021.1879133>
- Lee, J. G., Sadachar, A., & Manchiraju, S. (2019). What's in the Box? Investigation of Beauty Subscription Box Retail Services. *Family and Consumer Sciences Research Journal*, 48(1), 85–102. <https://doi.org/10.1111/FCSR.12332>
- Lemos, C., Ramos, R. F., Moro, S., & Oliveira, P. M. (2022). Stick or Twist - The Rise of Blockchain Applications in Marketing Management. *Sustainability*, 14(7), 4172. <https://doi.org/10.3390/SU14074172>
- Liao, T. H. (2017). Online shopping post-payment dissonance: Dissonance reduction strategy using online consumer social experiences. *International Journal of Information Management*, 37(6), 520–538. <https://doi.org/10.1016/J.IJINFOMGT.2017.03.006>
- Lionello, R. L., Slongo, L. A., & Matos, C. A. de. (2020). Electronic service quality: a meta-analysis. *Marketing Intelligence and Planning*, 38(5), 619–635. <https://doi.org/10.1108/MIP-06-2019-0340>
- Littlechild, S. (2021). Exploring customer satisfaction in Great Britain's retail energy sector part II: The increasing use of Trustpilot online reviews. *Utilities Policy*, 73, 101297. <https://doi.org/10.1016/J.JUP.2021.101297>
- Lopes, E. L., de Lamônica Freire, O. B., & Herrero Lopes, E. (2019). Competing scales for measuring perceived quality in the electronic retail industry: A comparison between E-S-Qual and E-TailQ. *Electronic Commerce Research and Applications*, 34. <https://doi.org/10.1016/J.ELERAP.2019.100824>
- Malekpour, M., Yazdani, M., & Rezvani, H. (2022). Investigating the relationship between intrinsic and extrinsic product attributes with customer satisfaction: implications for food products. *British Food Journal*. <https://doi.org/10.1108/BFJ-02-2022-0097>
- Morelli, G., Marchesini, G., Contiero, B., Fusi, E., Diez, M., & Ricci, R. (2020). A Survey of Dog Owners' Attitudes toward Treats. *Journal of Applied Animal Welfare Science*, 23(1), 1–9. <https://doi.org/10.1080/10888705.2019.1579095>
- Moro, S., Pires, G., Rita, P., & Cortez, P. (2019). A text mining and topic modelling perspective of ethnic marketing research. *Journal of Business Research*, 103, 275–285. <https://doi.org/10.1016/J.JBUSRES.2019.01.053>
- Moro, S., Ramos, R. F., & Rita, P. (2021). What drives job satisfaction in IT companies? *International Journal of Productivity and Performance Management*, 70(2), 391–407. <https://doi.org/10.1108/IJPPM-03-2019-0124/FULL/XML>

- Moro, S., & Rita, P. (2022). Data and text mining from online reviews: An automatic literature analysis. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*. <https://doi.org/10.1002/WIDM.1448>
- Müller, P., & Schmid, M. (2019). Intelligent Packaging in the Food Sector: A Brief Overview. *Foods*, 8(1), 16. <https://doi.org/10.3390/FOODS8010016>
- Octoparse. (2022). *Web Scraping Tool & Free Web Crawlers*. <https://www.octoparse.com/>
- Ohri, A. (2014). Training Literature for Cloud Computing and R. *R for Cloud Computing*, 247–260. [https://doi.org/10.1007/978-1-4939-1702-0\\_9](https://doi.org/10.1007/978-1-4939-1702-0_9)
- Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(4), 460. <https://doi.org/10.2307/3150499>
- Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing*, 63(SUPPL.), 33–44. <https://doi.org/10.2307/1252099>
- Oliver, R. L. (2015). *Satisfaction: A Behavioral Perspective on the Consumer* (Routledge, Ed.; 2nd ed.). Routledge. <https://doi.org/10.4324/9781315700892>
- Oliver, R. L., & DeSarbo, W. S. (1988). Response Determinants in Satisfaction Judgments. *Journal of Consumer Research*, 14(4), 495–507. <https://doi.org/10.1086/209131>
- Otto, A. S., Szymanski, D. M., & Varadarajan, R. (2020). Customer satisfaction and firm performance: insights from over a quarter century of empirical research. *Journal of the Academy of Marketing Science*, 48(3), 543–564. <https://doi.org/10.1007/S11747-019-00657-7>
- Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL a multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213–233. <https://doi.org/10.1177/1094670504271156>
- Persistence Market Research. (2023). *Direct-to-Customer Pet Food Market*. <https://www.persistencemarketresearch.com/market-research/direct-to-customer-pet-food-market.asp>
- Pham, T. S. H., & Ahammad, M. F. (2017). Antecedents and consequences of online customer satisfaction: A holistic process perspective. *Technological Forecasting and Social Change*, 124, 332–342. <https://doi.org/10.1016/J.TECHFORE.2017.04.003>
- Plasek, B., Lakner, Z., & Temesi, Á. (2021). I Believe It Is Healthy—Impact of Extrinsic Product Attributes in Demonstrating Healthiness of Functional Food Products. *Nutrients*, 13(10), 3518. <https://doi.org/10.3390/NU13103518>
- Prata, J. C. (2022). Survey of Pet Owner Attitudes on Diet Choices and Feeding Practices for Their Pets in Portugal. *Animals*, 12(20). <https://doi.org/10.3390/ANI12202775>

- Ramkumar, B., & Woo, H. (2018). Modeling consumers' intention to use fashion and beauty subscription-based online services (SOS). *Fashion and Textiles*, 5(1).  
<https://doi.org/10.1186/S40691-018-0137-1>
- Ramos, R. F., Biscaia, R., Moro, S., & Kunkel, T. (2022). Understanding the importance of sport stadium visits to teams and cities through the eyes of online reviewers. *Leisure Studies*, 0(0), 1–16. <https://doi.org/10.1080/02614367.2022.2131888>
- Research and Markets. (2022). *Subscription E-commerce Global Market Report 2022*.  
<https://www.researchandmarkets.com/reports/5600340/subscription-e-commerce-global-market-report-2022#src-pos-2>
- Ringle, C. M., Wende, S., & Becker, J.-M. (2022). SmartPLS 4. In <http://www.smartpls.com>. Smart PLS GmbH.
- Rita, P., Oliveira, T., & Farisa, A. (2019). The impact of e-service quality and customer satisfaction on customer behavior in online shopping. *Heliyon*, 5(10).  
<https://doi.org/10.1016/J.HELIYON.2019.E02690>
- Rombach, M., & Dean, D. L. (2021a). It keeps the good boy healthy from nose to tail: Understanding pet food attribute preferences of US consumers. *Animals*, 11(11).  
<https://doi.org/10.3390/ANI11113301>
- Rombach, M., & Dean, D. L. (2021b). Just love me, feed me, never leave me: Understanding pet food anxiety, feeding and shopping behavior of us pet owners in covidian times. *Animals*, 11(11). <https://doi.org/10.3390/ANI11113101>
- R-project. (2022). *R: What is R?* <https://www.r-project.org/about.html>
- Sanderson, S. L. (2021). Pros and Cons of Commercial Pet Foods (Including Grain/Grain Free) for Dogs and Cats. *The Veterinary Clinics of North America. Small Animal Practice*, 51(3), 529–550. <https://doi.org/10.1016/J.CVSM.2021.01.009>
- Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in partial least squares structural equation modeling use in marketing research in the last decade. *Psychology and Marketing*.  
<https://doi.org/10.1002/MAR.21640>
- Schleicher, M., Cash, S. B., & Freeman, L. M. (2019). Determinants of pet food purchasing decisions. *Canadian Veterinary Journal*, 60(6), 644–650.  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6515811/>
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J. H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322–2347.  
<https://doi.org/10.1108/EJM-02-2019-0189/FULL/XML>

- Shoveller, A. K., Bosch, G., Trevizan, L., Wakshlag, J. J., & Columbus, D. A. (2021). Editorial: Nutrition and Management of Animals We Keep as Companions. *Frontiers in Veterinary Science*, *8*, 1102. <https://doi.org/10.3389/FVETS.2021.748776/BIBTEX>
- Souza, J. L., Moraes, M. T., Galera, L. A., Abdalla Filho, A. L., Navarro, A. B., Junior, A. A., Mazola, Y. T., Alvarez, D. O., Camargo, P. B., & Martinelli, L. A. (2020). Identifying the composition of commercial Brazilian cat food with stable isotopes of carbon and nitrogen. *Isotopes in Environmental and Health Studies*, *56*(4), 346–357. <https://doi.org/10.1080/10256016.2020.1771331>
- Spence, C. (2022). Gastrophysics for pets: Tackling the growing problem of overweight/obese dogs. *Applied Animal Behaviour Science*, *256*. <https://doi.org/10.1016/J.APPLANIM.2022.105765>
- Suhartanto, D., Helmi Ali, M., Tan, K. H., Sjahroeddin, F., & Kusdibyo, L. (2019). Loyalty toward online food delivery service: the role of e-service quality and food quality. *Journal of Foodservice Business Research*, *22*(1), 81–97. <https://doi.org/10.1080/15378020.2018.1546076>
- Symmank, C. (2019). Extrinsic and intrinsic food product attributes in consumer and sensory research: literature review and quantification of the findings. *Management Review Quarterly*, *69*(1), 39–74. <https://doi.org/10.1007/S11301-018-0146-6>
- Toteva, I. T., Lutz, R. J., & Shaw, E. H. (2021). The curious case of productivity orientation: The influence of advertising stimuli on affect and preference for subscription boxes. *Journal of Retailing and Consumer Services*, *63*. <https://doi.org/10.1016/J.JRETCONSER.2021.102677>
- Trustpilot. (2022). *About Trustpilot*. <https://www.trustpilot.com/about>
- Viana, L. M., Mothé, C. G., & Mothé, M. G. (2020). Natural food for domestic animals: A national and international technological review. *Research in Veterinary Science*, *130*, 11–18. <https://doi.org/10.1016/J.RVSC.2020.02.008>
- Vinassa, M., Vergnano, D., Valle, E., Giribaldi, M., Nery, J., Prola, L., Bergero, D., & Schiavone, A. (2020). Profiling Italian cat and dog owners' perceptions of pet food quality traits. *BMC Veterinary Research*, *16*(1). <https://doi.org/10.1186/S12917-020-02357-9>
- Wang, P., Huang, J., Sun, J., Liu, R., Jiang, T., & Sun, G. (2022). Evaluating the Nutritional Properties of Food: A Scoping Review. *Nutrients*, *14*(11), 2352. <https://doi.org/10.3390/NU14112352>
- Wolfenbarger, M., & Gilly, M. C. (2003). eTailQ: dimensionalizing, measuring and predicting etail quality. *Journal of Retailing*, *79*(3), 183–198. [https://doi.org/10.1016/S0022-4359\(03\)00034-4](https://doi.org/10.1016/S0022-4359(03)00034-4)
- Woo, H., & Ramkumar, B. (2018). Who seeks a surprise box? Predictors of consumers' use of fashion and beauty subscription-based online services (SOS). *Journal of*

*Retailing and Consumer Services*, 41, 121–130.

<https://doi.org/10.1016/J.JRETCONSER.2017.11.011>

Xiao, Y., Wang, H. H., & Li, J. (2021). A New Market for Pet Food in China: Online Consumer Preferences and Consumption. *Chinese Economy*, 54(6), 430–440. <https://doi.org/10.1080/10971475.2021.1890360>

Xu, X. (2020). Examining the role of emotion in online consumer reviews of various attributes in the surprise box shopping model. *Decision Support Systems*, 136. <https://doi.org/10.1016/J.DSS.2020.113344>

Yan, M., Filieri, R., & Gorton, M. (2021). Continuance intention of online technologies: A systematic literature review. *International Journal of Information Management*, 58, 102315. <https://doi.org/10.1016/J.IJINFOMGT.2021.102315>

Zeithaml, V. A., Parasuraman, A., & Malhotra, A. (2002). Service quality delivery through web sites: A critical review of extant knowledge. *Journal of the Academy of Marketing Science*, 30(4), 362–375. <https://doi.org/10.1177/009207002236911>

