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COMPETITION IS JUST A CLICK AWAY

Repurchasing and Word of Mouth Intention in the Different Categories of E-Commerce

Department of Marketing Research and Consumer Behaviour

Doctoral Dissertation

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1. INTRODUCTION

We are living in a digital world since the mid-90s (Szabó – Hámori, 2006, p. 66) which fundamentally defines the course of economic development, with ever new focal points appearing. The Internet is now a central element in business' sales processes from the stage of information search to the actual purchase and follow-up of the order, or even the delivery of the product or service (e.g. software, e-banking). For some businesses, this online environment serves as an alternative sales solution in addition to their traditional offline outlets (e.g. bevasarlas.tesco.hu). Others put the internet exclusively in the service of brand promotion (e.g. axe.hu) or use it as an extended solution to save time (e.g. e-banking). In parallel, the number of businesses who only sell online (e.g. amazon.com) is steadily on the increase.

Internet shopping sites or so called webshops allow customers to browse, review and order products or services. As such, they operate as a cyber-space equivalent of physical retail stores enabling performance of all stages of the shopping transaction (Yoo – Donthu, 2001).

Webshops are classified by Clark (1997) into the following six categories:

1. manufacturer sites where manufacturers directly sell their own products (store.apple.com/hu);
2. offline, 'brick-and-mortar' retailer stores in which the products of physical stores are made available also on the web (groby.hu);
3. catalogue hybrid sites that put their printed catalogues on the web (avonplaza.hu);
4. pure 'dot-com' retail sites selling the products of several manufacturers without owning physical stores (amazon.com);
5. 'mall sites' that provide a location on the web to retailers whom they charge a fee (trivago.hu);
6. online brokerage sites (biztositas.hu).

The number of online stores and customers has been dramatically increasing in recent years. Initially, web presence and low prices were regarded as the key to success in this new environment (Minocha et al., 2003; Kim et al., 2006) but with the change of consumer requirements and the spread of businesses having an online presence (too) the

focus of businesses wanting to stay competitive shifted to meeting customer requirements at the highest standard possible, and to quality and satisfaction (Zeithaml et al., 2002).

Regardless of the depth of the electronic service line provided, it remains a key criterion of competitiveness to secure consumers' evaluation of the website as efficient and fit-for-purpose, which can be promoted by the continuous monitoring of customer satisfaction. Based on the extant research on service marketing, retaining current customers entails significantly less costs than acquiring new ones, and accordingly, improving the level of satisfaction helps increasing company profit and secures success in the long term (Carlson – O'Cass, 2011; Christodoulides – Michaelidou, 2011; Teimouri et al., 2012). Continuous improvement and enhancement of studies and research in the field of competitiveness has a major contribution to the development of the economy (Chikán et al. 2002) as well which also warrants a more detailed scrutiny of newly emerged online solutions as significant opportunities of the present and the future.

Electronic commerce encompasses electronic business operations (Kápolnai et al., 2002) and its importance, together with the value of online sales, has been continually increasing over recent years. According to the results of Eurostat, in 2012, 44% of the population of the EU-27 have purchased a product or service online in the year preceding data collection which corresponds to an increase of 4 percentage points over 2010. The same figure was the highest in Norway (76%) and the lowest in Romania (5%). In Hungary, 25% of the population had made an online purchase over the previous 12 months (Eurostat, 2013); furthermore, the 2009 E-Commerce Trend Report of NRC revealed that 67% of weekly users of the Internet had made at least one purchase before on the Internet (NRC, 2009).

The turnover of webstores in 2011 was estimated at HUF 155 billion which represents an increase of more than HUF 20 billion over the 2010 figure (Enet, 2010, 2011). In comparison, in 2012, HUF 177 billion was spent by customers in webstores using shopping cart systems and currently almost 6,000 Hungarian language webstores are available on the Internet (Enet, 2013). In the period between 2005 and 2010, the volume of electronic retail trade has grown 7-fold despite a 10% shrinkage observable on average in traditional retail. Gendereslaki considers this 'a dramatic shift' within the retail sector (Gendereslaki 2012, p. 196). In 2011, the share of electronic retail in total retail sales was 2.4% (Enet, 2012).

In Q3 2011, 4.5 million Hungarians aged between 15 and 69 used the Internet for at least one hour monthly – based on which they are defined as 'online consumers' – and the number of daily users of the Internet also reached 3 million. 62% of Internet users purchased some product on the World Wide Web in the previous 12 months, and by doing so, earned the title of 'online customer' (nrc.hu, 2012). These figures also illustrate that the distinction between online consumers and online customers is becoming more and more blurred (Szűcs, 2011).

Even when the same product is purchased, online and offline environments provide for a different consumer experience. E-commerce offers convenient shopping time, location and delivery (Grewal et al., 2001, in: Wolfinbarger – Gilly, 2002) at the expense of personal interactions and the possibility of trying the product which is ensured by its offline counterpart. Consequently, those who prefer seeing and touching the desired product tend to shop less online (Shayesteh et al., 1999). Online shopping is typically a solitary and planned activity rather than a social event. Still, personalisation and networking opportunities as well as competitive prices offer ample advantages on top of quicker and broader access to information and retailers (Wolfinbarger – Gilly, 2003; Qin, 2007). Kuttner (1998) describes the Internet as a nearly perfect market due to instantaneous information and the ability of buyers to compare these and the offerings of sellers worldwide (in: Srinivasan et al., 2002; Qin, 2007). Price comparison sites render this process even simpler – especially in comparison to offline environments – while the costs of switching to another provider are also lower (Kwon – Lennon, 2009).

One of the main pursuits of e-commerce is to transmit information to consumers as efficiently as possible on the Internet. Such information can be considered as messages sent by a sender to a receiver through a channel (Barnes – Vidgen, 2000). Consumers, however, do not only pull these messages but may also push such messages or opinions by which they exert a significant influence on fellow customers. Accordingly, Internet users are both providers and consumers of information.

E-commerce is not a homogeneous area and there are a number of different options for its segmentation. The type of the purchased goods, the Internet usage of the business (pure online or hybrid online presence) and the adopted business model (e.g. the Groupon model) are all possible criteria of segmentation, and the different mechanisms operating in each segment delineated this way are worthy of separate analysis. Francis and White created a marketing-oriented categorisation of e-commerce in 2003 under which they

identified four segments by fulfilment (offline and online) and product type, namely the market of offline goods, electronic goods, offline services and electronic services. They propose in their study that in marketing-oriented analyses of e-commerce the differences across the delineated categories should be explored.

1.1. Research objectives

The objective of our PhD research project is to investigate how a set of relationships we are thoroughly familiar with in an offline context develops in the various e-commerce segments. We will investigate which dimensions of electronic service quality are relevant for purchases made in the four e-commerce categories of offline goods, offline services, electronic goods and electronic services, as defined by Francis and White (2003), and will analyse the effect of these dimensions on repurchasing intention and traditional and electronic word of mouth intention as a function of satisfaction in these markets, both separately and in relation to each other. Accordingly, our main objective will be to map similarities and salient differences between the four e-commerce categories which are regarded in the model as moderating variables.

Loyalty will not be analysed in this dissertation as it is the product of long-term interaction (Oliver 1999; Vallejo et al., 2005) and as such contrary to our current objective which is to understand and explain consumer intentions and behaviours emerging in the short term.

The purpose of the undertaken research is twofold. A differentiated examination of e-commerce has been repeatedly identified in academic literature as a need and an area for future research (Francis 2007, 2009). Yet, few studies have been published to date which implement such a separate analysis of perceived quality, satisfaction, repurchasing and WOM in the different e-commerce segments. Consequently, the aim of our study is to fill this gap. Our second objective is to inspect the subject of our research with the domestic characteristics taken into account. Despite its continuous development, e-commerce has gained less ground in Hungary than in countries located more to the West and the characteristics of Hungarian online consumers are also different (Annex 1 and 2) which is clearly reflected in their expectations and quality perceptions. Our choice of topic was partly motivated by an interest in novel online solutions since our undergraduate years and our view of e-commerce as a ground-breaking opportunity for aspiring businesses. Although there are a number of relevant studies available in the extant literature, we

believe that knowledge of the area identified above, in either academic or professional circles, is far from extensive.

1.2. Theoretical and practical relevance of the research

In addition to making up for shortcomings in academic knowledge, this research also aims to provide guidance to e-tail businesses by presenting the dimensions which are relevant for perceived quality as well as their effect on satisfaction and the positive consequences of satisfaction. The success of online sellers depends partly on their ability to identify and integrate consumer expectations (Zeithaml et al., 2002; Reichheld – Schefter, 2000). Quality is therefore a core driver of business strategy and a key factor in competition. With the evolution of ICT and in a constantly changing environment some of the experienced and successful companies have recognised that delivering high electronic service quality may be the key to profitability (Teimouri et al., 2012). Dissatisfied online customers experiencing service breakdowns, lost orders or inadequate complaint handling may easily abandon the business since competition is just a click away (Meuter et al., 2000; Bauer et al., 2006). In an online context, purchases are more closely associated with word of mouth recommendations rather than interaction with the seller (Smith et al., 2005), and blogs, the social media and communities are also influential factors in the decision making process (Herring et al., 2005; Bernoff – Li, 2008). Consequently, in addition to repurchasing and traditional WOM intentions, electronic WOM intention is also a central factor to be reckoned with.

1.3. Structure of the dissertation

This dissertation consists of three main parts. The first comprises our literature review, the second outlines our research plan and design while in the third part, the findings of our empirical research, which involved a large-sample online questionnaire and an experiment, are presented.

The first chapter of the literature review (Chapter 2.1) introduces general concepts of perceived quality, paying particular attention to the similarities and differences observable between offline and online environments. The second chapter (Chapter 2.2) provides an overview of e-commerce dimensions which are relevant for marketing purposes. Here, special emphasis is placed on the electronic purchase process, which should be profoundly understood to be able to adopt a fully appropriate concept of

electronic service quality. On these foundations, in Chapter 2.3, we will trace the evolution of electronic service quality concepts in chronological order together with their assessment and synthesis against the definition of electronic service quality we have adopted. We will describe these concepts in considerable detail as they convey important messages to businesses in respect of the measurement of perceived quality and potential areas for improvement.

In Chapter 2.4, we will move on to discuss the relationship between quality perceptions and satisfaction based on the extant research. Following the clarification of this relationship, we will continue with a review of models of satisfaction. In the final chapter (Chapter 2.5) of our literature review, the consequences of satisfaction will be under scrutiny as well as the various behaviours they may find expression in. After presenting models of future consumer behaviour, we will describe repurchasing intention as well as traditional and electronic WOM intention which are the focal constructs of our empirical research.

Based on the literature review, we will draw up and set out in detail our empirical research plan in Chapter 3, with the formulation of our initial hypotheses, the operationalization of variables and the envisaged research methodology at the centre.

In the next chapter of our dissertation (Chapter 4), the components of our empirical research will be expounded, while in the final chapter we will summarise our main findings and their managerial implications.

2. LITERATURE REVIEW

In our review of the literature, we will set out from general theoretical frameworks and proceed to the specific concepts and dependent variables used during our research (Figure 1). The theoretical overview is divided into five parts. The first chapter will outline models of quality perception in order to identify the main differences between online and offline environments and to provide a definition for the concept of quality in the context of e-commerce. In the second chapter, e-commerce as the environment which accommodates our analysis will be described from a marketing point of view, with special regard to the purchase process which is a key element in the concept of electronic service quality presented in the previous sections. Against this theoretical background, we will assess the scales created for the measurement of electronic service quality and identify the scale which is the most appropriate to our adopted definition.

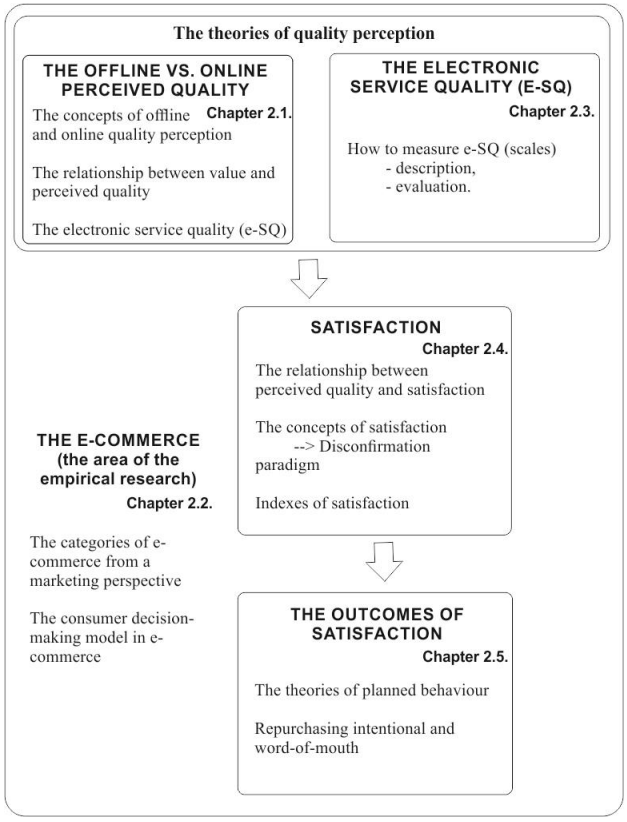

Figure 1: The course of the literature review

Source: own elaboration

In the next chapter, we will discuss the state consumers are characterised by after they have made their decision on quality as well as the level of, and theories on, consumer satisfaction. We will then continue with the consequences linked to satisfaction in the different models, dedicating special attention to repurchasing intention and word of mouth.

2.1. The role of quality in business operation

The primary motivation behind our choice of topic was to find a field of study in which our analysis – in addition to fine-tuning theoretical models established in academic circles – could offer companies useful guidance for successful operation. While companies have to face high initial transaction costs per customer due to the need to convince such new clients, these costs will decline and the relationship will be profitable in the longer term (Srinivasan et al., 2002). This proposition is also corroborated by Strauss et al. who claim that customer acquisition costs five times more than customer retention (Christodoulides – Michaelidou, 2011). In online markets, competitors are just a click away and customers may choose from a wide selection of offers. As a result, compared to offline environments, customer acquisition is more difficult and costly (Fu-Ling – Chuan, 2012; Christodoulides – Michaelidou, 2011). According to Reichheld and Schefter (2000), the cost of acquiring new customers is 20 to 40% higher in an online context than in traditional offline markets. Accordingly, increasing the number of satisfied regular customers helps businesses reduce their marketing costs, conduct business more smoothly and stand up to competition (Liu – Arnett, 2000).

Satisfied and regular customers are more perceptible to disruptions, are willing to pay a higher price for the product/service (Chow – Reed, 1997; Reichheld – Schefter, 2000; Zeithaml et al., 1996; Gefen, 2002) and are more easy to make satisfied again since the company has gained familiarity with their expectations (Zeithaml et al., 1996; Demeter, 2009). In addition, they are more likely to recommend the shop to others, contributing to corporate advertising (Zeithaml et al., 1996; Gefen, 2002). More and more companies come to recognise that their customer equity lies in satisfied customers (Kotler – Keller, 2012). Quality is an important antecedent of satisfaction (Wolfinbarger – Gilly, 2003) and thus a key factor in securing long-term success (Fassnacht – Koese, 2006; Santos, 2003; Wolfinbarger – Gilly, 2003; Zeithaml et al., 2000, 2002; Ladhari, 2010) and competitive advantage (Bressolles – Nantel, 2006).

2.2. From traditional to electronic service quality

There is no consensus in the literature about the precise dimensions used for characterising service quality in the e-commerce industry, however, as a general rule, all the approaches take the fundamental concepts of traditional service quality as a basis.

Perceived service quality can be defined as the difference between consumers' expectations and their experience of the company's performance (Parasuraman et al.,1985; Parasuraman et al., 2005; Kim et al., 2006). Consumer expectations therefore play a relevant role in the evaluation of quality which is influenced by previous experience, situational effects, the company's communication and word of mouth (Figure 2) (Kenesei – Kolos, 2007).

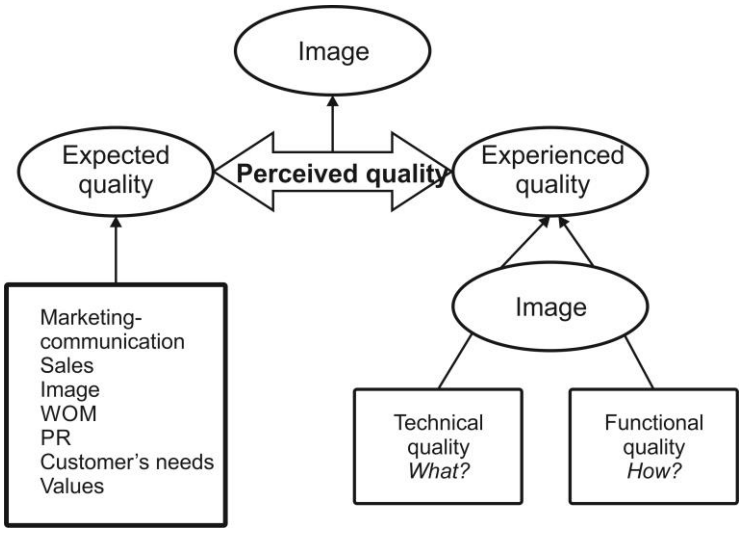

Figure 2: Determinants of expected and experienced quality

Source: Kenesei – Kolos (2007), p. 133

The success of companies depends on consumers' positive judgement of the quality of their products and services. In order to achieve this, continuous monitoring of quality perception is required which facilitates the identification and elimination of problems concerning quality. Such problems may occur at different stages of the process which is reflected in the so-called GAP model (Kenesei – Kolos, 2007). The GAP model developed by Parasuraman et al. (1985) defines discrepancies in the perception of service quality along four gaps (Figure 3):

Gap 1 (G1): the *information gap* between consumer expectations and management perceptions of consumer expectations;

Gap 2 (G2): the *gap between standards* standing for the gap between management perceptions and service quality specifications;
Gap 3 (G3): the *performance gap* between service quality specifications and the service actually delivered;
Gap 4 (G4): the *communication gap* between service delivery and external communication.

It is the last gap in the model (G5) that informs the individual's assessment of service quality (Parasuraman et al., 1985; Bauer et al., 2007; Veres, 2009).

The above gaps occur then due to differing expectations and companies should obviously seek to keep these at a minimum or optimal level. However, this poses a great challenge as the process of perception varies across consumers and situations.

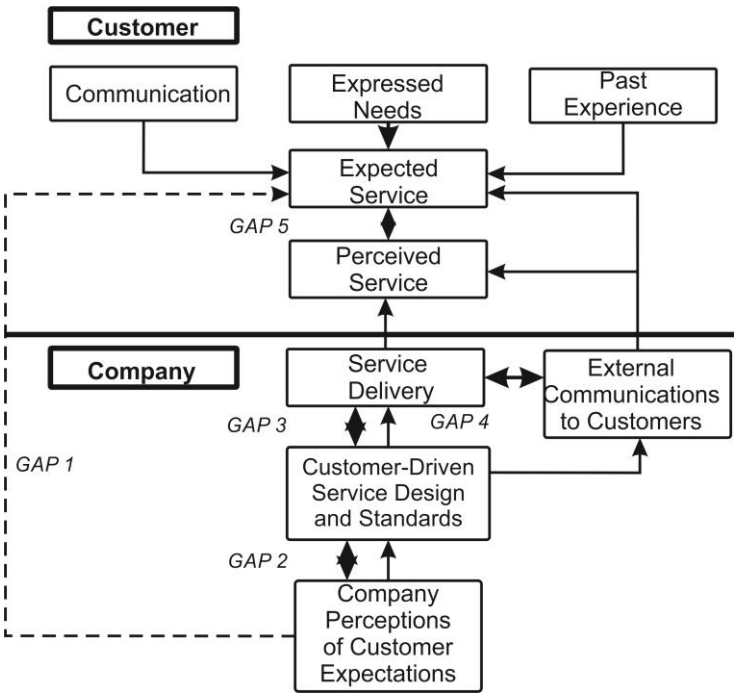

Figure 3: The GAP model

Source: Hofmeister-Tóth et al. (2003), p. 42

The most widespread scale used for measuring traditional service quality in offline environments is the SERVQUAL scale (Parasuraman et al., 1988, 1994; Zeithaml et al., 1996; Carman, 1990; Cronin – Taylor, 1992; Parasuraman et al., 2005) which is based on a standard questionnaire comprised of 22 pairs of questions in two parts (Parasuraman et al., 1985). The first part concerns quality-related expectations while the second part

queries into consumers' evaluation of the process they have experienced. Perceived quality emerges as the difference of these two factors, as follows:

Perceived quality = Expected quality – Experienced quality.

The pairs of questions are divided into five groups corresponding to the main determinants of traditional service quality. These are (1) tangibles (2) reliability (3) responsiveness (4) assurance and (5) empathy (Kenesei – Kolos, 2007). The scale has been tested in various contexts (Vallejo et al., 2005).

TRADITIONAL SERVICE QUALITY	ELECTRONIC SERVICE QUALITY
Similarities	
Both are perceived concepts that are defined by the expected and perceived quality.	
The consequences are similar, but the effects could be different.	
Differences	
Interpersonal relationship	Human-machine interaction
There is a shop (material environment) and people.	By the shopping the consumer meets only with the technology.
	Self-service
	There is no interpersonal interaction → higher risk
Key dimensions *(SERVQUAL, Zeithaml et al., 1990)*	**Key dimensions** *(according to the resume Bressoles et al. 2007)*
Reliability	Reliability
Assurance	Assurance, privacy
Tangible	Design
Empathy	Interactivity and personalisation
Responsiveness	Ease of use
	The quality and quantity of information

Table 1: Comparison of traditional and online service quality

Source: own elaboration based on the literature

The experience of buying products or services in an online environment differs greatly from purchasing the same in a traditional offline environment. In an online environment, customers communicate with the shop in a virtual space and interpersonal interaction is replaced by human–machine interaction with technology at the centre (Bressolles et al., 2007; Skiera et al., 2005). In addition, self-service methods gain in importance (Meuter et al., 2001). The Internet as a channel offers novel advantages including two-way interactive communication, personalization, networking and an increasingly wide selection of information and products. All these factors call for a novel approach to quality in lieu of that applied in offline environments (Wolfinbarger – Gilly, 2003). The advantages of Internet shopping such as 24/7 availability (Seiders et al., 2000), the opportunity to engage in comparisons (Wolfinbarger – Gilly, 2001; Zeithaml et al., 2000) and self-service lend a sense of control and a kind of freedom from sellers, the family and social interaction. However, the online shopping process also entails drawbacks including

lack of opportunity to touch the chosen product or to talk to sellers. In such an impersonal, automated environment customers are exposed to fewer sensory stimuli, and as risks of fraud and abuse lead to an increased sense of insecurity, the issue of security assumes special importance (Bressolles et al., 2007). Having regard to these peculiarities, it is clear that the definition of traditional service quality is inadequate for the description of service quality linked to electronic commerce. The most important differences are summarised in Table 1.

The gaps identified in the GAP model can be traced in the case of electronic service quality as well (Zeithaml et al., 2002). These gaps act in combination to influence customers' evaluation of service quality (G5 = f (G1; G2; G3; G4)) which in turn has an impact on satisfaction, and consequently on WOM and repurchasing intentions (Figure 4).

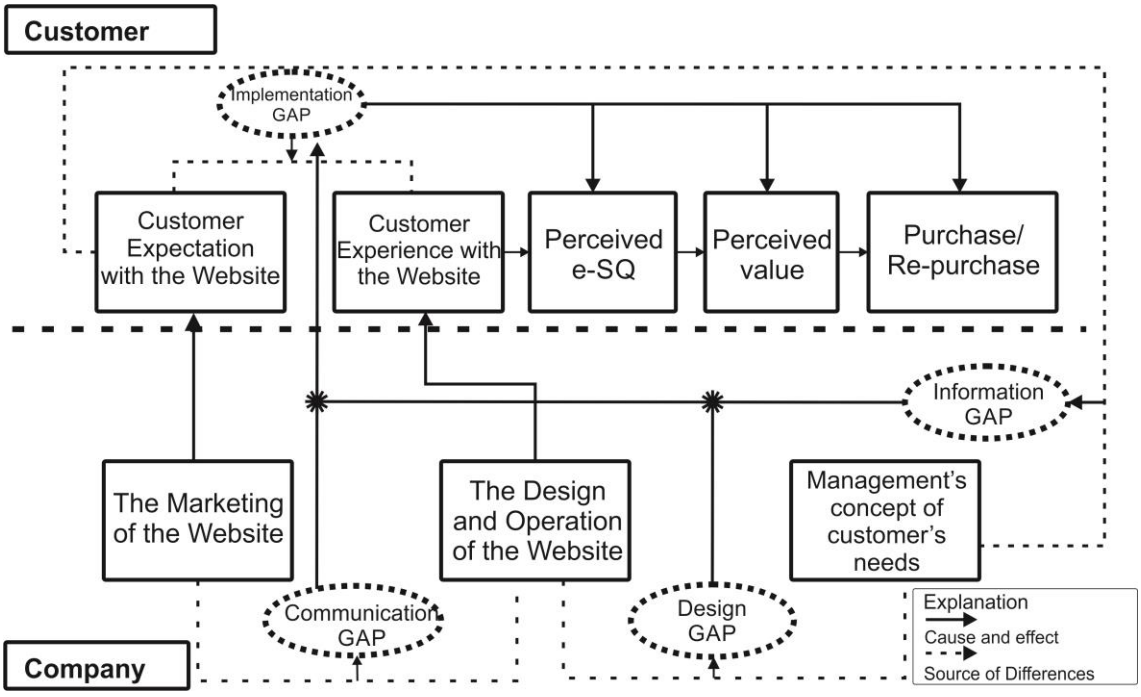

Figure 4: The GAP model adapted to electronic commerce

Source: Zeithaml et al. (2002)

According to Parasuraman, Zeithaml and Malhotra (2000, 2005), it should be taken into account also in the case of electronic service quality that perceptions of quality are determined by customers' expectations and their actual experience of the service. The traditional service quality dimensions that may be successfully applied to e-service quality and any new aspects should be explored against this background.

2.2.1. The correlation between value and quality

Prior to exploring the definition of quality in online environments we should clarify the correlations between value and quality. Upon studying the literature on the measurement of value and quality we encounter identical or similar solutions (Gyulavári, 2005). However, it is reasonable to distinguish between these two concepts. Value is an important factor in marketing due to its relationships with quality, satisfaction and loyalty (Cronin et al., 2000; McDougall – Levesque, 2000). It also refers to what consumers get (customer output) for what they give (customer input) (Zeithaml, 1988; Oliver – DeSarbo, 1988). Accordingly, '[v]alue [...] is primarily a combination of quality, service and price [...], called the "customer value triad"' (Kotler – Keller, 2008, p. 62). When quality and service improve, value increases, while it decreases if prices go up. From a marketing point of view consumer perceived value plays a particularly important role (Rekettye, 1997). While some definitions of value do not take expenditure into account, it is an important element that comes to the fore in the purchase process when decisions in favour of a certain product or service are made (Gyulavári, 2005).

Value may vary from purchase to purchase, therefore, it is important to have an insight into customers' motivations. We can distinguish between two main motivations for shopping: the utilitarian and the experiential or hedonic (Hirschman – Holbrook, 1982). The former is goal-oriented and rational and regards shopping as a task or obligation (Babin et al., 1994). Value in this case is a function of the timely and efficient completion of the shopping transaction (Babin et al., 1994). Functional or utilitarian value corresponds to the sum of benefits and sacrifices (Overby – Lee, 2006) and includes cognitive elements such as money or saving time (Fu-Ling – Chuan, 2012). In contrast, the shopping experience, entertainment and enjoyment are central to the hedonic value (Babin et al., 1994; Childers et al., 2001). Often, the shopping process provides both hedonic and utilitarian value, e.g. when the desired product is obtained at a discount price (Babin et al., 1994).

Online shopping is generally viewed as a homogeneous activity in terms of hedonic and utilitarian values. Many consider online shopping as a utilitarian, targeted and goal-oriented process with the primary aim to purchase the product as efficiently as possible, i.e. to obtain as many information as quickly and as conveniently as possible which allows customers to secure the most favourable offer (Babin et al., 1994; Childers et al., 2001; Wolfinbarger – Gilly, 2001; Szymanski – Hise, 2000). Online consumers are more

conscious, which is also reflected in their information seeking practices, and they tend to look for high-value offers, e.g. offers inclusive of shipping or a massive discount (Fu-Ling – Chuan, 2012). Saving time and money, convenience and depth of assortment are all components of the utilitarian value of online shopping.

Hedonic shopping value on the contrary focuses on fun, fantasy (Overby – Lee, 2006) and the shopping experience, which can be decisive in online environments as well. It was also shown in the study of Francis and White (2003) that, in addition to utilitarian value, hedonic value also appears in electronic shopping for instance in the form of the seeking or 'hunting' process, locating unique or unusual products, participating in online auctions or the possibility to interact with other consumers at chat sites or online forums. Visual input, interactivity, colours and sounds also belong to hedonic value (Childers et al., 2001; Menon – Kahn, 2002).

2.2.2. Electronic service quality

As it was shown in the previous section, the concept of service quality in an e-commerce context requires a new approach due to its peculiarities as compared to offline sales. In the early stage of the Internet's expansion retailers believed that low prices and web presence are a guarantee for success (Minocha et al., 2003; Kim et al., 2006). However, with the accumulation of consumer and corporate experience of online shopping, and as competition got stronger and Internet shopping became a routine practice (Yoo – Donthu, 2001) they had to realise that they had been mistaken. If consumers do not find the required information on the website, the company does not respond timely to their e-mails or the product is not delivered at the requested time, they give a much lower rating for the quality delivered by the company (Zeithaml et al., 2002) and will choose competition for their future online shopping transactions. Recognition of this fact gave rise to a change in strategic thinking and quality came to be regarded soon as a crucial factor for the Internet used as a channel. Yet the relevant literature was lacking until the mid-2000s (Lennon – Harris 2002; Parasuraman et al., 2005).

The cyberspace accommodates different kinds of homepages: online newspapers, portals, sites for free downloads, C2C sites, link directories, job portals, online shopping sites, etc. As mentioned in the introduction, our primary focus in this dissertation will be on webshops, as websites where users are offered an option for shopping.

Minocha et al. (2005) describe the development of customer experience in an online environment according to five stages (Figure 5):

1. *Expectations setting:* refers to the prejudices and expectations of the customer influenced by a number of factors including motivations, needs, advertising, word of mouth or perceived advantages and disadvantages.
2. *Pre-purchase stage:* the customer chooses a website, searches for a product/service and collects information.
3. *E-purchase:* the purchase and payment is made based on the available data.
4. *Post-purchase interaction:* tracking the order, queries, receipt of the product/services, complaints.
5. Consumption of the product/service.

Consumers directly interact with the e-commerce environment, i.e. the webshop in the information collection, e-purchase and post-purchase interactions stage, however, their overall experience is shaped also by the preceding and the subsequent stages. According to the model drawn up by Minocha et al. (2005), customers evaluate the online purchase process in total, based on an overall impression, and then decide if they revisit or reuse the webshop, or look for another provider.

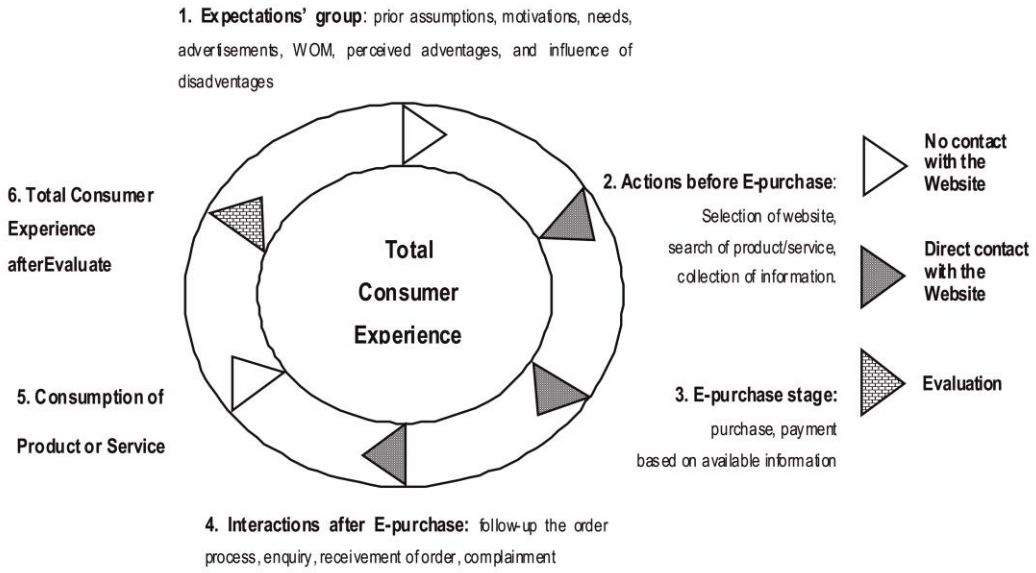

Figure 5: The total customer experience in an online context

Source: Minocha et al. (2005), p. 31

A great number of other researchers agree that quality evaluation in the case of online stores is not restricted to the shopping transaction but involves the full range of the electronic services provided (Montoya – Weiss et al., 2000; Wolfinbarger – Gilly, 2002; Zeithaml et al., 2002; Wolfinbarger – Gilly, 2003; Minocha et al. 2005, Bauer et al., 2005). Electronic services cover all interactive services provided on the Internet, relying on telecommunication and on information and multi-channel technologies (Sousa – Voss, 2006; Fassnacht – Koese, 2006). This means in practice that in addition to events occurring during the transaction, so called pre- and post-interaction service aspects should also be taken into account in the evaluation of quality, including information seeking, completion of the transaction, customer service as well as possible refunds and complaint management.

In the light of the foregoing, we will hereinafter refer to the concept of service quality linked to e-commerce with the term 'electronic service quality', which is also established in the literature. This term stands for the ability of a webshop to support efficient and successful browsing, shopping and delivery (Zeithaml et al., 2000), regardless of whether the shop in question offers products and/or services for sale.

According to Parasuraman et al. (2002), the relationship observable in the case of electronic service quality delineates a curve: while in an offline environment, consumers want to get the most of the service, in online environments, there is a saturation point (inverted U-shaped curve). In their example, customers like to have feedback confirming their order and follow-up emails are also welcome, however, there is a point where they have had enough of e-mails and showering them with any additional information leads to deterioration of the level of quality, and consequently, of customer satisfaction.

The concept of electronic service quality is made even more complex by the fact that e-commerce is by definition a multi-channel medium. Our everyday environment is increasingly pervaded by multi-channel technology which combines physical channels, telephony, online and other channels. A number of studies have shown that market players combining different channels have better chances for success than their competitors using a single channel (Sousa, 2010). In the case of electronic commerce, the purchase and delivery of the given product or service is generally a multi-channel process, where virtual, physical and integrated quality should be treated separately.

Sousa (2006) purports that due to multi-channel solutions, virtual and physical channels should also be distinguished from each other. Virtual channels are tools of communication that employ telecommunications, information and multimedia technologies, e.g. the Internet and interactive devices (ATMs, hotel check-in systems) and interactive TV or telephone. In contrast, in the case of physical channels, consumers encounter a physical infrastructure such as face-to-face services or logistics infrastructures.

The services provided can be similarly classified into two groups. In the case of virtual services, information is provided without any human interaction in an automated manner and these services are therefore more closely linked to self-service. Physical services necessarily involve human interaction through a virtual or a physical channel. This means that the process in not automated. Human interaction may take place in the front office, the back office or both. For instance, in the case of an online bookshop, potential customers looking for a book and in need of help may contact customer service either by phone or e-mail. At this point, they use a physical service through a virtual channel. When they simply look for information in the homepage or the integrated database, a virtual service is delivered. When the book is delivered by post, they receive a physical service through a physical channel.

Conventional outlets should also be taken into account when studying e-commerce, as they play a major role in the decision-making process of customers. Many customers first check the product in an outlet and then buy it on the Internet, or collect information online and also have a look at the product offline before making their final decision. In response, a number of companies have been established that offer hybrid solutions combining online and offline interfaces to secure success and growth (Moon et al., 2011). However, in these cases it should also be borne in mind that a consumer satisfied with one of these channels will not necessarily feel the same about the other; instead, satisfaction must be transformed from one channel to the other and vice versa (Chen – Cheng, 2012).

2.3. Electronic commerce

2.3.1. The classification of e-commerce

Electronic commerce can be defined from various aspects, and accordingly, we can find several different approaches in the literature. According to Chaffey (2006), e-commerce refers to all types of electronically mediated business transactions, also including electronic business operations (Kápolnai – Gendereslaki – Pataki, 2002). In the definition of Gendereslaki, Duma and Szántai (2004), e-commerce refers to a solution in which 'the product and the whole process can be and is digitalized'. Processes in which no digitalization is observable fall outside the scope of e-commerce (Gendereslaki et al., 2004, page 41). The customer cycle model of György Drótos and Péter Móricz (2000, 2001) comprises nine steps and, building on the aforementioned definition, e-commerce takes place when any of these steps is digitalized (Figure 6). Based on this approach, e-commerce can be defined quite broadly. To address this issue, we will adopt a simpler definition for the purposes of our dissertation, according to which e-commerce is a business opportunity where companies complete deals with their customers through a computer network, using electronic transactions (Liu – Arnett, 2000).

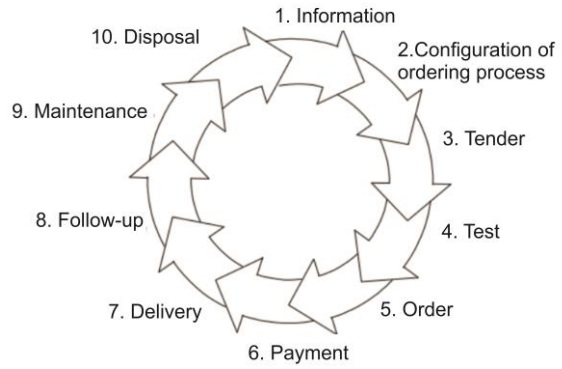

Figure 6: Life cycle concept of the buyer-seller relationship

Source: Móricz (2009)

E-commerce encompasses three marketing tasks: provision of information, online selling – when the order is placed and the purchase is completed electronically – as well as post-purchase services and problem solving (Liu – Arnett, 2000).

In the literature, there are several approaches to the relationships between electronic commerce and e-business. Some use the terms as synonyms (Kolos – Gáti, 2012) referring

to the use of Internet-based technologies connecting customers, suppliers, business partners and employees of the company in order to enhance the customer value of their products and services. Others propose that e-commerce belongs under the umbrella term 'e-business' as a strategy to continuously optimise company business activity by digital technology (Eszes – Bányai, 2002; Talyigás – Mojzes, 2004; Chaffey, 2006). E-business is thus broader than e-commerce as it is a term integrating business functions, or the online concepts of business operation as a whole (Gendereslaki et al., 2004). For the purpose of our dissertation, we will endorse the latter approach. Depending on participants on the distributor and the consumer side – consumer (C), business (B), government (G) – e-business can be divided into nine segments (Table 2).

		DISTIBUTOR		
		Consumer (C)	**Business (B)**	**Government (G)**
CONSUMER	**Consumer (C)**	Sale: pl. www.vatera.hu Oppinions: http://homar.blog.hu/ Peer-to-peer: Skype communities, chat	Sale: pl. www.bookline.hu Brand building: pl. www.unilever.hu	E- administration
	Business (B)	Pricing Customer feedback	Sale E-business	E- administration
	Government (G)	Feedback to different pages (+ or -)	E-ügyintézés Feedback to government bodies	E-govement

Table 2: E-business categories

Chaffey et al. (2006), Gendereslaki et al. (2004): Az e-kereskedelmi ABC [An A to Z guide to e-commerce], p. 42

Depending on who the seller and the buyer is, these categories have relevance for e-commerce as well. In this dissertation, we wish to discuss only webshops which serve private customers on the buyer side instead of corporate clients or the government.

The most common form of online commerce is B2C commerce where businesses sell to consumers (Gendereslaki et al., 2004). Such sellers are called electronic retailers (*e-tailers*) and include virtual retailers (e.g. pelikan.hu), hybrid multi-channel retailers (e.g. alexandra.hu), catalogue retailers (e.g. LLBean.com) and direct manufacturers (e.g. istyle.com).

In his summary, Andrási (2011) distinguishes between the following online retail markets in Hungary:

1. *Webstores using shopping cart systems* are traditional webshops which have shown a significant increase over the recent years with prospects of further growth (Enet, 2012).
2. *Online auction marketplaces* allow customers to look for a product as opposed to sellers looking for customers, and instead of bargaining, customers bid for products. We can observe the domestic and worldwide expansion of this business model.
3. *Price comparison websites* help customers in finding the most favourable offer on the Internet. Webshops have to join such sites individually. Although such sites do not sell directly, they receive an agency fee after the number of clicks and purchases.
4. Of *online classified ads*, real estate agents and car sellers are the most prevalent in the B2C category.
5. In the case of *tourism services*, most accommodation facilities and travel agencies have an online presence and most of them offer booking services as well.
6. *Culture and entertainment* commodities and ticket sales for various events are a significant area within e-commerce.
7. Webshops offering *financial and insurance transactions* allow customers to conduct their financial and insurance affairs online.
8. *Online gaming and gambling* is a popular pastime also in Hungary, with a clientele of several thousand subscribers (Andrási, 2011, p. 103).
9. Other: adult content, illegal download sites.

Today, C2C online commerce is also expanding markedly. In this form of commerce, consumers conduct business with each other (Gendereslaki et al., 2004; Andrási, 2011). Auction sites and advertising portals can be mentioned under this category. G2C commerce refers to transactions concluded within the purview of e-government.

E-commerce can also be categorised by the goods sold (product and/or service) or by the means used for fulfilment (offline or electronic). Adam (2002) puts forward a spectrum of business web-use that ranges from ‘pure online’ to ‘pure offline’ with ‘clicks-and-

bricks' shops representing the mid-point. For others, the specificities of e-commerce can be grasped in the means of delivery and propose a different focus for the study of shops delivering by post or courier from those using electronic means (Francis – White, 2002; Wolfinbarger – Gilly, 2003; Zeithaml et al., 2000).

Such an online-offline categorisation is relevant to marketing purposes, however, it does not reflect on the entire sphere of e-commerce. Products/services consumed online immediately after purchase do not fit into either of these categories. Drawing on these considerations, Francis and White (2003, 2004) introduce the 'online/electronic' and 'offline' categories of fulfilment. Online fulfilment is conditional on customers staying online to download or to consume the product whereas offline fulfilment enables consumers to disengage from the virtual world after placing an order. This is one of the relevant segmentation attributes of the categorisation of e-commerce they advocate. Another attribute is whether the online store offers tangible goods or intangible service products. As a result, a 2x2 matrix emerges, with four categories (Francis – White 2003, 2004): (1) offline-goods (2) offline-services (3) electronic-goods and (4) electronic-services (Figure 7).

Product	Fulfillment Process	
	Offline	**Electronic**
Goods	**Offline-Goods** • Consumer orders/pays for product then disengages from Web site • Retailer dispatches goods via physical delivery channels • Delayed exchange completed in offline environment *Examples:* Books, clothing, tangible CD's, DVD's, groceries, alcohol	**Electronic-Goods** • Consumer pays for & downloads product via retailer's Web site • Consumer installs &/or prepares product for consumption • Simultaneous exchange reliant on sustained interaction with Web site *Examples:* Software, MP3's, digital periodicals/journals, electronic art
Services	**Offline-Services** • Consumer books & pays (or quotes credit card) via Web site • Consumer travels to service location (or firm to consumer) • Core service product produced in offline environment *Examples:* Travel, hotels, event tickets, trades services (e.g. plumber)	**Electronic-Services** • Consumer established account or membership & pays online • Consumer produces & consumes service offering via Web site • Simultaneous exchange reliant on sustained interaction with Web site *Examples:* Banking, share trading, adult & chat sites, astrology readings

Figure 7: Categories of e-commerce by fulfilment method and type of product

Source: Francis – White (2003, 2004)

In the offline-goods category, customers order online but receive the goods (e.g. books, mobile phones, furniture) via offline distribution channels. For offline-services, the order is similarly placed online but consumers have to go to the firm's offline service delivery

location (e.g. travels, accommodation, entry tickets, massage) or the firm to the consumer. In most cases, these categories involve postponed payment (e.g. upon delivery) and a delayed payment-product exchange (Francis – White, 2004).

By contrast, in the case of electronic-goods, customers download the goods directly after payment and prepare the product for consumption (e.g. software, MP3 files, electronic newspapers) while for the purchase of electronic-services, consumers create an account which is required to consume the core service (e.g. e-banking, chat rooms, trade in shares) (Francis – White, 2002, 2003, 2004; Francis 2007).

	2005	2006	2007	2008	2009	2010	2011	2012	Category
Books and magazines	37	40	43	42	42	45	45	44	Offline-goods
Clothes, sports equipment	15	20	19	24	30	31	36	40	Offline- goods
Accommodation	21	24	23	21	28	31	33	36	Offline-services
Tickets	20	25	28	25	23	27	27	30	Offline- services
Household goods	9	11	10	11	15	21	22	27	Offline- goods
Movie, music	20	19	21	13	17	18	17	14	Offline- goods
Telecom services	n.a	n.a	n.a	n.a	11	11	15	15	Offline- services
Electronic equipment	11	13	14	13	15	14	15	14	Offline- goods
Software	17	17	14	10	15	16	14	14	Offline- services
Books/magazines/e-learning material, delivered or upgraded ONLINE	25	23	20	17	10	11	13	n.a.	Electronic- goods
Lotteries or bet over the Internet	n.a	n.a	n.a	n.a	15	12	13	n.a	Electronic- services
Films/music, delivered or upgraded ONLINE	13	12	10	6	9	9	10	n.a	Elektronikus-termék
Hardware	10	10	11	9	10	11	10	9	Offline- goods
Computer software, delivered or upgraded ONLINE	13	11	8	5	7	9	8	n.a.	Electronic- services
Food/groceries	7	5	9	5	6	7	7	8	Offline- goods
Video games software and upgrades	n.a	n.a	n.a	n.a	7	8	7	8	Electronic- services
Medecine	n.a	n.a	n.a	n.a	4	6	6	8	Offline- goods
Shares/financial services/insurance	5	4	5	4	4	4	6	6	Offline- goods
Other	22	23	26	26	26	26	22	20	

Table 3: Products and services purchased online in Hungary, multiple answers

N = customers having made a purchase online in the previous 12 months
Source: Eurostat (2013)

Based on Eurostat data (2013), customers shopping online in Hungary in 2012 have mostly purchased books, magazines (44%), clothing and sports equipment (40%), and accommodation (36%) during the previous 12-months period. These items all belong to the category of offline-goods and services. Of electronic-goods and services, e-books and

e-magazines were purchased the most frequently (electronic-goods) and gambling services (betting, lottery, gambling) used via registered accounts (electronic-services). In the light of these data it can be stated that typically offline-goods and services are purchased on the Internet in Hungary today (Table 3).

2.3.2. Consumer decision making

Based on the definition of electronic service quality, consumer evaluation accompanies the entire purchase process. Therefore, the discrete stages of consumer decision making deserve more detailed attention. The electronic service quality concepts presented in later chapters will also be evaluated according to their ability to cover these stages.

In the case of fully fledged 'extended' purchases, the buying decision process comprises five stages. The process may involve fewer stages depending on the shopping transaction and the decision making situation (low-value low-involvement purchases) (Hofmeister-Tóth, 2008).

In the first stage, the problem or need is recognised and demand emerges for the purchase, which is defined by various ad hoc factors (e.g. dissatisfaction with the product owned, variety seeking, running out of stocks, corporate marketing). In the case of e-commerce, demand emerges for an online purchase, regardless of whether a product or a service is to be obtained.

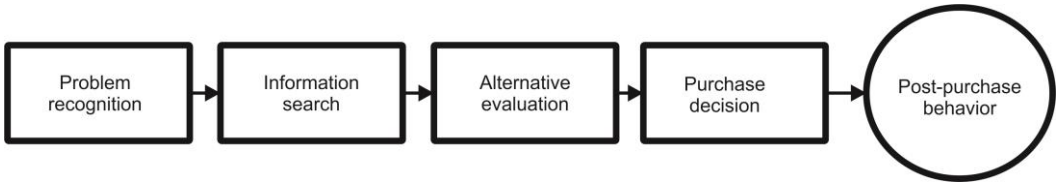

Figure 8: Stages of the consumer buying decision process

Source: Engel, Blackwell and Kollath's (1973) in *Hofmeister-Tóth (2008), p. 219*

In the next stage, consumers search information either actively and/or passively, using external and/or internal resources to obtain relevant pieces of information. Word of mouth also plays an important part in this stage: depending on whether it is positive or negative it enhances or weakens corporate communication.

Webshops offer a wide variety of information and comparison tools to their visitors (prices, delivery terms, payment options, support tools, reviews, etc.). In addition, the

information available through different (proprietary or external) fora and blogs also has an impact on consumer decisions. Opinions (e.g. satisfaction) formed on the basis of prior use or purchase – these are called internal information – are also significant factors in this stage.

Once they have a sufficient amount of information – which varies according to the individual's willingness to seek information and the significance of the purchase – potential customers make their decision in the stage of alternatives evaluation. However, the purchase process does not come to an end with the completed transaction. Whether the customer made a good decision and whether the product/service lives up to his or her quality expectations are yet to be revealed and, based on this experience, the satisfaction decision made.

Willingness to purchase online is influenced by several factors. Of personal characteristics, attitude to technology, a 'wired lifestyle', the time spent online, Internet user experience, technology readiness and optimism are the most important (Bellman et al., 1999; Modahl, 2000; Novak – Hoffman, 2000; Parasuraman, 2000; Wolfinbarger – Gilly, 2002). As to demographic characteristics, online shoppers generally have a higher income, tend to be career as well as convenience-oriented and are typically time-starved (Lohse – Bellman, 2000; Parasuraman 2000; Wolfinbarger – Gilly, 2002). Apart from consumer characteristics, situational factors should also be taken into account such as the type of product/service to be purchased, the mood of the customer and whether his/her motivations for shopping are goal-oriented or experiential (Wolfinbarger – Gilly, 2002).

The description provided above of the decision making process also shows that satisfaction with an earlier transaction has an effect on consumer decisions. For this reason, we find it indispensable to inquire into the ways in which – through the mediation of satisfaction – evaluation of the different quality dimensions affect repurchasing intention, and also WOM, which is all the more important as it may support other consumers in the information search stage in choosing a webshop.

2.3.3. The purchase process in electronic commerce

Bauer et al. (2006) distinguish between four stages in electronic commerce. In the first stage, offerings are examined and compared, followed by negotiations and, ideally, conclusion of a contract. These stages are mainly about gathering information while the

actual exchange takes place in the third stage. The fourth stage encompasses relationship-related activities (Bauer et al., 2006). We believe that in the first stage involving information search, the most prominent factors, among others, are price, reputation, order processing and delivery time, etc. As searching and comparison shopping is easier in an online context, the extrinsic and intrinsic value provided by the site to its users will be decisive for their quality assessment (Childers et al., 2001). Ease-of-use, playful navigation, usability, the representation of products, perceived fun of using the site and personalized content may be mentioned among important influential attributes (Zeithaml et al., 2002).

In the second stage, when the conditions are agreed on, the tools – e.g. e-mails, fax, chats, discussion forums – offered to facilitate the communicative exchange between users and the online provider as well as interaction among the users are critical (Barnes – Vidgen, 2001; Jayawardhena, 2004).

In the fulfilment phase, easy ordering is decisive (Parasuraman et al., 2005; Wolfinbarger – Gilly, 2003) while errors and service breakdowns should be avoided. Other important factors are prompt order confirmation, delivery tracking and on-time delivery of the goods in proper condition, as promised (Meuter et al., 2000).The dominant factor in the last stage is customer care in the form of prompt responses to customer inquires and complaints (Parasuraman et al., 2005). The latter area falls within the scope of complaint handling, when customers receive a kind of compensation, e.g. admission of the fault, an apology or other formal procedures (Kenesei – Kolos, 2008).

In electronic commerce, depending on which of the four segments established by Francis and White (2003) is concerned (offline-goods, offline-services, e-goods, e-services), the purchase process may be entirely different. Being aware of these differences enables us in the following to identify the dimensions characterising electronic service quality as accurately as possible.

Regardless of the e-commerce segment concerned, pre-decision information search, including access to the desired information on the homepage of the webshop has special importance. It is only after the required information has been collected and evaluated, and the decision made, that the purchase transaction commences. As part of the transaction, the chosen product or service is selected and added to the cart, the required data are entered and payment is made by credit card, bank transfer or, in the case of offline

payment, by cash on delivery. Information collection and the completion of the transaction is apparently similar across the four categories. In a later chapter, we will explore also on the basis of the literature whether there are any differences between the relevant quality dimensions.

In contrast, there may be conspicuous differences in how the purchased product or service is received. Offline-goods may be delivered (by post, courier, etc.) or collected at pick up points. In the case of offline-services, the voucher or ticket which authorises its holder to use of the service (e.g. theatre, massage, travels) can be delivered from seller to customer electronically (e.g. in e-mail) or by post. As opposed to this, in the case of electronic-goods, customers stay in front of their computers to download the purchased product (e.g. music, software) whereas electronic-services can be consumed through a registered account (e.g. online money transfer, insurances, games).

In both cases, handling problems and questions arising during or after the transaction form an integral part of electronic service quality and therefore should be given due consideration when assessing quality concepts.

2.4. Scales used in measuring electronic service quality

Conceptualisation of the quality provided by websites and webshops started in the early 2000s. From then on, a series of concepts have been seen the light and new approaches are being developed up to this date. The concepts developed in this early stage were often limited in scope, as they focused exclusively on interactions at the site or on post-purchase interactions. As argued above, the electronic service quality delivered by webstores entails evaluation of the entire purchase process. For the same reason, these limited approaches came under harsh criticism in the mid-2000s (Wolfinbarger – Gilly, 2003; Parasuraman et al., 2005; Bauer et al., 2006).The scales created in this period were also widely criticised for judging all kinds of websites (from entertainment websites to e-shops) by the same standard, pointing out that the purpose of a site may have a significant influence on relevant quality dimensions (Wolfinbarger – Gilly, 2003). In addition, it is also recommended to examine the process of e-commerce separately in the case of websites offering products and those selling services (Srinivasan et al., 2002; Francis, 2007; Sejin – Leslie, 2012).

In the following chapters, we will provide a rough outline of the development of scales used in the measurement of electronic service quality up to the present. With this outline,

we hope to explore the dimensions of electronic service quality and their relationship with satisfaction and its consequences.

2.4.1. First attempts at the definition of electronic service quality

Initially, the behaviour of online customers had been studied by a number of companies, however, they failed to appropriately conceptualise electronic service quality and the measurements obtained based on the scales they had produced were not tested either for validity or for reliability.

The post-service business rating scale of *Bizrate.com* highlights strengths and weaknesses. As part of their survey, the following factors were analysed: (1) ease of ordering, (2) product selection, (3) product information, (4) price, (5) website performance, (6) on-time delivery, (7) product representation, (8) customer support, (9) privacy policies and (10) shipping and handling. Based on their results, customer support is the most important and price is the least important factor with respect to revisiting intention (Zeithaml et al., 2002; Wolfinbarger – Gilly, 2002).

Gomez.com advocates another business model where quality is measured on the basis of performance data. The categories surveyed are the following: (1) ease of use, (2) efficient access to information, (3) customer confidence, (4) reliability, (5) years the website or company has been in business, (6) on-site resources, (7) relationship services and (8) overall costs (Wolfinbarger – Gilly, 2002).

In contrast, *CIO.com* reviews only four areas: (1) problems experienced while placing an order, (2) problems experienced after placing an order, (3) ability to contact customer service while placing an order and (4) ability to contact customer service after placing an order (Zeithaml et al., 2002).

The first significant academic scheme was developed by Rice (1997). In his scheme, the main drivers inducing revisiting are design, content, easy browsing and navigation, and emotional experience (Zeithaml et al., 2002). According to Rust and Lemon (2001), electronic service quality is derived from providing a superior experience to consumers with respect to the interactive flow of information (FLOW experience).

Szymanski and Hise (2000) identify four contributors to perceptions of electronic quality and, consequently, satisfaction, as follows: (1) perceptions of convenience, (2)

merchandising (including product offerings and product information), (3) site design and (4) financial security. However, their survey questions were framed to compare online and traditional retail stores.

The study of Novak et al. (2000) inquired into factors that contribute to online service experience. The features rated were the following: (1) ease of contact, (2) payment returns, (3) ease of cancellation, (4) customer support, (5) variety, (6) quality information, (7) reliability, (8) security, (9) low prices (Wolfinbarger – Gilly, 2003).

Under to the NetOffer model, e-service quality is divided into a functional dimension (service outcome) and a technical dimension (service process) (Grönroos et al., 2000; Bauer et al., 2006).

Yang, Peterson and Huang (2001) examined the components of perceived service quality in the case of Internet pharmacies. In their study, they identified the following dimensions: (1) ease of use, including user-friendliness, search capability, loading/transaction speed; (2) quality, freshness and relevance to content of the information shared on the website; (3) accuracy of content; (4) timeliness of response; (5) aesthetics; and (6) privacy (Yang et al., 2001). Yet, the dimensions established in the study are arbitrary and have not been empirically validated (Parasuraman et al., 2002).

2.4.2. Liu and Arnett (2000)

The first significant scale in the literature on electronic service quality was developed by Liu and Arnett (2000). The objective of their study was to map the dimensions characterising successful websites. In the literature on information systems, success is defined as the extent to which a system can fulfil the purpose for which it was created (Drury – Farhoomand, 1996).

In their study, Liu and Arnett surveyed webmasters of *Fortune 1000* companies about the factors they considered critical to website success with consumers. Based on 119 interviews, they identified critical areas in four dimensions, namely (1) quality of information and services, responsiveness, empathy, assurance and follow-up; (2) security, correct transactions and privacy; (3) playfulness, interactivity, sense of enjoyment and (4) design of the website (Liu – Arnett, 2000).These are the factors that should be improved and implemented in the best possible way by e-tailers for success. Based on the literature,

they proposed two other elements as potential success factors (ability to learn and system use) under the concept formulated in the study, however, their results did not confirm relevance of these elements.

As a limitation of their study, webmasters, i.e. the creators of the website were interviewed instead of users (Zeithaml et al., 2002; Wolfinbarger – Gilly, 2003), furthermore, due to the scope of sampling, their findings pertain mainly to large corporations and may not be generally applicable (Liu – Arnett, 2000).

2.4.3. WebQual™ (2000, 2002, 2007)

In their multi-stage study, Loiacono, Watson and Goodhue (2000, 2002, 2007) set the objective to locate the perceived features which lead to repeated use of the website . When information technology is involved, intention to revisit the site is most heavily influenced by ease-of-use and perceived usefulness (Loiacono et al., 2007). Yet, they purport that these two dimensions alone do not account for the entire process in the case of websites and call for further analysis. They analysed websites selling CDs, books, flight tickets and offering hotel reservation services.

For their study, they interviewed customers, website designers and asked undergraduates on four occasions (2000 spring, autumn, 2002, 2007) to rate certain websites. Based on the results, they identified 11 relevant dimensions with 36 items/indicators (Loiacono et al., 2007) which centred around six main areas:

1. Perceived usefulness:
    a. informational fit-to-task – usefulness, quality, representation,
    b. interaction – communications, interactive information search, completion of transactions,
    c. online completeness,
    d. relative usefulness.
2. Ease of use:
    a. intuitive operations, easy to use,
    b. design, ease of understanding.
3. Trust – Privacy.
4. Response time
5. Entertainment:

a. visual appeal of the site,
b. innovativeness – 'aha' effect,

6. Flow/emotional appeal, consistent image.

Each dimension of the WebQual™ instrument outlined above has sufficient discriminant validity and is in a positive correlation with repurchasing and site revisiting intentions. In addition to usefulness, ease of use and entertainment, the study revealed the importance of the dimensions of trust and response time.

The emerging scale, however, was criticised extensively. As respondents had to evaluate sites at which they had not made a purchase, the role of post-purchase dimensions could not be investigated (Loiacono et al., 2007). In addition, it was contested by many that the dimensions identified focused only on technical quality (Zeithaml et al., 2002; Bauer et al., 2006).According to the criticism voiced by Parasuraman et al. (2005), although some WebQual dimensions actually influence satisfaction, other dimensions such as innovativeness and substitutability are tangential to it, furthermore, the method is more useful for website designers rather than for the measurement of service quality and customer satisfaction. As further criticism we might point to the considerable length of the scale (12 dimensions with 36 indicators).

2.4.4. WebQual 1.0 to 4.0 (2001, 2002)

In developing their WebQual scale (between 2001 and 2004), Barnes and Vidgen aimed at exploring the characteristics incidental to an excellent website. The outcome of their research efforts was an online questionnaire measuring customer perceptions of website quality and the importance of each dimension on a 7-point scale. They have been developing their scale since 1998 and made several adjustments to it.

In WebQual 1.0, quality is measured in the following four dimensions (Barnes – Vidgen, 2000):

1. *Ease of use*: simple, intuitive, consistent navigation; being able to get around a site and find things.
2. *Experience*: the visual and personal experience of visiting the site, design, use of colours and style.

3. *Information*: good quality information content which is easy to read and understand, relevant, current, reliable and provided via an appropriate level of detail and format.
4. *Communication and integration*: the way the site is integrated with the external environment, integration or links with other sites, the speed and security of communication.

Although they used a small sample of students (count: 81), it was sufficient for their primary purpose of ranking university websites. The scale was criticised for addressing solely the quality of the information content, and therefore, representing the corporate rather than the customer viewpoint, as well as for missing the interactive aspect of the studied process. Adapting the work on service quality and SERVQUAL, the authors included interaction in WebQual 2.0, yet this new version lost some of the information quality richness of the previous scale. The revised WebQual 3.0 already included three main dimensions: (1) site quality, (2) information quality and (3) service interaction quality.

Drawing on recommendations and the criticism received, they arrived at the currently used WebQual 4.0 instrument (Barnes – Vidgen, 2002, 2003, 2004). This is organised along four main categories:

1. *Usability (8 items):* ease-of-use and design of the website.
2. *Information quality (7 items):* quality of accessible information, e.g. believable, timely, relevant etc.
3. *Interaction quality (7 items):* quality and speed of opportunities for interaction, information security.
4. *Overall impression (1 item).*

As a criticism of the different WebQual scales, Bauer at al. (2006) argue that they focus mainly on the quality of technical solutions like ease of use, and are therefore more useful for the field of interface design. Francis and White (2002) dismissed the development process of WebQual 4.0, as participants of the underlying study evaluated sites without having necessarily made a purchase at that site or engaged in any interaction with it.

2.4.5. SITEQUAL (2001)

The SITEQUAL scale was developed by its authors for the measurement of perceived quality and they also examined in their study how the dimensions of the scale affect visitors' online behaviour such as search patterns and buying decisions (Yoo – Donthu, 2001).

They used a student sample for their research, claiming that college students are among the most active online buyers who are in addition technologically advanced and innovative. In the initial stage of their study, based on their review of the literature, they identified the following dimensions of online quality:

1. *entertainment, informativeness, organisation;*
2. *sensory appeal, selection, substance, simplicity, savings, service, security;*
3. *appearance, content, linkage, use, structure, special features;*
4. *informativeness, loading speed, accessibility, ease of navigation, efficient transaction processing;*
5. *hedonic and utilitarian values;*
6. *social escapism, socialisation, information, interactive control, economic values, security, privacy.*

The SITEQUAL scale, established as the final product of their study, comprises the four factors below:

1. *Ease of use (2 items):* how easy it is to search for information and convenient it is to use the site.
2. *Aesthetic design (3 items*): the site is creative, colourful, shows good pictures of the products.
3. *Processing speed (2 items):* quick and efficient processes.
4. *Security (2 items):* confidence in the security of data.

SITEQUAL can be efficiently deployed to evaluate quality and provides an index which managers can use for setting performance goals for their sites. The findings of Yoo and Donthu (2001) reveal that the more experienced an online buyer is the more critically he or she judges the site.

The authors submit SITEQUAL as a starting point toward a better measure rather than a final scale (Yoo – Donthu, 2001). Critics of the scale later argued that, like WebQual 1.0,

it does not capture all aspects of the purchase process (e.g. customer service, delivery) and therefore cannot be regarded as a comprehensive scale but one that needs to be further developed (Wolfinbarger – Gilly, 2003; Parasuraman et al., 2005; Bauer et al., 2006).

2.4.6. PIRQUAL (2002)

Francis and White laid down the foundations of the PIRQUAL (*perceived Internet retailing quality*) scale in 2002 based on 14 focus group interviews and finalised it after it had been administered to 302 Australian online customers.

The scale measures perceived Internet retailing quality in six dimensions:

1. *Web store functionality,*
2. *Product attribute description,*
3. *Transaction scheme (e.g. e-mail confirmation, ease of calculating total purchase price inclusive of delivery terms),*
4. *Delivery (correct items in good working order),*
5. *Customer service,*
6. *Security.*

This was the first scale in the literature on electronic service quality to endorse the disconfirmation paradigm, measuring perceived quality by offsetting actual performance against expectations (Francis – White, 2002):

PIRQUAL= P(*erceived* performance) – E(*xpected* performance)

Wolfinbarger and Gilly (2003)pointed out as criticism that the authors had behavioural intentions rather than quality in mind when constructing their scale.

2.4.7. E-SQ (2002)

Taking SERVQUAL as a point of departure as well as existing studies and scales for the measurement of online service quality, Zeithaml, Parasuraman and Malhotra initially delineated five dimensions of electronic service quality (Parasuraman et al., 2002), as follows:

1. information availability and content,

2. ease of use,
3. privacy/security,
4. graphic style,
5. reliability/fulfilment.

They re-used these findings in constructing a new scale in 2005.

2.4.8. eTAILQ (2003)

Our next scale was created by Wolfinbarger and Gilly whose aim was to locate quality dimensions that contribute to consumers having a satisfying, high quality online shopping experience. They took surveys in IS environments as a basis for their work. In this context, flow experience, availability of information, representation, interactivity, graphic design, usability, search functions, complete website design and the ordering process were researchers' main focus of attention (Hoffman – Novak, 1996; Montoya-Weiss et al., 2000; Novak et al., 2000).

Most earlier research on electronic service quality relied on these factors, yet, according to Wolfinbarger and Gilly (2002, 2003), these theories specific to IS environments should be fine-tuned to adequately describe e-commerce. As initial dimensions, they also applied usability, information content, reliability, customer service, selection, security/privacy and quality of experience.

They undertook altogether 9 offline and online focus groups with online customers who purchased both goods and services (CDs, books, software, hardware, toys, travels).

The output of this initial research, where they used an online panel with respondents aged 18+, was the .comQ scale (Wolfinbarger – Gilly, 2002) which they developed further in the next year. As the final product of their research, they created the eTAILQ electronic service quality measurement scale, comprised of the following four dimensions:

1. *Fulfilment/reliability (3 items):* accurate display and description of a product so that what consumers receive is what they thought they ordered, delivery of the right product within the time frame promised.
2. *Website design (5 items):* all elements of the customer's experience at the website, including navigation, information search, order processing, etc.

3. *Security/privacy (3 items):* security of credit card payments and privacy of shared personal information.
4. *Customer service (3 items):* responsive, helpful, willing service that responds to customer inquiries quickly (Wolfinbarger – Gilly, 2003).

The developed eTAILQ scale is of high reliability and validity, and, according to Parasuraman et al. (2005), it is able to provide a comprehensive and fair view of electronic service quality. Bauer et al. also acknowledge and underline that the scale's dimensions have explanatory force for 70% of quality but criticise the scale for ignoring the hedonic aspects of online shopping (Bauer et al., 2006). Among the limitations of the scale, its authors mention that the sample used in their online survey came from an online panel instead of being a random sample (Wolfinbarger – Gilly, 2002).

2.4.9. E-S-Qual and E-RecS-Qual(2005)

By the mid-2000s, electronic service quality had a solid track record in the literature. Parasuraman, Zeithaml and Malhotra used these preliminaries to integrate them into their own E-S-Qual and E-RecS-Qual scales (2005) which they constructed for the measurement of service quality associated with websites having online shopping features. All dimensions of the 2002 E-SQ scale proved eligible for use in later studies on the quality of various electronic services. Wolfinbarger and Gilly (2003) found that reliability/fulfilment ratings are the strongest predictor of consumer satisfaction and it also has a key role with respect to repurchasing intention. During their later work, Parasuraman et al. (2005) contributed to these findings with the observation that customers' assessment of a website's quality depends not only on experiences during their interactions with the site but also on post-interaction service aspects and fulfilment.

Using qualitative research methods, the authors identified 11 main features characteristic to e-services:

1. *Reliability:* correct technical functioning of the site and the accuracy of service promises (having items in stock, delivering what is ordered, delivering when promised), billing and product information.
2. *Responsiveness:* quick response and the ability to get help if there is a problem.
3. *Access*: ability to get on the site quickly and to reach the company or its contact person when needed.

4. *Flexibility:* choice of ways to pay, buy, etc.
5. *Ease of navigation:* the site contains functions that help customers find what they need without difficulty, has good search functionality, and allows the customer to manoeuvre easily and quickly back and forth through the pages.
6. *Efficiency:* the site is simple to use, structured properly and requires a minimum of information to be input by the customer.
7. *Assurance/trust:* confidence the customer feels in dealing with the site and is due to the reputation of the site, as well as clear and truthful information presented.
8. *Security/privacy:* degree to which the customer believes the site is safe from intrusion and personal information is protected.
9. *Price knowledge:* extent to which the customer can determine the total price and comparative prices.
10. *Site aesthetics.*
11. *Customization/personalization:* how much and how easily the site can be tailored to individual customers' preferences, histories, ability to retrieve transactions.

Finally, they generated 121 items which they found to have relevance for quality to form the E-S-Qual scale. Based on the results, they clustered these items into four dimensions:

1. *Efficiency* (8 items): the ease and speed of accessing and using the site.
2. *Reliability/fulfilment* (7 items): the extent to which the site's promises about item characteristics and order delivery are fulfilled.
3. *System availability* (4 items): the correct technical functioning of the site.
4. *Privacy* (3 items): the degree to which the site is safe and protects customer information.

They complemented their E-S-Qual instrument with the E-RecS-Qual (electronic service recovery quality) scale, composed of three dimensions and to be filled exclusively by respondents who contacted customer service for some reason. The dimension of service recovery was introduced into the measurement of electronic service quality by Parasuraman et al. They established a separate scale for this dimension as they considered that it does not concern all respondents. This way, distortions could also be eliminated. E-RecS-Qual contains the following dimensions:

1. *Responsiveness (5 items):* effective handling of problems.

2. *Compensation (3 items):* the degree to which the site compensates customers for problems.
3. *Contact (3 items):* availability of assistance through telephone or online representatives.

To sum up, E-S-Qual is a scale consisting of 22 items on four dimensions measuring electronic service quality, which – in order to obtain more accurate information – the authors enhanced by an additional scale, the E-RecS-Qual, consisting of 11 items on three dimensions. Respondents have to assign a rating to each item on a 5-point scale, ranging from 1 to 5, according to their judgement of the applicability of each statement to the given site. Both scales ensure a sufficient level of validity and reliability. The reliability of the scales is also corroborated by the fact that they were constructed as an update to SERVQUAL, a widely recognised and used instrument (Vallejo et al., 2005).

Based on their findings, efficiency and reliability have a considerable impact not only on perceived service quality but also on customer confidence and loyalty intentions. The significance of the dimension of system availability shows that customers' perceptions of overall performance do not entirely depend on website design but may also be affected by external factors, such as the customer's Internet connection. As it was also established by previous studies, the dimension of privacy has a significant influence.

The scale does not cover the dimensions of fun and other hedonic aspects, as the authors considered them factors of marginal relevance in the context of webshops (Parasuraman et al., 2005). Bauer at al. (2006) on the other hand point out that even websites integrate features which trigger emotional responses (Van Riel et al., 2001; Yoo – Donthu, 2001) and therefore flow experience is also traceable online (Childers et al., 2001; Csíkszentmihályi, 1988; Hoffman – Novak, 1996).Furthermore, they argue that responsiveness items in the E-RecS-Qual scale should be a core category as it reduces insecurity and enhances credence (Bauer et al., 2006). Vallejo, López, Aguilar and Lombardo (2005) also consider that the scale should be developed further to be fruitfully applicable for measuring loyalty.

A modified E-S-Qual and E-RecS-Qual has already been published by Akinci et al. (2010) who adapted them to the financial sector which integrates fewer physical elements. Adapting the scales to such a pure-service sector was identified as a future research priority already upon their conception (Parasuraman et al., 2005).

In this pure service context, only 2 of the 7 items of the fulfilment dimension were retained[1] and new relevant elements were identified based on the in-depth interviews conducted[2]. In addition, the privacy dimension was revised.[3]The final E-S-Qual and E-RecS-Qual scales applicable to banking services were constructed based on the data provided by 2,017 respondents (Akinci et al., 2010).

2.4.10. eTRANSQual (2006)

By creating eTRANSQual, the aim of Bauer et al. (2006) was to integrate hedonic values into the concept of electronic service quality, which were so far excluded in favour of goal-oriented shopping. As a secondary objective, they wished to identify deficiencies in the previous scales while transferring useful ideas. Following interviews, their questionnaire on a well-known website was distributed to members of a German online panel. Their responses delineated five dimensions:

1. functionality/design (7 items),
2. enjoyment (4 items),
3. process (4 items),
4. reliability (6 items),
5. responsiveness (4 items).

Their research resulted in a scale that incorporates hedonic values as well. The significant effect of responsiveness suggests that it should be placed in the main quality scale instead of the auxiliary one, as done by Parasuraman et al. (2005), as it plays a role already in decisions to use a website, not only when problems occur. All dimensions of the scale show a positive impact on perceived value and satisfaction while enjoyment is positively correlated also with repurchasing intention (Bauer et al., 2006). At the same time, of the extracted dimensions, enjoyment and process show the weakest correlation with

[1] Eliminated items: 'This site makes items available for delivery within in a suitable time frame.', 'It quickly delivers what I order.', 'It sends out the items ordered.', 'It has in stock the items the company claims to have.', 'It is truthful about its offerings.'
Privacy: 'This site protects information about my credit card.'
[2]New items: 'Records at my bank's website are always accurate.', 'My bank's website promptly informs about important situations (payments …).'
[3]New item: 'I feel confident for the transactions I made at my bank's website.'

perceived quality, raising the question of whether the hedonic aspects of e-commerce are actually relevant for quality assessment.

2.4.11. E-A-S-Qual (2006)

As the name suggests, E-A-S-Qual is an upgraded version of the E-S-Qual and E-RecS-Qual scales (2005). Kim, Kim and Lennon (2006) chose these scales as they are based on the widely known and used SERVQUAL scale. As a further advantage, instead of interviewing students, Parasuraman et al. used a genuinely relevant sample for constructing SERVQUAL.

The dimensions of E-S-Qual also reflect current assumptions in the literature. Efficiency, i.e. easy and quick access, is a significant factor due, among others, to the time-saving motivation behind online shopping (Ranganathan – Ganapathy, 2002). On the basis of several studies, fulfilment is one of the most important dimensions (Wolfinbarger – Gilly, 2003). Security is salient on account of perceived risks. Lack of accessibility, broken links and missing information lead to frustration. According to Santos (2003), missing and broken links increase dissatisfaction.

The authors opted for creating a new scale as they believed that the earlier scales (*Attitude toward the Site:* Chen – Wells, 1999; *WebQual:* Barnes – Vidgen, 2000; *SITEQUAL*: Yoo – Donthu, 2001; *WebQual*^{TM}: Loiacono et al., 2002; *e-SQ:* Zeithaml et al., 2002; *eTAILQ:* Wolfinbarger – Gilly, 2003)were too subjective in measurement, and as such, they had to be replaced by an objective measure. In keeping with this, their aim was to identify attributes that facilitate efficient and effective shopping, purchasing and delivery while providing an objective measure. The E-A-S-Qual contains altogether 9 dimensions, six of which is adopted from E-S-Qual and E-RecS-Qual (compensation was dropped). The rest of the dimensions are personalization (Wolfinbarger – Gilly 2003), information quality and quantity, and graphic design (Kim et al., 2006).

The significance of information are underpinned by the findings of Lynch and Ariely (2000) according to which information on the product, quality and price have a positive effect on satisfaction. Even more so, as they are the only means of experience in online service environments, since shop assistants are absent and it is not possible to physically inspect products (Kim – Stoel, 2005). Graphic design (colours, layout, print size, number of photographs, graphics and animations) is an important tool as it affects customers'

perceptions of the online shopping experience (Nitse et al., 2004). The output of their research was a check list instead of a scale, featuring all the elements which have critical importance for quality.

2.4.12. RECIPE (2009)

One of the reasons that called the RECIPE (*Review and Evaluate the Customer's Internet Purchase Experience*) scale into being was the observation that there are still few scales in the extant literature (PIRQUAL, eTAILQ, E-S-Qual and E-RecS-Qual) that are fully consistent with the definition of electronic service quality, i.e. in addition to the shopping process, they account for both pre- and post-interaction service aspects (Parasuraman et al., 2005). Another problem that provides a strong rationale for a new scale is that two of the three instruments mentioned above examine only tangible products or so called 'offline–goods'. While the eTAILQ instrument addresses offline-services, too, electronic-goods and services have so far been completely neglected in the research and no relevant instruments exist either. It is actually surprising that most previous research concentrated on offline-goods when we consider the significant volume of purchases made in the other categories. We should note, however, that some of the studies call attention to the variance observable across different types of products or fulfilment/delivery methods and to the need to modify the scales.

In the first, exploratory phase of her study, Francis conducted 40 interviews (25 men and 15 women, aged 25 to 53) with respondents having shopping experience on the world wide web. Her objective was to examine and identify different types of Internet retailing and to construct a quality measurement scale for each category. The justification for this objective is that treating all types of e-commerce alike is not a particularly successful approach in the case of Internet retailing.

The first exploratory study (Francis, 2007) delineates four distinct categories and identifies relevant quality attributes in each category. All four quality measurement scales involve the quality dimensions of website, reservation/purchase, customer service and security. However, the items included under the dimensions vary according to the type of product purchased and the fulfilment/delivery method. The objective set for future research is to refine these scales.

In the 2009 study, the scale for offline-goods comprised 19 items in 4 dimensions, the offline-services scale 18 items in 4 dimensions, the electronic-goods scale 19 items in 4 dimensions, and finally, the scale for electronic-services 20 items in 4 dimensions. The dimensions are outlined by e-commerce category in Table 4.

Offline–goods	**Offline–services**
Website	HonlapmiFemaleség
Exchange	Reservation/purchase
Customer service	Customer service
Security	Security
Electronic-goods	**Electronic-services**
Product details	Online services
Exchange	Account set-up
Customer service	Customer service
Security	Security

Table 4: The dimensions of RECIPE

Source: own elaboration based on the literature (Francis, 2009)

The security dimension, referring to the safety of credit card and personal details, is identical for all categories, just like customer service which relates to the ease of contacting the firm, and the speed and helpfulness of the firm's response. The rest of the dimensions differ greatly across the categories. The dimension of website includes similar elements in the offline-goods and offline-services category, such as site design, content and range of products. The category of electronic-goods focuses instead on product details (size, system requirements, compatibility), while in the case of electronic-services, emphasis is placed on the ease and speed of setting up a user account. Each category includes a quality dimension that focuses on paying for and obtaining the product. For offline-goods, this dimension covers the process of placing an online order as well as the correct goods being delivered on time in good condition, while in the case of electronic-goods, the quality of fulfilment, the clarity of instructions for downloading as well as the speed of the download process is involved. In the case of offline-services, ease and reliability of booking a service and the promptness and clarity of confirmation are covered, while the equivalent dimension for electronic-services deals with the ease and reliability of logging in as well as the ease-of-use and description of the service.

Within the framework of the study, the effect of each dimension on loyalty intention was examined with the following divergent results obtained: the most important dimensions were exchange (0.372) for offline-goods, reservation/purchase (0.357) for offline-services, product details (0.221) for electronic-goods and customer service (0.327) for electronic-services (Francis, 2009).

The view of quality emerging in the study is a process-based rather than an emotions-based view, since it does not take hedonic motivations into account and conceives of the whole concept as a reflective indicator. Furthermore, its scope is limited to the direct effects of the categories on loyalty. Following up on this study, the earlier scales should also be revised and refined. Yet, the scale at hand is itself a recent one which should be cross-validated and tested across different cultures. It would also be reasonable to further extend the scale to include the elements of involvement and confidence (Francis, 2009).

2.4.13. Summary

As the instruments presented above demonstrate, there are major differences in terms of the key dimensions the different approaches to the description and measurement of electronic service quality endorse. In general terms, electronic service quality is a subjective construct which consumers assess based on the relation of expected to actual service quality, as defined by the experience they gained during the shopping process.

As we have established, electronic service quality emerges as result of the entire purchase process. Notwithstanding, some measurement methods focus only on the interface, i.e. the website, and therefore fail to provide a comprehensive view of electronic service quality and, consequently, of satisfaction. According to the criticism, the scales of Barnes and Vidgen (2001) and Loiacono et al. (2000) are restricted to the technical aspects of service quality. In addition, the context of the latter scale should rather be considered a comprehensive study (Parasuraman et al., 2005; Wolfinbarger – Gilly, 2003), having design instead of e-service quality at its centre (Zeithaml et al., 2002). In the case of eTAILQ (Wolfinbarger – Gilly, 2003), Parasuraman et al. contend that while the security/privacy and reliability/fulfilment dimensions show strong face validity, the other two dimensions seem less internally consistent.

According to Bauer et al., irrespective of the scales' assessment, future research in this area should concern itself with the preparation of longitudinal studies and should integrate market orientation and innovativeness into the measures (Bauer et al., 2006).

In addition to criticism, summaries were also published on the electronic service quality concepts. Synthesising the previous scales, Bressolles et al. define the following six electronic service quality dimensions in their 2007 summary.

1. The quality and the quantity of information, which is frequently listed among the reasons for online shopping (Barnes – Vidgen, 2003; Wolfinbarger – Gilly, 2003). This dimensions is crucial due to the absence of physical contact with the service provider. Commercial or technical information on products and services, the service provider, or the sale contract belong to this dimension.
2. The ease of use of the website is an important dimension as transactions using the Internet can seem complex for consumers (Eighmey, 1997). The structure of the shop and ease of navigation should be mentioned here.
3. The design or the graphic style of the website (graphics, colours, images, icons, animations, videos, etc.) affect perceptions of quality by creating the virtual atmosphere of the site.
4. Reliability and respect for commitments concerns the capacity to satisfy/fulfil promises such as respecting the dates for delivery or delivering the product ordered according to the agreed terms, etc.
5. Security and privacy stand for protection of the user from fraud and financial losses.
6. Interactivity and personalization refer to consumers' ability to define and to design for themselves a product or service most adapted to their needs (Bressolles et al., 2007).

In their summary, Nath and Singh (2010) by contrast distinguish between only three dimensions for the purpose of measuring electronic service quality: (1) technical performance aspects (2) environment and information quality (3) non-technical aspects.

They group the following under the category of technical performance measures:

1. *Availability* – constant availability of the website.
2. *Accessibility* – capability of the webshop to serve requests. There could be situations when a web service is available but not accessible because of heavy service requests.
3. *Throughput* – the number of web service requests served in a given time period.
4. *Latency* – the time between sending a request and receiving a response.

Quality of the environment refers to the quality of the interface whereas information quality implies complete, accurate and timely information. The non-technical dimensions are as follows:

1. Outcome quality – what the consumer is left with after service delivery, whether he/she is satisfied. Outcome quality has the following subdivisions:
2. Reliability – the extent to which the provider keeps its service promises.
3. Functional benefit – the extent to which the webshop serves its intended purpose.
4. Emotional benefit – identical with the emotional benefit dimensions of Fassnacht and Koese (2006), capturing customer feelings and overall experience.
5. Support – an especially important dimension in an IT context, comprising the following:
6. Responsiveness – the willingness and speed with which responses are provided.
7. Reliability – the extent to which the promised service is performed, e.g. in the promised time frame.
8. Competence – the technical skills and expertise of the support staff.
9. Empathy – the ability to understand specific needs.
10. Training – the amount of instruction and support provided in order to make the best use of the provided service.
11. Privacy
12. Recovery – consumers often feel that the service provider has not put enough effort into service recovery. Therefore, this dimension assesses the willingness of, and degree of support provided by, the webshop for service recovery. Here, the following subdivisions are distinguished:
13. Interactive fairness – customer's ability to locate and interact with technology support.
14. Procedural fairness – return policies/procedures and responsiveness in the complaint process.
15. Outcome fairness (Collier – Benstock, 2006) – monetary compensation, apology (Nath – Singh, 2010).

In our opinion, when evaluating the scales discussed above, the primary considerations should be their compliance with the definition of electronic service quality and the extent to which they account for the heterogeneity of e-commerce by types of products/services. As illustrated in the summary table below (Figure 5), in terms of compliance with the definition of electronic service quality, i.e. coverage of all areas from the provision of information and the actual purchase transaction to the management of problems and inquires, five scales proved sufficient: PIRQUAL (Francis – White, 2002), eTAILQ (Wolfinbarger – Gilly, 2003), E-S-Qual and E-RecS-Qual (Parasuraman et al., 2005), e-TRANSQUAL (Bauer et al., 2006), and RECIPE (Francis, 2009).

Scale	Author(s)	Year	Nr. of dim. and items	Dependent variable	Valuation: How does it cover the definition of e-sq?				
					IS	TR	DE	CS	SE
WebQual TM	Loiacono, Watson, Goodhue	2000 (2x) 2002 2007	12/36	1.Usability 2.Reusing intention	Y	Y	*No*	*No*	Y
SITEQUAL	Yoo - Donthu	2001	4/9	1.Usability 2.Reusing intention 3.Website value 4.Attitudes toward the site 5.Revisiting intention 6.Repurchasing intention	Y	Y	*No*	*No*	Y
PIRQUAL	Francis - White	2002	6 / ?	1. Behavioural intention	Y	Y	Y	Y	Y
Web Qual 4.0	Barnes - Vidgen	2002	4 / 23	*Index*	Y	Y	*No*	*No*	Y
ETAILQ	Wolfinbarger - Gilly	2003	4 /14	1. Quality 2. Satisfaction 3. Loyalty 4. Attitudes toward the site	Y	Y	Y	Y	Y
E-S-Qual & E-RecS-Qual	Parasuraman, Zeithaml, Malhotra	2005	7 / 33	1. Quality 2. Perceived value 3. Loyalty intention	Y	Y	Y	Y	Y
e-TRANSQUAL	Bauer et al.	2005	5 / 25	1. Quality 2. Perceived value 3. Satisfaction 4. Relationship duration 5. Repurchasing intention	Y	Y	Y	Y	Y
RECIPE	Francis	2009	4 / 19 4 / 18 4 / 19 4 / 20	1. Loyalty	Y	Y	Y	Y	Y
E-S-Qual & E-RecS-Qual Bank	Akinci et al	2010	7 / 14	1. Perceived value 2. Loyalty	Y	Y	Y	Y	Y
IS – Information seeking, TR – transaction, DE – delivery, CS – contact, consumer service, SE - security									

Table 5: Assessment of the reviewed electronic service quality instruments in relation to the adopted definition of e-service quality

Source: own elaboration based on own assessment

However, none of these had regard of the heterogeneity of e-commerce except for the scale of Francis. In their study, Parasuraman et al. (2005) encouraged the extension of the scale they developed to services. This was indeed realised by Akinci et al. in 2010 in the field of e-banking, which belongs to the category of electronic-services. Yet, a gap remains in research for the other two categories of offline-services and electronic-goods. Except for e-TAILQ, all instruments concern goods, yet there is no exception among the scales to the general exclusion of electronic-goods and services. In addition, we would argue that the reliability/fulfilment dimension of e-TAILQ does not fully cover offline-

services where confirmation and receipt of the voucher is generally made online. The relevant items should therefore be rephrased.[4]

Abuse and fraud is a prevalent risk in electronic commerce. Accordingly, security is considered a critical issue throughout the purchase process. The dimension of security is incorporated into all the examined scales, except for WebQual 1.0 and 2.0.

During our analysis of electronic service quality dimensions, we came across several dependent variables; some of the scales measure their effect on satisfaction while others assume a direct impact on usability and revisiting intentions. Others again inquire into their correlations with loyalty (Table 6). Instead of exploring correlations, WebQual scales compile an index which points to major deficiencies and areas for improvement. Following up on the implications of the measured index values, a government site has managed to achieve a significant improvement in consumer evaluations and subsequently in measured index values (Barnes – Vidgen, 2003).

Based on our assessment, only the RECIPE scale complied with our definition of electronic service quality and the delineation of e-commerce into four categories. Accordingly, we will use this instrument in our empirical research.

[4] *The product that came was represented accurately by the website.*
The product is delivered by the time promised by the company.

Scale	Author	Year	Dimensions and items	Dimensions	Cronbach-alfa	Journal	N	Sample	Dependent variables
N.D	Liu – Arnett	2000	4 / 28	1. Quality of information and service (12 items) 2. system use (7 items) 3. playfulness (5 items) 4. system design quality (4 items)	α=0,88 α=0,92 α=0,83 α=0,63	Information & Management	122	Fortune 1000 companies administrators	*Success*
WebQual™	Loiacono, Watson, Goodhue	2000 autmn 2000 spring 2002 2007	12 / 36	1. Informational Fit-to-Task (3 items) 2. Tailored information (3 items) 3. On-Line Completenes (3 items) 4. Relative Advantage (3 items) 5. Intuitive Operation (3 items) 6. Ease of Understanding (3 items) 7. Trust (3 items) 8. Response Time (3 items) 9. Visual Appeal (3 items) 10. Innovativeness (3 items) 11. Emotional Appeal (3 items) 12. Consistent Image (3 items)	α=0,86 /0,85 α=0,80/0,78 α=0,72/0,71 α=0,81/0,8 α=0,79/0,83 α=0,83/0,81 α=0,9/0,93 α=0,88/0,8 α=0,93/0,91 α=0,93/0,91 α=0,81/ n.d α=0,87/0,83	International Journal of Electronic Commerce (2007)	510 336 311 337	students	Usefulness Resuse Intention
WebQual 1.0	Barnes – Vidgen	2001	4 / 23	1. Ease of Use (3 items) 2. Experience (6 items) 3. Information (8 items) 4. Communication & Integration (5 items)	α=0,83 α=0,71 α=0,86 α=0,87	Proceedings of the Eighth European Conference on Information Systems	35+46	students, e-buyers	Index
WebQual 2.0	Barnes – Vidgen	2001	5 / 24	1. Ease of Use 2. Experience 3. Information 4. Communication & Integration 5. Interaction	n.d.	International Journal of Management Literature		students	Index
WebQual 3.0	Barnes – Vidgen	2001	3 / 20	1. Site quality (6 items) 2. Information quality (7 items) 3. Interaction quality (7 items)	α=0,85 α=0,91 α=0,88	Proceedings of the Hawaii International Conference on Systems Science	39	students	Index
SITEQUAL	Yoo - Donthu	2001	4 / 9	1. Ease of use (2 items) 2. Aesthetic design (3 items) 3. Processing speed (2 items) 4. Security (2 items)	α=0,69 α=0,76 α=0,73 α=0,83	Quarterly Journal of Electronic Commerce	94	students	Overall site quality Site loyalty Site equity Attitude toward the site Site revisite intention Purchase intention

PIRQUAL	Francis – White	2002	6 / ?	1.Web store functionality 2.Product attribute description 3.Transaction scheme 4.Delivery 5.Customer service 6.Security		Proceedings of ANZMAC	302	Australian e-buyers	Behavioural intention
E-SQ	Zeithaml, Parasuraman, Malhotra	2002	5	1. information availability and content 2. ease of use or usability 3. privacy/security 4. graphic style 5. reliability/fulfillment		Journal of the Academy of Marketing Science			Based on literature
WebQual 4.0	Barnes – Vidgen	2002	4 / 23	1. Usability 2. Information Quality 3. Service Interaction 4. OVERALL	α=0,88 α=0,89 α=0,81	Journal of Electronic Commerce Research	376	Amazon, BOL, Internet Bookshop (IBS)	Index
ETAILQ	Wolfinbarger – Gilly	2003	4 /14	1. Website Design (5 items) 2. Reliability (3 items) 3. Security/privacy (3 items) 4. Customer Service (3 items)	α=0,83 α=0,79 α=0,88 α=0,88	Journal of Retailing		9 focus groups, students, online panel	Quality Satisfaction Loyalty Attitude toward the site
E-S-Qual és E-RecS-Qual	Parasuraman, Zeithaml, Malhotra	2005	7 / 33	1. Efficiency (8 items) 2. System Availability (7 items) 3. Fulfillment (4 items) 4. Privacy (3 items) 5. Responsiveness (5 items) 6. Compensation (3 items) 7. Contact (3 items)	α=0,94/0,94 α=0,93/0,94 α=0,86/0,98 α=0,85/0,83 α=0,72/0,84 α=0,74/0,73 α=0,72/0,79	Journal of Service Research	n=650 n=253	buyers of amazon.com and walmart.com	Quality Perceived Value Loyalty Intentions
e-TRANSQUAL	Bauer et al.		5 / 25	1. Functionality/design (7 items) 2. Enjoyment (4 items) 3. Process (4 items) 4. Reliability (6 items) 5. Responsiveness (4 items)	α=0,89 α=0,84 α=0,88 α=0,83 α=0,85	Journal of Business Research	384	German panel	Quality Perceived Value Satisfaction Strength of contact Repurchase intention

e-A-S-QUAL	Kim et al.	2006	9	1. Efficiency 2. System Availability 3. Fulfillment 4. Privacy 5. Responsiveness 6. Contact 7. personalization 8. information quality and quantity 9. graphic design	*This is a checklist, that helps to evaluat a website*	Managing Service Quality		Websites selling female goods	
RECIPE	Francis	2009	4 / 19	1. Website (4 items) 2. Exchange (5 items) 3. Customer service (6 items) 4. Security (4 items)	α=0,79 α=0,88 α=0,93 α=0,91	Journal of Services Marketing	315	Australian e-buyers	Loylaty
			4 / 18	1. Website (4 items) 2. Reservation/purchase (5 items) 3. Customer service (5 items) 4. Security (4 items)	α=0,77 α=0,88 α=0,91 α=0,91				Loylaty
			4 / 19	1. Product details (4 items) 2. Exchange (6 items) 3. Customer service (5 items) 4. Security (4 items)	α=0,70 α=0,88 α=0,95 α=0,86				Loylaty
			4 / 20	1. Account set-up (4 items) 2. Online services (6 items) 3. Customer service (6 items) 4. Security (4 items)	α=0,88 α=0,92 α=0,92 α=0,89				Loylaty
E-S-Qual és E-RecS-Qual Bank	Akinci et al.	2010	7 / 14	1. Efficiency (2 items) 2. Fulfillment (2 items) 3. System availability (2 items) 4. Privacy (2 items) 5. Responsiveness (3 items) 6. Compensation (2 items) 7. Contact (2 items)	α=0,84 α=0,84 α=0,87 α=0,87 α=0,83 α=0,83 α=0,83	Journal of Business Research	2017 (338)	Turkish banks' customers	Perceived value Loyalty

Table 6: Summary of the reviewed electronic service quality instruments

Source: own elaboration based on the literature

2.5. Customer satisfaction

Customer satisfaction is of strategic importance for businesses as it contributes to effectiveness through loyalty (Kenesei – Kolos, 2007).Most researchers agree that quality is an antecedent of satisfaction (Chang et al., 2009), however, there is no consensus in the literature as to the nature of the relationship between them. The close relation between the two constructs is also reflected in the fact that some studies discuss them under the common heading of quality (Hofmeister-Tóth et al., 2003).

The study of satisfaction is central to understanding human behaviour. Satisfaction denotes social well-being in sociology while it refers to an individual's emotional state in psychology (Nirmalya et al., 2012). In the field of marketing, initially, transaction-oriented consumer satisfaction was the focus of attention (Johnson et al., 2000; Ltifi – Gharbi, 2012a), with performance evaluated on the basis of a specific encounter with a product/service or service provider. Later, the focus of research shifted to so called cumulative satisfaction, which develops after several encounters (Johnson – Fornell, 1991; Chang et al., 2009). The cumulative concept coincides with the approach established in psychology and economics, where satisfaction is construed as the utility of consumption, with a higher capacity to forecast behaviour and economic performance (Johnson et al., 2000).

2.5.1. The relationship between satisfaction and electronic service quality

The relationship between perceived quality and satisfaction (de Ruyter et al., 1997) as well as the role of emotions in consumer satisfaction decisions are well-researched topics (Oliver, 1993). Hunt (1977) treats attitudes and satisfaction separately, claiming that attitudes have their origins in emotions such as enjoyment, while satisfaction evolves from such emotions. By contrast, Oliver (1980, 1981) conceives of satisfaction as a fleeting experiential feeling while he considers attitude more permanent. According to the definition of Ajzen and Fishbein (1972), attitude indicates a person's location on a bipolar dimension of preference with respect to some object.

Veres (1999) suggests that consumer judgements about service quality should form the basis of the measurement of satisfaction. Others assert that complete satisfaction is the direct product of perceived service quality (Parasuraman et al., 1988; Cronin, 1994;

Chang, 2005; Ribbink et al., 2004). Wolfinbarger and Gilly (2003) carried out a study in this topic in an online context, which revealed that e-service quality dimensions show a positive correlation with satisfaction. Their hypothesis was confirmed by Bressolles et al. (2007). In their study, Yang and Tsai (2007) demonstrated that, among the most widely used instruments, the dimensions of E-S-Qual and E-RecS-Qual, whether in combination or separately, positively affect consumer satisfaction. Godwin et al. (2010) also found that, among other factors, perceived quality plays a part in satisfaction decisions. We consider that these findings provide sufficient evidence for us to agree that perceived quality is positively correlated with consumer satisfaction.

Satisfaction is an emotional state which issues from negative and positive expectations and experiences (Oliver, 1980). Parasuraman et al. (1994) provide a similar definition for satisfaction, regarded as an indicator of how performance is rated compared to individual expectations (Chen – Cheng, 2012). Rust and Oliver (1994, in: Chang et al., 2009) define satisfaction as the extent to which the consumer believes that possessing or using an object would invoke positive feelings in him or her. Oliver (1997) puts forward that consumption should necessarily evoke pleasant feelings, as it satisfies an objective or desire. Satisfaction is thus the consequence of pleasant fulfilment (Oliver, 1999).

In our opinion, the substance of satisfaction is best grasped by Stauss and Seidel (1995). According to their definition ‘consumer satisfaction refers to a post-purchase phenomenon reflecting consumers’ retrospective judgements of the purchased goods or services. It results from *ex-post* evaluation and is conditional on a personal consumption or purchase experience’ (in: Hofmeister-Tóth et at., 2003).

E-satisfaction that occurs in online environments can be interpreted on the model of previous satisfaction definitions as consumers’ evaluation of a webshop, having regard also to their prior online purchase experience (Anderson – Srinivasan, 2003). In the case of e-commerce, we can distinguish between transaction-specific satisfaction pertaining to a particular encounter with a webshop, for example to book a room, and cumulative satisfaction which stems from repeat purchases.

In the literature on information systems, which are an integral part of e-commerce, satisfaction is the sum of opinions about a specific system’s attributes, with special attention to efficiency in which design and implementation play a leading part.

Satisfaction is therefore defined by the dimensions of information content, personalized services, user interface and system value (Lu et al., 2012).

2.5.2. Methods for measuring satisfaction

There are two main methodologies in the measurement of satisfaction: subjective and objective methods. In the latter case, satisfaction is measured indirectly with an objectively measurable indicator such as market share, customer defection or the repeat purchase rate. Subjective methods in contrast build on customer perceptions (Hofmeister-Tóth et al., 2002; Kenesei – Kolos, 2007).

Subjective assessment can be divided into three different methods, the attribute-oriented, the event-oriented and the problem-oriented approach (Figure 9). In attribute-oriented implicit methods, consumers are not asked directly. Satisfaction is measured instead by interviewing employees of the business or through mystery shopping. In explicit methods, by contrast, consumers are interviewed directly. Multi-factorial measurement methods are a subcategory of explicit methods where quality is construed as the global evaluation of performance attributes. Attitude-oriented measures take consumers' judgements and their relative weight into account for consumer evaluations whereas satisfaction-oriented methods employ the disconfirmation paradigm for the measurement of satisfaction (Hofmeister-Tóth et al., 2002).

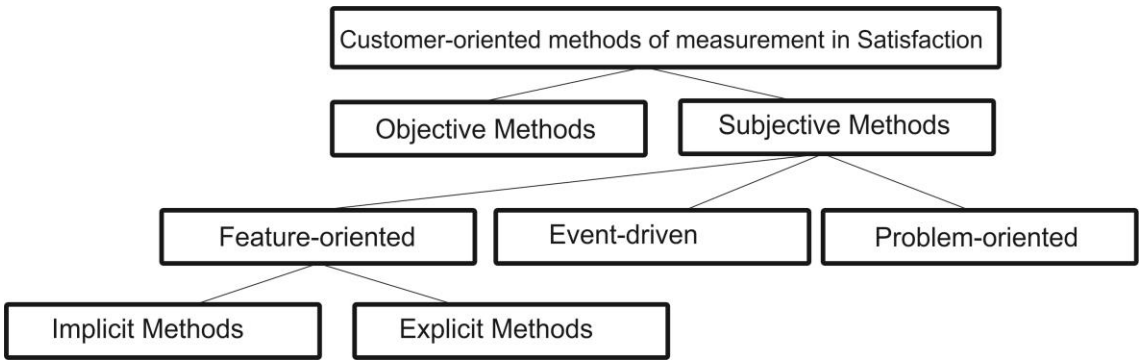

Figure 9: Customer-oriented measurement methods of satisfaction

Source: Hofmeister-Tóth et al. (2003)

The inventory taken above clearly shows that the measurement of satisfaction is a complex issue. The disconfirmation paradigm is one of the most widely-recognised approaches in the literature (Oliver, 1980; Szymanski – Henard, 2001; Hofmeister-Tóth

et al., 2002). It defines satisfaction as the degree to which consumer expectations are fulfilled (Oliver, 1999; Westbrook – Oliver, 1991; Parasuraman et al., 1991; Józsa – Ercsey, 2005). Such expectations provide a baseline against which performance is judged. If the actual outcome surpasses expectations, consumers are satisfied (positive disconfirmation), if their expectations prove too high, they will be discontent (negative disconfirmation) and if they get exactly what they have expected (zero or simple disconfirmation), their feelings will be neutral (Oliver, 1981; Oliver – DeSarbo, 1988; Szymanski – Henard, 2001).

Fournier and Mick (1999) added the importance of the purchased product to this model by, as follows:

Satisfaction = (Performance – Expectations) * Importance

However, this hypothesis has not been substantiated empirically.

Social equity theory (Woodruff et al., 1983) on the other hand propounds that customer perceptions are influenced by acquisition costs (money, efforts) in relation to delivered performance, which is compared to the same ratio as judged by another person (shop assistant, friend). Equity is a customer's perception of what they and others have achieved in this respect. If their own input and output ratio is greater than the ratio achieved by the referent person, customers are satisfied (Goodwin – Ross, 1992; Oliver – Rust, 1997; Szymanski – Henard, 2001).

O_c/I_c ?O_r/I_r

C – customer

R – reference group

The performance-satisfaction paradigm forms part of the disconfirmation model, however, it measures the direct effect of performance on satisfaction (Churchill – Surprenant, 1982; Oliver – DeSarbo, 1988; Tse – Wilton, 1988). It is based on the discrepancy between value and perceptions.

Proponents of the post-purchase interaction paradigm claim that satisfaction is the outcome of a process following the purchase rather than a mental state. According to this paradigm, the discrepancy between expectations and performance puts the customer under stress, which he or she seeks to reduce. Once stress is reduced, the process of satisfaction formation comes to an end. Both internal and external factors may lead to the reduction of stress. Dissatisfied customers for example may share their feelings with

others (negative WOM), which is a form of external stress relief, but they may also decide not to chose the product or service a second time, which represents a form of internal stress relief (Nirmalya et al., 2012).

For our research, we will use the explicit multi-factor measurement method belonging under the disconfirmation paradigm, first, as it is one of the most widely applied models, and second, the meta-analysis performed by Szymanski and Henard (2001) revealed that equity and disconfirmation models show the greatest predictive power for satisfaction.

2.5.3. The measurement of satisfaction based on the disconfirmation paradigm

Consumers' future behaviour (satisfaction, repeat purchase, WOM, loyalty, etc.) is affected by factors before, during and after the purchase transaction (Minocha et al., 2005). A key tool in the study of the process of satisfaction formation is the disconfirmation paradigm (Hofmeister-Tóth et al., 2002) according to which satisfaction or dissatisfaction emerges from a comparison of expectations and actual performance. If we agree that satisfaction is the result of a global evaluation of performance, we should also assume that quality is an antecedent of satisfaction (Johnson et al., 1995). As a result, the level of satisfaction can be defined on the basis of the expected and the experienced values measured with respect to each quality dimension.

Expectations arise from previous use, communication and the purchase transaction and combine to set the standard by which performance is judged. Performance that meets expectations leads to confirmation, while performance going beyond or falling short of expectations results in positive and negative disconfirmation, respectively. These disparate outcomes are responsible for the emotional reaction we know as satisfaction or dissatisfaction (Oliver, 1980; Szymanski – Henard, 2001).

The antecedents and consequences of satisfaction have been a main area of research from as early as the 1960s (Day, 1977; La-Tour– Peat, 1979; Oliver, 1977). The first studies identified two factors contributing to satisfaction: performance-specific expectations and expectancy disconfirmation. A great number of studies using disconfirmation theory have seen the light over the years (Oliver, 1980). From the '70s on, the subject has been examined within the framework of laboratory (Anderson, 1973; Cohen – Goldberg, 1970;

Olshavsky – Miller, 1972; Oliver, 1980) and longitudinal studies (Oliver, 1977, 1980) as well. Based on prior research results, it is generally agreed that purchases are evaluated retrospectively against individual expectations regarding the product/service, which can be interpreted as an adaptation level.

According to Helson's (1948) adaptation level theory, a new stimulus is at all times perceived in relation to previous experience. Adaptation levels are influenced (Oliver, 1980) by the following three factors: (1) the product itself, including one's prior experience and symbolic elements, (2) the context, including the content of communications from salespeople and social referents, and (3) individual characteristics. The evaluation of stimuli is affected by the discrepancy perceived between the new stimulus and previously determined stimulus levels, and satisfaction results from a comparison between expected and perceived product performance (Oliver – Linda, 1981).

According to Day (1977), the expectations taking part in evaluation can be grouped into three categories:

1. expectations about the performance of the product/service;
2. expectations about the costs and efforts which will be expended;
3. expectations of other derived benefits or costs.

Expectation levels for a product/service originate in prior experience with the same or a similar product/service. Therefore, a learning process is at hand, which is dominated by the salient product/service attributes, the importance of these attributes and the development of expectations. Experienced users will have higher expectations over less experienced or inexperienced users of the product or service. The latter will be likely to rely on advertising, sales presentations and the advice of others. At the same time, their expectations are less stable and there is a higher chance that they end up dissatisfied as their lack of experience may lead to inappropriate choices. Personality and situational factors may also affect consumer expectations. The overall expectation level arising from all these elements will ultimately determine whether the outcome is satisfaction or dissatisfaction (Day, 1977).

Expected costs include the price as well as the efforts to be made by consumers to achieve the benefits provided by the product/service. The relationship between expected price and actual price may have a complex effect. Price is often interpreted as an index of quality and may induce high expectations. Experienced consumers interpret a higher than

expected price as an overcharge and a lower price as a bargain. Less experienced consumers may take price as an indicator of the performance to be expected. Furthermore, price may also inform the importance of a purchase, with a higher price (potentially) indicating a more important purchase (Day, 1977).

Among costs, the time and effort involved in shopping should also be mentioned. Some consumers dedicate considerable time to gathering information before making a purchase, which is also indicative of the importance of that purchase. Satisfaction may also be affected by the opportunity cost of other purchases given up in favour of the purchase made.

The impact of indirect costs and benefits, such as psychological benefits or the effect of the purchase on other people, is also significant, especially in the case of status products. In such cases and in the case of products/services that are jointly consumed with others or are publicly consumed, the extent to which expectations about the reactions of others to a purchase are confirmed or disconfirmed has a bearing on satisfaction, which may sometimes be more important than the consumer's own evaluation. However, the marketer has a lesser degree of control over these social factors (Day, 1977).

Expectations were initially considered to be apparent at a cognitive level but Oliver (1980) already combined the cognitive and the affective levels to explain their development. According to Howard and Sheth (1969, p. 147, in: Oliver, 1980), the development of attitudes (the affect level) can be described with the following formula:

$$A_{t+2}=f(S_{t+1}-A_t)+A_t$$

A_t – pre-purchase attitude

S_{t+1} – immediate post-purchase satisfaction

A_{t+2}– revised post-purchase attitude

The difference in parenthesis is a cognitive comparison between anticipated satisfaction (A_t) and received satisfaction. In this case, disconfirmation, in effect, occurs at the more abstract affect level.

If one treats expectations as beliefs, two functions that they perform should be considered. Beliefs have a role in attitude formation and they also act as an adaptation level for satisfaction decisions (Oliver, 1980). Based on the premise that beliefs = expectations

$$\text{attitude } (t_1) = f(\text{expectations})$$
$$\text{satisfaction} = f(\text{expectations, disconfirmation})$$
$$\text{attitude } (t_2) = f(\text{attitude } (t_1), \text{ satisfaction})$$

To draw a conclusion from the foregoing, it is obvious that consumer expectations, which serve as a comparison standard, are affected by many different factors. Of consumers' internal sources of information, prior usage experience and the associated quality judgement as well as consumer needs are decisive, while of external sources, word of mouth and the business's own marketing messages have an important role (Hill, 1986; Hofmeister-Tóth et al., 2003). On the other side of the comparison there is perceived performance, defined by an ad hoc evaluation of the different dimensions of perceived quality (Hill, 1986) (Figure 10).

Whether the outcome will be positive, negative or zero disconfirmation is dependent on the extent to which product/service performance and expectations overlap (Oliver – Linda, 1981). Consequently, satisfaction can be defined as the additive combination of expectations and the resulting disconfirmation. This definition is also applicable to consumer satisfaction (Olshavsky – Miller, 1972; Olson – Dover, 1976; Oliver, 1980). In the model of Howard and Sheth (in: Oliver, 1980), satisfaction also influences intentions to make subsequent purchases:

$$\text{intention } (t_1) = f(\text{attitude } (t_1))$$
$$\text{intention } (t_2) = f(\text{intention } (t_1), \text{ satisfaction, attitude } (t_2))$$

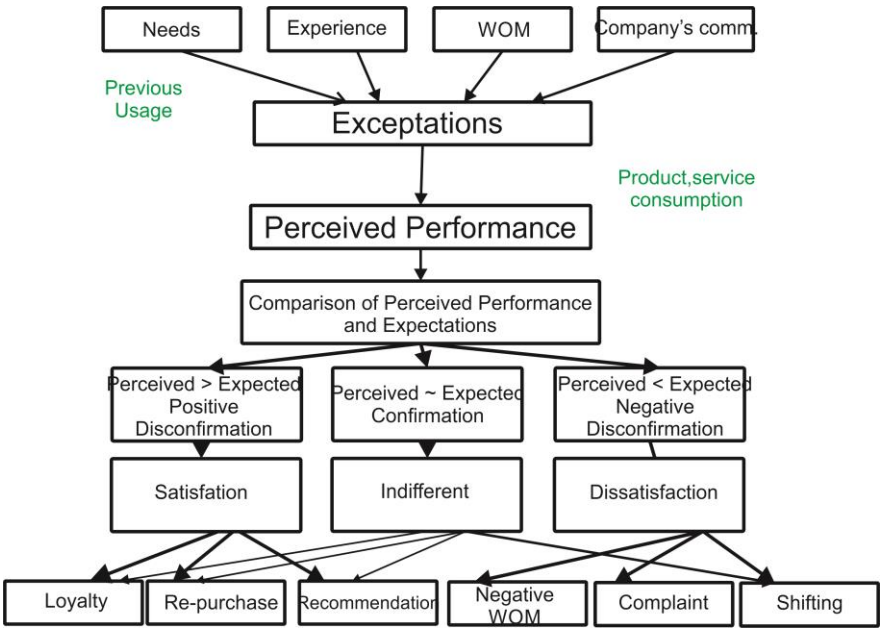

Figure 10: The development and the consequences of positive, negative and zero disconfirmation

Source: own elaboration based on Hofmeister-Tóth et al. (2003) and Hill (1986)

There is another influential factor which decides if confirmation or disconfirmation occurs. This is referred to as the zone of indifference (Figure 11) which may vary in range according to individual and also to situation (Woodruff et al., 1983; Hill, 1986). If the level of received performance is lower or higher than expected but remains within the zone of indifference, confirmation occurs. Positive or negative disconfirmation only takes place if the discrepancy falls beyond the limits of this zone. While confirmation generally does not culminate in any visible action, disconfirmation may induce a kind of response, e.g. a change in attitude or reuse intentions, word of mouth or complaining, etc. (Day 1977, 1982; Oliver, 1980, 1981). Positive disconfirmation may reinforce attitude or repurchasing intention (Oliver, 1980), may result in a change of standards, and also in loyalty. Negative disconfirmation on the other hand is associated with an inclination for unfavourable WOM (Richins, 1983; Hill, 1986).

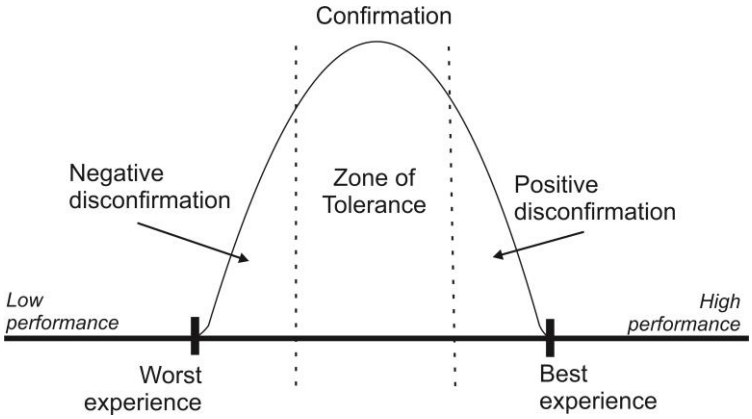

Figure 11: Zone of indifference

Source: Woodruff, Cadotte and Jenkins (1983)

As online shopping is constantly gaining ground with a great number of consumers who have already acquired wide experience in online shopping, the disconfirmation paradigm can be applied with benefit in this area as well (Qin, 2007). The paradigm enables businesses to get a fair picture of their performance as well as consumer needs and demands, while it also serves as a basis for future development (Fearon – Philip, 2008). This fact provided an additional reason for us to opt for this model of satisfaction in our research.

2.5.4. Satisfaction indices

In the research on satisfaction, indices which managers may use to diagnose their business's performance in the face of consumer evaluations and to better identify possible areas for improvement are also a common phenomenon (Hofmeister-Tóth et al., 2002; Carlson – O'Cass, 2011).

The first customer satisfaction index (SCSB) was developed in Sweden in 1989. It measures expected performance compared to perceived performance. Perceived performance corresponds in this model to the perceived value and quality that the customer received for his or her investment. Expectations are viewed as descriptive ('how it will be') rather than prescriptive ('how it should be').

The index draws on the exit-voice theory (Hirschman et al., 1982) according to which, when unsatisfied, individuals may either exit, or voice their dissatisfaction in the form of complaining. Improved satisfaction levels reduce the number of complaints and increase

loyalty, which is treated as an independent variable in the model (Figure 12). The model also covers the impact of complaining as a behaviour on loyalty, which in turn provides useful insight into the business's customer service and complaint handling procedures (Fornell, 1992). When a positive relationship is observable between these two components, loyalty is secured, while in the opposite case, customer defection occurs.

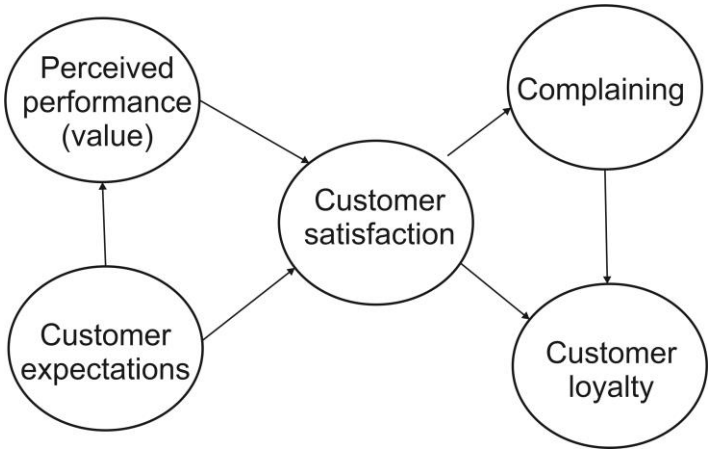

Figure 12: The SCSB customer satisfaction index

Source: Johnson et al. (2000)

In contrast, the American Customer Satisfaction Index (ACSI) treats perceived quality and value as two separate concepts (Figure 13). This model assumes that both improve satisfaction. The dimension of expectations in this index includes personalization and reliability as additional expected items. It differs from the Swedish index also in the measurement of loyalty which is determined here by two factors: the probability of repurchasing and the business's room for increasing or lowering its prices without having to face their customers defecting to competitors (Johnson et al., 2000).

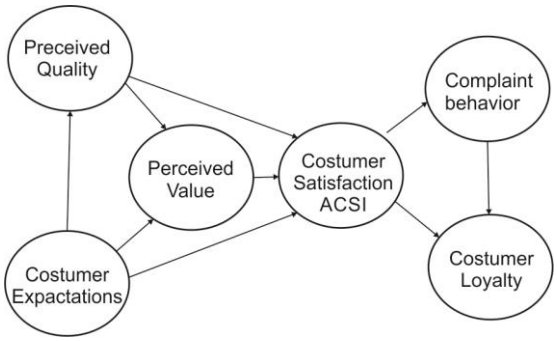

Figure 13: The ACSI customer satisfaction index (USA)

Source: Johnson et al. (2000)

Taking stock of the weaknesses of earlier indices, Johnson et al. created a new customer satisfaction index in 2000. As initial expectations are recorded in most models after the purchase has already taken place, they have dropped this dimension and replaced it by business reputation. Furthermore, complaint handling is evaluated in their model in lieu of complaining behaviour as they consider this more relevant to satisfaction (Figure 14).

They see quality and value as related concepts and therefore replaced value with price. In the same vein, the model as a whole was extended to take account of the direct impact of price and quality on loyalty. In their concept, satisfaction act as a mediator in the relationship of quality and price with loyalty (Johnson et al., 2000).

Figure 14: The NSBI customer satisfaction index

Source: Johnson et al. (2000)

On the model of these indices, the conceptual framework developed in this dissertation may also be used to create an index for the benefit of stakeholders of e-commerce whom it may assist in correctly interpreting customer perceptions of quality and their business's weaknesses, and may also be used as a tool for tracing business development through longitudinal studies.

2.6. The consequences of satisfaction

The degree and level of satisfaction has far-reaching consequences. In the event of dissonance, i.e. dissatisfaction, customers consider first thing whether they should abandon the business; complaining is generally induced by serious dissatisfaction

(Folkes, 1984; Richins, 1983; Ursic, 1985; Szymanski – Henard, 2001). Dissatisfaction may find expression in negative WOM (Folkes, 1984; Richins, 1983), a form of complaining addressed to prospective customers instead of the company. The more complaints and negative WOM a business attracts, the lower the chances of repatronage and repurchasing. In addition, dissatisfied customers more readily search for additional information and give in to the offers of competitors more easily.

Satisfaction works the other way round and entails a number of advantages – also in financial terms – for businesses (Figure 15). Satisfied customers will return to the company time and again to make purchases and help build its good reputation (Dodds et al., 1991; Oliver, 1997, Parasuraman – Grewal, 2000; Szymanski – Henard, 2001; Chang et al., 2009). Positive WOM brings new customers, reducing customer acquisition costs. Satisfied customers are typically more inclined to forgive sellers' mistakes and are more immune to the offers of competitors. By doing so, they support the business's competitive advantage (Zeithaml et al., 1996; Kenesei – Kolos, 2007) and may become loyal customers on the long term (Cronin – Taylor, 1992; Oliver, 1999; van Riel et al., 2004). Although the relationship between satisfaction and loyalty is quite complex, with an appropriate strategy, the loyalty of most customers can be won (Hofmeister-Tóth et al., 2003).

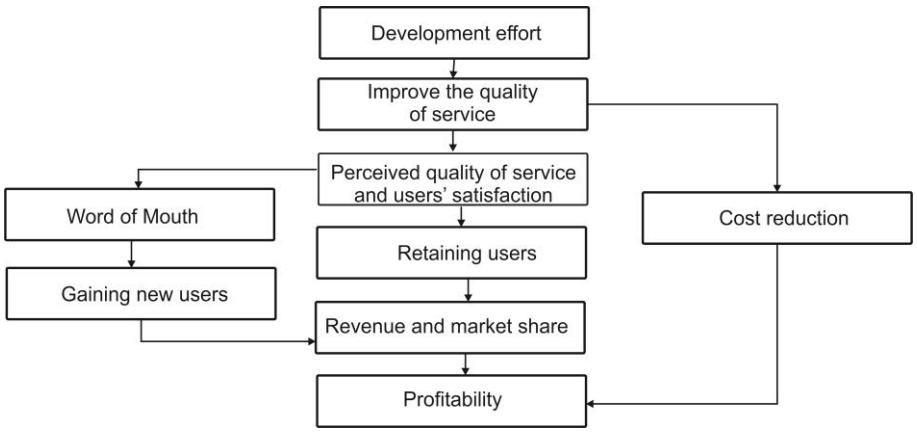

Figure 15: The relationship of service quality and word of mouth

Source: Veres (2009), p. 99

Several studies have shown that loyal customers are not necessarily the most satisfied ones and vice versa (Reichheld, 1994; Fornell, 1992; Oliver, 1999; Castaneda, 2011). Based on their level of satisfaction, customers familiar with a product/service or a business may be grouped under the following categories:

(1) *dissatisfied customers* who are not satisfied with the purchased product/service and thus look for another retailer;

(2) *neutral customers* who purchase the most easily accessible product or service at any given time;

(3) *satisfied customers* who are satisfied with the purchased product/service but are still open to other options;

(4) *loyal customers* who return to the business, ignoring the offers of competitors (Rekettye – Hetesi, 2009).

In an online context, where the medium allows easy access to competing offers and switching between providers involves lower costs, revisiting and repurchasing intentions, which may on the long term lead to loyalty, gain in importance (Vallejo et al., 2005). For the same reason, it is instructive to examine the capacity of webshops to provide expected quality and performance at a level which is sufficient to secure consumer satisfaction and, as a result, positive consumer behaviour.

Satisfaction and its consequences are moderated by various variables, including the customer's personal characteristics, frame of reference, comparison standards, or whether the purchased goods are durable or non-durable (Churchill – Surprenant, 1982; Szymanski – Henard, 2001). It is also significant whether a product or a service is in question, as services may differ in many respects – perishability, tangibility, the inseparability of consumption and production, standardisation – from products and therefore raise different expectations (Parasuraman et al., 1985).

Consumers' motives for shopping online are manifold, including saving money and time, and also convenience. Jarvenpaa and Todd (1997) identify convenience as the primary benefit derived from online shopping. Burke (1997) asserts that online shoppers are more convenient than those not shopping online. According to Srinivasan et al. (2002), among personal characteristics, convenience orientation has a influence on the consequences of satisfaction, as convenience-oriented customers are less likely to seek a new retailer.

Customers with an information-seeking orientation collect more information to ground their decision and therefore make better evaluations (Olsen, 2002). Shankar, Smith and Rangaswamy (2003) suggest that the more information is available, the more cognitive effort consumers put in seeking information, which may result in additional benefits (e.g. lower prices). In an online context, information is more easily and quickly accessible than offline (Shankar et al., 2003), allowing consumers to make a better decision which also

affects satisfaction (Szymanski – Hise, 2000). We assume that an inclination for information seeking not only influences satisfaction but also the development of the consequences of satisfaction.

In online environments, where a wide range of offers are accessible with ease, variety seeking may have a considerable effect on the consequences of satisfaction. A number of studies have shown that wider variety leads to greater satisfaction (Agárdi, 2004). At the same time, Oliver (1999) posited that variety seeking negatively affects loyalty. By analogy, a similar effect is expected on repurchasing intention and word of mouth.

Of influential variables other than personal characteristics, the consequences of satisfaction are impacted by the monetary value of the purchase as well. According to Kuehn (1962) and Day (1969), customers making high-value purchases are more likely to be loyal. Emotional motivations are generally strong in their case, as those who spend much are more involved in the purchase decision, and accordingly, satisfaction has a more profound effect on loyalty in their case (Kim et al., 1997).

Loyalty is a continuing relationship established between a consumer and a brand; it is an emotional connection that binds a consumer to a business/brand when making purchases (Ltifi – Gharbi, 2012a). Mills (1998) also regards loyalty as a continuous relationship rather than a state. In the course of development of this relational process, mutual fidelity between the partners strengthens (Evans – Laskin, 1994). As we focus in our research on consequences of satisfaction which are manifest in the short run, of behavioural intentions, we will analyse only repurchasing intention and positive word of mouth and will examine the moderating effect of customer characteristics in the context of these relationships.

2.6.1. Models of future behaviour

High quality of service leads to favourable behavioural intentions (Zeithaml et al., 1996) which positively affect individual decisions to stay loyal to the business or to look for another one. The likelihood of repeat use of the service grows in proportion with the pleasantness of consumers' experience (Zhang – Prybutok, 2005). A number of researchers believe that behavioural intentions are the key to success (Bhattacherjee, 2001; Venkatesh et al., 2003). In this chapter, we are going to present theories aimed at predicting future behaviour.

One of the most prominent models in this field is the theory of reasoned action (TRA) (Fishbein – Ajzen, 1975) according to which prior behavioural intention is the immediate precursor of the individual's behaviour. Prior behavioural intention is influenced by two factors: attitude and subjective norms. Attitude is a complex construct defined by evaluated beliefs, i.e. the person's view about the outcome of a certain action, and the perceived importance of attitudes to the person. Normative beliefs represent the person's view of society's expectations and his or her intention to comply with those expectations. Subjective norms are a function of these beliefs and their perceived importance to the person.

Another important model is the theory of planned behaviour (TPB) (Ajzen, 1985) which is an extension of the previous model, with the element of perceived behavioural control added.

The most widely recognised theoretical framework for the study of technology acceptance is the technology acceptance model (TAM) (Davis, 1989) which identifies perceived usefulness (PU) and perceived ease of use (PEOE) as the most important determinants of the acceptance of a technical system (Nyírő, 2011). These factors affect the attitude toward system use which in turn affects intention to use the system.

The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003) makes further additions to technology acceptance theory. According to this model, intention to use a system is moderated by the following four dimensions: (1) performance expectancy (similar to perceived usefulness), (2) effort expectancy (similar to perceived ease of use), (3) social influence (similar to subjective norms) and (4) facilitating conditions (similar to perceived behavioural control).

According to the IS Continuance Model, a system's success lies in continued use (Bhattacherjee, 2001). The model comprises five steps:

1. initial expectations of use,
2. acceptance and use of the system,
3. forming perceptions of performance after use,
4. evaluation of initial expectations and forming a satisfaction or dissatisfaction decision,
5. forming a continuance intention, if satisfied.

This model recalls the quality-satisfaction approaches described earlier. It may also be noted that part of the dimensions identified in the above-mentioned models of behaviour are also present in conceptual frameworks of electronic service quality, including ease of use and performance.

It is widely agreed among researchers that service quality affects satisfaction. Some even propose that these factors have an impact on behavioural intention as well (Cronin – Taylor, 1992; Brady – Robertson, 2001). In their study, Cronin et al. (2000) found evidence of the direct effect of quality on behavioural intention. Along these lines, Godwin, Bagchi and Kirs (2010) constructed their own model to examine future behavioural intentions. In their study, they analyse in particular repurchasing intention in combination with satisfaction and substantiate the relationship between them by empirical research methods. In our research, we will refer to and investigate only repurchasing intention and positive word of mouth under the umbrella term of future behavioural intentions.

2.6.2. The relationship of repurchasing intention and word of mouth with satisfaction

Behavioural intentions may be both positive and negative (Zeithaml et al., 1996), which is determined by many different factors (satisfaction, reputation, reliability, etc.) in an online context as well (Goode – Harris, 2009).

In earlier studies, loyalty was measured by the likelihood of repeat purchases (Lipstein, 1959; Kuehn, 1962; Srinivasan et al., 2002) which, however, was widely criticised. This behaviour-oriented approach does not distinguish between so called ‘true loyals’ and ‘spurious loyals’. There are a number of situational effects at play which may contribute to repeat purchase behaviour, such as the lack of either alternatives, variety seeking or the preferred brand, etc. (Day, 1969; Jacoby – Chestnut, 1978; Srinivasan et al., 2002). Engel and Blackwell (1982) define loyalty as the preferential attitudinal and behavioural response toward one or more brands in a product category during a purchase. Asseal (1992) posits that it is a positive attitude to a brand which in practice translates into continued purchase. Gremler (1995, in: Srinivasan et al., 2002) promotes that a true measure of loyalty should include both attitudinal and behavioural aspects. Having regard to the difference between satisfaction and attitude, which had already been explained in

the previous chapter, and the definitions above, it is safe to say that loyalty finds expression at the level of both behaviour and attitude. Consumers can only be considered true loyals if both the measure of their repurchasing intention and relative attitude are high. The strength/extremity of attitudes and attitudinal differentiation give rise to relative attitude. If attitudinal differentiation is strong, relative attitude is high (Dick – Basu, 1994; Kenesei – Kolos, 2007; Dörnyei – Gyulavári, 2012).

		Repeat Patronage	
		High	**Low**
Relative attitude	**High**	Loyalty	Latent loyalty
	Low	Spurious loyalty	No loyalty

Figure 16: Types of loyalty to services

Source: Dick and Basu (1994), in: Dörnyei – Gyulavári (2012)

In summary, loyalty is widely identified with continued repeat purchase of a specific brand/product or, in the case of outlets, repeated visits to the same outlet. According to the literature, a minimum of three or four successive repeat purchases are required for loyalty to be established (Ltifi – Gharbi, 2012a). Taking the approach of Dick and Basu (1994) as a basis, loyalty develops only when a high level of repurchasing intention is coupled with a high relative attitude. In this dissertation, we will analyse repurchasing intention as a type of behavioural intention and will dispense with the examination of its relationship with loyalty due to its long-term nature (Figure 16).

Word of mouth may be defined as formal or informal communication with others about a certain product or service (Hennig-Thurau et al., 2002). This kind of communication originates in a natural environment, independent of the company, and is defined by high credibility as opposed to commercials. It also serves as free publicity for the business (Srinivasan et al., 2002).

Word of mouth is an important external source of information during decision making processes, disseminated by individuals or businesses having prior experience with the product or service and therefore communicating relevant information to the receivers (Eszes, 2011). The effects of WOM are particularly important in the case of services (Kenesei – Kolos, 2007).

‘Word of mouth refers to informal communication between customers about the characteristics of a supplier and/or its products and services’ (Tax et al., 1993, p.74, in: Neumann-Bódi, 2012).

The Internet-enabled consumer devices and solutions of the present day contributed to the rise of e-WOM which differs from its traditional counterpart mainly in the fact that it is electronic by nature, it generally involves no face-to-face communication, and that reviews and referrals considering e-WOM are basically unsolicited and are only evaluated if found by prospective recipients who pay attention to them (Park – Kim, 2008). e-WOM allows an unprecedented speed and scope to the spreading of reviews. Traditional word of mouth is shared during private conversations while, in an online context, WOM reaches even persons and groups who are not present at the given moment (Karakaya – Barnes, 2010) or do not, or reasonably cannot, know each other. Offline WOM entails real-time exchange of opinions between individuals or smaller groups (Steffes – Burgee, 2009). Online WOM in contrast involves multi-way and often asynchronous (Hung – Li, 2007) exchanges of information which also entails increased permanence and accessibility. As a result, e-WOM is easier to measure and analyse (Park – Kim, 2008) since it is stored for an indefinite period of time (Hennig-Thurau et al., 2004). Pursuant to the most widely adopted definition provided by Hennig-Thurau et al. (2004), online word of mouth encompasses all positive and negative statements made by current, potential or former consumers about a product/service or business which are accessible to several consumers on the Internet.

The influence of satisfaction on post-purchase behaviour (e.g. word of mouth and repurchasing) is reinforced by several studies(Kim, 2005).Consumer satisfaction with a specific e-commerce firm develops in relation to the consumer's prior shopping experience, which also affects repurchasing intention (Hsu et al., 2012). Based on the findings of Wolfinbarger and Gilly (2003), in the case of the eTAILQ scale they created for measuring electronic service quality, the dimension of reliability proved to be the most central to consumer satisfaction, while in their analysis of the direct effect of the respective quality dimensions on repurchasing intention, this dimension was identified as the second most important. The findings of Loiacono, Watson and Goodhue (2007) similarly underpin the influence of satisfaction on revisiting and repurchasing intention. The fact that satisfaction has an impact on repurchasing intention and word of mouth is also corroborated by the work of Dolen, Dabholkar and Buyter (2007, in: Moon, Philip and Moon, 2011). The study of Ha, Muthaly and Akamavi (2010) provides further evidence of the direct effect of satisfaction on online repurchasing intention. According to Kim (2012), the relationship of satisfaction and repeat purchase behaviour in an online context is worthy of attention also because, here, payment is often made before delivery

which is conditional on customers' trust in the retailer. When customers are satisfied, mutual understanding develops with the retailer and the chances are higher for a continued relationship. Satisfaction with performance and the intention to repeat the transaction – i.e. repurchasing intention – increase in proportion with each other (Kim, 2012).

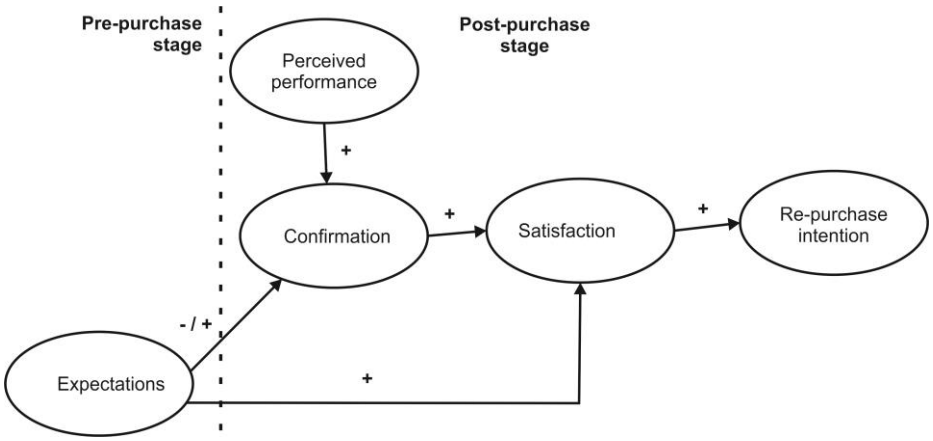

Figure 17: Expectation confirmation theory

Source: Anderson – Srinivasan (2003)

As Figure 17 also shows, the level of consumer satisfaction influences repeat purchase intention (Oliver, 1980; Anderson – Sullivan, 1993; Parasuraman – Grewal, 2000). It should be stressed that satisfied customers who at the same time do not feel that they got the best offer may still defect to competition (Anderson – Srinivasan, 2003; Chang, 2006; Kanji, 2002), which – as competition is just a click away – involves less expense and effort in an online context.

2.6.3. Summary

Based on our review of the literature, we find the proposition that quality substantially effects consumer satisfaction well-founded. The relationship between these factors is worthy of closer scrutiny, as satisfaction has a number of influential consequences in respect of successful business operation. Of these, repurchasing intention and word of mouth were presented in detail in our literature review. Repurchasing intention has special importance as repeat purchases contribute to the development of loyalty in the long term, while positive word of mouth facilitates customer acquisition and thus reinforces the marketing communication of businesses.

There are a number of alternatives for measuring perceptions of quality. In this dissertation, we have discussed the disconfirmation paradigm in depth, which provides a measure of consumer's overall evaluation of quality and – as its result – satisfaction on the basis of expected and received quality.

3. EMPIRICAL RESEARCH

The objective of our dissertation is to examine the development of repurchasing and WOM intention in relation to satisfaction in the four e-commerce categories (offline-goods, offline-services, electronic-goods and electronic-services) defined by Francis and White (2004) both separately and in relation to each other. Within the framework of the research, we will scrutinise the direct effect on satisfaction of the electronic service quality dimensions identified based on the literature in each e-commerce category as well as their indirect effect on repurchasing intention, and traditional and electronic WOM. Accordingly, our main objective will be to map similarities and salient differences between the four e-commerce categories, considering these categories as moderating variables in the model.

This objective was formulated based on our review of the literature which we found lacking in studies that would inquire into e-commerce with a specific focus on the relationship between quality, satisfaction and the consequences of satisfaction, which is a relevant perspective for marketing purposes as well. Along these lines, the primary aim of this research project will be to carry out such an inquiry with a comparative examination of effects and correlations and, by doing so, to contribute to academic knowledge on e-commerce. Our research provides a comprehensive view of the development of the aforementioned set of relationships in electronic commerce.

3.1. Theoretical framework

In the literature review, we have presented different concepts of electronic service quality, satisfaction and their consequences. Initially, our plan was to use the disconfirmation paradigm in our research, according to which satisfaction is a function of the relation of the expectations of consumers or, in this case, online customers, to the performance delivered by the e-commerce entity during the shopping transaction. However, the results of our pilot research have shown that respondents find it difficult to pinpoint their expected level of service quality. For this reason, we finally decided on direct measurement.

We used the RECIPE scale constructed and validated by Francis (2009) for the measurement of e-service quality, as the significant quality dimensions were determined in this instrument with the specificities of the four e-commerce categories taken into account. In the RECIPE

scale, perceived electronic service quality, regarded as an antecedent of satisfaction, is measured in all categories based on similar dimensions but different manifest variables. This method has been empirically tested and validated by foreign researchers. As it was described in detail in Chapter 2.3.12, sense of security and communication with customer service during the purchase are measured in a similar fashion in all four e-commerce categories in the scale. Although the rest of the dimensions vary by name, based on a thorough study of the manifest variables, we can establish that one of the dimensions in all four categories is linked to the webshop itself, particularly to the information available on the website and the quality of the instructions needed for the purchase transaction. Accordingly, for the sake of convenience, these variables, i.e. the dimensions of website quality, product details and user account set-up, will be referred to in our analysis by the generic term of actual website quality. On closer examination, we can discover similarities also between the dimensions of exchange, reservation and online services. These dimensions all concern the quality of the actual purchase transaction, i.e. the quality experienced in relation to order placement, confirmation and payment. We will refer collectively to these dimensions below as the quality of the exchange. The RECIPE scale is presented in detail with all its indicators in Annex 3. We chose the RECIPE scale for the purpose of our research as this is the single measurement instrument that takes account of the heterogeneity of e-commerce, identified on multiple occasions as a direction for future research (Wolfinbarger – Gilly, 2003; Francis – White, 2003, 2004; Parasuraman et al., 2005). In addition, we have concluded that the dimensions included in the scale fully cover the definition of e-service quality, which means that it has good content validity.

3.2. Research questions and hypotheses

The theoretical framework of our model issues from our literature review and research work done over recent years (Figure 18). Under the model, the main question of our dissertation is whether there are significant differences observable in the development of satisfaction and its consequences in the respective e-commerce categories. Within our established framework, only the components of electronic service quality differ in the four categories (see the previous chapters). In line with the literature, the other relationships are assumed to be identical.

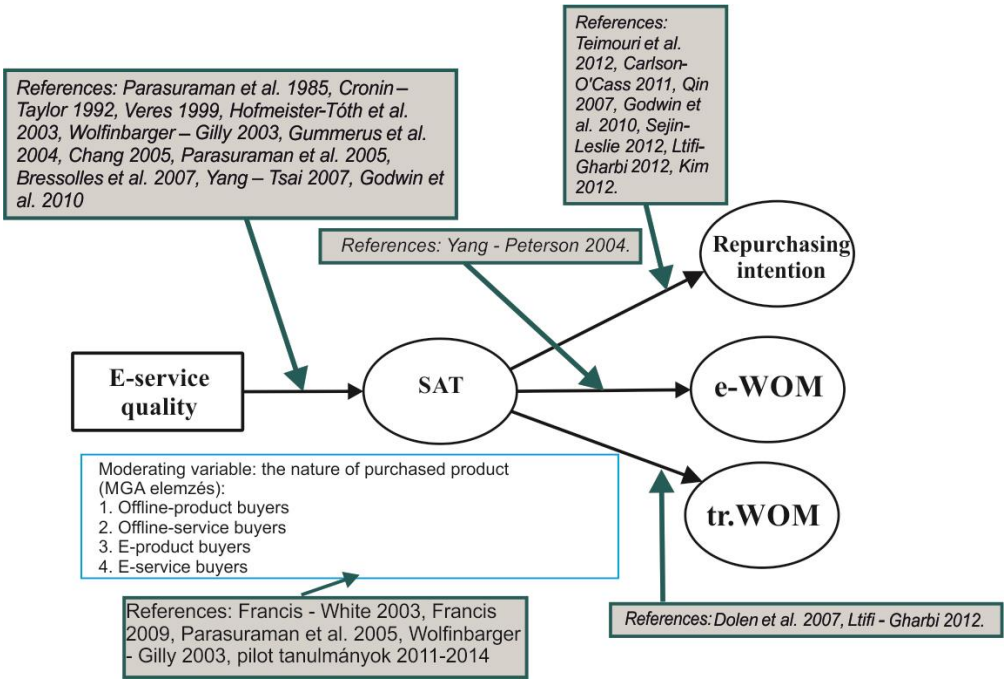

Figure 18: Initial theoretical framework

Source: own elaboration

Based on the developed model, we have formulated the following research questions and initial hypotheses.

A positive relationship between quality and satisfaction is corroborated by countless studies in an offline context, and research evidence has been provided for the existence of a similar relationship in the case of electronic service quality as well (Wolfinbarger – Gilly, 2002, 2003; Bauer et al., 2005; Bressoles – Nantel, 2004; Qin, 2007; Chang et al., 2009; Godwin et al., 2009; Carlson – O'Cass, 2011; Kim, 2012; Sejin – Leslie, 2012). With a few exceptions (Qin, 2007; Kim, 2012), quality has been measured in most studies directly and the disconfirmation paradigm ignored.

Furthermore, electronic service quality was typically regarded as a homogeneous concept which, however, came under criticism in a number of earlier studies. It is promoted also in the traditional offline domain that different manifest variables should be used for the measurement of quality perceptions emerging during the purchase of products and services (Babakus – Boller, 1992; Carman, 1990; Gagliano – Hathcote, 1994). Still, most research on e-commerce fails to reflect this consideration. Some studies dispense entirely with the differences inherent in the type of the purchased goods (Janda et al., 2002; Long and McMellon, 2004; Ribbink et al., 2004) while others see potential modifications and adaptations based on the type of goods as

an area for future research (Parasuraman et al., 2005; Wolfinbarger – Gilly, 2003). In our research we will measure quality perceptions with special emphasis laid on this critical aspect.

H1: **Electronic service quality dimensions** have a positive effect on **satisfaction**.
H1.1: The dimension of **actual webshop quality** has a significant positive effect on satisfaction.
H1.2: The dimension of the **quality of the exchange** has a significant positive effect on satisfaction.
H1.3: The dimension of **perceived security** has a significant positive effect on satisfaction.
H1.4: The dimension of **customer service** has a significant positive effect on satisfaction.
Dependent variable: satisfaction

Scale used: Chang et al., 2009

Independent variables: electronic service quality

Scale used: RECIPE scale (Francis, 2009)

Repurchasing intention has long been recognised as one of the consequences of satisfaction. It has also been repeatedly substantiated that this fact applies in an online context, too (Teimouri et al., 2012; Carlson – O'Cass, 2011; Qin, 2007; Godwin et al., 2010). There is extensive research available on the mediating effect of satisfaction between quality and repurchasing intention (Sejin – Leslie, 2012; Ltifi – Gharbi, 2012; Kim, 2012) in the case of both offline and online purchases (Cronin et al., 2000). Although some researchers profess that it is the direct effect of quality dimensions on repurchasing intention that has real relevance (Loiacono et al., 2000, 2007; Yoo – Donthu, 2001; Bauer et al., 2005; Carlson – O'Cass, 2011) we will analyse the effect of satisfaction as a mediator in the different e-commerce categories, and, drawing on Francis (2009), will undertake a detailed examination of how satisfaction and repurchasing intention interact in each of these categories.

H2: **Satisfaction** has a positive effect on **repurchasing intention** in all e-commerce categories.

Dependent variable: repurchasing intention

Scale used: Limayem, Khalifa and Frini, 2000

Independent variable: satisfaction

H3: The effect of **satisfaction** on **repurchasing intention** differs significantly in the respective e-commerce categories.
H3.1: **Satisfaction** has a stronger positive effect on **repurchasing intention** in the category of offline-goods than in the category of e-goods.
H3.2: **Satisfaction** has a stronger positive effect on **repurchasing intention** in the category of offline-goods than in the category of offline-services.
H3.3: **Satisfaction** has a stronger positive effect on **repurchasing intention** in the category of offline-goods than in the category of e-services.
H3.4: **Satisfaction** has a stronger positive effect on **repurchasing intention** in the category of e-goods than in the category of offline-services.
H3.5: **Satisfaction** has a stronger positive effect on **repurchasing intention** in the category of e-goods than in the category of e-services.
H3.6: **Satisfaction** has a stronger positive effect on **repurchasing intention** in the category of offline-services than in the category of e-services.

Another important consequence of satisfaction is word of mouth intention which is a form of positive word of mouth (Neuman-Bódi, 2013). Until 2010, very few studies concentrated on this relationship in connection with online shopping (Chang et al., 2009). Instead, revisiting and repurchasing as well as loyalty were the focus of most research. We have decided based on the work of Smith et al. (2005) to survey the development of WOM intentions as a function of satisfaction as part of our research. According to their findings, in an online context purchases are made more often as a consequence of word of mouth recommendations rather than interaction with the seller. Furthermore, WOM as a type of consumer behaviour is also an important tool in support of corporate communication. Dolen, Dabholkar and Ruyter (2007) showed that satisfaction influences WOM intention in online environments. As a supplement to this finding, Ltifi and Gharbi (2012) observed that both cognitive and affective e-satisfaction have an effect on positive word of mouth.

In line with the foregoing, we will distinguish between traditional (H4 – H5) and online WOM intention (H6 – H7) in our research and will examine the impact of satisfaction on these types of WOM in the four e-commerce categories both separately and also in relation to each other in order to extract new information and findings.

H4: **Satisfaction** has a positive effect on **traditional WOM** in all e-commerce categories.

Dependent variable: WOM intention

Scale used: Zeithaml et al., 1996

Independent variable: satisfaction

H5: The effect of **satisfaction** on **traditional WOM** differs significantly in the respective e-commerce categories.

H5.1: **Satisfaction** has a stronger positive effect on **traditional WOM** in the category of offline-goods than in the category of e-goods.

H5.2: **Satisfaction** has a stronger positive effect on **traditional WOM** in the category of offline-goods than in the category of offline-services.

H5.3: **Satisfaction** has a stronger positive effect on **traditional WOM** in the category of offline-goods than in the category of e-services.

H5.4: **Satisfaction** has a stronger positive effect on **traditional WOM** in the category of e-goods than in the category of offline-services.

H5.5: **Satisfaction** has a stronger positive effect on **traditional WOM** in the category of e-goods than in the category of e-services.

H5.6: **Satisfaction** has a stronger positive effect on **traditional WOM** in the category of offline-services than in the category of e-services.

H6: **Satisfaction** has a positive effect on **electronic WOM** in all e-commerce categories.

Dependent variable: WOM intention

Scale used: Yang and Peterson, 2004

Independent variable: satisfaction

H7: The effect of **satisfaction** on **electronic WOM** differs significantly in the respective e-commerce categories.

H7.1: **Satisfaction** has a stronger positive effect on **electronic WOM** in the category of offline-goods than in the category of e-goods.

H7.2: **Satisfaction** has a stronger positive effect on **electronic WOM** in the category of offline-goods than in the category of offline-services.

H7.3: **Satisfaction** has a stronger positive effect on **electronic WOM** in the category of offline-goods than in the category of e-services.

H7.4: **Satisfaction** has a stronger positive effect on **electronic WOM** in the category of e-goods than in the category of offline-services.

H7.5: **Satisfaction** has a stronger positive effect on **electronic WOM** in the category of e-goods than in the category of e-services.
H7.6: **Satisfaction** has a stronger positive effect on **electronic WOM** in the category of offline-services than in the category of e-services.

3.3. Operationalisation of theoretical concepts

Before commencing our research, the concepts of electronic service quality, satisfaction, repurchasing intention and WOM should be operationalised.

As discussed earlier, there are a number of validated scales available for the measurement of electronic service quality, yet some of these do not reckon with the entire online purchase process and most of them fail to take the heterogeneity of electronic commerce into account. Due to these limitations, we intend to use the RECIPE scale designed by Francis (2009) which meets all the aforementioned evaluation criteria since the manifest variables it integrates cover every electronic service quality dimension and it employs different validated measurement variables adapted to the specificities of the various shopping situations that may emerge in e-commerce.

For the category of offline-goods, the quality measurement scale defines 19 items in four dimensions:

1. Website,
2. Exchange: payment and delivery,
3. Customer service,
4. Security.

In the case of offline-services the dimension of exchange is replaced by a new factor. This RECIPE scale comprises 18 indicators:

1. Website,
2. Reservation/purchase,
3. Customer service,
4. Security.

Product details appear as a new dimension in the electronic-goods category in which the scale involves 19 items:

1. Product details,
2. Exchange,
3. Customer service,
4. Security.

The most conspicuous difference in the dimensions involved occurs in the scale created for the measurement of quality in relation to electronic-services. Here, there are again four dimensions, with 20 items:

1. Account set-up,
2. Online services (system and account management),
3. Customer service,
4. Security.

As noted earlier, we have merged similar dimensions into a common category for practical reasons, and will refer in our research to the following four latent variables:

1. *Actual webshop quality* which corresponds to the following dimensions in the respective e-commerce categories: website quality (offline-goods and services), product details (electronic-goods), account set-up (electronic-services);
2. *Quality of the exchange* which also has an equivalent in all e-commerce categories, namely exchange (offline and electronic-goods), reservation (offline-services), online services (electronic-services);
3. *Customer service;*
4. *Security.*

Prior shopping experience contributes to the development of consumer satisfaction with a specific firm or purchase transaction (Anderson – Srinivasan, 2003). For the purpose of our research, we will use a simplified version (Chang et al., 2009) of the satisfaction measurement scale created by Oliver (1980) for offline environments and adapted by Anderson and Srinivasan (2003) to an online context. In this simplified instrument satisfaction is evaluated on a 7-point Likert scale with three items as well as a reversed item. Measurement with such reversed items does not tend to be successful with the Hungarian population (Kenesei, 2000). We had the same experience with our pilot research questionnaire and consequently rephrased the items concerned to get measurement items of semantically the same direction. We have used this scale on several occasions for our previous studies.

1. I am satisfied with my decision to purchase from this website.

2. If I had to purchase again, I would feel differently about buying from this website.
3. My choice to purchase from this website was a wise one.

Our original plan was to measure repurchasing intention based on a modified version of the purchase intention scale of Limayem, Khalifa and Frini (2000)[5]. However, our pilot research questionnaire revealed that respondents could not tell the difference between the statements and were confused by repeated questions with a similar content. Due to this experience, we decided for the direct measurement of repurchasing intention using the second item of the scale.

1. I intend to purchase through this site in the near future.

Traditional offline WOM intention was measured with the scale of Zeithaml et al. created in 1996.

1. I say positive things about this company to persons in my environment.
2. If somebody seeks for advice I recommend this company.
3. I encourage relatives and friends to do business with this company.

We have identified in the literature only one appropriate scale (Yang and Peterson, 2004) dedicated to the measurement of electronic WOM linked to a specific purchase transaction. This scale uses the single item below for a direct measurement of e-WOM intention:

1. I would post positive messages about the company on some Internet message board.

3.4. Research methodology

Our Ph.D. research project is presented in two parts. In the first part, we organised the data and secondary information required for the analysis, designed the discrete steps of the research and made the necessary preparations. These formed the basis of the conceptual framework of our research. Building on this, in the second part we conducted our quantitative research, which provided general findings, as well as an experiment. The aim of these two pieces of research was to test our hypotheses and to get an insight into the relevance of quality dimensions for satisfaction.

[5] I will definitely buy products from this site in the near future.
I intend to purchase through this site in the near future.
It is likely that I will purchase through this site in the near future.
I expect to purchase through this site in the near future.

As most of the literature on electronic service quality and e-satisfaction is available in foreign languages, the extracted data should be carefully assessed and their applicability in domestic markets considered. We have conducted a number of pilot studies in this respect which are listed in Annex 11. Such preliminary research provided a basis for the formulation of our hypotheses and the exploration and identification of differences between the e-commerce categories.

In the second stage of our research, we carried out quantitative studies with the objective to test the model we have created and our hypotheses. To this end, we have implemented an online questionnaire survey and an experiment with the participation of undergraduates.

For the online survey, we administered a questionnaire for the online and offline e-commerce categories to 500 respondents, respectively, in an independent sample of altogether 1,000 respondents. Using the resulting database, we have evaluated our hypotheses and model relying on the PLS-SEM method.

The experiment, conducted as our second piece of research, served a dual aim. First, our objective was to investigate ratings of a first and a second purchase (scenario A and B) of two different types of goods – an offline (clothing accessory) and an online product (e-book) – using the same webshop and whether the differences we have established as a result of our large-sample survey occured in this case as well. Second, our aim was to gain a deeper understanding of quality perceptions and the reasons behind customer ratings by carrying out content analysis of the comments and posts made on the purchases. We used a sample of 100, consisting of undergraduates who had made a purchase online in the previous three months. All participants had to complete two guided purchase transactions in the same fictive webshop and post a comment online on their purchase experience. Each participant was asked to fill a questionnaire at the end of their purchase which we used for measuring their quality perceptions, satisfaction, repurchasing intention, and both their traditional and e-WOM intentions. We have found it expedient to perform this experiment as our large-sample online survey had a number of limitations (first and repeat purchases were not distinguished, various websites were rated). We designed the experiment with a view to eliminating these limitations while it also offered qualitative insight into the findings. The experiment has become a popular research tool in the field of marketing in recent years (Baum – Spann, 2011). The chosen research methods are outlined in Table 7.

Research method	ONLINE QUESTIONNAIRE	EXPERIMENT
Description	Online survey, among clients of a partner in each e-commerce category or a representative sample of Hungarian 18+ Internet users	Online questionnaire of an online purchase transaction in all four categories in a fictive webshop (offline-goods/ e-goods).
Respondents	Made a purchase online in the previous 12 months	Undergraduate sample, made a purchase on the Internet in the previous 12 months
Sample size	Quota of 500 respondents each (offline/online fulfilment)	N = 100
Date of data collection	Q1 2014	Q4 2014
Analytical method	SPSS – uni- and multivariate statistics SmartPLS – structural modelling	SPSS – uni- and multivariate statistics SmartPLS – structural modelling
Tested hypotheses	H1.1 to 4, H2, H3.1 to 6, H4, H5.1 to 6, H6, H7.1 to 6	H2, H3.1, H4, H5.1, H6, H7.1

Table 7: Planned research methodology

Source: own elaboration

3.5. Analytical methods: variance and/or covariance-based modelling

Casual relationships are examined in simpler cases with regression or factor analysis, while in the case of more complex models, variance and covariance-based analytical methods are employed. In the case of the latter, the model may also involve latent variables. As our research is targeted at a complex problem, we opted for variance-based (PLS) modelling. In the field of marketing, covariance-based (CS-SEM) modelling is also widely applied in addition to variance-based modelling. Therefore, before performing our actual analysis, we would like to present the two methods and the basic differences between them in order to substantiate our methodological choice.

The names of the methods refer directly to the data they use as covariance-based modelling relies on covariance, i.e. the parallel development of variables, while variance-based modelling takes variance of the variables as a basis. Variance can be divided further into common, specific and error variance. In covariance-based modelling, only common variance is analysed – which serves as the basis for covariance – while PLS-SEM operates with all three types of variance. Consequently, when choosing the analytical method, it should also be considered whether specific variance is of interest in the proposed model. If irrelevant, CB-SEM is an absolutely appropriate method. In the opposite case, only PLS-SEM can be considered a reasonable choice.

Covariance-based analysis (e.g. LISREL, AMOS) involves the following models of measurement:

$$y = \Lambda_y \eta + \varepsilon$$
$$x = \Lambda_x \xi + \delta \text{ , where}$$

ξ is a latent (exogeneous) independent variable;
η is a latent (endogeneous) dependent variable;
X is an indicator of the latent exogeneous variable;
Y is an indicator of the latent endogeneous variable;
Λ_x *are the factor loadings for the independent variable;*
Λ_y *are the factor loadings for the dependent variable;*
δ is the measurement error in the indicators of the manifest independent / exogeneous variable;
ε is the measurement error in the indicators of the manifest dependent / endogeneous variable;

Based on the above, the manifest variable can be divided into a systemic component and an error term. In this case, the structural model is as follows:

$B\eta = \Gamma \xi + \zeta$, where
B is a regression coefficient between latent dependent variables.
β_{ij} *is an indicator – with the reverse sign – of the direct effect of endogeneous variable j on endogeneous variable i.*
Γ is the matrix of the regression coefficients of the independent latent variable for the dependent latent variable.
γ_{ij} *is the direct effect of exogeneous variable j on endogeneous variable i.*
ζ is the error variable in the structural model.

By contrast, in variance-based modelling (e.g. LVPLS, SmartPLS), instead of factor analysis, we use a regression model, which is also called model of weights. In this case, the measurement model is as follows:

$y = \Lambda \eta + \varepsilon$, where
Y is the set of manifest variables;
η is the set of latent variables;
Λ are the factor loadings of the endogeneous manifest variable;
ε is the measurement error in the endogeneous manifest variable;

The structural equation for the paths between the the variables is as follows:

$\eta = B \eta + \zeta$, where
B is a path coefficient;
ζ s the stochastic error in the endogeneous latent variable.

We obtain the following reduced structural equation: $\eta = (I-B)^{-1} \zeta = B^{*}\zeta$, where B^{*} stands for the total effect of the latent variables on each other.

Under the PLS method, we also describe a model of weights where the latent variable is obtained by regression as a function of the manifest variable:

$\eta = \Omega y + \delta$, where

Ω are the regression weights for the exogeneous manifest variable;

δ the stochastic error in the exogeneous manifest variable.

The PLS algorithm approximates latent variables based on external and internal estimation through an iterative process until the two estimates converge. This method is called PLS as it minimises residual variance by each step of estimation either in the external or in the internal model. CB-SEM on the contrary gives an estimate of parameters by approximating the estimated matrix of covariance to the observed matrix of covariance. This is conditional on the normal distribution of the variables. CB-SEM is mainly used for hypothesis testing with the primary aim to assess parameters (Hsu, Chen, Hsieh 2006). By contrast, the chief objective in analysis of variance is to minimise the error in endogeneous variables and is more appropriate for prediction.

A comparison of analysis of variance and covariance (Table 8) indicates that the latter is more restrictive in terms of data as it requires normal distribution and independent manifest variables (Hsu et al., 2006). The sample size requirement of CB-SEM is of the order of several hundreds. The sample size required for PLS is quite controversial. According to many, a smaller sample (of 10 times the maximum number of indicators) is sufficient while others believe that, for statistically relevant results, the same requirements apply as in the case of CB-SEM (Henseler et al., 2009).

Criterion	PLS	CB-SEM
Objective	Prediction oriented	Parameter oriented
Approach	Variance based	Covariance based
Assumptions	Predictor specification (nonparametric)	Typically multivariate normal distribution and independent observations (parametric)
Parameter estimates	Consistent as indicators and sample size increase (i.e., consistency at large)	Consistent
Latent variable scores	Latent variable scores:	Indeterminate
Model complexity	Large complexity (e.g., 100 constructs Small to moderate complexity (e.g., and 1000 indicators)	Small to moderate complexity (e.g. less than 100 indicators)
Sample size	Recommendations for the minimum number of observations range from 30 to 100 cases.	Ideally based on power analysis of specific model. Recommendations for the minimum number of observations range from 200 to 800.

Table 8: The characteristics of PLS and CB-SEM

Source: Chin – Newsted (1999)

Some claim that CB-SEM is only appropriate for analyses of reflective relationships. When used for formative measures, we run into difficulties. Others, in contrast, have a bias in favour of PLS despite the fact that it is not suitable for direct statistical testing – conclusions can be drawn only by bootstraping or jackknifing. Furthermore, in PLS, loadings tend to be overestimated and path coefficients underestimated (Chin et al., 1996). A goodness of fit index is only available in CB-SEM (RMSE<=0.05, GFI>=0.9, CFI>=0.9) since the objective of PLS is to minimise the difference between the matrices of covariance of observed and estimated variables (Hsu et al., 2006).

PLS can adequately explain complex models whereas in CB-SEM the value of a number of indicators decreases as soon as the complexity of the model increases. Boomsma and Hoogland (2001, in: Henseler, Ringle and Sinkovics, 2009) have shown that the more parameters a model includes the greater the incidence of non-convergent and incorrect answers; therefore, the volume of the information needed grows in proportion with the complexity of the model, which in turn determines the required sample size. The PLS model proves more robust in comparison to CB-SEM upon introduction of a new formative latent variable and the same is true in the case of asymmetric data (Vilares et al., 2009 in: Henseler, Ringle, Sinkovics, 2009).

However, analysis of variance and covariance should be regarded as complementary rather than rival modelling techniques (Figure 19) According to Jöreskog (1982), CB-SEM is more theory-oriented and emphasises a transition from exploratory to confirmatory analysis while PLS is more appropriate for causal-predictive analysis in the case of models of high complexity but low theoretical information. Accordingly, CB-SEM is more suited for theory confirmation than theory building and PLS, as a model maximising the explained variance of the dependent variables, is more predictive in nature (Henseler et al., 2009). Analysis of variance is more apt for testing hypotheses instead of whole models and as it provides for low-level estimation it is more useful in explaining mechanisms. On the other hand, the most recent studies have come up with evidence for the suitability of variance of analysis for testing structural models (Hair et al., 2011; Henseler – Sarstedt, 2012).

In structural modelling, there are always two theories tested. First, the measurement theory is tested to check the suitability of the applied sets of variables (scales). Testing of the actual structure, i.e. the constructed model follows thereafter.

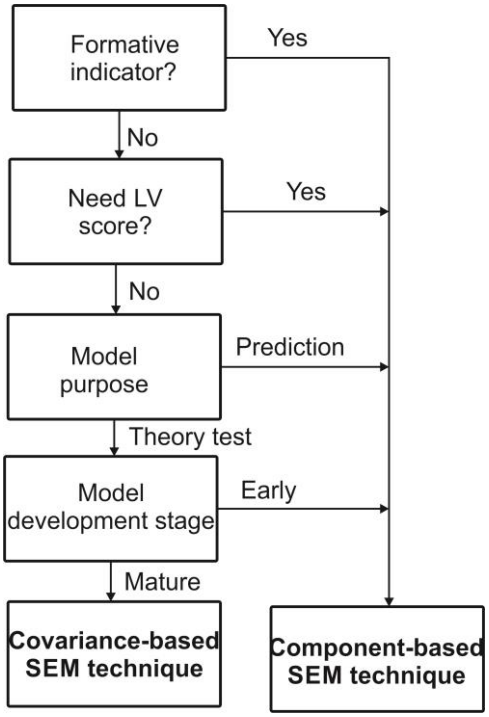

Figure 19: Flowchart of the SEM method

Source: Hsu, Chen and Hsieh (2006)

When testing the measurement model, the validity and reliability of latent variables are examined, in particular internal consistency reliability, reliability of the indicator, convergence validity as well as discriminant validity.

Cronbach-alfa and, in the case of PLS-SEM, by Dillon-Goldstein‘s rho can be used as measures of internal consistency reliability. Convergence validity of the latent variables can be measured by average variance extracted (AVE) which shows ‘whether there is a positive correlation between the scale and other items of the same construct’ (Malhotra – Simon, 2009, p. 320). Fornell and Larcker (1981) propose 0.5 as the threshold for acceptable convergence validity.

Discriminant validity reveals if a measurement item of a given construct is correlated with items belonging to a different construct. For this purpose, we use the Fornell-Larcker criterion which stipulates that for discriminant validity to be established, a latent variable’s AVE should be higher than its squared correlations with other constructs in the model. When this criterion is not met, items with the lowest factor loading should be removed in order to improve the results.

Of covariance and variance-based modelling, we finally decided to use the latter for the purpose of our analysis because in this method normal distribution of the studied variables is not a requirement, and based on the Kolmogorov–Smirnov test performed, non-normal distribution

could be anticipated in our research. Moreover, increased complexity of the model results in poorer performance of several indicators in the case of CB-SEM which also argues in favour of using PLS-SEM.

4. DISCUSSION OF THE EMPIRICAL RESEARCH

4.1. The large-sample online survey

4.1.1. Methodology

To find answers for our research questions, we carried out a survey in spring 2014 with an online questionnaire administered to an online panel. We restricted the sample size to 1,000 respondents and used quota sampling. The population consisted of individuals who had made an online purchase in the previous three months, with those having purchased an offline product or service giving one half of the sample and the other half comprised of respondents who had purchased an electronic product or service (Table 9).

GENDER		**TYPE OF SETTLEMENT**	
Male	43,5%	Budapest	30,6%
Female	56,5%	County seat	23,7%
AGE GROUP		Other big city	13,7%
18-29	9,4%	Village	31,6%
30-39	26,4%	Other	0,4%
40-49	20,1%	**FAMILY STATUS**	
50-59	19,9%	Single	13,4%
59+	23,7%	In a relationship	21,8%
AVERAGE AGE	46,83 year	Married	45,1%
EDUCATION		Divorced	8,8%
Primary school	0,6%	Widow	3,6%
Secondary school	6,4%	In a civil partnership	7,3%
High School	36,3%	**HOUSEHOLD TYPE**	
Collage	28,7%	I live with my parents	9,7%
University	26,7%	I live with my parents and grandparents	1,1%
NET MONTHLY INCOME		I live with my friends / shared apartment	1,4%
Our monthly income is not enough to buy the basic goods.	5,3%	I live alone	14,0%
We could buy the basic goods, but we cannot buy any extras.	26,9%	I live with my partner without a child	30,9%
We could buy the basic goods, and we can buy some extras.	54,4%	I live with my partner with a child	33,7%
We can buy everything easily what we need.	13,4%	I live without a partner but with a child	6,7%
AVERAGE NET INCOME (N=645 pers.)	236 528 Ft	Other	2,5%

Table 9: Demographic characteristics in the survey sample (N=1000 pers.)

Source: own elaboration based on own results

The majority of the questionnaire items concerned a specific purchase transaction made in the last three months. The objective of these items was to measure quality perceptions, satisfaction as well as WOM and repurchasing intention relating to the webshop used for the purchase on the basis of the scales presented earlier. We used the rest of the questions

to draw the profile of respondents by identifying their online shopping habits and demographic characteristics.

The majority of the respondents was female (56.5%), aged 46.83 on average (standard deviation (SD=13.39). Most of them had tertiary education (55.4%) and 30.6% of them lived in the capital city of Budapest. The constitution of our sample by education and type of settlement was almost identical with the 2014 data of GKIdigital[6], showing a share of 49% of tertiary educated online customers while the contribution of residents of Budapest was 27% (http://www.gkidigital.hu/wp-content/uploads/2014/10/GKI-Digital_IG_eker_2014.jpg).

Of our respondents, most claimed to lead a convenient lifestyle from their income (67.8%) and to be in a position to afford other than basic commodities. 64.5% of the respondents disclosed the average income of their household with HUF 236,528.37 calculated as the average monthly income (SD=HUF 126,310.87, max.value=HUF 800,000).

Most respondents make an online purchase every month (32,8%) while only 19.3% of them shop more frequently on the Internet (Figure 20). 16.7% of the respondents shop online at a intervals of more than 4 months.

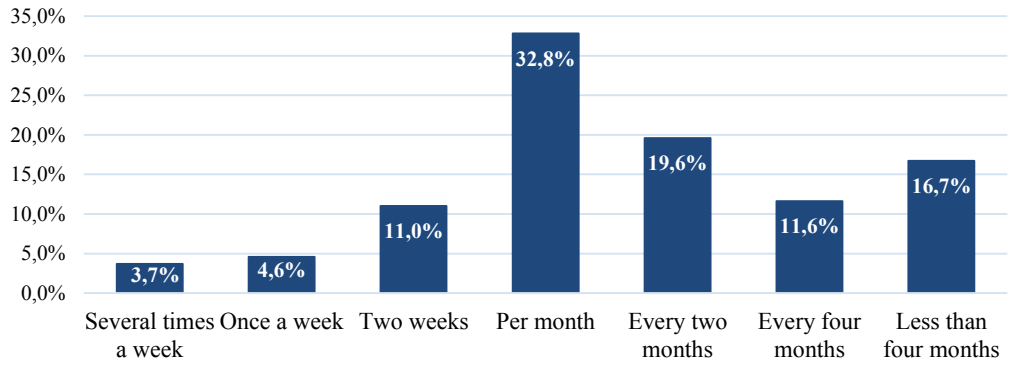

Figure 20: Frequency of shopping online (N=1,000 resp.)

Source: own elaboration based on own results

Half of the respondents made the purchase concerned in the survey in the previous 2 weeks (49.5%), i.e. most of them had to recall a fresh shopping experience. The average amount spent during the purchase was HUF 35,201 (SD=HUF 234,713.16). The top-value purchase was HUF 6,000,000 for shares and other purchases above HUF 200,000

[6] The results are based on data provided on a bi-monthly basis by 1,500 to 2,000 respondents who had made at least one purchase in the reference month.

were also characteristically made for the acquisition of different types of shares, bonds or travels. Purchases of the the lowest values involved banking services. The reference purchase was the first online shopping experience of only 2% of the respondents and 61.1% of them have made their last online purchase within the previous month (Table 10).

My last online purchase was … days ago*		Before this purchase, when was Your last e-purchase?*	
Maximum 1 week	31,8%	Maximum 1 week ago	18,8%
8-14 days	17,7%	8-14 days ago	10,3%
15-30 days	29,9%	15-30 days ago	30,8%
31-60 days	14,2%	31-60 days ago	19,8%
61-90 days	6,4%	61-90 days ago	6,8%
Avg (day)	22,21	91-180 days ago	8,4%
St. dev (day)	22,56	180-365 days ago	2,5%
How much did the purchased good cost?		More then 1 year ago	0,7%
Avg	35.210,00 Ft	This was my first e-purchase	1,9%
St. dev	234.713,16 Ft	Avg (day)	45,61
Minimum price	10,00 Ft	St. dev (day)	60,473
Maximum price	6.000.000 Ft	*We used a continuous scale int he quetionair, and the categories were establisged during the analyses.	

Table 10: Descriptive data of the online purchase transactions concerned (N=1,000 resp)

Source: own elaboration based on own results

Those who purchased an offline product or service – goods which are delivered and/or consumed in an offline environment and not in the online environment they were purchased in – mostly shopped for consumer electronics (14.6%), books, newspapers and magazines (13%) or clothing, sports equipment and jewellery (11.8%). The majority of the 500 respondents purchased a product (73%).

The ratio of customers of products and customers of services was almost equal among shoppers of electronic goods/services (47% and 53%, respectively). Most respondents (19.8%) registered or made a transaction on the website of an electronic service provider (dating, online TV, e-banking), or took out and insurance online (18%) (Table 11).

The type of the purchased goods (offline goods or services)			The type of the purchased goods (e-goods or services)		
Technical articles	Prod	14,6%	Registration (for example e-banking)	Serv	19,8%
Books and magazines	Prod	13,0%	Insurance via online broker	Serv	18,0%
Clothes, sports equipment	Prod	11,8%	Books/magazines/e-learning material, delivered or upgraded ONLINE	Prod	15,0%
Hardwares	Prod	7,6%	Software or applications	Prod	13,6%
Accomodation	Serv	7,6%	Films/music, delivered or upgraded ONLINE	Prod	7,4%
Travel, airplan ticket	Serv	7,0%	Video games software and upgrades	Prod	4,6%
Clothes, sports equipment	Prod	6,2%	Registration for some online courses	Serv	3,6%
Cosmetics	Prod	5,8%	Online stock exchange, stock purchase	Serv	2,6%
Cosmetic services, sports facilities	Serv	4,2%	Other e-product	Prod	6,8%
Food	Prod	3,6%	Other e-service	Serv	8,6%
Food for delivery (pizza)	Serv	3,4%			
Tickets	Serv	3,2%			
Movie, music on CD, DVD	Prod	1,2%			
Other product	Prod	9,4%			
Other service	Serv	1,4%			

Table 11: Descriptive data of the online purchase transactions concerned (N=500 resp/each)

Source: own elaboration based on own results

4.1.2. Differences across the e-commerce categories

As the four e-commerce categories (offline-goods, offline-services, electronic-goods, electronic-services) defined in the literature review play a pivotal role in our research, we performed a detailed analysis of each category.

Of our sample of 1,000 respondents, 366 purchased an offline product and 134 an offline service. The number of respondents who bought e-goods is 237, while 263 purchased e-services. In terms of demographic characteristics, more men (53.6%) purchased offline-goods than women and the same category was shown to be the 'youngest' ($average_{ageOG}$=44.71), though customers in the other categories were also below 50 on average. Female customers predominate in all the other categories. As regards education, the ratio of customers with tertiary education was higher (64.2%) in the category of e-services whereas the number of customers living in villages (39.1%) was conspicuously higher in the offline-goods category. There was no significant difference observable in the average income of households across the categories. On the basis of the foregoing, it can be stated that the subsamples of respondents in the different e-commerce categories exhibit no extreme difference in terms of their demographic characteristics (Table 12).

	Offline-product buyers (N=366 resp)	Offline-service buyers (N=134 resp)	E-product buyers (N=273 resp)	E-service buyers (N=263 resp)	Total (1000 reps resp
GENDER					
Male	53,6%	40,3%	38,4%	35,7%	43,5%
Female	46,4%	59,7%	61,6%	64,3%	56,5%
Pearson Chi2 p-value	*0,000*				
AVERAGE AGE					
AVG	44,71 year	49,25 year	47,76 year	47,71 year	46,83 year
St. DEV	13,39 year	13,55 year	13,21 year	13,16 year	13,39 year
F-test p-value	*0,001*				
EDUCATION					
Primary school	1,1%	0,7%	0,4%	0,0%	0,6%
Secondary school	9,0%	6,7%	3,4%	5,3%	6,4%
High School	39,9%	35,1%	39,2%	29,3%	36,3%
Collage	27,6%	29,1%	28,7%	30,0%	28,7%
University	21,0%	26,9%	27,0%	34,2%	26,7%
Pearson Chi2 p-value	*0,029*				
NET MONTHLY INCOME					
Our monthly income is not enough to buy the basic goods.	5,2%	6,0%	5,1%	5,3%	5,3%
We could buy the basic goods, but we cannot buy any extras.	29,0%	26,1%	27,4%	24,0%	26,9%
We could buy the basic goods, and we can buy some extras.	56,3%	53,7%	53,6%	52,9%	54,4%
We can buy everything easily what we need.	9,6%	14,2%	13,9%	17,9%	13,4%
Pearson Chi2 p-value	*0,344*				
AVERAGE NET INCOME (N=645 resp)					
AVG	226.710 Ft	235.029 Ft	244.353 Ft	250.998 Ft	236.528 Ft
ST. DEV	113 235 Ft	137.368 Ft	143.230 Ft	130.313 Ft	126.310 Ft
F-test p-value	*0,238*				
TYPE OF SETTLEMENT					
Budapest	20,2%	43,3%	31,2%	38,0%	30,6%
County seat	24,0%	16,4%	25,3%	25,5%	23,7%
Other big city	16,1%	14,2%	13,5%	10,3%	13,7%
Village	39,1%	26,1%	29,1%	26,2%	31,6%
Other	0,5%	0,0%	0,8%	0,0%	0,4%
Pearson Chi2 p-value	*0,000*				

Table 12: Demographic characteristics of customers of the analysed e-commerce categories (N=366/134/273/263/1000 resp.)

Source: own elaboration based on own results

We have recorded a significant difference between customers of offline goods/services and customers of electronic goods/services in the frequency at which they shop online (Pearson Chi^2 sig=0.000). In the latter group, the contribution of customers shopping online on a monthly basis was higher, with 63% and 64% purchasing e-goods and e-services on the Internet at least once in a month, respectively.

Consumer electronics were the most in demand offline-goods (73 resp., 19.9%) while in the category of offline-services accommodation was the most popular (38 resp., 28.3%). Among goods delivered and consumed electronically, e-books and e-magazines were the most sought-after (75 resp., 31.6%). In the e-services category services linked to registration on a service provider's website were the most popular (99 resp., 37.6%).

On average, customers of e-services spent the highest amount ($average_{ES}$=HUF 77,248 Ft, SD_{ES}= HUF 442,212 Ft). The average expenditure in the categories of offline-goods and e-goods was significantly lower. The average expenditure of customers of offline-services was HUF 44,212 (SD_{OG}= HUF 126,843). The data are presented in detail in Table 13. Based on our findings, we can establish that in the case of the analysed purchases, respondents spent more on services.

	Offline-product buyers (N=366 resp)	Offline-serice buyers (N=134 resp)	E-product buyers (N=273 resp)	E-service buyers (N=263 resp)	Total (1000 resp)
How often do You buy online?					
Several times a week	0,8%	2,2%	5,9%	6,5%	3,7%
Once a week	2,5%	6,0%	5,1%	6,5%	4,6%
Two weeks	6,6%	9,0%	14,3%	15,2%	11,0%
Per month	30,1%	26,9%	38,4%	34,6%	32,8%
Every two months	24,6%	24,6%	11,4%	17,5%	19,6%
Every four months	14,8%	12,7%	9,7%	8,4%	11,6%
Less than four months	20,8%	18,7%	15,2%	11,4%	16,7%
How much did the purchased good cost?					
AVG	17 721 Ft	44 212 Ft	10 479 Ft	77 248 Ft	35 210 Ft
St. Dev	48 076 Ft	126 843 Ft	18 934 Ft	442 212 Ft	234 713 Ft

Table 13: Descriptive data of customers of the analysed e-commerce categories (N=366/134/273/263/1000)

Source: own elaboration based on own results

4.1.3. Evaluation of electronic service quality

We have adopted the validated RECIPE scale constructed by Francis (2009) to obtain specific measurements of electronic service quality. Under this scheme, according to fulfilment and product, e-commerce is divided into the four segments of offline-goods, offline-services, electronic-goods and electronic-services. As outlined in our literature review, in order to measure e-service quality, quality perceptions are assessed in the following latent dimensions: (1) quality of the information and instructions provided in the webshop, (2) quality of the

purchase transaction, (3) availability and communication with the customer service, (4) security.

Based on the qualitative studies conducted by Francis and White, various manifest variables are assigned to the dimensions in the four segments, which is due to the differences characterising products/services and fulfilment methods.

In addition to examining the values of manifest variables in our research, on the basis of the values recorded for these variables, we also calculated the averages of the individual dimensions. When calculating these averages, we ignored items for which respondents failed to provide an answer. Respondents were asked to rate the questionnaire items corresponding to the manifest variables on a 7-point Likert scale, where 1 stood for statements they strongly disagreed with and 7 for those which they strongly agreed with.

Offline-product				OfflinE-serv			
Item	**AVG**	**N (resp)**	**St. Dev**	**Item**	**AVG**	**N (resp)**	**St. Dev**
WEBS_OT1	6,21	366	1,16	WEBS_OSZ1	5,39	134	1,71
WEBS_OT2	5,84	366	1,25	WEBS_OSZ2	5,40	134	1,33
WEBS_OT3	6,18	366	1,13	WEBS_OSZ3	5,89	134	1,27
WEBS_OT4	6,13	366	1,17	WEBS_OSZ4	5,78	134	1,23
Average value	***6,09***	***366***	***1,00***	***Average value***	***5,62***	***134***	***1,16***
E-product				**E-service**			
WEBS_ET1	4,54	237	2,48	WEBS_ESZ1	6,25	263	1,14
WEBS_ET2	5,05	237	2,27	WEBS_ESZ2	6,20	263	1,22
WEBS_ET3	5,12	237	2,24	WEBS_ESZ3	6,38	263	1,22
WEBS_ET4	3,67	237	2,61	WEBS_ESZ4	6,26	263	1,45
Average value	***4,60***	***237***	***1,95***	***Average value***	***6,27***	***263***	***1,10***

Table 14: Rating of actual website quality (7-point scale) (N=366/134/273/263)

Source: own elaboration based on own results[7]

Our findings (Table 14 and 15) reveal that the dimensions pertaining to the physical webshop were rated best in the category of e-services ($average_{e\text{-}serv}$= 6.27, $SD_{e\text{-}serv}$=1.10) while webshops selling electronic-goods got the lowest score ($average_{e\text{-}goods}$= 4.60, $SD_{e\text{-}goods}$=1.95). In the same dimension, the lowest rating was given for the availability of free/trial versions ($average_{e\text{-}goodsPROD4}$= 3.67, $SD_{e\text{-}goodsPROD4}$=2.61). A multivariate analysis of variance shows that at a confidence level of 95% the average values assigned to this dimension differ from each other

7 The specific measurement variables indicated in an abbreviated form in the Table are listed in Annex 4.

significantly in the four e-commerce segments, except for the relative rating of offline-goods and e-services (sig=0.106, $delta_{websitequalOG-ES}$= -0.109).

Dependent variable	Group A	Group B	Difference (A-B)	*Sig. (F-test)*
The quality of the „physical" webshop (Average value)	Offline-product	Offline-service	,40*	*,006*
		E-product	1,63*	*,000*
		E-service	-,19	*,106*
	Offline-service	Offline-product	-,40*	*,006*
		E-product	1,23*	*,000*
		E-service	-,60*	*,000*
	E-product	Offline-product	-1,63*	*,000*
		Offline-service	-1,23*	*,000*
		E-service	-1,82*	*,000*
	E-service	Offline-product	,19	*,106*
		Offline-service	,60*	*,000*
		E-product	1,82*	*,000*

Table 15: Differences in the rating of actual website quality across the e-commerce categories (scales 1 to 7) (N=366/134/273/263)

Source: own elaboration based on own results

Offline-product				Offline-serv			
Item	**AVG**	**N (resp)**	**St. Dev**	**Item**	**AVG**	**N (resp)**	**St. Dev**
EXCH1_OT1	6,39	366	1,09	EXCH1_OSZ1	6,10	134	1,25
EXCH1_OT2	6,45	366	1,08	EXCH1_OSZ2	6,17	134	1,23
EXCH1_OT3	6,35	366	1,20	EXCH1_OSZ3	6,30	134	1,03
EXCH1_OT4	6,52	366	1,07	EXCH1_OSZ4	6,34	134	1,06
EXCH1_OT5	6,56	366	0,94	EXCH1_OSZ5	6,21	134	1,18
Average value	***6,45***	***366***	***0,92***	***Average value***	***6,22***	***134***	***1,04***
E-product				**E-service**			
EXCH1_ET1	6,07	237	1,68	EXCH1_ESZ1	6,27	263	1,44
EXCH1_ET2	6,18	237	1,60	EXCH1_ESZ2	6,38	263	1,17
EXCH1_ET3	6,32	237	1,35	EXCH1_ESZ3	6,31	263	1,13
EXCH1_ET4	5,93	237	1,72	EXCH1_ESZ4	6,32	263	1,25
EXCH1_ET5	5,86	237	1,79	EXCH1_ESZ5	6,29	263	1,13
Average value	***6,06***	***237***	***1,40***	EXCH1_ESZ6	6,29	263	1,20
				Average value	***6,31***	***263***	***1,00***

Table 16: Rating of the quality of the exchange (7-point scale) (N=366/134/273/263)

Source: own elaboration based on own results

In the dimension concerning the actual purchase transaction, exchange/reservation and payment, it was again webhops selling e-goods that scored lowest on average ($average_{e\text{-}goods}$= 6.06, $SD_{e\text{-}goods}$=1.40) while customers of offline-goods gave the most favourable ratings ($average_{off\text{-}goods}$= 6.45, $SD_{off\text{-}goods}$=0.92). This is again a significant difference ($sig_{exchangeOG\text{-}EG}$=0.000, $delta_{exchangeOG\text{-}EG}$= 0.490). A significant difference is found also in the evaluation of the quality of exchange in the case of webshops selling e-goods as compared to those selling e-

services ($sig_{exchangeES-EG}$=0.001, $delta_{exchangeES-EG}$= 0.381) and the same applies to offline-goods as compared to offline-services ($sig_{exchangeOG-OS}$=0.036, $delta_{exchangeOG-OS}$= 0.258).

Dependent variable	Group A	Group B	Difference (A-B gr.)	*Sig. (F-test)*
The quality of the purchase and exchange (Average value)	Offline-product	Offline-service	,26*	*,036*
		E-product	,49*	*,000*
		E-service	,11	*,275*
	Offline-service	Offline-product	-,26*	*,036*
		E-product	,23	*,084*
		E-service	-,15	*,245*
	E-product	Offline-product	-,49*	*,000*
		Offline-service	-,23	*,084*
		E-service	-,39*	*,001*
	E-service	Offline-product	-,10	*,275*
		Offline-service	,15	*,245*
		E-product	,39*	*,001*

Table 17: Differences in the rating of exhange quality across the e-commerce categories (scales 1 to 7) (N=366/134/273/263)

Source: own elaboration based on own results

As to the dimension of security, which includes privacy and perceived security of credit card data,[8] it was once again webshops offering e-goods that scored lowest ($average_{e-goods}$= 5.74, $SD_{e-goods}$=1.64) and those selling offline-goods the highest ($average_{off-goods}$= 6.31, $SD_{off-goods}$=1.07). It was an intriguing observation that a considerable part of respondents could not evaluate the statements belonging to this dimension. In the total sample, 77 respondents could not evaluate any of the relevant items for lack of information on the security and privacy of their data and there were 417 respondents in total who did not provide a rating for at least one of the items. Most of them (300 respondents) failed to assign a rating to the item regarding the guarantees provided for secure payment by bank card. As in the case of structural modelling, filling in missing responses may lead to major changes, respondents who did not provide a value for all of the items will be analysed separately. Non-responses were the most frequent in the offline-goods category (197 resp., 54%) which may be due to the fact that, in this category, payment is often made only upon delivery (Table 18 and 19).A more detailed inquiry into this issue is a potential direction for future research on our thesis topic.

8 Security information were clearly explained.
The safety of my credit card was guaranteed.
The use of my personal details was explained.
My personal details were kept confidential.

Significant differences occured also in the evaluation of the dimension of security: customers of offline-goods gave a significantly higher score in comparison to all the other segments ($sig_{securityOG-OS}$=0.009, $sig_{securityOG-EG}$=0.000, $sig_{securityOG-ES}$=0.052); furthermore, customers' rating of e-services was significantly higher than that of e-goods ($sig_{securityEG-ES}$=0.009).

Offline-product				Offline-serv			
Item	**AVG**	**N (resp)**	**St. Dev**	**Item**	**AVG**	**N (resp)**	**St. Dev**
SEC1	6,19	285	1,27	SEC1	6,00	117	1,23
SEC2	6,28	199	1,06	SEC2	6,07	107	1,31
SEC3	6,34	310	1,08	SEC3	6,08	118	1,31
SEC4	6,45	284	0,92	SEC4	6,24	113	1,15
Average value	***6,36***	***331***	***0,96***	***Average value***	***6,06***	***127***	***1,15***
E-product				**E-service**			
SEC1	5,77	196	1,76	SEC1	6,15	213	1,15
SEC2	6,23	189	1,34	SEC2	6,19	205	1,25
SEC3	5,96	200	1,58	SEC3	6,24	227	1,19
SEC4	6,13	194	1,39	SEC4	6,32	209	1,12
Average value	***5,98***	***221***	***1,44***	***Average value***	***6,22***	***244***	***1,13***

Table 18: Rating of perceived security (7-point scale)

Source: own elaboration based on own results

Dependent variable	Group A	Group B	Difference (A-B gr.)	*Sig. (F-test)*
Security (Average value)	Offline-product	Offline-service	,37*	*,009*
		E-product	,56*	*,000*
		E-service	,22	*,052*
	Offline-service	Offline-product	-,37*	*,009*
		E-product	,19	*,209*
		E-service	-,15	*,325*
	E-product	Offline-product	-,56*	*,000*
		Offline-service	-,19	*,209*
		E-service	-,34*	*,009*
	E-service	Offline-product	-,22	*,052*
		Offline-service	,15	*,325*
		E-product	,34*	*,009*

Table 19: Differences in the rating of perceived security across the e-commerce categories (7-point scale)

Source: own elaboration based on own results

The last dimension covers customer service, including the management of the emerging questions and problems. As with the previous dimensions, customers of offline-goods provided the highest ratings ($average_{off\text{-}goods}$= 6.36, $SD_{off\text{-}goods}$=0.96) and e-goods were evaluated the least favourably ($average_{e\text{-}goods}$= 5.98, $SD_{e\text{-}goods}$=1.44). A major part of respondents failed to evaluate certain items in the case of this dimension, too: 173 respondents fully omitted evaluation and

481 of them avoided at least one item. The share of non-respondents was around 50% in all four categories (Table 20 and 21). This implies that a large part of customers did not contact customer service since they did not have any questions or problems. As in the case of security, this subset of respondents will be analysed separately.

Offline-product				Offline-serv			
Item	**AVG**	**N (resp)**	**St. Dev**	**Item**	**AVG**	**N (resp)**	**St. Dev**
SC_1	6,29	253	1,23	SC_1	5,91	92	1,75
SC_2	6,39	282	1,20	SC_2	6,22	108	1,31
SC_3	6,22	256	1,27	SC_3	5,52	97	1,68
SC_4	6,27	225	1,20	SC_4	5,78	88	1,66
SC_5	6,28	211	1,22	SC_5	5,74	84	1,79
SC_6_OT	6,01	366	1,61	***Average value***	***5,88***	***115***	***1,44***
Average value	***6,31***	***312***	***1,07***				
E-product				**E-service**			
SC_1	5,70	151	1,79	SC_1	6,03	193	1,37
SC_2	5,81	158	1,70	SC_2	6,07	193	1,36
SC_3	5,62	138	1,80	SC_3	5,66	185	1,59
SC_4	5,58	130	1,75	SC_4	5,92	168	1,32
SC_5	5,57	129	1,84	SC_5	6,01	165	1,33
Average value	***5,74***	***176***	***1,64***	SC_6_ESZ	5,83	263	1,69
				Average value	***6,04***	***224***	***1,17***

Table 20: Rating of customer service (7-point scale)

Source: own elaboration based on own results

Dependent variable	Group A	Group B	Difference (A-B gr)	*Sig. (F-test)*
Customer service (Average value)	Offline-product	Offline-service	,26*	*,042*
		E-product	,44*	*,000*
		E-service	,16	*,137*
	Offline-service	Offline-product	-,26*	*,042*
		E-product	,17	*,219*
		E-service	-,11	*,423*
	E-product	Offline-product	-,44*	*,000*
		Offline-service	-,17	*,219*
		E-service	-,28*	*,018*
	E-service	Offline-product	-,16	*,137*
		Offline-service	,11	*,423*
		E-product	,28*	*,018*

Table 21: Differences in the rating of customer service across the e-commerce categories (7-point scale)

Source: own elaboration based on own results

Ratings varied significantly in this dimension as well: customers gave a significantly higher average score for offline-goods than for either offline services or e-goods ($sig_{conservOG\text{-}OS}$=0.042,

$sig_{conservOG-EG}$=0.000). In addition, e-services were rated significantly higher by customers than e-goods ($sig_{conservES-EG}$=0.018).

The average rating of overall quality perception, obtained as a sum of the average scores given for the four discrete dimensions, was the highest in the case of offline-goods and the lowest in the case of e-goods ($average_{off-goods}$= 6.30, $SD_{off-goods}$=0.84, $average_{e-goods}$= 5.53, $SD_{e-goods}$=1.30). A significant difference in quality perception was absent only in the case of offline-goods compared to e-services; all other averages differed significantly from each other (Table 22 and 23).

	AVG	N (resp)	St. Dev
Offline-product	6,30	366	0,84
Offline-service	5,95	134	0,97
E-product	5,59	237	1,30
E-service	6,24	263	0,96

Table 22: Rating of overall quality perception (7-point scale)

Source: own elaboration based on own results

Dependent variable	Group A	Group B	Difference (A-B)	*Sig. (F-test)*
The sum of perceived e-sq (AVG)	Offline-product	Offline-service	,3089*	*,006*
		E-product	,7660*	*,000*
		E-service	0,05	*,569*
	Offline-service	Offline-product	-,3089*	*,006*
		E-product	,4570*	*,000*
		E-service	-,2574*	*,029*
	E-product	Offline-product	-,7660*	*,000*
		Offline-service	-,4570*	*,000*
		E-service	-,7144*	*,000*
	E-service	Offline-product	-0,05	*,569*
		Offline-service	,2574*	*,029*
		E-product	,7144*	*,000*

Table 23: Differences in the rating of overall quality perception across the e-commerce categories (7-point scale)

Source: own elaboration based on own results

Based on the results set forth above, webhops offering offline-goods and e-services were evaluated the most favourably and those selling e-goods the least favourably. This points to a need for significant improvement on the part of operators active in this e-commerce category.

4.1.4. Satisfaction and its consequences

Despite significantly different perceptions of quality, the level of satisfaction was similar in all four e-commerce segments, without any significant difference observable across the segments. On the other hand, major discrepancies occurred in respect of the relationship between the consequences of satisfaction and quality. In each case, customers of offline-goods showed the most positive intentions on average ($average_{BIoff\text{-}goods}$=6.17, $SD_{BIoff\text{-}goods}$=1.44, $average_{WOMoff\text{-}goods}$=6.21, $SD_{WOMoff\text{-}goods}$=1.20, $average_{E\text{-}WOMoff\text{-}goods}$=5.72, $SD_{E\text{-}WOMoff\text{-}goods}$=1.84), with these averages – except for average repurchasing intention – differing significantly from those recorded in any other segment. In spite of the average levels of perceived quality, the lowest intention scores were not attributable to customers of e-goods. On the contrary, the relevant values were the second highest after offline-goods, although no significant difference from the values of other segments can be reported in this case (Table 24 and 25).

	Offline-product			Offline-service		
	AVG	N	St. Dev	AVG	N	St. Dev
SAT1	6,43	366	1,17	6,30	134	1,14
SAT2	6,44	366	1,17	6,34	134	1,02
SAT3	6,44	366	1,15	6,31	134	1,16
SAT_avg	***6,44***	***366***	***1,12***	***6,32***	***134***	***1,07***
BI1	*6,17*	*366*	*1,44*	*5,95*	*134*	*1,53*
WOM1	6,41	366	1,17	6,07	134	1,34
WOM2	6,40	366	1,22	6,08	134	1,34
WOM3	6,34	366	1,27	5,99	134	1,42
WOM_avg	***6,21***	***366***	***1,20***	***5,84***	***134***	***1,30***
EWOM1	*5,72*	*366*	*1,84*	*5,10*	*134*	*1,92*
	E-product			E-service		
SAT1	6,40	237	1,22	6,28	263	1,19
SAT2	6,36	237	1,26	6,40	263	1,04
SAT3	6,35	237	1,26	6,37	263	1,09
SAT_avg	***6,37***	***237***	***1,16***	***6,35***	***263***	***1,05***
BI1	*5,99*	*237*	*1,53*	*5,88*	*263*	*1,52*
WOM1	6,27	237	1,28	6,25	263	1,21
WOM2	6,19	237	1,34	6,05	263	1,40
WOM3	6,17	237	1,40	6,05	263	1,43
WOM_avg	***5,99***	***237***	***1,28***	***5,90***	***263***	***1,27***
EWOM1	*5,35*	*237*	*2,05*	*5,25*	*263*	*1,97*

Table 24: The evaluation of satisfaction, traditional and e-WOM, and repurchasing intention (7-point scale)

Source: own elaboration based on own results

Based on these results it can be stated that while quality perceptions differed, repurchasing intention and WOM were very similar in the respective segments – except for offline-goods – and thus the effect size of perceived quality was obviously weaker in these cases.

Dependent variable	Group A	Group B	Difference (A-B)	*Sig. (F-test)*
Satisfaction (Average value)	Offline-product	Offline-service	0.07	*.558*
		E-product	0.12	*.284*
		E-service	0.00	*.964*
	Offline-service	Offline-product	-0.07	*.558*
		E-product	0.04	*.758*
		E-service	-0.07	*.601*
	E-product	Offline-product	-0.12	*.284*
		Offline-service	-0.04	*.758*
		E-service	-0.11	*.335*
	E-service	Offline-product	0.00	*.964*
		Offline-service	0.07	*.601*
		E-product	0.11	*.335*
Traditional WOM (Average value)	Offline-product	Offline-service	.33*	*.020*
		E-product	.29*	*.018*
		E-service	.23*	*.041*
	Offline-service	Offline-product	-.33*	*.020*
		E-product	-0.04	*.794*
		E-service	-0.10	*.518*
	E-product	Offline-product	-.29*	*.018*
		Offline-service	0.04	*.794*
		E-service	-0.06	*.667*
	E-service	Offline-product	-.23*	*.041*
		Offline-service	0.10	*.518*
		E-product	0.06	*.667*
E-WOM	Offline-product	Offline-service	.61*	*.004*
		E-product	.52*	*.005*
		E-service	.36*	*.036*
	Offline-service	Offline-product	-.61*	*.004*
		E-product	-0.09	*.694*
		E-service	-0.25	*.265*
	E-product	Offline-product	-.52*	*.005*
		Offline-service	0.09	*.694*
		E-service	-0.16	*.420*
	E-service	Offline-product	-.36*	*.036*
		Offline-service	0.25	*.265*
		E-product	0.16	*.420*
Repurchasing intention	Offline-product	Offline-service	0.19	*.240*
		E-product	0.15	*.295*
		E-service	0.19	*.150*
	Offline-service	Offline-product	-0.19	*.240*
		E-product	-0.05	*.801*
		E-service	0.00	*.989*
	E-product	Offline-product	-0.15	*.295*
		Offline-service	0.05	*.801*
		E-service	0.04	*.776*
	E-service	Offline-product	-0.19	*.150*
		Offline-service	0.00	*.989*
		E-product	-0.04	*.776*

Table 25: Differences in the evaluation of satisfaction, traditional and e-WOM, and repurchasing intention across the e-commerce categories (7-point scale)

Source: own elaboration based on own results

4.1.5. Non-responses

The treatment of non-responses in structural modelling is a crucial issue, as excluded values may give rise to a number of distortions in the model (Weiber – Mühlhaus, 2010). As non-responses may be responses not missing at random, responses missing entirely at random or responses missing at random, we will analyse them in greater detail before their treatment. As set forth in Chapter 4.1.3, in our research, non-responses occurred in the dimensions of security and customer service which some respondents could not rate for lack of experience with the dimension concerned. Accordingly, non-responses are linked by a common feature – the lack of experience – so they are not responses missing at random (Neumann-Bódi, 2012).

The circumstance that not every customer may have experience with customer service was already recognised by Parasuraman et al. (2005) who treated this dimension in their quality measurement scale completely separately, as a secondary dimension of perceived quality, and carried out a separate examination of the relevant results (see Chapter 2.4.9 for more detail).

In the present study, 623 respondents could not rate at least one of the manifest variables relating to security and/or customer service and thus had at least one value missing. A total of 274 respondents failed to rate at least one item in both dimensions while 142 and 207 respondents could not give a rating for either a security or a customer service item, respectively (Table 26).

			Experience with the security		
			All of the items were evaluated	At least one item wasn't evaluated	
At least one item of the security of customer service was not evaluate	Experience with the consumer service	All of the items were evaluated	377	142	142
		At least one item wasn't evaluated	207	274	481
	Total		207	416	1000

Table 26: Distribution of non-responses in the sample

Source: own elaboration based on own results

As Table 27 illustrates, most non-responses were linked to items on the management of inquiries and problems (411, 389 and 324 respondents) while in the dimension of security, the number of respondents who could not form an opinion on the guarantees for bank card security (300 respondents) and use of their personal data (200 respondents) was the highest.

Item		The number of non-respondents	Respondents lacking experience regarding security and customer service	Respondents lacking experience regarding security	Respondents lacking experience regarding customer service
SC_5	The company was happy to fix any problems	411	234	0	177
SC_4	The answers to my questions were helpful	389	223	0	166
SC_3	Communications with this firm seemed personal	324	176	0	148
SC_1	Contacting customer service staff was easy	311	194	0	117
SEC_2	The safety of credit card details was guaranteed	300	199	101	0
SC_2	The company responded quickly to my emails	259	147	0	112
SEC_4	My personal details were treated as confidential	200	156	44	0
SEC_1	The security information was explained clearly	189	141	48	0
SEC_3	The use of my personal details was explaine	145	119	26	0

Table 27: Distribution of non-responses in the sample by items/variables

Source: own elaboration based on own results

Of the 623 incomplete sample units, customers of offline-goods made the highest contribution to non-responses (68.3%) and customers of offline-services the lowest (51.5%). On closer examination of the lacking experience, we can observe that the majority of respondents having insufficient information on either security or both dimensions were customers of offline-goods (51% and 45%) whereas lack of experience with customer service was found with an almost equal number of customers of e-goods, e-services and offline goods (30%, 29%, 25%) (Table 28).

	Respondents lacking experience regarding security and customer service	Respondents lacking experience regarding security	Respondents lacking experience regarding customer service	Respondents having complete experience	Total	*N*
Offline-product	45%	51%	26%	31%	37%	*366*
Offline-service	11%	6%	14%	17%	13%	*134*
E-product	21%	13%	30%	26%	24%	*237*
E-service	22%	30%	29%	26%	26%	*263*
Total	*100%*	*100%*	*100%*	*100%*	*100%*	*1000*
N	*274*	*142*	*207*	*377*		

Table 28: Distribution of non-responses in the sample according to the analysed e-commerce categories

Source: own elaboration based on own results

These results suggests that security-related variables have less 'relevance' for online customers of offline-goods as the majority of them could not fully rate the items concerning security. The overall evaluation of customer service – i.e. the tone and manner of communication – was on the whole a relevant dimension for half of the customers (337 + 142 respondents), implying that around one half of them engaged in some interaction with customer service.

		Respondents lacking experience regarding security and customer service	Respondents lacking experience regarding security	Respondents lacking experience regarding customer service	Respondents having complete experience	Total	Szig F-test
The quality of the „physical" webshop (Average value)	N (resp)	274	142	207	377	1000	0.001
	AVG	5.73	5.97	5.92	5.51	5.72	
	St. Dev	1.6	1.35	1.32	1.49	1.48	
The quality of the purchase and exchange (Average value)	N (resp)	274	142	207	377	1000	0.000
	AVG	6.48	6.4	6.56	5.97	6.29	
	St. Dev	0.97	0.98	0.73	1.29	1.09	
Customer service (Average value)	N (resp)	*Not relevant*	142	*Not relevant*	377	827	0.000
	AVG		6.21		5.79	6.06	
	St. Dev		1.25		1.39	1.31	
Security (Average value)	N (resp)	*Not relevant*	*Not relevant*	207	377	923	0.000
	AVG			6.41	5.97	6.19	
	St. Dev			0.84	1.27	1.17	
Perceived e-SQ (Average value)	N (resp)	274	142	207	377	1000	0.000
	AVG	6.18	6.2	6.32	5.81	6.07	
	St. Dev	1.02	0.94	0.74	1.2	1.05	
Satisfaction (Average value)	N (resp)	274	142	207	377	1000	0.000
	AVG	6.54	6.56	6.68	6.03	6.38	
	St. Dev	1.01	0.9	0.69	1.32	1.11	
Tr-WOM (Average value)	N (resp)	274	142	207	377	1000	0.000
	AVG	6.06	6.2	6.3	5.78	6.03	
	St. Dev	1.21	1.19	0.91	1.42	1.26	
E-WOM	N (resp)	274	142	207	377	1000	0.013
	AVG	5.19	5.71	5.67	5.35	5.43	
	St. Dev	2.13	1.88	1.8	1.89	1.95	
Repurchasing intention	N (resp)	274	142	207	377	1000	0.001
	AVG	6.07	6.04	6.33	5.82	6.02	
	St. Dev	1.54	1.61	1.24	1.53	1.50	
	AVG	6.53	6.56	6.66	6.22	6.44	
	St. Dev	0.78	0.74	0.57	1.07	0.88	

Table 29: Differences between groups lacking experience and the group of respondents having complete experience in a breakdown by dimensions

Source: own elaboration based on own results

Comparing the average ratings of respondents with at least one missing response with the corresponding values of those having responded to all items, we can identify significant

differences in terms of perceived quality, satisfaction and its consequences (Table 29). With the exception of e-WOM intention, the lowest average ratings and thus the lowest opinions were given by respondents having a complete purchase experience and therefore a comprehensive view of all e-service quality dimensions, including information on security arrengements and contact with the customer service. The highest ratings were given by respondents who did not have any contact with customer service – as they probably had no questions or problems during a smooth purchase transaction – but at the same time demonstrated full knowledge of security arrangements.

As our results point to significant differences between the average ratings of respondents having complete experience and those lacking some experience, for an assessment of the proposed structure and the assumed differences, we find a separate analysis of the four group of respondents more appropriate. This way, potential distortions arising from filling in missing data can also be avoided. A separate analysis is also warranted by the fact that, in our case, data are not missing at random but rooted in the individual experiences, information and perceptions of the respondents.

4.1.6. Assessment of the structural model

To analyse our hypothetical set of relationships, we will use structural modelling which enables simultaneous observation of the correlations between several latent variables. Of covariance and variance-based modelling, we finally decided on the latter as under this model normal distribution of the studied variables is not a requirement; moreover, with PLS-SEM, performance of the indices will not deteriorate as the model gets more complex (Chin – Newsted, 1999).

In structural modelling, there are always two theories tested. First, the measurement theory is tested to check the suitability of the applied sets of variables (scales). Testing of the actual structure, i.e. the constructed model follows thereafter (Hensler et al., 2009).

4.1.7. Testing of the measurement model / theory

When testing the measurement model, the validity and reliability of latent variables are examined, in particular internal consistency reliability, reliability of the indicator, convergence validity and discriminant validity. We are using reflective measures in our research.

	Offline-product	Offline-service	E-product	E-service
	AVE			
The quality of the „physical" webshop	0.801	0.803	0.682	0.792
The quality of the purchase and exchange	0.841	0.850	0.869	0.789
Security	0.817	0.860	0.891	0.802
Customer service	0.798	0.752	0.884	0.742
Satisfaction	0.967	0.974	0.921	0.932
tr.-WOM	0.954	0.947	0.959	0.924
E-WOM	1.000	1.000	1.000	1.000
Repurchasing intention	1.000	1.000	1.000	1.000
Expected value	*AVE > 0.5. Fornell - Larcker. 1981)*			
	Internal consistency reliability- Dillon-Goldstein's Rho			
The quality of the „physical" webshop	0.942	0.942	0.893	0.938
The quality of the purchase and exchange	0.963	0.966	0.971	0.949
Security	0.947	0.961	0.970	0.942
Customer service	0.959	0.938	0.974	0.945
Satisfaction	0.989	0.991	0.972	0.976
tr.-WOM	0.984	0.982	0.986	0.973
E-WOM	1.000	1.000	1.000	1.000
Repurchasing intention	1.000	1.000	1.000	1.000
Expected value	*D-G-R > 0.7 (Vandenbosch 1996)*			
	Internal consistency reliability- Cronbach-alfa			
The quality of the „physical" webshop	0.918	0.918	0.833	0.912
The quality of the purchase and exchange	0.952	0.956	0.962	0.933
Security	0.925	0.945	0.959	0.917
Customer service	0.948	0.917	0.967	0.930
Satisfaction	0.983	0.987	0.957	0.964
tr.-WOM	0.976	0.972	0.979	0.959
E-WOM	1.000	1.000	1.000	1.000
Repurchasing intention	1.000	1.000	1.000	1.000
Expected value	*α > 0.7 (Nunnaly – Bernstein 1994)*			

Table 30: The results of model testing (internal consistency reliability, convergence validity, discriminant validity)

Source: own elaboration based on own results

Internal consistency reliability can be checked by Cronbach alfa and/or a reliability measure for the indicators (composite reliability). We find it expedient to analyse another measure in addition to Cronbach alfa values as it has been critised in the literature in several respects.

According to the criticism, the value of the coefficient tends to be higher as the number of manifest variables in the model increases, and therefore, it is recommended to use a reliability measure for a single indicator as well (Fornell – Larcker, 1981; Hair et al., 2010). In the case of PLS-SEM, Dillon–Goldstein's Rho is a suitable measure of internal reliability. Our requirement for both measures is that their values for the same latent variable should be equal to or higher than 0.7 (Vandenbosch, 1996; Nunnaly – Bernstein, 1994).

Since Francis and White introduced different manifest variables for the measurement of service quality in the four e-commerce segments, in the first part of our research, we will analyse the variables specified above within four different models. As the results (Table 30) show, all four models have sufficient internal consistency reliability and convergence validity, however, the criterion of discriminant validity is not met in the case of electronic services where the squared correlations of actual webshop quality and the quality of the exchange are higher than the average variance extracted (Annex 5). However, as both variables concern quality perception this criterion can be ignored.[9]

Before the detailed analyses, apart from validity and reliability, objectivity of the models should also be investigated. The purpose of such investigation is to verify that the results of the research are independent from the researcher (Malhotra – Simon, 2008). As we used an online panel for data collection, the data collection process was free of any bias of the survey taker. We analysed the collected data and drew the relevant conclusions based on widely used, repeatedly validated peer-reviewed quantitative statistical methods which dispels any doubt as to the objectivity of the researcher.

The last measure of validity to be examined is content validity which however we take for granted due to the thorough review of the literature we have conducted for our research (Neumann-Bódi, 2012). Content validity of a latent variable is established when its manifest variables represent the content and semantic meaning of the latent variable (Weiber – Mühlhaus, 2010, p. 128).

4.1.8. Testing the structural model

According to customers' experience of the webshop, and with their missing experience taken into account, the structural model will be tested in four different cases:

9 Annex 6 lists the loadings for latent measurement variables.

1. customers who had experience of all dimensions of e-service quality and accordingly a response for all questionnaire items (N=377);
2. customers who had incomplete information about the dimension of security and thus missing responses with regard to a number of questionnaire items (N=123);
3. customers did not have any contact with customer service and therefore missing responses regarding this dimension (N=207);
4. respondents lacking experience regarding both customer service and security (N=274).[10]

In each group of respondents, we will carry out a separate analysis of the offline-goods, offline-services, e-goods and e-services category.

To test the proposed structure, the path coefficients between the variables and their relevance will be investigated. The following hypothesis is proposed about the relevance of the various path coefficients (Henseler et al. 2009):

H0: $\beta=0$, i.e. the value of the coefficient concerned does not differ significantly from 0.
H1: $\beta\neq0$

We used the standard PLS-SEM method of bootstrapping to test this hypothesis, with 1,000 samples generated for each analysis.

4.1.9. The model of respondents having complete experience

The main focus of our research are customers who have a comprehensive view of e-service quality, covering all dimensions. Our results indicate that in the different e-commerce segments not all dimensions of electronic service quality have a significant effect on the development of satisfaction (Table 31).

The first inspected dimension of perceived quality includes the visual appearance and structure of the physical webshop such as its layout, the number of products and services available, the quality and quantity of the information provided on the website and user account set-up. It can be established that the effect of this dimension on satisfaction was not significant in either of

10 We will not fill in missing values with averages and pool the four quality dimensions as we have checked that such a procedure would lead to significant distortions in our results. For details see Annex 7.

the four e-commerce categories ($sig_{15Offline\text{-}goods}$=0.468; $sig_{15Offline\text{-}serv}$=0.788; $sig_{15E\text{-}goods}$=0.933; $sig_{15E\text{-}serv}$=0.384), and as such, the quality dimensions relating to the actual website, as the webshop in its physical reality, was not relevant for consumers' satisfaction decisions.[11]

	Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
The quality of the „physical" webshop → Satisfaction	0.063	0.051	0.006	0.149
Sig (p-value)	*0.468*	*0.788*	*0.933*	*0.384*
The quality of the purchase and exchange → Satisfaction	**0.606*** **	**0.417***	0.061	0.059
Sig (p-value)	*0.000*	*0.025*	*0.605*	*0.785*
Quality of customer service→ Satisfaction	**0.407****	0.25	0.122	**0.448*** **
Sig (p-value)	*0.001*	*0.263*	*0.408*	*0.000*
Security → Satisfaction	-0.129	0.24	**0.582*** **	**0.282***
Sig (p-value)	*0.405*	*0.256*	*0.000*	*0.022*
N (resp)	*116*	*65*	*97*	*99*

Table 31: The effect of the electronic service quality dimensions on satisfaction – value and significance of path coefficients in the group of respondents having complete experience

Source: own elaboration based on own results

We can identify further dimensions which do not prove significant in the examined e-commerce categories. When e-goods and offline-services were purchased, ***customer service***, that is, the perceived quality of communication with the firm did not have a significant impact on satisfaction ($\beta_{35E\text{-}goods}$=0.122, $sig_{35E\text{-}goods}$=0.408; $\beta_{35Offline\text{-}serv}$=0.250, $sig_{35Offline\text{-}serv}$=0.263). In the case of e-services and e-goods, the ***quality of the exchange*** did not prove relevant for satisfaction ($\beta_{25E\text{-}serv}$=0.059, $sig_{25E\text{-}serv}$=0.785; $\beta_{25E\text{-}goods=0.061,}$ $sig_{25E\text{-}goods}$=0.605). When it comes to offline-goods and services, it was the perceived quality of the ***security*** dimension, concerning safety of payment and personal data, that did not have a significant impact ($\beta_{45Offline\text{-}goods}$= -0.129, $sig_{45Offline\text{-}goods}$=0.405, $\beta_{45Offline\text{-}serv}$= 0.256, $sig_{45Offline\text{-}serv}$=0.266). Consequently, for purchases with offline fulfilment the security dimension is obviously not decisive for satisfaction.

The highest path coefficient values were associated with the quality of the exchange in the case of offline-goods and services ($\beta_{25Offline\text{-}goods}$=0.606, $sig_{25Offline\text{-}goods}$=0.000; $\beta_{15Offline\text{-}serv}$=0.417, $sig_{15Offline\text{-}serv}$=0.025); moreover, in the case of offline-services it was in fact the only significant dimension. Security was significant for e-goods and the same is true to customer service in the

11 The path coefficients for indirect relationships are set out in Annex 8.

case of e-services ($\beta_{45E\text{-}goods}$=0.582, $sig_{45E\text{-}goods}$=0.000; $\beta_{35E\text{-}serv}$=0.448, $sig_{35E\text{-}serv}$=0.000). No other significant dimensions can be found in the case of e-goods either.

The above results show that of the four e-service quality dimensions proposed for each e-commerce category by Francis (2009), at a 5% level of significance, only one (offline-services, e-goods) or two (offline-goods, e-services) latent variables of quality perception had a relevant effect on satisfaction[12].

Of the indicators used for the testing of our structural model, Cohen's (1988) f^2 should also be mentioned. This indicator shows how removal of a relationship or path affects the explained variance of a given endogeneous variable.

A value of at least 0.35 in the case of both indicators signifies a relevant effect/predictive ability in respect of the endogeneous variable. A value between 0.15 and 0.35 corresponds to a moderate, while one between 0.02 and 0.15 to a weak effect (Cohen 1988).

$$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}},$$

where $R^2_{included}$ is the squared correlation coefficient in the model incorporating the analysed relationship and $R^2_{excluded}$ is the squared correlation coefficient in a model not containing the analysed relationship.

In our case, the f^2 indicator is only applicable to the dimension relating to quality perception.

According the our results, in the case of offline-goods, the significant latent exogeneous variables of exchange quality and the quality of customer service had a strong and a weak effect, respectively, on the explained variance of satisfaction based on the f^2 indicator. As regards offline-services, the impact of exchange quality was moderate, while in the electronic-services category, customer service had a moderate and security a weak effect. The impact of security in the e-goods segment was weak and that of customer service was strong on the explained variance of satisfaction (Table 32).

12 We got the same results at 90% confidence (10% significance) as well.

	Off-prod		Off-serv		E-product		E-service	
The quality of the „physical" webshop→ Satisfaction	0.006	Z	0.003	Z	0.000	Z	0.008	Z
The quality of the purchase and exchange → Satisfaction	0.460	L	0.196	M	0.003	Z	0.001	Z
Quality of customer service→ Satisfaction	0.133	S	0.069	S	0.010	Z	0.307	L
Security → Satisfaction	0.013	Z	0.066	S	0.180	S	0.069	S
Z – No effect. S – Small effect. M – Medium effect. L – Large effect								

Table 32: Significance of the effects between the variables (the value of f^2)

Source: own elaboration based on the research results

Explained variance of the variable of satisfaction could be considered moderate in all four categories, with the highest value in the category of offline-goods ($R^2_{Offline\text{-}goods}$=74.3%) and the lowest in the category of electronic-goods ($R^2_{E\text{-}goods}$=48.2%) (Table 33).

	Off-prod	Off-serv	E-prod	E-serv
Satisfaction	74.3%	70.6%	48.2%	71.4%
Traditional WOM	92.0%	81.2%	84.4%	71.6%
E-WOM	50.1%	27.0%	45.9%	24.2%
Repurchasing intention	77.3%	68.2%	63.9%	43.3%

Table 33: Explained variance of the dependent variables (R2)

Source: own elaboration based on own results

	Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
Satisfaction → Traditional WOM intention	**0.959*** **	**0.901*** **	**0.919*** **	**0.846*** **
Sig (p-value)	*0.000*	*0.000*	*0.000*	*0.000*
Satisfaction → E- WOM intention	**0.708*** **	**0.52*** **	**0.678*** **	**0.492*** **
Sig (p-value)	*0.000*	*0.000*	*0.000*	*0.000*
Satisfaction → Repurchasing intention	**0.879*** **	**0.826*** **	**0.799*** **	**0.658*** **
Sig (p-value)	*0.000*	*0.000*	*0.000*	*0.000*

Table 34: The effect of satisfaction on traditional WOM, e-WOM and repurchasing intention – value and significance of path coefficients in the group of respondents having complete experience

Source: own elaboration based on own results

In all cases, the impact of satisfaction on the examined consequences of satisfaction was significant. In particular, its effect was strongest on traditional WOM in all four categories while

we recorded the lowest path coefficient value between satisfaction and e-WOM intention (Table 34). Explained variance is sufficient in the case of both traditional WOM intention and repurchasing intention (varying between 43.3% and 92.0%) but it is only between 24 and 50% in the case of electronic WOM.

4.1.10. Respondents lacking experience regarding security (N=123)

We had altogether 123 respondents in our sample who could not rate at least one of the four items concerning security for lack of experience or attention to this dimension. We have decided that in the event of non-responses, we exclude the whole dimension concerned from our analysis[13], as ignoring a few items only would compromise the validity of the scale.

The majority of customers lacking experience regarding security purchased offline-goods (73 resp.), while in this group, only 8 respondents purchased offline services and 19 e-goods. While PLS-SEM manages small samples well, the aforementioned two subgroups proved too small for analysis and, in these cases, the model could not be interpreted.

	Path coeff (Off-prod)	**Path coeff (Off-serv)**	**Path coeff (E-prod)**	**Path coeff (E-serv)**
The quality of the „physical" webshop→ Satisfaction	0.064	N.A.	N.A.	-0.064
Sig (p-value)	*0.497*	N.A.	N.A.	*0.755*
The quality of the purchase and exchange → Satisfaction	**0.512****	N.A.	N.A.	0.223
Sig (p-value)	*0.007*	N.A.	N.A.	*0.277*
Quality of customer service→ Satisfaction	**0.372***	N.A.	N.A.	**0.572****
Sig (p-value)	*0.020*	N.A.	N.A.	*0.003*
N (resp)	*73*	8	19	*42*

Table 35: The effect of the electronic service quality dimensions on satisfaction – value and significance of path coefficients in the group of respondents lacking experience regarding security

Source: own elaboration based on own results

Similarly to the group of respondents with complete experience, the path coefficient between actual webshop quality and satisfaction was not significant in this group of respondents ($sig_{15off\text{-}goods}$=0.497; $sig_{15e\text{-}serv}$=0.755) (Table 35). In the case of customers of offline-goods, the two

13Running the model with averages filled in for the missing values in the dimensions where non-responses occurred – in this case, security – produces similar results.

dimension remaining, i.e. the quality of customer service and the exchange, had a significant positive effect on satisfaction; in fact, the impact of exchange quality was the most decisive of all the analysed dimensions ($\beta_{25Offline\text{-}goods}$= 0.512, $sig2_{5Offline\text{-}goods}$=0.020). When customers of e-services are concerned, only the quality of customer service had a significant positive effect on satisfaction ($\beta_{35E\text{-}serv}$= 0.572, $sig_{35E\text{-}serv}$=0.003). We got similar values for these variables in the group of respondents having complete experience.

The f^2 indicator also shows a strong correlation between the quality of the exchange and satisfaction for offline-goods, and the same applies to customer service and satisfaction in the case of e-services (Table 36).

	Off-prod		Off-serv	E-product	E-service	
The quality of the „physical" webshop→ Satisfaction	0.009	Z	N.A	N.A	0.003	Z
The quality of the purchase and exchange → Satisfaction	0.405	L	N.A	N.A	0.033	S
Quality of customer service→ Satisfaction	0.195	M	N.A	N.A	0.494	L
Z – No effect, S – Small effect, M – Medium effect, L – Large effect						

Table 36: Significance of the effects between the variables (the value of f^2) – respondents lacking experience regarding security

Source: own elaboration based on the research results

The values for explained variance of satisfaction among customers of offline-goods are very similar to those recorded in the previous case ($R^2_{offline\text{-}goods}$=79.2%), which is not surprising considering that security did not have a significant effect in that case either. However, a considerable relative decrease was observable in the case of e-services (Δ=28.5%), which implies that exclusion of the dimension of security – which had a significant effect in the previous case – leads to a considerable decline in the explanation of satisfaction (Table 37).

	Off-prod	Off-serv	E-prod	E-serv
Satisfaction	79.2%	N.A.	N.A.	42.9%
Traditional WOM	79.2%	N.A.	N.A.	65.6%
E-WOM	35.7%	N.A.	N.A.	25.7%
Repurchasing intention	31.9%	N.A.	N.A.	31.0%

Table 37: Explained variance of the dependent variables (R^2) – respondents lacking experience regarding security

Source: own elaboration based on own results

Regarding the consequences of satisfaction, we encounter similar path coefficients as in the group of customers with complete experience (Table 38): all relationships are significant and

the most significant relationship is observable between satisfaction and traditional WOM ($\beta_{56Offline\text{-}goods}$=0.890; $\beta_{56E\text{-}serv}$=0.810). A difference as compared to customers with complete experience occurred in the case of offline-goods where the second most significant relationship could be traced between satisfaction and e-WOM ($\beta_{57Offline\text{-}goods}$=0.598). Another difference to be reported is that the path coefficient between satisfaction and repurchasing intention in the two groups is similar while previously it was considerably lower in the case of offline-goods.

Explained variance of the consequences of satisfaction is significantly lower in comparison to the group of customers having complete experience, except for e-WOM in the category of e-services where the value of R^2 is almost the same. The most remarkable difference was observable in the case of repurchasing intention among customers of offline-goods (Δ=45.4%).

	Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
Satisfaction → Traditional WOM intention	**0.890*** **	N.A.	N.A.	**0.810*** **
Sig (p-value)	*0.000*	N.A.	N.A.	*0.000*
Satisfaction → E- WOM intention	**0.598*** **	N.A.	N.A.	**0.507*** **
Sig (p-value)	*0.000*	N.A.	N.A.	*0.000*
Satisfaction → Repurchasing intention	**0.564*** **	N.A.	N.A.	**0.557*** **
Sig (p-value)	*0.000*	N.A.	N.A.	*0.000*

Table 38: The effect of satisfaction on traditional WOM, e-WOM and repurchasing intention – value and significance of path coefficients in the group of respondents lacking experience regarding security

Source: own elaboration based on own results

4.1.11. Respondents lacking experience regarding customer service (N=207)

Our research involved 207 online customers who lacked experience regarding customer service, which translated into a failure on their part to assign a rating for at least one of the five relevant items. In their case, we will dispense with the e-service quality dimension of customer service in our analysis. Most respondents lacking experience regarding customer service were customers of e-goods and e-services (63 and 61 resp.).

On examination of the path coefficients, we can establish that, as before, actual website quality did not have a significant impact on satisfaction (Table 39). In this group, we can identify one significant latent variable in each e-commerce category under scrutiny. The quality of the

exchange continues to have a significant effect in the case of offline-goods ($\beta_{25Offline\text{-}goods}$=0.575) while in all the other segments, it is security that can be considered significant ($\beta_{45Offline\text{-}serv}$=0.442; $\beta_{45E\text{-}goods}$=0.811; $\beta_{45E\text{-}serv}$=0.418). Differences relative to the group of respondents with complete experience are traceable in the offline-services category where security emerges as relevant instead of the quality of the exchange which was the significant dimension in the other group. A possible reason for this is that in the other groups, customers had established some personal contact with customer service, and consequently, a degree of trust in the service provider (e.g. that the booked room will actually be available), whereas customers who lacked such experience may have channelled their resulting insecurity into their ratings on the perceived security of the webshop.

	Path coeff (Off-prod)	**Path coeff (Off-serv)**	**Path coeff (E-prod)**	**Path coeff (E-serv)**
The quality of the „physical" webshop→ Satisfaction	0.102	0.021	0.103	-0.018
Sig (p-value)	*0.500*	*0.896*	*0.412*	*0.909*
The quality of the purchase and exchange → Satisfaction	**0.575*****	0.362	-0.242	0.419
Sig (p-value)	*0.000*	*0.139*	*0.308*	*0.098*
Security → Satisfaction	0.165	**0.442***	**0.711*****	**0.418***
Sig (p-value)	*0.242*	*0.045*	*0.000*	*0.046*
N (resp)	*53*	*30*	*63*	*61*

Table 39: The effect of the electronic service quality dimensions on satisfaction – value and significance of path coefficients in the group of respondents lacking experience regarding customer service

Source: own elaboration based on own results

	Off-prod		**Off-serv**		**E-product**		**E-service**	
The quality of the „physical" webshop→ Satisfaction	0.011	Z	0.001	Z	0.016	Z	0.000	Z
The quality of the purchase and exchange → Satisfaction	0.474	L	0.162	M	0.065	S	0.125	S
Security → Satisfaction	0.031	S	0.186	M	0.578	L	0.205	M
Z – No effect, S – Small effect, M – Medium effect, L – Large effect								

Table 40: Significance of the effects between the variables (the value of f^2) – respondents lacking experience regarding customer service

Source: own elaboration based on the research results

An analysis of the relevance of these effects shows that the significant dimensions had a strong or moderate impact on satisfaction. It was an unexpected development that the dimension of

exchange quality in the offline-services category, which did not prove significant according to the t-test, was shown to have a moderate impact based on the f^2 indicator (Table 40).

Compared to the group of customers with complete experience, we got a lower value for the explained variance of satisfaction in all four categories (Table 41) which implies that customer service is significant from the point of view of satisfaction. In this group, we find a higher value in the case of e-services in comparison to the group of customers lacking experience regarding security (Δ=14.8%).

	Off-prod	Off-serv	E-prod	E-serv
Satisfaction	*53.5%*	*56.1%*	*37.9%*	*57.8%*
Traditional WOM	*55.3%*	*67.8%*	*80.4%*	*53.2%*
E-WOM	*6.2%*	*4.8%*	*6.4%*	*16.7%*
Repurchasing intention	*12.7%*	*28.9%*	*17.6%*	*35.3%*

Table 41: Explained variance of the dependent variables (R^2) – respondents lacking experience regarding customer service

Source: own elaboration based on own results

	Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
Satisfaction → Traditional WOM	**0.749*** **	**0.824*** **	**0.899*** **	**0.729*** **
Sig (p-value)	*0.000*	*0.000*	*0.000*	*0.000*
Satisfaction → E- WOM intention	**0.283***	**0.218**	**0.280** **	**0.408*** **
Sig (p-value)	*0.012*	*0.110*	*0.008*	*0.000*
Satisfaction → Repurchasing intention	**0.379***	**0.537***	**0.436***	**0.594*** **
Sig (p-value)	*0.021*	*0.040*	*0.013*	*0.000*

Table 42: The effect of satisfaction on traditional, e-WOM and repurchasing intention – value and significance of path coefficients in the group of respondents lacking experience regarding customer service

Source: own elaboration based on own results

The path coefficient values between satisfaction and its consequences were again lower than in the case of respondents having complete experience. Differences were the most conspicuous in the case of e-WOM and repurchasing intention, with the exception of the e-services segment where this difference was smaller. However, our research held in store the biggest surprise in the offline-services segment where the path coefficients between satisfaction and e-WOM failed to meet the required threshold of significance ($sig_{57Off\text{-}serv}$=0.110). In line with the decreased path coefficient values, there was a significant decline in the percentage values for

explained variance. These results suggest that excluding the dimension of customer service gives rise to substantial changes in the model.[14] (Table 42).

4.1.12. Respondents lacking experience regarding security and customer service (N=274)

Our last group identified on the basis of experience, namely those who lacked experience regarding both security and customer service comprises 274 respondents. Accordingly, we will ignore both of these latent variables of e-service quality in their case.

Based on the results, none of the two dimension retained in the model had a significant effect on satisfaction in the e-goods and e-services segment (Table 43), although at 10% significance, the quality of the exchange exceeded the threshold of significance in the case of e-goods ($sig_{25E\text{-}goods}$=0.060). In the case of offline-goods, it was again the quality of the exchange that had a significant path coefficient ($\beta_{25Offline\text{-}goods}$=0.436) and this dimension proved relevant in the e-goods segment as well in this group of respondents ($\beta_{25E\text{-}goods}$=0.487). When offline-services were purchased, the effect of actual webshop quality was relevant ($\beta_{15Offline\text{-}serv}$=0.374). This dimension did not have a significant effect in either of the previous groups.

	Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
The quality of the „physical" webshop→ Satisfaction	0.131	**0.374***	-0.005	0.363
Sig (p-value)	*0.287*	*0.013*	*0.967*	*0.308*
The quality of the purchase and exchange → Satisfaction	**0.436****	0.268	**0.487***	-0.042
Sig (p-value)	*0.001*	*0.159*	*0.049*	*0.921*
N (resp)	*124*	*31*	*58*	*61*

Table 43: The effect of the electronic service quality dimensions on satisfaction – value and significance of path coefficients in the group of respondents lacking experience regarding security and customer service

Source: own elaboration based on the research results

14Running the model with averages filled in for the missing values in the customer service dimension produces similarly low figures.

The effect of variables having a significant influence on satisfaction was moderate in both cases. Moreover, in the case of e-goods, the effect of exchange quality on satisfaction can also be considered moderate (Table 44).

	Off-prod		Off-serv		E-product		E-service	
The quality of the „physical" webshop→ Satisfaction	0.019	Z	0.174	M	0.000	Z	0.031	S
The quality of the purchase and exchange → Satisfaction	0.213	M	0.089	S	0.273	M	0.000	Z
Z – No effect, S – Small effect, M – Medium effect, L – Large effect								

Table 44: Significance of the effects between the variables (the value of f^2) – respondents lacking experience regarding security and customer service

Source: own elaboration based on the research results

Since two variables which previously proved relevant for satisfaction are excluded from the model in this group, a decrease in the explained variance of satisfaction is not entirely unexpected. The values for e-WOM and repurchasing intention also declined markedly in comparison to customers having complete experience. As to traditional WOM, a significant decrease was observable only among customers of e-goods (Table 45).

	Off-prod	Off-serv	E-prod	E-serv
Satisfaction	25.3%	27.6%	23.5%	10.6%
Traditional WOM	85.3%	83.0%	45.9%	77.0%
E-WOM	9.6%	32.0%	1.8%	15.5%
Repurchasing intention	54.7%	30.1%	14.6%	40.6%

Table 45: Explained variance of the dependent variables (R^2) – respondents lacking experience regarding security and customer service

Source: own elaboration based on own results

All path coefficient values pertaining to the consequences of satisfaction were significant. The most drastic decrease in relation to all three consequences of satisfaction occurred in the case of e-goods. Furthermore, in the offline-goods category, the effect on e-WOM also declined considerably (Table 46).

	Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
Satisfaction → Traditional WOM	**0.924*** **	**0.911*** **	**0.678*** **	**0.878*** **
Sig (p-value)	*0.000*	*0.000*	*0.000*	*0.000*
Satisfaction → E- WOM intention	**0.310*** **	**0.566*** **	**0.133*** **	**0.394*** **
Sig (p-value)	*0.000*	*0.000*	*0.000*	*0.001*
Satisfaction → Repurchasing intention	**0.740*** **	**0.548*** **	**0.383*** **	**0.637*** **
Sig (p-value)	*0.000*	*0.000*	*0.000*	*0.000*

Table 46: The effect of satisfaction on traditional WOM, e-WOM and repurchasing intention – value and significance of path coefficients in the group of respondents lacking experience regarding security and customer service

Source: own elaboration based on own results

4.2. Assessment of differences between the segments by multiple group analysis (MGA)

4.2.1. Respondents having complete experience (MGA)

In addition to exploring the effects of the electronic service quality dimensions on satisfaction and its consequences, the primary aim of our research was to investigate whether the path coefficients of the proposed model (see Figure 18) exhibit significant differences across the four e-commerce categories established and thus to examine whether the type of the product or service purchased by the customer acts as a general moderator within the model. Multi-group analysis (MGA) is a suitable method to review the consequences for the model when two groups are analysed simultaneously (Sarstedt et al., 2011).

For the purpose of our research, we measured the effect of the e-service quality dimensions based on different variables and indicators in the analysed e-commerce segments. Therefore, we will use the values of the latent variables which resulted from our previous path analysis as a substitute for the input e-service quality dimensions. By doing so, we will essentially employ the weighted standardised values of each respondent, as defined by the weights assigned to the indicators.

As demonstrated earlier, the relevance of the effect of each proposed e-service quality dimension varied across the different e-commerce categories. In the following, we would like to analyse this variation further. In the category of offline-goods, the path coefficient between

the quality of the exchange and satisfaction was significantly higher than in the case of e-services and e-goods. The path coefficient for *security* on the other hand was significantly higher in the e-goods category than in the offline-goods category. As a result, we can observe a significant difference in quality perception in the case of two variables, however, the corresponding path coefficients of both variables are significant in only one segment and not in the other. By contrast, the differences in the explained variance of satisfaction are clearly relevant: the value of explained variance in the case of e-goods was significantly lower than in the offline-goods category (sig=0.003) (Table 47).

	Path coeff (Off-prod)	**Path coeff (Off-serv)**	**Path coeff (E-product)**	**Path coeff (E-serv)**
The quality of the „physical" webshop→ Satisfaction	0.063	0.051	0.006	0.149
PLS MGA p-value	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*
The quality of the purchase and exchange → Satisfaction	**0.606*** **	0.417*	**0.061**	**0.059**
PLS MGA p-value	*E-serv (0.989) E-product (0.999)*	*No sig. diff.*	*Off-prod (0.999)*	*Off-prod (0.989)*
Security → Satisfaction	**-0.129**	0.24	**0.582*** **	0.282*
PLS MGA p-value	*E-product (0.003)*	*No sig. diff.*	*Off-prod (0.003)*	*No sig. diff.*
Customer service → Satisfaction	0.407**	0.25	**0.122**	**0.448*** **
PLS MGA p-value	*No sig. diff.*	*No sig. diff.*	*E-serv (0.049)*	*E-product (0.049)*
Satisfaction → Traditional WOM	**0.959*** **	0.901***	0.919***	**0.846*** **
PLS MGA p-value	*E-serv (0.997)*	*No sig. diff.*	*No sig. diff.*	*Off-prod (0.997)*
Satisfaction → E- WOM intention	**0.708*** **	0.52***	0.678***	**0.492*** **
PLS MGA p-value	*E-serv (0.962)*	*No sig. diff.*	*No sig. diff.*	*Off-prod (0.962)*
Satisfaction → Repurchasing intention	**0.879*** **	**0.826*** **	0.799***	**0.658*** **
PLS MGA p-value	*E-serv (0.994)*	*E-serv (0.956)*	*No sig. diff.*	*Off-prod (0.994) Off-serv (0.956)*

Table 47: Differences between the e-commerce segments by pairs – respondents having complete experience

Source: own elaboration based on the research results

The path coefficients for satisfaction and its consequences in the offline-goods and the e-service segment are significantly different: path coefficient values were all significantly higher in the offline-goods category which signifies that a change in the level of satisfaction gives rise to

significantly greater changes in its consequences. In the case of e-services, the path coefficient between satisfaction and repurchasing intention was significantly lower also compared to the offline-services category. As a consequence, the explained variance of traditional WOM, e-WOM and repurchasing intention was also significantly lower in the case of e-services than in the previously discussed cases (Table 48).

	p-value (E-serv vs E-prod)	p-value (E-serv vs Off-serv)	p-value (E-serv vs Off-prod)	p-value (E-prod vs Off-serv)	p-value (E-prod vs Off-prod)	p-value (Off-serv vs Off-prod)
R^2 SAT	0.126	0.917	0.374	0.218	0.030	0.356
R^2 tr. WOM	0.181	0.459	0.012	0.745	0.124	0.177
R^2 E-WOM	0.115	0.837	0.075	0.218	0.786	0.166
R^2 BI	0.154	0.097	0.006	0.766	0.262	0.442

Table 48: Differences in the explained variance of the dependent variables (R^2) across the segments – respondents having complete experience

Source: own elaboration based on own results

Overall, the explained variance of satisfaction was the highest in the offline-goods segment and the lowest in the e-goods segment, with a significant difference between the two values. Moreover, the values of the path coefficients relating to the consequences of satisfaction in the offline-goods category, which were the highest of all categories, differed significantly from the lowest values found in the e-services category. Regarding the other segments, a significant different was observable only in one case (offline-services – e-services). In summary, in the group comprising customers with complete experience in the proposed model, no significant differences occurred between goods and services of the offline fulfilment type, while we can trace such differences between offline and online goods/services, and e-goods and e-services.

4.2.2. Respondents lacking experience regarding security (MGA)

As discussed earlier, in the case of respondents lacking experience regarding security, the model could be run in only two e-commerce categories. Although some differences are observable in the model, the MGA produces no evidence of a significant difference between customers of offline-goods and customers of e-services (Table 49 and 50).

	Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
The quality of the „physical" webshop→ Satisfaction	0.064	N.A.	N.A.	-0.064
PLS MGA p-value	*No sig. diff.*	N.A.	N.A.	*No sig. diff.*
The quality of the purchase and exchange → Satisfaction	0.512**	N.A.	N.A.	0.223
PLS MGA p-value	*No sig. diff.*	N.A.	N.A.	*No sig. diff.*
Security → Satisfaction	0.372*	N.A.	N.A.	0.572**
PLS MGA p-value	*No sig. diff.*	N.A.	N.A.	*No sig. diff.*
Customer service → Satisfaction	0.407**	N.A.	N.A.	0.448***
PLS MGA p-value	*No sig. diff.*	N.A.	N.A.	*No sig. diff.*
Satisfaction → Traditional WOM	0.890***	N.A.	N.A.	0.810***
PLS MGA p-value	*No sig. diff.*	N.A.	N.A.	*No sig. diff.*
Satisfaction → E- WOM intention	0.598***	N.A.	N.A.	0.507***
PLS MGA p-value	*No sig. diff.*	N.A.	N.A.	*No sig. diff.*
Satisfaction → Repurchasing intention	0.564***	N.A.	N.A.	0.557***
PLS MGA p-value	*No sig. diff.*	N.A.	N.A.	*No sig. diff.*

Table 49: Differences between the e-commerce segments by pairs – respondents lacking experience regarding security

Source: own elaboration based on the research results

	p-value (E-serv vs Off-prod)
R^2 SAT	0.035
R^2 tr. WOM	0.299
R^2 E-WOM	0.617
R^2 BI	0.967

Table 50: Differences in the explained variance of the dependent variables (R^2) across the segments – respondents lacking experience regarding security

Source: own elaboration based on own results

4.2.3. Respondents lacking experience regarding customer service (MGA)

Compared to the other groups, the e-service quality values of customers lacking experience regarding customer service do not show any significant difference in the offline-services category while significant differences occur between all the other e-commerce categories. In the category of offline-goods, the path coefficient between exchange quality and satisfaction was significantly higher than in the case of e-goods, and the same observation applies in the e-services category. In the e-goods category, it is the dimension of security which exerted a significantly stronger effect on satisfaction. However, these significant differences occurred

again between dimensions in which one path coefficient was significant while the other was not. In this group, no significant differences were recorded in the explained variance of satisfaction (Table 51).

	Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
The quality of the „physical" webshop→ Satisfaction	0.102	0.021	0.103	-0.018
PLS MGA p-value	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*
The quality of the purchase and exchange → Satisfaction	**0.575*** **	0.362	**-0.242**	**0.419**
PLS MGA p-value	*E-product (0.995)*	*No sig. diff.*	*Off-prod (0.995) E-serv (0.032)*	*E-product (0.032)*
Security → Satisfaction	**0.165**	0.442*	**0.711*** **	0.418*
PLS MGA p-value	*E-product (0.014)*	*No sig. diff.*	*Off-prod (0.014)*	*No sig. diff.*
Satisfaction → Traditional WOM	**0.749*** **	0.824***	**0.899*** **	**0.729*** **
PLS MGA p-value	*E-product (0.041)*	*No sig. diff.*	*Off-prod (0.041) E-serv (0.95)*	*E-product (0.95)*
Satisfaction → E- WOM intention	0.283*	0.218	0.280**	0.408***
PLS MGA p-value	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*
Satisfaction → Repurchasing intention	0.379*	0.537*	0.436*	0.594***
PLS MGA p-value	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*

Table 51: Differences between the e-commerce segments by pairs – respondents lacking experience regarding customer service

Source: own elaboration based on the research results

An examination of path coefficients relating to the the consequences of satisfaction reveal significant differences. The path coefficient between satisfaction and traditional WOM was the highest in the case of customers of e-goods and this value differed significantly from those in the e-services and offline-goods category. Along the same lines, the explained variance of traditional WOM was significantly higher in the case of customers of e-goods (Table 52).

	p-value (E-serv vs E-prod)	p-value (E-serv vs Off-serv)	p-value (E-serv vs Off-prod)	p-value (E-prod vs Off-serv)	p-value (E-prod vs Off-prod)	p-value (Off-serv vs Off-prod)
R^2 SAT	0.449	0.945	0.941	0.535	0.483	0.998
R^2 tr. WOM	0.103	0.547	0.888	0.303	0.081	0.562
R^2 E-WOM	0.396	0.337	0.408	0.776	0.990	0.754
R^2 BI	0.416	0.830	0.294	0.746	0.823	0.637

Table 52: Differences in the explained variance of the dependent variables (R^2) across the segments – respondents lacking experience regarding customer service

Source: own elaboration based on own results

In summary, we can conclude that in our model for this group, the values of customers of offline-services reflect no significant differences as compared to the other e-commerce categories, and the same is true to the relationship between offline-goods and e-services, whereas the values of customers of e-goods differed significantly from both of the previously mentioned groups.

4.2.4. Respondents lacking experience regarding security and customer service (MGA)

In our last group, the model comprises only two e-service quality dimensions. These are actual webshop quality and the quality of the exchange. A significant difference was observable between the ratings of actual webshop quality of customers of offline-services and e-goods.

	Path coeff (Off-prod)	**Path coeff (Off-serv)**	**Path coeff (E-prod)**	**Path coeff (E-serv)**
The quality of the „physical" webshop→ Satisfaction	0.131	**0.374***	**-0.005**	0.363
PLS MGA p-value	*No sig. diff.*	*E-prod (0.975)*	*Off-serv (0.975)*	*No sig. diff.*
The quality of the purchase and exchange → Satisfaction	0.436**	0.268	0.487*	-0.042
PLS MGA p-value	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*	*No sig. diff.*
Satisfaction → Traditional WOM	**0.924*****	**0.911*****	**0.678*****	**0.878*****
PLS MGA p-value	*E-product (0.999)*	*E-product (0.975)*	*Off-prod (0.999) Off-serv (0.975) E-serv (0.034)*	*E-product (0.034)*
Satisfaction → E- WOM intention	0.310***	**0.566*****	**0.133*****	**0.**394***
PLS MGA p-value	*No sig. diff.*	*E-product (0.997)*	*Off-serv (0.997)*	*No sig. diff.*
Satisfaction → Repurchasing intention	**0.740*****	0.548***	**0.383*****	0.637***
PLS MGA p-value	*E-product (0.979)*	*No sig. diff.*	*Off-prod (0.979)*	*No sig. diff.*

Table 53: Differences in the explained variance of the dependent variables (R^2) across the segments – respondents lacking experience regarding security and customer service

Source: own elaboration based on own results

The path coefficient between satisfaction and traditional WOM was the lowest in the case of e-goods, representing a significant difference in comparison to all the other e-commerce categories. The path coefficient between satisfaction and e-WOM in the same segment was also significantly lower than the corresponding value of customers of offline-services. The value of the coefficient between satisfaction and repurchasing intention was again significantly lower in the e-goods category, while it was the highest in the case of customers of offline-goods. In these cases, explained variance in the e-goods category was also significantly lower (Table 53 and 54).

	p-value (E-serv vs E-prod)	p-value (E-serv vs Off-serv)	p-value (E-serv vs Off-prod)	p-value (E-prod vs Off-serv)	p-value (E-prod vs Off-prod)	p-value (Off-serv vs Off-prod)
R^2 SAT	0.573	0.293	0.404	0.892	0.934	0.923
R^2 tr. WOM	0.069	0.659	0.288	0.094	0.001	0.799
R^2 E-WOM	0.163	0.298	0.614	0.004	0.443	0.141
R^2 BI	0.149	0.634	0.44	0.452	0.028	0.297

Table 54: Differences in the explained variance of the dependent variables (R^2) across the segments – respondents lacking experience regarding security and customer service

Source: own elaboration based on own results

To sum up, the model in this group differed significantly from all other e-commerce category in respect of e-goods. At the same time, no significant differences occurred between the other categories.

4.3. Summary of the large-sample online survey

We carried out the survey in order to explore the relationship between satisfaction and the e-service quality dimensions defined by Francis and White (2004) in each of the e-commerce segments delineated on the basis of the literature, as well as to investigate whether the set of relationships between satisfaction and its consequences are different in the four e-commerce segments.

Our analysis was rendered more difficult by the fact that some customers could not rate all service quality dimensions as they did not have sufficient information on customer service and/or security. For this reason, it was necessary to distinguish the following four groups of respondents:

1. respondents having complete experience;
2. respondents lacking experience regarding customer service,
3. respondents lacking experience regarding security,
4. respondents lacking experience regarding both customer service and security.

As Table 55 demonstrates, the impact exerted by the four identified e-service quality dimensions on satisfaction varied across the individual e-commerce categories. It can be established in general that actual webshop quality, i.e. the appearance and design of the physical webshop did not have a significant influence on satisfaction in any of the categories. A possible reason for this may be that, as e-commerce has become widespread, an aesthetic shop design ceased to be a significant influencing factor on satisfaction – it is rather a basic requirement.

Our results also indicate that it was other features such as the exchange, payment as well as availability of, and communication with, customer service that assumed significant importance in the respective segments. The purchase process and its confirmation and smoothness were relevant in the case of offline-goods and services, i.e. in categories when the purchase could have been realised in an offline environment as well, under circumstances which customers have more experience of. A possible explanation for this finding may be that, in such cases, customers opt for e-commerce as an alternative, more convenient shopping solution and their level of satisfaction is informed most by the extent to which they can make use of this advantage.

It is not surprising either that security took centre stage in the case of e-goods and e-services, considering that in these categories the whole process and even the consumption of the products often takes place online, which imparts to the security of personal data increased importance and also an increased impact on satisfaction. It is obvious that perceived security of the webshop plays a greater role in cases when we cannot hold the purchased product or services physically in our hands.

The dimension of customer service was relevant in the segment of offline-goods where the goods still have to be delivered subsequent to their purchase on the Internet, which leaves greater room for potential queries and problems even after the customer has left the webshop.

		Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
Full Experience	**The quality of the „physical" webshop→ Satisfaction**	*0.063*	*0.051*	*0.006*	*0.149*
NO Experience with the consumer service		*0.102*	*0.021*	*0.103*	*-0.018*
NO Experience with the security		*0.064*	*N.A.*	*N.A.*	*-0.064*
NO Experience with the consumer service és a security		*0.131*	**0.374*** ↑	*-0.005*	*0.363*
Full Experience	**The quality of the purchase and exchange → Satisfaction**	**0.606***** ↑	0.417*	*0.061*	*0.059*
NO Experience with the consumer service		**0.575***** ↑	*0.362*	*-0.242*	*0.419*
NO Experience with the security		**0.512**** ↑	*N.A.*	*N.A.*	*0.223*
NO Experience with the consumer service és a security		**0.436****	*0.268*	**0.487*** ↑	*-0.042*
Full Experience	**Security → Satisfaction**	*-0.129*	*0.24*	**0.582***** ↑	**0.282***
NO Experience with the consumer service		*0.165*	**0.442***	**0.711***** ↑	**0.418***
NO Experience with the security		*Nincs tapasztalat*	*Nincs tapasztalat*	*Nincs tapasztalat*	*Nincs tapasztalat*
NO Experience with the consumer service és a security		*Nincs tapasztalat*	*Nincs tapasztalat*	*Nincs tapasztalat*	*Nincs tapasztalat*
Full Experience	**Quality of customer service→Satisfaction**	**0.407****	*0.25*	*0.122*	**0.448***** ↑
NO Experience with the consumer service		*Nincs tapasztalat*	*Nincs tapasztalat*	*Nincs tapasztalat*	*Nincs tapasztalat*
NO Experience with the security		**0.372***	*N.A.*	*N.A.*	**0.572**** ↑
NO Experience with the consumer service és a security		*Nincs tapasztalat*	*Nincs tapasztalat*	*Nincs tapasztalat*	*Nincs tapasztalat*
Full Experience	**Satisfaction→ Traditional WOM intention**	**0.959***** ↑	**0.901*****	**0.919*****	**0.846*****
NO Experience with the consumer service		**0.749*****	**0.824*****	**0.899***** ↑	**0.729*****
Nincs tapasztalat az Securitygal		**0.890***** ↑	*N.A.*	*N.A.*	**0.810*****
NO Experience with the consumer service és a security		**0.924***** ↑	**0.911*****	**0.678*****	**0.878*****
Full Experience	**Satisfaction → E- WOM intention**	**0.708***** ↑	**0.52*****	**0.678*****	**0.492*****
NO Experience with the consumer service		**0.283***	*0.218*	**0.280****	**0.408***** ↑
NO Experience with the security		**0.598***** ↑	*N.A.*	*N.A.*	**0.507*****
NO Experience with the consumer service és a security		**0.310*****	**0.566***** ↑	**0.133*****	**0.394*****
Full Experience	**Satisfaction → Repurchasing intention**	**0.879***** ↑	**0.826*****	**0.799*****	**0.658*****
NO Experience with the consumer service		**0.379***	**0.537***	**0.436***	**0.594***** ↑
NO Experience with the security		**0.564*****	*N.A.*	*N.A.*	**0.557***** ↑
NO Experience with the consumer service és a security		**0.740***** ↑	**0.548*****	**0.383*****	**0.637*****
A light gray fill indicates significant differences. If more significant path coeff exist. then the stronger gray represents the base against which all significantly lower / higher.					
↑ *The green arrows indicate the highest significant path coeff.*					

Table 55: The effect of the e-service quality dimensions on satisfaction across the e-commerce categories – Summary

Source: own elaboration based on own results

Based on the sample used in our research, customer service is a relevant dimension for satisfaction also in the case of e-services. This is probably due to the prevalence of respondents

who have rated e-banking or e-insurance transactions in our sample, which are services that usually involve contact with customer service in the case of other transactions as well.

In our research, we have also inquired into the existence of significant differences between the path coefficients of the e-service quality dimensions in the respective e-commerce categories. However, our findings in this respect did not offer much new insight as it varied from category to category which dimensions proved relevant. It is of more interest and use if we scrutinise the relationships which were relevant in every segment, that is, the path coefficients between satisfaction and its consequences. Our results show that the effects between the examined variables differed significantly in a number of cases, with the most differences occurring typically along the offline/online distinction.

		Path coeff (Off-prod)	Path coeff (Off-serv)	Path coeff (E-prod)	Path coeff (E-serv)
Full Experience	**Satisfaction**	74.3%	70.6%	48.2%	71.4%
NO Experience with the consumer service		53.5%	56.1%	37.9%	57.8%
NO Experience with the security		79.2%	N.A.	N.A.	42.9%
NO Experience with the consumer service és a security		25.3%	27.6%	23.5%	10.6%
Full Experience	**tr. WOM**	92.0%	81.2%	84.4%	71.6%
NO Experience with the consumer service		55.3%	67.8%	80.4%	53.2%
NO Experience with the security		79.2%	N.A.	N.A.	65.6%
NO Experience with the consumer service és a security		85.3%	83.0%	45.9%	77.0%
Full Experience	**e-WOM**	50.1%	27.0%	45.9%	24.2%
NO Experience with the consumer service		6.2%	4.8%	6.4%	16.7%
NO Experience with the security		35.7%	N.A.	N.A.	25.7%
NO Experience with the consumer service és a security		9.6%	32.0%	1.8%	15.5%
Full Experience	**Repurchasing intention**	77.3%	68.2%	63.9%	43.3%
NO Experience with the consumer service		12.7%	28.9%	17.6%	35.3%
NO Experience with the security		31.9%	N.A.	N.A.	31.0%
NO Experience with the consumer service és a security		54.7%	30.1%	14.6%	40.6%

Table 56: The effect of satisfaction on traditional WOM, e-WOM and repurchasing intention across the e-commerce categories – Summary

Source: own elaboration based on own results

As to our primary group of interest involving respondents with a complete purchase experience, it can be stated that their WOM intentions were higher in general. Of offline and online modes of delivery, it was again offline delivery which attracted more favourable assessment in all

cases. At the same time, a significant difference was only observable between the lowest and the highest value (offline-goods and e-services, respectively). By contrast, the path coefficient between satisfaction and repurchasing intention was higher in the offline categories, which at the same time means that the level of satisfaction was less decisive for repurchasing intention in the case of online products/services.

In the other respondent groups we had distinguished based on experience we had different results, but as further research would be needed in these groups to ensure the acceptability of the results, we will not discuss them in detail in this doctoral thesis. Therefore, we submit these groups for analysis as a direction of future research.

Upon examination of the explained variance of endogeneous variables we find a differing value across the segments, which in certain segments calls for the identification of further explanatory variables. It is on the other hand obvious based on our results that the rating of customer service may have a significant indirect effect on e-WOM. Therefore, satisfaction acts as a mediator between the two variables, which is reflected in a significantly lower explained variance of e-WOM in the group lacking experience regarding customer service in comparison to the other groups (Table 56).

4.4. The development of satisfaction in purchases of offline and electronic-goods – The experiment

To be able to gain a deeper understanding of the results of our large-sample survey, we also designed an experiment. Our objective was to investigate ratings of a first and a second purchase (scenario A and B) of two different types of goods – an offline (clothing accessory) and an e-product (e-book) – using the same webshop, and whether the differences we have established as a result of our large-sample survey occurred in this case as well. It was also our aim to gain a deeper understanding of quality perceptions and the reasons behind customer ratings with the help of the experiment. Conducting the experiment would have been unreasonably complicated if we examined all four categories and thus we chose to restrict it to only two segments.

As a result, our experiment was driven by the objective to have an insight into the differences between products delivered and consumed offline and online as well as the reasons at the root of those differences. We had to do this within the framework of a subsequent measurement as in our large-sample survey, respondents evaluated different sites which allowed for variation

due to the individual characteristics of the website used and not necessarily to the heterogeneity of the e-commerce categories. In addition, the results of the survey might have been distorted by the divergent shopping experience of respondents with the webshop, since we could not distinguish first-time customers from repeat customers. Against this background, we employed a proprietary fictive webshop in the experiment which we divided into two scenarios to be able to capture the differences between first and repeat customers (scenario A and B).

Our choice of the categories of offline-goods and e-goods was motivated by the fact that in our large-sample survey offline-goods were shown to be significantly different in several respects from online products and services. While the greatest differences were observable between offline-goods and e-services, using identical type of goods was warranted by the fact that our large-sample survey as well as other earlier studies[15] have pointed to differences originating in the disparity of products and services, which we wanted to eliminate in this case. Therefore, the output variables in our experiment were satisfaction and its consequences whereas the quality of the electronic purchase was considered as an explanatory variable. The conditions and outcomes of the purchase transaction were similar in both scenarios, only the order of the purchased goods were different, which was therefore our control variable.

We have created the webshop 'Just a click' (http://csakegykattintas.shoprenter.hu/) based on the product selection of the biggest domestic webshop. Several snapshots are provided of the webshop in Annex 9. The goods were assigned to 6 categories in the webshop (food products, toys, books, clothing, beauty products, new arrivals), all provided with a with wide variety of goods although only two of them had relevance for the participants. Participants were recruited from BSc and MSc students of Corvinus University of Budapest, with altogether 100 undergraduates divided equally between the two scenarios (50 participants each).

They had to make the same purchases in the two scenarios but in a different order. Participants in scenario A first bought an offline product then an e-product while those in scenario B did the same in reverse order. The upper limit of the purchase value was set on the basis of the latest survey of GKI Digital (2014) at HUF 8,300 for the clothing accessory bought for personal use and at HUF 2,700 for the e-books bought for a friend (http://www.gkidigital.hu/wp-content/uploads/2014/10/GKI-Digital_IG_eker_2014.jpg). As offline product, we choose a clothing accessory as it represents the most popular commodity in the offline-goods category

15See the details in Annex 10.

in Hungary according to Eurostat data (2014) while in the e-goods category it is e-books. A detailed description of the experiment is provided in Annex 10.

Customers could choose from 158 e-books (one or more up to the set upper limit) and 172 clothing accessories and bags in the webshop. Of the latter 172 items, 106 were below with the maximum value of HUF 8,300.

The undergraduates taking part in the experiment received instructions in e-mail or in the e-book downloaded after the completed purchase. In the case of the clothing accessory, they had to choose home delivery and collection on delivery, and evaluate the purchase assuming that they got the ordered product intact after 10 days. For e-books, the mode of delivery to be selected by participants was downloading online, and bank transfer as the payment method. After the order was placed and the transfer 'made', which took approximately five minutes, the document was available for download.

4.4.1. Participants

The experiment was carried out in December 2014 with 50 participants each in scenario A and B. The number of female participants was overwhelming in both scenarios (Table 57) which is attributable to the fact that there are more female students in the selected university programmes. The youngest and the oldest participant was 18 and 32 years old, respectively, with an average age of 23 years in both scenarios.

	Scenario A	Scenario B	Total
Gender			
Male	16	15	31
Female	34	35	69
Age			
32 year	1	0	1
26 year	1	1	2
25 year	2	2	4
24 year	3	7	10
23 year	19	8	27
22 year	5	6	11
21 year	12	12	24
20 year	6	12	18
19 year	0	1	1
18 year	1	1	2
AVG	***23***	***23***	***23***
	50	50	100

Table 57: The demographic characteristics of participants (N=100)

Source: own elaboration based on the research results

Before making the purchases, participants were asked to describe their online shopping habits with respect to frequency and the scope of goods and services purchased. All participants had purchased something online before; some were active shoppers with more than one purchase monthly (23 in total), while some of them were more passive, making a purchase only every four months on average (16) (Table 58). The most popular products and services purchased by the participants in the previous three months were entry tickets (58), travels/accommodation (42), clothing (35) and hot meals (34) (Table 59).

	Scenario A	Szcenárió	Total
Several times a week	0	3	3
Once a week	2	2	4
Every two weeks	7	8	15
Monthly	11	15	26
Every two months	22	14	36
Every four months	8	8	16
Less than four months	0	0	0
N (resp)	50	50	100

Table 58: The online shopping habits of participants (N=100)

Source: own elaboration based on the research results

	Scenario A (attributes)	Scenario B (attributes)	Total
Tickets	31	27	58
Travel, airplan ticket	18	24	42
Clothes, sports equipment	17	18	35
Food for delivery (pizza)	19	15	34
Technical articles	14	10	24
Books and magazines	15	9	24
Hardware	10	8	18
Registration (for example e-banking, dating)	4	13	17
Software or applications	8	5	13
Cosmetics	3	7	10
Food	5	4	9
Insurance via online broker	4	5	9
Houshold goods	1	6	7
Insurance via online broker	2	5	7
Films/music, delivered or upgraded ONLINE	3	3	6
Film, zene, videójáték CD-n, DVD-n	2	3	5
Online stock exchange, stock purchase	3	1	4
Registration for some online courses	1	3	4
Video games software and upgrades	0	0	0
Other	5	2	7

Table 59: The online shopping habits of participants – List of goods and services purchased online over the previous three months (N=100)

Source: own elaboration based on the research results

After the actual guided purchase process ended, participants were asked to write an opinion on the completed purchase which they would readily share online on the evaluation interface of the webshop. In the next step, they had to rate the overall quality of the e-service delivered by the webshop based on a brief questionnaire, while their level of satisfaction, repurchasing intention, and traditional and e-WOM intentions were measured with additional manifest variables using the validated scales previously deployed in our large-sample survey.

		Scenario A		Scenario B		Total
		Offline-product	E-product	Offline-product	E-product	
Overall e-service quality perception (desing. delivery. exchange)	AVG	5.20	5.58	5.20	5.82	5.45
	St. Dev	1.11	1.30	1.25	1.02	1.19
My choice to purchase from this website was a wise one.	AVG	4.36	5.28	3.96	5.88	4.87
	St. Dev	1.76	1.75	1.78	1.17	1.79
If I had to purchase again. I would feel differently about buying from this website.	AVG	5.46	5.80	4.70	6.02	5.50
	St. Dev	1.45	1.58	1.92	1.12	1.61
I am satisfied with my decision to purchase from this Web site.	AVG	4.48	5.26	4.16	5.90	4.95
	St. Dev	1.74	1.65	1.75	1.05	1.71
Satisfaction AVG	AVG	4.77	5.45	4.27	5.93	5.11
	St. Dev	1.32	1.45	1.47	0.97	1.46
I say positive things about this company to persons in my environment	AVG	4.38	4.88	4.14	5.88	4.82
	St. Dev	1.79	1.79	1.78	1.00	1.75
If somebody seeks for advice I recommend this company.	AVG	4.02	4.68	3.76	5.46	4.48
	St. Dev	1.88	1.93	1.84	1.20	1.85
I encourage relatives and friends to do business with this company.	AVG	4.08	4.44	3.64	5.20	4.34
	St. Dev	1.77	2.05	1.85	1.18	1.82
WOM AVG	AVG	3.98	4.54	3.65	5.23	4.35
	St. Dev	1.71	1.85	1.63	1.02	1.68
I would post positive messages about the company on some Internet message board	AVG	3.64	4.00	3.68	4.42	3.94
	St. Dev	1.87	1.80	1.58	1.46	1.70
I intend to purchase through this site in the near future	AVG	3.44	4.14	3.04	4.38	3.75
	St. Dev	2.00	1.99	1.56	1.43	1.83
Light gray = Offline-product's evaluation is significantly differs						
Dark gray = E-product's evaluation is significantly differs						

Table 60: Ratings of the completed purchases (N=100)

Source: own elaboration based on the research results

For the sake of convenience, e-service quality dimensions were measured collectively by a single question, with a detailed specification of the factors respondents had to take into account in their evaluation. As a limitation of the experiment, payment could only be simulated16. After filling the questionnaire, participants received the instructions for the second purchase which was again followed by a questionnaire to be completed.

4.4.2. Evaluation of the completed purchases

Based on the results, purchases of an offline product were assigned lower average ratings and the majority of these averages differ significantly from those of e-product purchases. As it will be shown in our analysis of respondents' written evaluations, this can be explained only partly by the long delivery time.

		Scenario A (1-2. purchase)	Scenario B (1-2. purchase)	Difference A-Scenario B	Total
Qual	The evaluation of the 2nd purchase is worse (resp)	26	24	2	50
	The evaluation of the 2nd purchase is the same (resp)	12	16	-4	28
	The evaluation of the 2nd purchase is better (resp)	12	10	2	22
SAT	The evaluation of the 2nd purchase is worse (resp)	36	41	-5	77
	The evaluation of the 2nd purchase is the same (resp)	6	3	3	9
	The evaluation of the 2nd purchase is better (resp)	8	6	2	14
WOM	The evaluation of the 2nd purchase is worse (resp)	32	40	-8	72
	The evaluation of the 2nd purchase is the same (resp)	2	2	0	4
	The evaluation of the 2nd purchase is better (resp)	16	8	8	24
EWOM	The evaluation of the 2nd purchase is worse (resp)	22	23	-1	45
	The evaluation of the 2nd purchase is the same (resp)	19	17	2	36
	The evaluation of the 2nd purchase is better (resp)	9	10	-1	19
BI	The evaluation of the 2nd purchase is worse (resp)	26	37	-11	63
	The evaluation of the 2nd purchase is the same (resp)	8	9	-1	17
	The evaluation of the 2nd purchase is better (resp)	16	4	12	20

Table 61: Differences between the averages of first and second purchases (N=100)

Source: own elaboration based on the research results

In evaluations of offline product purchases, a significant difference between the two scenarios arose in the case of a single manifest variable (SAT_2). Ratings for this variable were significantly lower in scenario B in which respondents bought an offline product as their second purchase. Our analysis also revealed that offline products, purchased upon repeated use of the webshop in scenario B with less advantageous terms of delivery, received poorer ratings, although these ratings still exceeded the average evaluation of e-product purchases in scenario

16By 'simulation' we mean that we described to them what happened.

A. Significant differences occurred on several occasions in the ratings of e-product purchases (highlighted in dark grey in the table) and it were without exception participants in scenario B who were less critical in their evaluation.

		N	AVG (1-2. purchase)	St. Dev	F-test (szig)
Qual_overall_ delta	Scenario A	50	-.380	1.469	.439
	Scenario B	50	-.620	1.615	
	Total	100	-.500	1.541	
SAT_1_delta	Scenario A	50	-.920	2.284	.018
	Scenario B	50	-1.920	1.850	
	Total	100	-1.420	2.128	
SAT_2_delta	Scenario A	50	-.340	1.975	.015
	Scenario B	50	-1.320	1.994	
	Total	100	-.830	2.035	
SAT_3_delta	Scenario A	50	-.780	2.053	.016
	Scenario B	50	-1.740	1.838	
	Total	100	-1.260	1.998	
WOM_1_delta	Scenario A	50	-.500	2.288	.003
	Scenario B	50	-1.740	1.771	
	Total	100	-1.120	2.129	
WOM_2_delta	Scenario A	50	-.660	2.210	.013
	Scenario B	50	-1.700	1.887	
	Total	100	-1.180	2.110	
WOM_3_delta	Scenario A	50	-.360	2.363	.005
	Scenario B	50	-1.560	1.786	
	Total	100	-.960	2.169	
EWOM_1_ delta	Scenario A	50	-.360	1.711	.261
	Scenario B	50	-.740	1.651	
	Total	100	-.550	1.684	
BI_1_delta	Scenario A	50	-.700	2.215	.096
	Scenario B	50	-1.340	1.533	
	Total	100	-1.020	1.923	

Table 62: Assessment of the differences between the averages of first and second purchases in scenario A and B (N=100)

Source: own elaboration based on the research results

In general, in scenario A, where the lower quality purchase was realised first, the differences in the rating of the offline product and the e-product purchase were less marked than in scenario B. This points to the conclusion that when a satisfactory purchase is followed by one of lower performance, as the expected level of quality is higher, evaluation of the latter will be less favourable and the differences more pronounced than in the other way round. It is further evidence of this fact that – except for webshop quality – the number of participants whose ratings for the second purchase were worse was always lower in scenario B (Table 60). There were significant differences in the evaluation of the first and the second (repeat) purchase regarding satisfaction and traditional WOM, with the higher average differences found in scenario B in all cases. A similar tendency is observable in other respects as well, however,

based on an F-test, we are not dealing with significant differences in these cases. (Table 61 and 62).

4.4.3. Evaluation of comments made on the purchases

Prior to assigning a quantitative rating to the purchase, participants of the experiment were asked to provide a written evaluation as well, which they would readily share on the Internet. As a result, we collected 50 comments with qualitative information on each purchase which we could use for closer analysis of the motivations behind participants' evaluations.

Positive attributes (OT)	Inst	Positive attributes (OT)	Inst
simple purchase	28	Safe	1
quick purchase	15	simple site	1
ease of use	11	the description is better than in case of e-books	1
wide selection	10	quick registration	1
delivery	8	the information about the products	1
promotions	7	lots of pictures	1
easy search	5	good to use	1
convenient purchase	5	nice pictures	1
the product arrived safely	6	value for money	1
transparent website	6	quick delivery	1
clear website	4	good categories	1
the categories of products	4	the offers	1
easy to look for information	4	good products	1
reliability	3	many type of paying and delivery methods	1
easy to navigate	3	well transparented website	1
purchase without registration	3	buying clothes online was a new experience	1
purchase worked fine	3	the stock volume is visible	1
lots of instructions	2	wide range of products in different price categories	1
the same product as on the pictures	2	sorting by price	1
clear	2	the categories of bags were okay	1
easy registration	2	clear website	1
satisfied	2	top products category	1
prices	2	the selected product is really good	1
great offers	2	the site remembers my data	1
design	2	**Sum**	**172**
Separeted male-famele products	2		
everthing was great	2		
purchase without problems	2		
the sorting	2		

Table 63: Positive attributes in the comments on offline product purchases (N=100 comment)[17]

Source: own elaboration based on the research results

[17] OT means Offline-product (offline-termék)

To obtain a genuinely profound insight, we first examined these comments by content analysis. Each comment was assessed for the number of negative and positive attributes mentioned in them in connection with the purchase together with the domains they concerned.

In the 100 comments on the purchase of an offline product, 172 positive and 133 negative attributes were mentioned in total (Table 63 and 64). The most frequently mentioned positives were a simple and quick purchase (28 and 15 instances) and an ease of use (11 inst.), and we counted a total of 53 different positive attributes. Negative attributes were in comparison more concentrated. Of the 37 different attributes in total, slow delivery (21 inst.), incorrect categorisation of the products (scarves and caps in one category, 21 inst.) and small selection (15 inst.) occurred the most frequently.

Negative attributes (OT)	inst	Negative attributes (OT)	inst
the categories of products	21	boring	1
delivery	21	complex serach	1
small selection	15	I could choose how many products do I want to see	1
prices	7	I would never buy here again	1
Male-Female products are not always separeted	5	limitated search	1
design	3	buying clothes online isn't good	1
long purchase process	3	expemnsive delivery fee	1
lack of pictures	3	the information about the delivery appears on two different pages	1
The price doesn't include the VAT	3	serach	1
poor website quality	2	the search function didn't work	1
the quality of the pictures	2	the lack of confirmation link	1
not clear website	2	why aren't separeted the discounted products	1
the pictures are small	2	Negative image	1
the description isn't enough detailed	2	Share on facebook option	1
lack of sizes	2	navigation	1
the quality of the selection	2	sorting by brands	1
the description of the delivery isn't enough detailed	1	not so many pictures	1
		Sum	**113**

Table 64: Negative attributes in the comments on offline product purchases (N=100 comment)

Source: own elaboration based on the research results

In the case of electronic product purchases, we identified 195 positive and only 56 negative attributes in the evaluations (Table 65 and 66). Of the 45 positive attributes encountered, the most frequently mentioned one was again the fast pace and simplicity of the purchase process

(29 inst. each) and the straightforward structure of the webshop was also mentioned more often (15 inst.). The most frequently mentioned negative attributes included small selection (14 inst.), lack of information on the file format of the e-books to be downloaded (7 inst), compulsory registration and poor design (5 inst. each).

Positive attributes (ET)	Db	Positive attributes (ET)	Db
quick purchase	29	the experience of second purchase	1
simple purchase	29	easy registration	1
transparent website	15	transparent site	1
wide selection	14	the sorting	1
ease of use	13	correct	1
the categories of products	10	good products	1
prices	10	easy to navigate	1
delivery	9	good design	1
easy search	9	clear instructions	1
the descriptions	6	I do not have to register again	1
design	4	easy to select	1
quick registration	4	many type of paying and delivery methods	1
the ordering process was really good	4	simple payment	1
clear	4	Security	1
conviniente	3	quick download	1
satisfied	2	confortable delivery	1
purchase without problems	2	userfriendly	1
reliability	2	simple website	1
quick search	2	good instructions	1
clear ordering process	2	no newletter registration	1
quick delivery	1	good sorting	1
		Sum	**195**

Table 65: Positive attributes in comments on electronic product purchases (N=100 comment)[18]

Source: own elaboration based on the research results

The content of comments on offline product and online product purchases differ in terms of the negative attributes mentioned. While in the case of the purchased clothing accessory negative feedback mainly concerned delivery and webshop structure, in the case of e-books, the scope of the available information (format, review, size) was criticised more often. In the case of offline product purchases, in addition to customer service, exchange was found to be a significant variable from the point of view of satisfaction. The results of our large-sample survey and experiment overlap in this respect. The experiment also confirms our assumption that the same webshop is assessed against different needs and expectations by potential customers when they purchase products belonging to a different category. An intriguing

[18] ET means Eletronic-product (Elektronikus-termék)

observations is that participants tended to characterise more general features with positive attributes, such as the simplicity and quickness of the purchase.

For further scrutiny of the comments, we conducted a quantitative analysis as well. Comments were coded according to the number of positive and negative attributes as well as length, and categorised according to tone as positive, negative and neutral[19]. Furthermore, by deducting the number of negative attributes from that of positive attributes we created delta variables to be able to measure the tone of comments also by a metric variable (Table 67).

Negative attributes (ET)	Db	Negative attributes (ET)	Db
small selection	14	no sorting option by authors	1
no information about the format	7	slow loading	1
registration needed	5	no opportunity to read same parts of the book	1
design	5	the categories of products	1
the descriptions aren't enough detailed	3	registration is slow	1
lack of the information about the products	2	the method of downloading	1
lack of recommendations	2	to many adds	1
the instructions about the download aren't clear	2	dowloading from own account	1
lack of other the information about the products	1	the categories of products	1
prices	1	confidental personal data needed	1
lack of number of pages	1	difficult to search	1
year of edition is missing	1	no information about the size of the file	1
		Sum	**56**

Table 66: Negative attributes in the comments on electronic product purchases (N=100 comment)

Source: own elaboration based on the research results

Comments on offline product purchases comprised 161 characters on average (SD=108.9), with 627 characters in the longest and as few as 17 characters in the shortest comment. The comments on electronic product purchases were more brief, with 137 characters on average (SD=85.7) and 376 characters in the longest and only 18 in the shortest comment. As it was demonstrated above, the number of negative comments concerning purchases of an offline product were higher on average ($average_{OP}$=1.13, $average_{EP}$=0.56), which is a significant difference compared to e-product purchases (sig=0.000). E-product purchases were characterised by more positive attributes ($average_{EP}$=1.95, $average_{OP}$=1.72) but the difference was not significant in this case. These results anticipated the finding that of the 100 comments on each purchase, 72 were positive in the case of e-products while only 53 in the case of offline products (Table 67).

[19]Based on the number of positive and negative attributes in them.

	(rather) Positive comments	Neutral comments	(rather) Negative comments	Total (comments)
Offline-product (OT)	53	19	28	100
E-product (ET)	72	14	14	100

Table 67: Classification of comments on the purchases (N=100 comments)

Source: own elaboration based on the research results

We used Pearson's correlation coefficient to describe covariance between the different variables. The results obtained point to significant unidirectional positive correlations in the case of both offline and e-product purchases. There was a moderate positive correlation between the length of comments and the number of negative attributes, i.e. an increase in one of these variables predicted, ceteris paribus, an average increase in the other variable. A similar correlation was observable also between the number of positive attributes in the comments and the values recorded for average perceived quality, satisfaction, traditional WOM, e-WOM and repurchasing intention (Table 68 and 69).

	The number of negative mentions (OT)			The number of positive mentionsa (OT)		
	Pearson-Correlation	Sig. (2 tailed)	N	Pearson-Correlation	Sig. (2 tailed)	N
Charactercount	0.528	0.000	100	0.047	0.644	100
Negative	1		100	-0.515	0.000	100
Positive	-0.515	0.000	100	1		100
Qual_overall	-0.493	0.000	100	0.48	0.000	100
SAT_avg	-0.428	0.000	100	0.43	0.000	100
WOM_avg	-0.555	0.000	100	0.504	0.000	100
EWOM	-0.465	0.000	100	0.354	0.000	100
BI	-0.466	0.000	100	0.409	0.000	100

Table 68: The relationship between the number of positive and negative attributes in the comments (pc) and the metric data on comments and purchases – Purchases of an offline product (N=100 comments)

Source: own elaboration based on the research results

By contrast, a moderate negative correlation occurred between the number of negative and positive attributes, i.e. if one these variables increased a decrease was likely, *ceteris paribus*, in the other variable. There was also a significant negative correlation between the number of positive attributes and average perceived quality, satisfaction, traditional and e-WOM, and repurchasing intention.

	The number of negative mentions (ET)			The number of positive mentionsa (ET)		
	Pearson-Correlation	Sig. (2 tailed)	N	Pearson-Correlation	Sig. (2 tailed)	N
Charactercount	.506	0.000	100	0.138	0.644	100
Negative	1		100	-.458	0.000	100
Positive	-.458	0.000	100	1		100
Qual_overall	-.438	0.000	100	.261	0.009	100
SAT_avg	-.510	0.000	100	.411	0.000	100
WOM_avg	-.460	0.000	100	.473	0.000	100
EWOM	-.299	0.002	100	.214	0.032	100
BI	-.389	0.000	100	.379	0.000	100

Table 69: The relationship between the number of positive and negative attributes in the comments (pc) and the metric data on comments and purchases – Purchases of an electronic product (N=100 comments)

Source: own elaboration based on the research results

4.4.4. Comparison of first-time and second-time customers

The differences between scenario A and B were also examined based on an independent samples t-test. In the case of offline product purchases, the t-test revealed no significant difference in the attributes mentioned in the comments in scenario A and B whereas in the case of e-product purchases, there is such a difference in the number of positive comments (sig=0.000) which was significantly higher in the comments of scenario B, when an e-product had been purchased first, compared to scenario A where it was the second product to be purchased. In line with this, the tone of comments on purchases of the e-product differed significantly in the two scenarios, with scenario B involving a significantly higher number of positive comments (sig=0.009) (Table 70 and 71).

	Positive	Neutral	Negative	Total (comments)
Offline-product_A	28	10	12	50
Offline-product_B	25	9	16	50
Total (comments)	53	19	28	100
Pearson Chi^2 sig	0.672			

Table 70: Comparison of purchases in the same product category based on customers' comments – Purchase of an offline product (N=100 comments)

Source: own elaboration based on the research results

The data obtained in the experiment were also put to use for validation of the correlations established based on our large-sample survey of 1,000 respondents. For this purpose, relying on PLS-SEM, we analysed the differences traceable in the relationships between quality and

satisfaction and its consequences, comparing offline and e-product purchases in the case of both first and second purchases.

	Positive	Neutral	Negative	Total (comments)
E-product_A	30	8	12	50
E-product_B	42	6	2	50
Total (comments)	72	14	14	100
Pearson Chi^2 sig	0.009			

Table 71: Comparison of purchases in the same product category based on customers' comments – Purchase of an electronic product (N=100 comments)

Source: own elaboration based on the research results

When the data were pooled and no distinction was made between first and second purchases, the results resonated with those of our large-sample survey, i.e. no significant differences arose between the relationships of the variables and the path coefficients between satisfaction and its consequences were higher in the case of offline product purchases (Table 72).

	Path coeff (Offline-product)	Path coeff (E-product)
Qual -> SAT	0.678	0.741
SAT -> trad. WOM	0.880	0.860
SAT -> E-WOM	0.641	0.599
SAT -> BI	0.769	0.733

Table 72: The relationship of perceived quality, satisfaction and its consequences in the case purchases of offline and electronic products – PLS-SEM (N=100)

Source: own elaboration based on the research results

	Path coeff (A-Off-prod) First purchase	Path coeff (B-E-prod) First purchase	Path coeff (B-Off-prod) Re-purchase	Path coeff (A-E-prod) Re-purchase
Qual -> SAT	0.655	0.752	0.716	0.739
SAT -> tr. WOM	0.860	0.835	0.901	0.871
SAT -> E-WOM	0.655	0.403	0.656	0.704
SAT -> BI	0.767	0.616	0.781	0.799

Table 73: Results for perceived quality, satisfaction and its consequences in the case of first and second purchases – PLS-SEM (N=100)

Source: own elaboration based on the research results

When first and second purchases were treated separately, we found no significant difference between the ratings of second-time customers of the offline and the e-product, however, in the case of first-time customers, there was a significant difference between satisfaction and repurchasing intention as well as satisfaction and e-WOM. Both of the relevant path coefficients

are significantly higher in the case of offline product purchases. These findings indicate that the strength of the examined relationships is influenced by the specific purchase transaction concerned (first or second purchase) (Table 73).

5. INTERPRETATION OF THE RESULTS AND CONCLUSIONS

The purpose of this doctoral dissertation was to investigate how a set of relationships we are already familiar with in offline environments develops in the four different electronic retail segments and, in particular, the relationship between perceived purchase quality, satisfaction, repurchasing intention, and traditional and electronic WOM, as well as to compare the results obtained in the individual segments. We commenced our research by a thorough review of the literature, with the focus on a detailed review of previously formulated models of e-service quality. Based on our review, it can be established that perceived webshop quality, defined as the ability of an online shop to supports efficient browsing, ordering, payment and order fulfilment, is a multi-dimensional concept, and that part of the measurement models covered in the review do not fit this definition. These models were typically concerned with the fulfilment of delivery. However, our results indicate that it is most instructive to measure e-service quality along the following four dimensions:

1. Actual website quality, referring to the structure of the physical website, which includes primarily the information available on the site, and as such, having a role in the customer decision making process from the information search stage to the selection of the webshop.
2. The quality of the exchange, comprising the circumstances under which the actual purchase and delivery, if applicable, is realised in the webshop concerned.
3. Perceived security, standing for customers' assessment of privacy and protection of their personal data during the purchase.
4. The evaluation of customer service, including the opportunities provided by the webshop for personal contact in an essentially impersonal shopping process and for addressing emerging questions and problems.

As we analysed perceptions of quality in the four e-commerce segments identified by Francis and White (2003) separately in our research, of the scales encountered in the literature, only those were appropriate for our purposes which take the specificities of these markets into account, including that e-services are purchased and consumed using an online customer account (e.g. e-banking), while in the case of offline-services, receipt of the voucher by e-mail and confirmations are an important aspect. The measurement

model constructed by Francis (2009) takes these aspects into consideration and allows for different measurement variables to be assigned to the dimensions in each category. We have adopted this model for the measurement of electronic service quality in our empirical research.

To find answers to our research questions, we carried out a large-sample (1,000) survey with an online questionnaire over the last three months, taking online customers as the survey population. By quota sampling, we divided the population into two, with one half consisting of respondents who had purchased offline-goods or services and the other half of individuals who had purchased electronic-goods or services. The survey offered answers for our main questions, however, due to the limitations of this research, namely that respondents rated different webshops and that first and second-time customers could not be distinguished, we also conducted an experiment with 100 participants in order to validate the findings of our survey. In the experiment, we measured the quality perceptions, satisfaction as well as the repurchasing and WOM intentions of the participants with the aid of a fictive webshop and employed additional open-ended questions to be able to investigate the reasons behind the evaluations obtained.

5.1. Main conclusions

In our large-sample online survey we have assumed that, for a complete evaluation of electronic service quality, customers had to have experience not only of the webshop and the actual purchase but also of customer service, and by doing so, to have information on the only personal element in an otherwise impersonal automated purchase process. In addition, they were also expected to state their opinion on the security features provided by the webshop. Parasuraman et al. (2005) propose that the quality of communication with customer service during the purchase cannot always be evaluated, as in general, customers do not contact the company when no problems or questions occur. Our survey involved altogether 481 respondents who could not give a rating for some of the variables linked to customer service and the majority of them lacked information about the management of problems and questions arising during the purchase. It was an interesting observation that a considerable part of respondents (416) had limited knowledge regarding security as well. Most of the respondents in this group could not express an opinion on guarantees for the security of bank card data (300) or the privacy of personal data (200). They were dominantly respondents who had to rate the purchase of an offline product. Considering this, a possible explanation for the missing data may be that the

customers chose payment in person instead of online payment and made the purchase without registering. However, as this issue was not covered in our large-sample survey, it remains for us to identify the exploration of the underlying reasons for such limited information on security as an area for future research.

In our analysis, we tested the proposed model and hypotheses by structural modelling – a highly sensitive method in respect of missing data. As filling in averages for missing data (casewise method) resulted in significant changes in our model (Annex 7), we kept respondents having missing values separately, treated as a specific group. As a result, the model was tested in the following four groups:

1. respondents having complete experience (N=377),
2. respondents having partial experience regarding customer service (N=207),
3. respondents having partial experience regarding security (N=142),
4. respondents having partial experience regarding both customer service and security (N=274).

All four groups were characterised in detail in the discussion of our research results (Chapter 4.1). In this conclusion, we will present the results of only the first and second group since we know that lacking experience regarding customer service issues from a problem-free purchase process while we do not have well-founded evidence for the reasons behind missing data for security.

5.2. Results of hypothesis testing

We tested the hypotheses formulated on the basis of the literature and our pilot studies using PLS-SEM path analysis. To confirm if the proposed relationships exist and whether they are significant, we used the bootstrapping procedure of PLS-SEM (1,000 samples) and the results of the t-test.

Our results revealed that in the case of offline-goods, only the exchange, i.e. the ordering process and delivery, and in the case of respondents having complete experience, the evaluation of customer service had a significant positive effect on satisfaction. The impact of the perceived security of the webshop was not significant, and accordingly, it could not be considered a central factor in the development of satisfaction in the purchase transaction concerned. The same applies to the quality of the actual physical webshop.

On the basis of the foregoing, we rejected two of the proposed hypotheses (H1.1 and H1.3).

Two hypotheses (H1.1 and H1.2) were rejected also in the case of e-services where exchange quality, i.e. easy manageability and operation of the created user account as well as the actual quality of this account did not have a significant effect on satisfaction. In the case of respondents who had experience with customer service, it was a relevant positive factor whose effect, in fact, exceeded that of perceived security in this group of respondents. In cases when e-services were purchased, perceived security was another dimension having a significant positive effect on satisfaction. Perceived security had a significant positive effect also in the case of e-goods but all the other hypotheses (H1.1, H1.2 and H1.4) were rejected.

Offline-services are the single category where there was a difference between the group of respondents having complete experience and those lacking experience regarding customer service. Only one hypothesis was retained in the case of both groups, but not the same. In the group having complete experience, also including contact with customer service, the dimension of exchange had a significant positive effect on satisfaction while in the case of those who did not have such 'personal' contact with customer service, perceived security had a significant impact.

On the whole, our results show that in the different e-retail segments not all the analysed dimensions of electronic service quality have a significant positive effect on the development of satisfaction. The results of our hypothesis testing carried out for confirmation of the proposed relationships are outlined in Table 74.

The significant positive correlations between satisfaction and its consequences were confirmed with a single exception (the purchase of offline-services by respondents lacking experience regarding customer service), and thus, the corresponding hypotheses accepted.

We mapped differences in the relationship between satisfaction and its consequences across the four segments by MGA and identified significant differences based on the PLS-MGA probability indicator.[20]

[20] The indicator shows a significant difference between the analysed variables if its value is less than 0.05 or greater than 0.95 (Sarstedt el al., 2011).

	Offline-goods	Offline-services	E-goods	E-serv
H1: Electronic service quality dimensions have a positive effect on the development of satisfaction.				
H1.1: The dimension of actual webshop quality has a significant positive effect on satisfaction.	*Rejected*	*Rejected*	*Rejected*	*Rejected*
H1.2: The dimension of exchange quality has a significant positive effect on satisfaction.	**Accepted**	**Accepted**	*Rejected*	*Rejected*
H1.3: The dimension of perceived security has a significant positive effect on satisfaction.	*Rejected*	*Rejected*	**Accepted**	**Accepted**
H1.4: The dimension of customer service quality has a significant positive effect on satisfaction.	**Accepted**	*Rejected*	*Rejected*	**Accepted**
H2: Satisfaction has a positive effect on repurchasing intention in all e-commerce categories.	**Accepted**	**Accepted**	**Accepted**	**Accepted**
H4: Satisfaction has a positive effect on traditional WOM in all e-commerce categories.	**Accepted**	**Accepted**	**Accepted**	**Accepted**
H6: Satisfaction has a positive effect on electronic WOM in all e-commerce categories.	**Accepted**	**Accepted**	**Accepted**	**Accepted**

Table 74: Results of hypothesis testing based on the findings of the large-sample research, using PLS-SEM

Source: own elaboration based on the research results

We fully accepted only one of the six hypotheses formulated as regards satisfaction and traditional WOM intention in the group of respondents having complete experience. This hypothesis (H5.3) proposes a significantly weaker positive correlation between the two variables in the case of customers of e-services than in the case of customers of offline-goods. As to the other hypotheses, the direction of the proposed correlation was confirmed but they did not prove significant. As a result, only the difference between the lowest and the highest value was relevant. We found the same in respect of the relationship between satisfaction and electronic WOM intention.

Of the hypotheses concerning satisfaction and repurchasing intention, two were accepted (H3.3 and H3.6), however, the order of the correlations according to strength in the category of customers of e-goods and offline-services defied our expectations: this relationship was found to be weaker in the case of e-goods and stronger in the case of offline-services. The results of our hypothesis testing regarding the differences between the segments are outlined in Table 75.

H3: The effect of satisfaction on repurchasing intention is significantly different in the respective e-commerce categories.	
H3.1: Satisfaction has a stronger positive effect on repurchasing intention in the category of offline-goods than in the category of e-goods.	**Partially accepted** *Stronger but the difference is not significant*
H3.2: Satisfaction has a stronger positive effect on repurchasing intention in the category of offline-goods than in the category of offline-services.	**Partially accepted** *Stronger but the difference is not significant*
H3.3: Satisfaction has a stronger positive effect on repurchasing intention in the category of offline-goods than in the category of e-services.	**Accepted**
H3.4: Satisfaction has a stronger positive effect on repurchasing intention in the category of e-goods than in the category of offline-services.	**Rejected**
H3.5: Satisfaction has a stronger positive effect on repurchasing intention in the category of e-goods than in the category of e-services.	**Partially accepted** *Stronger but the difference is not significant*
H3.6: Satisfaction has a stronger positive effect on repurchasing intention in the category of offline-goods than in the category of e-services.	**Accepted**
H5: The effect of satisfaction on traditional WOM is significantly different in the respective e-commerce categories.	
H5.1: Satisfaction has a stronger positive effect on traditional WOM in the category of offline-goods than in the category of e-goods.	**Partially accepted** *Stronger but the difference is not significant*
H5.2: Satisfaction has a stronger positive effect on traditional WOM in the category of offline-goods than in the category of offline-services.	**Partially accepted** *Stronger but the difference is not significant*
H5.3: Satisfaction has a stronger positive effect on traditional WOM in the category of offline-goods than in the category of e-services.	**Accepted**
H5.4: Satisfaction has a stronger positive effect on traditional WOM in the category of e-goods than in the category of offline-services.	**Partially accepted** *Stronger but the difference is not significant*
H5.5: Satisfaction has a stronger positive effect on traditional WOM in the category of e-goods than in the category of e-services.	**Partially accepted** *Stronger but the difference is not significant*
H5.6: Satisfaction has a stronger positive effect on traditional WOM in the category of offline-services than in the category of e-services.	**Partially accepted** *Stronger but the difference is not significant*
H7: The effect of satisfaction on electronic WOM is significantly different in the respective e-commerce categories.	
H7.1: Satisfaction has a stronger positive effect on electronic WOM in the category of offline-goods than in the category of e-goods.	**Partially accepted** *Stronger but the difference is not significant*
H7.2: Satisfaction has a stronger positive effect on electronic WOM in the category of offline-goods than in the category of offline-services.	**Partially accepted** *Stronger but the difference is not significant*
H7.3: Satisfaction has a stronger positive effect on electronic WOM in the category of offline-goods than in the category of e-services.	**Accepted**
H7.4: Satisfaction has a stronger positive effect on electronic WOM in the category of e-goods than in the category of offline-services.	**Partially accepted** *Stronger but the difference is not significant*
H7.5: Satisfaction has a stronger positive effect on electronic WOM in the category of e-goods than in the category of e-services.	**Partially accepted** *Stronger but the difference is not significant*
H7.6: Satisfaction has a stronger positive effect on electronic WOM in the category of offline-services than in the category of e-services.	**Partially accepted** *Stronger but the difference is not significant*

Table 75: Results of hypothesis testing based on the findings of the large-sample survey using PLS-SEM and MGA

Source: own elaboration based on the research results

Our hypotheses testing concerning the differences between the segments produced divergent results in the case of respondents lacking experience regarding customer service. The order predicted according to strength for the correlation between satisfaction and traditional WOM proved completely wrong as the effect was the most intense in the

category of e-goods, followed by offline-services and offline-goods. Of the relevant hypotheses, the one proposing a significantly lower effect of satisfaction on traditional WOM in the e-services segment was accepted (H5.5) and only three other partially accepted (H5.3, H5.4, H5.6). None of the hypotheses on the remaining two relationships (satisfaction and e-WOM, satisfaction and repurchasing intention) could be fully kept and only two of them were partially accepted (H7.2, H7.4).

To arrive at a better understanding of the reasons behind customers' evaluations and to validate the results presented above, we conducted an experiment designed for the offline-goods (clothing accessory) and the e-goods category (e-books), supplementing our large-sample survey.

On examination of the comments made on the completed purchases, we found that in the case of offline-goods, simplicity and quickness of the purchase as well as wide selection were the most frequently mentioned of the altogether 58 different positive attributes. Negative attributes were in comparison more concentrated. Of the 37 different attributes counted in total, slow delivery[21], incorrect categorisation of the products hindering browsing and small selection occurred the most frequently.

In connection with electronic-goods purchases, we identified 45 different positive attributes. Of these, the most frequently mentioned one was again the fast pace and simplicity of the purchase process – which is one of the major advantages of online shopping. In this case, customers thought more approvingly also of the structure of the webshop although we had made no changes in the design. Small selection, lack of information on the file format of the e-books available for download, compulsory registration[22] and poor webshop design were invoked the most often as negative attributes.

The content of comments on offline product and online product purchases differed in terms of the negative attributes mentioned in them. While in the case of the purchased clothing accessory, negative feedback mainly concerned delivery and webshop structure, in the case of e-books, the scope of the available information (format, review, size) was criticised more often. In the case of offline product purchases, in addition to customer service, exchange proved a significant variable from the point of view of satisfaction. The

[21] We stipulated a delivery period of 10 days for the purchase to be completed.
[22] Customers could purchase the offline product also without registration, as made possible by most real-life webshops.

results of our large-sample survey and experiment overlap in this respect. The comments of participants underpin our assumption that the same webshop is assessed against different needs and expectations by potential customers when they purchase products belonging to a different category.

The comments were also analysed using quantitative tools. Based on the extracted results, there was a moderate positive correlation between the length of comments and the number of negative attributes, i.e. an increase in one of these variables predicts, ceteris paribus, an average increase in the other variable. This means in practice that a more negative experience is likely to lead to longer comments. A significant positive correlation was observable also between the number of positive attributes in the comments and the values recorded for average perceived quality, satisfaction, traditional WOM, e-WOM and repurchasing intention. An opposite trend could be observed in respect of the number of negative attributes. The differences between scenario A and B were also examined based on the data of the experiment. The comments exhibited a significant difference in terms of the attributes and descriptive characteristics mentioned in them only in the case of e-product purchases. Here, the average number of positive comments was significantly higher in the comments of scenario B, when an e-product was purchased first, compared to scenario A, where it was the second product to be purchased.

To validate the findings of our large-sample survey, relying on PLS-SEM, we analysed the differences traceable in the proposed set of relationships, comparing offline and online product purchases. The added value of the results obtained in the experiment was that participants used and evaluated the same webshop, and as this was a fictive webshop completely unfamiliar to participants, a distinction could be made between first-time and repeat customers. When the data were pooled and no distinction was made between first and second purchases, the results resonated with those of our large-sample survey, i.e. no significant differences arose between the relationships of variables, and the path coefficients between satisfaction and its consequences were higher in the case of offline-goods.

When first and repeat purchases were analysed separately, a number of differences occurred in the case of the large-sample survey. In the case of the second purchase, no significant differences were registered between customers of an offline product and customers of an online product but the strength of the effect of variables varied. In particular, the effect of satisfaction on traditional WOM was greater in the case of offline

product purchases while its impact on e-WOM and repurchasing intention was greater in the case of e-product purchases. By contrast, in the case of first-time customers, there was a significant difference between satisfaction and repurchasing intention as well as satisfaction and e-WOM. Both of the relevant path coefficients were significantly higher in the case of offline product purchases. Satisfaction also had a stronger influence on traditional WOM in the case of offline product purchases but the difference was not significant. These findings indicate that the strength of the examined relationships is influenced by the specific purchase transaction (first or second purchase) (Table 76).

	Large-sample survey	Experiment	
		First purchase	Repeat purchase
H2: **Satisfaction** has a positive effect on **repurchasing intention** in all e-commerce categories.	**Accepted**	**Accepted**	**Accepted**
H3: The effect of **satisfaction** on **repurchasing intention** differs significantly in the respective e-commerce categories.			
H3.1: **Satisfaction** has a stronger positive effect on **repurchasing intention** in the category of offline-goods than in the category of e-goods.	**Partially accepted** *Stronger but the difference is not significant*	**Accepted**	**Rejected**
H4: **Satisfaction** has a positive effect on **traditional WOM** in all e-commerce categories.	**Accepted**	**Accepted**	**Accepted**
H5: **Satisfaction** has a positive effect on **traditional WOM** in all e-commerce categories.			
H5.1: **Satisfaction** has a stronger positive effect on **traditional WOM** in the category of offline-goods than in the category of e-goods.	**Partially accepted** *Stronger but the difference is not significant*	**Partially accepted** *Stronger but the difference is not significant*	**Partially accepted** *Stronger but the difference is not significant*
H6: **Satisfaction** has a stronger positive effect on **traditional WOM** in the category of offline-goods than in the category of e-goods.	**Accepted**	**Accepted**	**Accepted**
H7: The effect of **satisfaction** on **electronic WOM** differs significantly in the respective e-commerce categories.			
H7.1: **Satisfaction** has a stronger positive effect on **electronic WOM** in the category of offline-goods than in the category of e-goods.	**Partially accepted** *Stronger but the difference is not significant*	**Partially accepted** *Stronger but the difference is not significant*	**Partially accepted** *Stronger but the difference is not significant*

Table 76: Results of hypothesis testing – comparison of the experiment and the large-sample survey

5.3. Theoretical and practical relevance

In our research project, we undertook an investigation of electronic retail, as one of the most dynamic areas in the retail sector, within the framework of a marketing-oriented analysis. Although we have a wide knowledge of purchase processes and decisions in the 'offline' world, increasing evidence and expert opinion point to discernible differences

which are specific to the Internet. Against this context, we set the aim to examine the familiar matrix of relationships between quality, satisfaction, repurchasing intention and WOM adapted to domestic e-retail, and to contribute new findings to the theory by testing our proposed hypotheses. The direction of our research was further inspired by a thorough review of the literature, including the proposition that the analysed purchase processes should not be placed on the same footing – as done by earlier studies – but grouped into distinct e-commerce groups and examined in comparison to each other. In our research, we created such distinct groups on the basis of product type and mode of fulfilment, and in line with this categorisation, carried out a separate analysis of purchases of offline-goods and services and electronic-goods and services. Such separate analysis represents a new approach in the literature, and the resulting findings can provide webshop designers and operators with several interesting insights. The identified differences should be given careful consideration also by operators of webshops that sell different types of products and services simultaneously. It is widely agreed that greater variety leads to greater satisfaction (Agárdi, 2004) but the divergent consumer expectations revealed should also be taken into account during planning.

This dissertation is the final piece in a series of studies on the measurement of online consumer satisfaction and has an extended cope to incorporate WOM and repurchasing intentions in addition to e-service quality and satisfaction. On the basis of the different models reviewed, it can be stated that the measurement of online consumer satisfaction requires a novel approach, which is due mainly to the specific features offered by the Internet as a channel, such as interactivity, personalization, a wide and easily accessible selection and the role of communities.

The scales created for the measurement of e-service quality can be used with benefit by businesses to gain deeper knowledge of consumer expectations and needs, and thus, to draw up a more successful and competitive business strategy. It should be noted that, as the presented theories suggest, perceived webshop quality does not exclusively originate in the quality of the interactions at, and the structure and usability of, the website but is also the product of pre- and post-purchase activities, such as word of mouth, brand identity, delivery and complaint management, which also contribute significantly to customers' quality perceptions. This demands a more intricate approach from the point of view of academic circles and requires complex strategic thinking from business experts, involving the coordination of several different internal and external business units, including marketing, IT, logistics, finance, delivery partners and call-centers. By

exploring the quality perceptions of consumers and, indirectly, the level of customer satisfaction, businesses can further improve their online activity and make customers loyal in the long term, which in turn contributes to the success of the business.

Businesses wanting to enhance satisfaction with their webshop should first consider the dimensions which were found relevant in our research, as the improvement of the quality perceptions linked to these dimensions bring about a more marked positive change in satisfaction and – through satisfaction – also in traditional and electronic word of mouth and repurchasing intention. Our results demonstrate that the analysed e-service quality dimensions exert a different effect in the four e-commerce categories. The influence of the actual physical webshop on satisfaction did not prove relevant in either category. A probable reason for this is that a sophisticated webshop design came to be a basic customer requirement. It is other features such as the exchange, payment as well as availability of, and communication with, customer service that assumed significant importance in the respective segments. On the other hand, these factors had a varying effect and relevance. The process of order placement and delivery was relevant in the case of offline-goods and services, i.e. in cases when the purchase could have been realised in an offline environment as well. It is no great surprise that in the case of e-goods and e-services security had a relevant positive effect, considering the fact that in these categories, the whole process and often even the consumption of the products takes place online, which imparts increased importance to the security of personal data and gives rise to an increased impact on satisfaction as well. It is obvious that perceived security of the webshop plays a greater role in cases when we cannot hold the purchased product or service physically in our hands. The dimension of customer service was relevant in the case of offline-goods and e-services.

As to our primary group of interest involving respondents with a complete purchase experience, it can be stated in general that their WOM intentions were always higher. Of offline and online modes of delivery, it was again offline delivery which attracted higher values in all cases. At the same time, a significant difference existed only between the lowest and the highest value (offline-goods, e-services). By contrast, the path coefficient between satisfaction and repurchasing intention was higher in the offline categories, which at the same time means that the level of satisfaction was less decisive for repurchasing intention in the case of online products/services. However, we got at times different results for the above aspects among first-time and repeat customers. These differences were explored in greater detail in our experiment. This finding implies that

predictions of customer behaviour should reckon also with the history of customers as clients of the webshop. It is not only our hypothesis testing that adds new knowledge to theory as the methodology used also reflects an up-to-date approach: to validate and further improve the results of our large-sample survey, we carried out an experiment which has become a widely-used research tool in marketing in recent years (Baum – Spann, 2011).

5.4. Limitations and directions for future research

In this PhD dissertation, we have presented the findings of a large-sample survey involving 1,000 respondents and an experiment carried out with undergraduates. The experiment was designed with the objective to eliminate the limitations of our large-sample survey in which respondents rated different websites and could not be distinguished based on previous shopping experience. Our research findings point to several differences, which, however, should be validated in a further large-sample survey in which respondents would have to evaluate specific purchase transactions using the same webshop. In addition, we had limited possibilities to simulate the activities necessary for payment in the experiment. As a further limitation, the present study was quantitative in nature, using statistical methods for approaching the problem while quantitative methods appeared in it only tangentially. For a more profound, qualitative understanding of the solutions proposed for the identified differences, additional exploratory interviews would be necessary.

In our research, we have analysed the market of offline-goods, e-goods, offline-services and e-services separately and this model indeed revealed a number of differences. On this basis, it would be instructive to carry out further studies examining the development of the currently analysed set of relationships in groups defined according to different principles, for instance according to price (high and low-value purchases), different customer groupings (convenience or information-seeking customers) or involvement. As another area for future research, we would like to mention possibilities for the extension of the models outlined in our studies to other types of websites (e.g. those only for information purposes or brand building websites), and industry-specific analyses of the topic (e.g. among banks or tourism enterprises) would also be illuminating. An investigation into the reasons behind lack of information on security together with the effect of this void on customer expectations and evaluations would also be productive.

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1. Annex 1: Main Internet access, Internet use and online shopping indicators

Source: Eurostat website

	Wired internet 100 per person (pc)	Over the last 3 months used the Internet (%)	Internet usage skills			Did she/he buy something online in the last three months? (%)
			3-4	5-6	et least 3	
			Among the listed activities can be carried out (%)			
	2010	2011	2011	2011	2011	2010
EU (27)	25,7	71	24	11	35	31
Euro zome	-	72	26	10	36	31
Belgium	30,0	82	29	10	39	27
Bulgaria	13,9	48	17	9	26	3
Czeh Repl.	20,4	70	23	12	35	15
Denmark	38,2	90	34	15	49	54
Germany	31,3	81	33	5	38	48
Estonia	26,0	77	22	21	43	13
Ireland	22,9	75	25	7	32	28
Greece	18,6	52	16	8	24	9
Spain	22,5	67	19	11	30	17
France	31,5	78	28	13	41	42
Italy	21,3	54	21	12	33	9
Cyprus	23,2	57	22	8	30	14
Latvia	18,8	70	22	31	53	8
Lithuana	19,6	64	18	27	45	7
Luxembourg	33,2	90	32	13	45	47
Hungary	***19,7***	***68***	***23***	***15***	***38***	***10***
Malta	28,5	68	25	13	38	32
The Neatherland	38,4	91	34	18	52	52
Austria	23,5	79	25	9	34	32
Poland	14,9	62	21	10	31	20
Portugal	19,6	55	20	10	30	10
Romania	13,7	40	14	7	21	2
Szovenia	23,6	67	23	16	39	17
Slovakia	15,5	74	33	12	45	19
Finnland	29,1	89	27	5	32	41
Sweeden	31,9	93	27	20	47	50
England	30,6	85	19	17	36	60
Iceland	-	95	33	31	64	29
Norvegian	-	93	28	22	50	53
Croatia	-	58	17	16	33	9
Turkey	-	40	14	3	17	4

2. Annex 2: Products and services purchased online in the EU-27 (%)

N = customers having made a purchase online in the previous 12 months
Source: Eurostat website

	2004	2005	2006	2007	2008	2009	2010	2011	2012	EU27 ranking	HUN ranking
Clothes, sports equipment	30	32	36	38	41	45	47	52	55	1	2
Accommodation, travel	28	34	41	43	42	50	51	52	54	2	3
Books and magazines	36	33	39	38	39	33	38	38	40	3	1
Household goods		22	30	34	35	37	35	38	39	4	5
Tickets	22	24	30	31	33	34	35	37	38	5	4
Movie, music	30	31	34	33	29	32	32	29	29	6	7
Software	15	18	25	24	21	29	29	25	25	7	10
Electronic equipment	17	19	24	24	25	26	25	25	24	8	9
Telecom services						16	16	17	18	9	8
Hardware	14	15	19	17	16	18	18	19	18	10	14
Video games software and upgrades						16	16	17	18	11	17
Food/groceries	9	10	10	11	11	13	13	15	16	12	16
Computer software, delivered or upgraded ONLINE			16	15	13	17	18	15		13	15
Films/music, delivered or upgraded ONLINE			15	14	13	14	14	13		14	13
Lotteries or bet over the Internet						12	11	11		15	12
Shares/financial services/insurance	10	9	11	9	9	10	11	10	12	16	19
Other		20	12	9	8	9	11	11	10	17	6
Medecine						9	10	10	10	18	18
Books/magazines/e-learning material, delivered or upgraded ONLINE			14	10	11	8	9	9		19	11

3. Annex 3: The RECIPE scale

Source: Francis (2009): Category-specific RECIPEs for internet retailing quality. Journal of Services Marketing.

Cronbach-alpha & Faktor loadings (eredeti value)	***OFFLINE -PRODUCTS***
α=0,79	**Website**
0.734	Locating information on the website was easy.
0.796	The website was visually appealing.
0.772	The products were described clearly.
0.599	The range of products that were offered was good.
α=0,88	**Exchange**
0,632	The system for placing orders worked the first time.
0,718	Clear confirmation of my order was provided.
0,722	Products were delivered by the expected time.
0,848	I received the correct products the first time.
0,882	The products arrived in good condition.
α=0,93	**Customer service**
0,845	Contacting customer service staff was easy.
0,748	The company responded quickly to my emails.
0,905	Communications with this firm seemed personal.
0,806	The answers to my questions were helpful.
0,842	The company was happy to fix any problems.
0,781	It was easy to obtain help about delivery delays.
α=0,91	**Security**
0,693	The security information was explained clearly.
0,609	The safety of credit card details was guaranteed.
0,961	The use of my personal details was explained.
0,895	My personal details were treated as confidential.
Cronbach-alpha & Factor loadings	***OFFLINE-SERVICES***
α=0,77	**Website**
0,759	The website provided useful pictures and images
0,796	The website was visually appealing
0,772	The service products were described clearly
0,599	The range of services that were offered was good
α=0,88	**Reservation/purchase**
0,707	It was easy to make an online purchase/booking.
0,777	The purchase/booking system worked the first time.
0,78	The purchase/booking was confirmed promptly.
0,815	The confirmation message was easy to understand.
0,81	The purchase/booking was processed correctly.
α=0,91	**Customer service**
0,753	Contacting customer service staff was easy
0,596	The company responded quickly to my e-mails.
0,871	Communications with this firm seemed personal.
0,894	The answers to my questions were helpful.
0,722	The company was happy to fix any problems.
α=0,91	**Security**
0,8	The security information was explained clearly.
0,862	The safety of credit card details was guaranteed.

0,902	The use of my personal details was explained.
0,832	My personal details were treated as confidential.
Cronbach-alpha & Factor loadings	***ELECTRONIC-PRODUCT***
α=0,70	**Product details**
0,768	The file size of digital products was specified
0,796	The system requirements were explained clearly
0,682	The product compatibility was indicated
0,583	Products were available for pre-purchase trial
α=0,88	**Exchange**
0,757	It was easy to pay for the products online
0,884	The payment system worked the first time
0,783	Clear confirmation of my purchase was provided
0,662	The downloading instructions were easy to follow
0,541	The downloading time was reasonable
0,749	The download process worked the first time
α=0,95	**Customer service**
0,898	Contacting customer service staff was easy.
0,904	The company responded quickly to my emails.
0,874	Communications with this firm seemed personal.
0,863	The answers to my questions were helpful.
0,82	The company was happy to fix any problems.
α=0,86	**Security**
0,656	The security information was explained clearly.
0,743	The safety of credit card details was guaranteed.
0,903	The use of my personal details was explained.
0,863	My personal details were treated as confidential.
Cronbach-alpha & Factor loadings	***ELECTRONIC-SERVICES***
α=0,88	**Account set-up**
0,707	Instructions for establishing an account were clear
0,805	It was easy to set up an account/membership
0,844	Establishing an account worked the first time
0,89	My account/membership was established promptly
α=0,92	**Online services**
0,805	My account/membership details were confirmed
0,909	Logging into my account was easy
0,766	Access to the online services was reliable
0,68	The online services could be accessed promptly
0,677	Using the account/member services was easy
0,594	The online service was as it had been described
α=0,92	**Customer service**
0,736	Contacting customer service staff was easy
0,86	The company responded quickly to my emails
0,968	Communications with this firm seemed personal
0,888	The answers to my questions were helpfu
0,797	The company was happy to fix any problems
0,582	Customer service staff could be contacted online
α=0,89	**Security**
0,712	The security information was explained clearly
0,757	The safety of credit card details was guaranteed
0,794	The use of my personal details was explained
0,802	My personal details were treated as confidential

4. Annex 4: The specific measurement items and the codes assigned to them

Offline-product buyers	The quality of the „physical" webstore	WEBS_OT1	Locating information on the website was easy
		WEBS_OT2	The website was visually appealing
		WEBS_OT3	The products were described clearly
		WEBS_OT4	The range of products that were offered was good
	The quality of the purchase and exchange	EXCH1_OT1	The system for placing orders worked the first time
		EXCH1_OT2	Clear confirmation of my order was provided
		EXCH1_OT3	Products were delivered by the expected time
		EXCH1_OT4	I received the correct products the first time
		EXCH1_OT5	The products arrived in good condition
	Customer service (add)	SC_OT_6	It was easy to obtain help about delivery delays
Offline-service buyers	The quality of the „physical" webstore	WEBS_OSZ1	The website provided useful pictures and images
		WEBS_OSZ2	The website was visually appealing
		WEBS_OSZ3	The service products were described clearly
		WEBS_OSZ4	The range of services that were offered was good
	The quality of the purchase and exchange	EXCH1_OSZ1	It was easy to make an online purchase/booking
		EXCH1_OSZ2	The purchase/booking system worked the first time
		EXCH1_OSZ3	The purchase/booking was confirmed promptly
		EXCH1_OSZ4	The confirmation message was easy to understand
		EXCH1_OSZ5	The purchase/booking was processed correctly
E-product buyers	The quality of the „physical" webstore	WEBS_ET1	The file size of digital products was specified
		WEBS_ET2	The system requirements were explained clearly
		WEBS_ET3	The product compatibility was indicated
		WEBS_ET4	Products were available for pre-purchase trial
	The quality of the purchase and exchange	EXCH1_ET1	It was easy to pay for the products online
		EXCH1_ET2	The payment system worked the first time
		EXCH1_ET3	Clear confirmation of my purchase was provided
		EXCH1_ET4	The downloading instructions were easy to follow
		EXCH1_ET5	The downloading time was reasonable
		EXCH1_ET6	The download process worked the first time
E-service buyers	The quality of the „physical" webstore	WEBS_ESZ1	Instructions for establishing an account were clear
		WEBS_ESZ2	It was easy to set up an account/membership
		WEBS_ESZ3	Establishing an account worked the first time
		WEBS_ESZ4	My account/membership was established promptly
	The quality of the purchase and exchange	EXCH1_ESZ1	My account/membership details were confirmed
		EXCH1_ESZ2	Logging into my account was easy
		EXCH1_ESZ3	Access to the online services was reliable
		EXCH1_ESZ4	The online services could be accessed promptly
		EXCH1_ESZ5	Using the account/member services was easy
		EXCH1_ESZ6	The online service was as it had been described
	Customer service (add)	CS_ESZ6	Customer service staff could be contacted online
	Security	SEC1	The security information was explained clearly
		SEC2	The safety of credit card details was guaranteed

All e-commerce categories		SEC3	The use of my personal details was explained
		SEC4	My personal details were treated as confidential
	Customer service (add)	SC_1	Contacting customer service staff was easy
		SC_2	The company responded quickly to my emails
		SC_3	Communications with this firm seemed personal
		SC_4	The answers to my questions were helpfu
		SC_5	The company was happy to fix any problems
	Satisfaction	SAT1	My choice to purchase from this website was a wise one.
		SAT2	If I had to purchase again, I would feel differently about buying from this website.
		SAT3	I am satisfied with my decision to purchase from this Web site.
	Tr-WOM	WOM1	I say positive things about the company to other people
		WOM2	I would recommend the company to those who seek my advice about such matters
		WOM3	I would encourage friends and relatives to use the company
	E-WOM	EWOM1	I would post positive messages about the company on some Internet message board
	Repurchasing intention	BI1	I intend to purchase through this site in the near future

5. Annex 5: Discriminant validity of the scale used

Source: own elaboration based on PLS-SEM

The Fornell-Larcker criterion

Offline-product

	Repurchasing intention	Customer service	E-WOM	The quality of the purchase and exchange	SAT	Repurchasing intentionztonság	tr.-WOM	The quality of the „physical" webshop
Repurchasing intention	1,000							
Customer service	0,691	0,893						
E-WOM	0,725	0,586	1,000					
The quality of the purchase and exchange	0,790	0,770	0,624	0,917				
SAT	0,879	0,800	0,708	0,876	0,984			
Repurchasing intentionztonság	0,594	0,899	0,530	0,733	0,728	0,904		
tr.-WOM	0,911	0,799	0,758	0,851	0,959	0,714	0,977	
The quality of the „physical" webshop	0,638	0,677	0,533	0,817	0,738	0,743	0,701	0,895

Offline-service

	Repurchasing intention	Customer service	E-WOM	The quality of the purchase and exchange	SAT	Repurchasing intentionztonság	tr.-WOM	The quality of the „physical" webshop
Repurchasing intention	1,000							
Customer service	0,650	0,867						
E-WOM	0,478	0,535	1,000					
The quality of the purchase and exchange	0,654	0,653	0,546	0,922				
SAT	0,826	0,750	0,520	0,790	0,987			
Repurchasing intentionztonság	0,587	0,796	0,529	0,702	0,764	0,927		
tr.-WOM	0,832	0,778	0,648	0,718	0,901	0,806	0,973	
The quality of the „physical" webshop	0,567	0,709	0,540	0,793	0,708	0,621	0,652	0,896

E-product

	Repurchasing intention	Customer service	E-WOM	The quality of the purchase and exchange	SAT	Repurchasing intentionztonság	tr.-WOM	The quality of the „physical" webshop
Repurchasing intention	1,000							
Customer service	0,590	0,940						
E-WOM	0,605	0,501	1,000					
The quality of the purchase and exchange	0,568	0,721	0,387	0,932				
SAT	0,799	0,646	0,678	0,613	0,960			
Repurchasing intentionztonság	0,724	0,820	0,574	0,793	0,733	0,944		

tr.-WOM	0,866	0,694	0,723	0,614	0,919	0,751	0,980	
The quality of the „physical" webshop	0,422	0,579	0,331	0,556	0,427	0,544	0,478	0,826

E-service

	Repurchasing intention	**Customer service**	**E-WOM**	**The quality of the purchase and exchange**	**SAT**	**Repurchasing intentionztonság**	**tr.-WOM**	**The quality of the „physical" webshop**
Repurchasing intention	1,000							
Customer service	0,674	0,861						
E-WOM	0,521	0,561	1,000					
The quality of the purchase and exchange	0,462	0,723	0,406	0,888				
SAT	0,658	0,810	0,492	0,743	0,966			
Repurchasing intentionztonság	0,506	0,756	0,340	0,846	0,796	0,896		
tr.-WOM	0,765	0,834	0,688	0,693	0,846	0,683	0,961	
The quality of the „physical" webshop	0,505	0,705	0,384	0,947	0,757	0,840	0,695	0,890

6. Annex 6: Loadings of the latent measurement variables – respondents having a complete purchase experience

	Loadings
Off-prod	
k7ai_10_CS6 <- Consumer service	0,168
k7ai_1_WEBS1 <- Website design	0,331
k7ai_2__WEBS2 <- Website design	0,221
k7ai_3_WEBS3 <- Website design	0,314
k7ai_4_WEBS4 <- Website design	0,309
k7ai_5_EXCH1 <- Exchange	0,256
k7ai_6_EXCH2 <- Exchange	0,231
k7ai_7_EXCH3 <- Exchange	0,226
k7ai_8_EXCH4 <- Exchange	0,247
k7ai_9_EXCH5 <- Exchange	0,216
k8_1_SEC1 <- Security	0,365
k8_2_SEC2 <- Security	0,248
k8_3_SEC3 <- Security	0,297
k8_4_SEC4 <- Security	0,282
k8_5_SC1 <- Consumer service	0,244
k8_6_SC2 <- Consumer service	0,219
k8_7_SC3 <- Consumer service	0,175
k8_8_SC4 <- Consumer service	0,212
k8_9_SC5 <- Consumer service	0,205
k9_1_SAT <- SAT	0,352
k9_2_SAT <- SAT	0,327
k9_3_SAT <- SAT	0,358
k9_4_WOM <- WOM intention	0,357
k9_5_BI <- BI	1,000
k9_6_WOM <- WOM intention	0,340
k9_7_WOM <- WOM intention	0,333
k9_8_EWOM <- E-WOM	1,000
Off-serv	
k7aii_1_WEBS1 <- Website design	0,227
k7aii_2_WEBS2 <- Website design	0,286
k7aii_3_WEBS3 <- Website design	0,354
k7aii_4_WEBS4 <- Website design	0,325
k7aii_5_RES1 <- Reservation	0,200
k7aii_6_RES2 <- Reservation	0,210
k7aii_7_RES3 <- Reservation	0,239
k7aii_8_RES4 <- Reservation	0,220
k7aii_9_RES5 <- Reservation	0,235
k8_1_SEC1 <- Security	0,269
k8_2_SEC2 <- Security	0,251
k8_3_SEC3 <- Security	0,289

k8_4_SEC4 <- Security	0,309
k8_5_SC1 <- Consumer service	0,271
k8_6_SC2 <- Consumer service	0,254
k8_7_SC3 <- Consumer service	0,231
k8_8_SC4 <- Consumer service	0,196
k8_9_SC5 <- Consumer service	0,231
k9_1_SAT <- SAT	0,348
k9_2_SAT <- SAT	0,340
k9_3_SAT <- SAT	0,351
k9_4_WOM <- WOM intention	0,338
k9_5_BI <- BI	1,000
k9_6_WOM <- WOM intention	0,349
k9_7_WOM <- WOM intention	0,351
k9_8_EWOM <- E-WOM	1,000
E-prod	
k7bi_10_EXCH6 <- Exchange	0,177
k7bi_1_PROD1 <- Product description	0,272
k7bi_2_PROD2 <- Product description	0,340
k7bi_3_PROD3 <- Product description	0,355
k7bi_4_PROD4 <- Product description	0,234
k7bi_5_EXCH1 <- Exchange	0,224
k7bi_6_EXCH2 <- Exchange	0,235
k7bi_7_EXCH3 <- Exchange	0,219
k7bi_8_EXCH4 <- Exchange	0,172
k7bi_9_EXCH5 <- Exchange	0,158
k8_1_SEC1 <- Security	0,238
k8_2_SEC2 <- Security	0,357
k8_3_SEC3 <- Security	0,239
k8_4_SEC4 <- Security	0,309
k8_5_SC1 <- Consumer service	0,240
k8_6_SC2 <- Consumer service	0,244
k8_7_SC3 <- Consumer service	0,191
k8_8_SC4 <- Consumer service	0,203
k8_9_SC5 <- Consumer service	0,237
k9_1_SAT <- SAT	0,384
k9_2_SAT <- SAT	0,319
k9_3_SAT <- SAT	0,368
k9_4_WOM <- WOM intention	0,384
k9_5_BI <- BI	1,000
k9_6_WOM <- WOM intention	0,337
k9_7_WOM <- WOM intention	0,342
k9_8_EWOM <- E-WOM	1,000
E-service	
k7bii_10_OSERV6 <- Online Services	0,256
k7bii_11_CS6 <- Consumer service	0,150
k7bii_1_SETUP1 <- Setup	0,307

k7bii_2_SETUP2 <- Setup	0,315
k7bii_3_SETUP3 <- Setup	0,276
k7bii_4_SETUP4 <- Setup	0,243
k7bii_5_OSERV1 <- Online Services	0,167
k7bii_6_OSERV2 <- Online Services	0,207
k7bii_7_OSERV3 <- Online Services	0,201
k7bii_8_OSERV4 <- Online Services	0,165
k7bii_9_OSERV5 <- Online Services	0,215
k8_1_SEC1 <- Security	0,298
k8_2_SEC2 <- Security	0,273
k8_3_SEC3 <- Security	0,281
k8_4_SEC4 <- Security	0,320
k8_5_SC1 <- Consumer service	0,210
k8_6_SC2 <- Consumer service	0,221
k8_7_SC3 <- Consumer service	0,171
k8_8_SC4 <- Consumer service	0,247
k8_9_SC5 <- Consumer service	0,243
k9_1_SAT <- SAT	0,349
k9_2_SAT <- SAT	0,334
k9_3_SAT <- SAT	0,367
k9_4_WOM <- WOM intention	0,388
k9_5_BI <- BI	1,000
k9_6_WOM <- WOM intention	0,334
k9_7_WOM <- WOM intention	0,339
k9_8_EWOM <- E-WOM	1,000

7. Annex 7: Results of the PLS path analysis with averages filled in for the missing values

Path coefficients

Source: own elaboration based on PLS-SEM

		Lack of CS and SEC	Lack of SEC	Lack of CS	Full experience
The quality of the „physical" webshop-> SAT	Path coeff	-0,112	-0,058	-0,021	0,018
	p value Full experience vs the analyzed segment	0,940	0,750	0,667	
The quality of the purchase and exchange -> SAT	Path coeff	0,300	0,488	0,117	0,341
	p value Full experience vs the analyzed segment	0,636	0,198	0,933	
Cust.Serv -> SAT	Path coeff	0,203	0,375	0,094	0,277
	p value Full experience vs the analyzed segment	0,721	0,240	0,922	
Security -> SAT	Path coeff	0,254	-0,027	0,524	0,244
	p value Full experience vs the analyzed segment	0,468	0,967	0,023	
SAT -> tr. WOM	Path coeff	0,852	0,865	0,775	0,906
	p value Full experience vs the analyzed segment	0,944	0,850	0,991	
SAT -> E-WOM	Path coeff	0,300	0,510	0,333	0,605
	p value Full experience vs the analyzed segment	1,000	0,875	1,000	
SAT -> BI	Path coeff	0,607	0,573	0,495	0,791
	p value Full experience vs the analyzed segment	0,996	0,998	1,000	

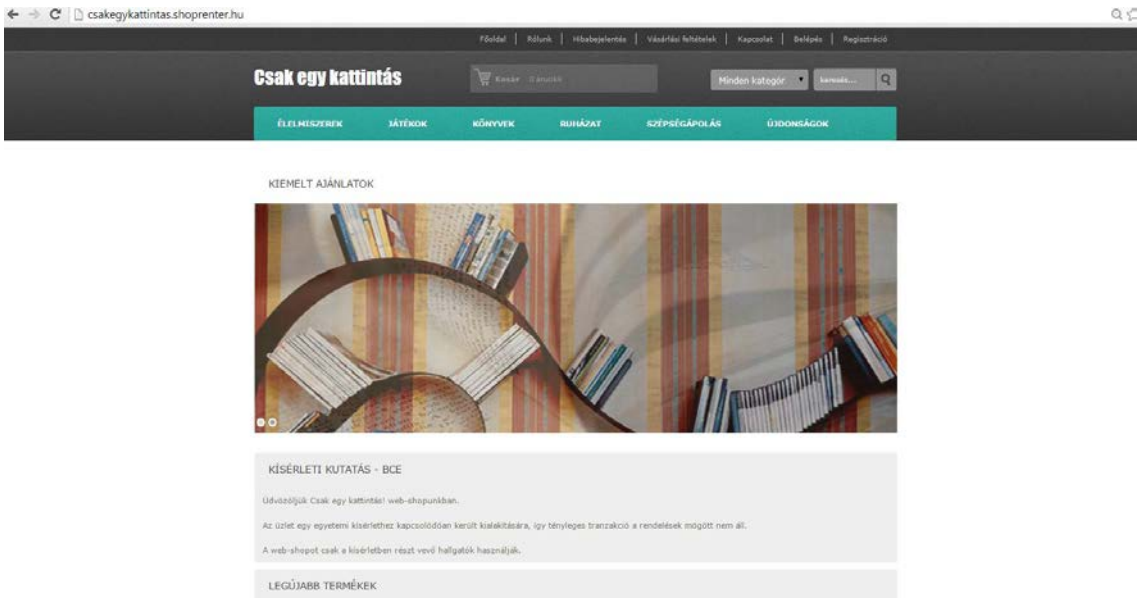
		Lack of CS and SEC	Lack of SEC	Lack of CS	Full experience
The quality of the „physical" webshop-> SAT	Path coeff	-0,112	-0,058	-0,021	0,018
	p value Full experience vs the analyzed segment	0,940	0,750	0,667	
The quality of the purchase and exchange -> SAT	Path coeff	0,300	0,488	0,117	0,341
	p value Full experience vs the analyzed segment	0,636	0,198	0,933	
Cust. Serv. -> SAT	Path coeff	0,203	0,375	0,094	0,277
	p value Full experience vs the analyzed segment	0,721	0,240	0,922	
Security -> SAT	Path coeff	0,254	-0,027	0,524	0,244
	p value Full experience vs the analyzed segment	0,468	0,967	0,023	
SAT -> tr. WOM	Path coeff	0,852	0,865	0,775	0,906
	p value Full experience vs the analyzed segment	0,944	0,850	0,991	
SAT -> E-WOM	Path coeff	0,300	0,510	0,333	0,605
	p value Full experience vs the analyzed segment	1,000	0,875	1,000	
SAT -> BI	Path coeff	0,607	0,573	0,495	0,791

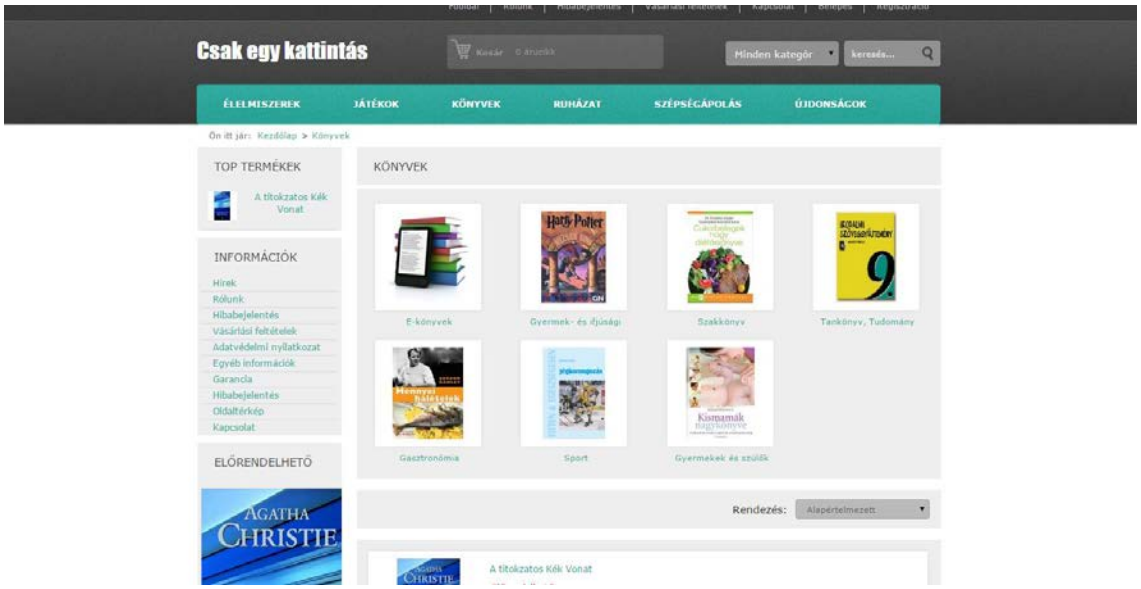
	p value Full experience vs the analyzed segment	0,996	0,998	1,000	

8. Annex 8: Indirect paths (respondents having a complete purchase experience)

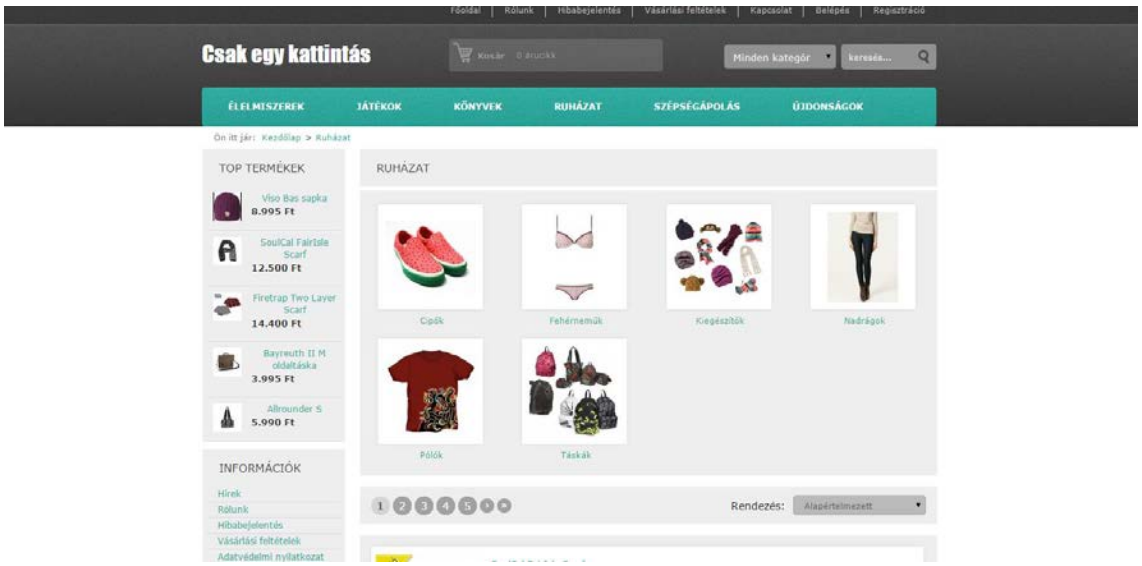
	Offline-product			Offline-service			E-product			E-service		
	Coeff	p-value		Coef	p-value		Coef	p-value		Coef	p-value	
WEBS -> BI	0.056	No sig	0.460	0.042	No sig	0.785	0.005	No sig	0.932	0.208	No sig	0.132
WEBS -> E-WOM	0.045	No sig	0.461	0.027	No sig	0.786	0.004	No sig	0.932	0.156	No sig	0.146
WEBS -> WOM intention	0.061	No sig	0.460	0.046	No sig	0.783	0.006	No sig	0.932	0.268	No sig	0.111
EXCH -> BI	0.533	szig	0.000	0.345	szig	0.023	0.048	No sig	0.643	-0.104	No sig	0.532
EXCH -> E-WOM	0.429	szig	0.000	0.217	szig	0.044	0.041	No sig	0.639	-0.077	No sig	0.536
EXCH -> WOM intention	0.581	szig	0.000	0.376	szig	0.019	0.056	No sig	0.642	-0.133	No sig	0.523
Customer service -> BI	0.357	szig	0.001	0.207	No sig	0.272	0.097	No sig	0.371	0.306	szig	0.001
Customer service -> E-WOM	0.288	szig	0.003	0.130	No sig	0.278	0.082	No sig	0.379	0.228	szig	0.002
Customer service -> WOM intention	0.390	szig	0.001	0.226	No sig	0.263	0.112	No sig	0.376	0.393	szig	0.000
Security -> BI	-0.114	No sig	0.403	0.198	No sig	0.264	0.465	szig	0.001	0.206	szig	0.020
Security -> E-WOM	-0.092	No sig	0.407	0.125	No sig	0.280	0.394	szig	0.002	0.154	szig	0.020
Security -> WOM intention	-0.124	No sig	0.401	0.217	No sig	0.274	0.534	szig	0.000	0.264	szig	0.013

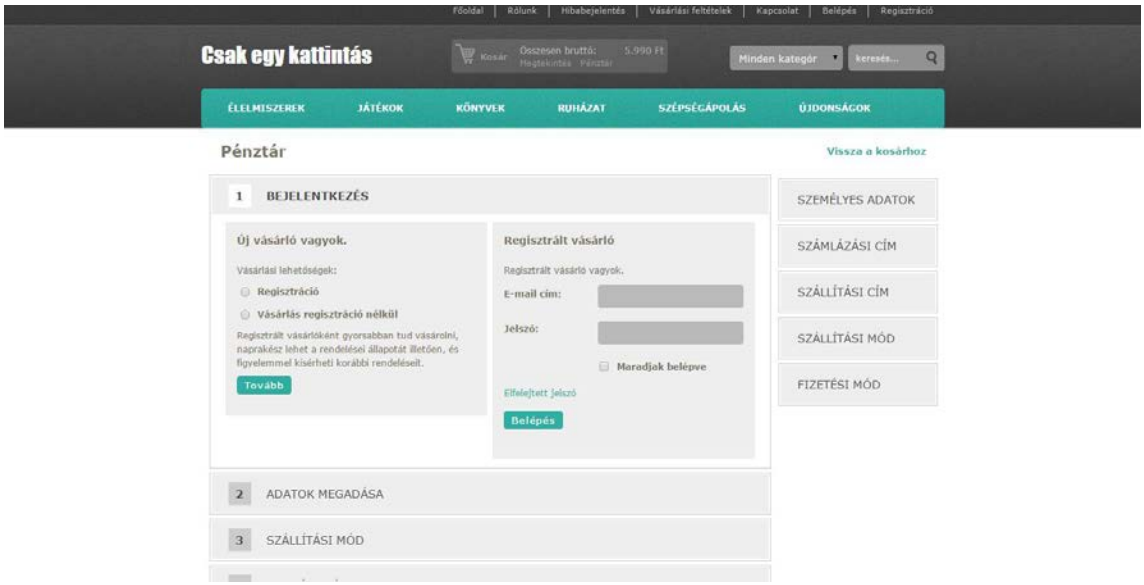
9. Annex 9: The Just a click.hu webshop – Snapshots



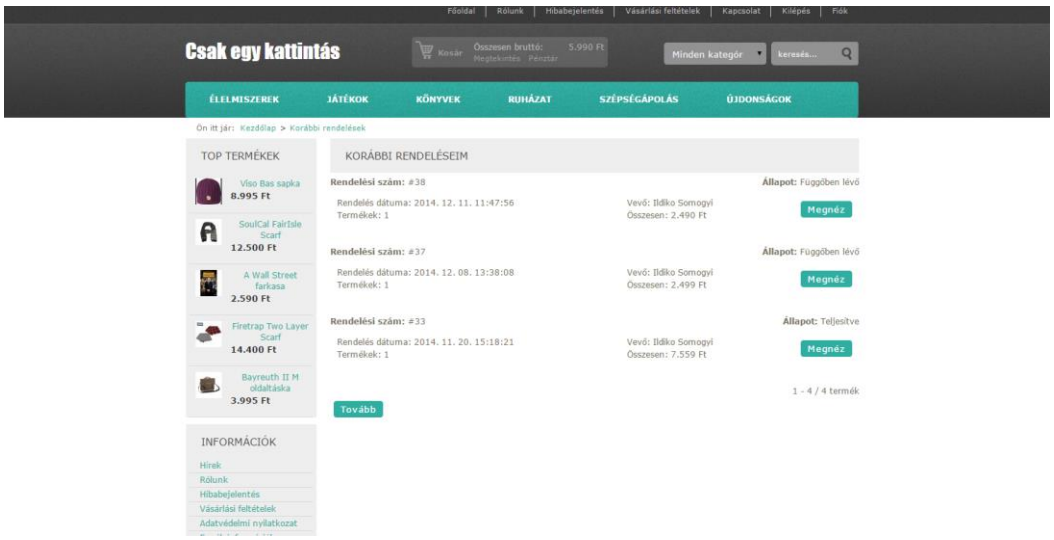


10.


Csak egy kattintás
Főoldal | Rólunk | Hibabejelentés | Vásárlási feltételek | Kapcsolat | Belépés | Regisztráció
Kosár 0 áruckk
Minden kategór
keresés...
ÉLELMISZEREK
JÁTÉKOK
KÖNYVEK
RUHÁZAT
SZÉPSÉGÁPOLÁS
ÚJDONSÁGOK
Ön itt jár: Kezdőlap > Ruházat
TOP TERMÉKEK
Viso Bas sapka
8.995 Ft
SoulCal Fairisle Scarf
12.500 Ft
Firetrap Two Layer Scarf
14.400 Ft
Bayreuth II M oldaltáska
3.995 Ft
Allrounder S
5.990 Ft
INFORMÁCIÓK
Hírek
Rólunk
Hibabejelentés
Vásárlási feltételek
Adatvédelmi nyilatkozat
RUHÁZAT
Cipők
Fehérnemük
Kiegészítők
Nadrágok
Pólók
Táskák
Rendezés:
Alapértelmezett


Csak egy kattintás
Főoldal | Rólunk | Hibabejelentés | Vásárlási feltételek | Kapcsolat | Belépés | Regisztráció
Kosár Összesen bruttó: 5.990 Ft
Megtekintés Pénztár
Minden kategór
keresés...
ÉLELMISZEREK
JÁTÉKOK
KÖNYVEK
RUHÁZAT
SZÉPSÉGÁPOLÁS
ÚJDONSÁGOK
Pénztár
Vissza a kosárhoz
1 BEJELENTKEZÉS
Új vásárló vagyok.
Vásárlási lehetőségek:
Regisztráció
Vásárlás regisztráció nélkül
Regisztrált vásárlóként gyorsabban tud vásárolni, naprakész lehet a rendelései állapotát illetően, és figyelemmel kísérheti korábbi rendeléseit.
Tovább
Regisztrált vásárló
Regisztrált vásárló vagyok.
E-mail cím:
Jelszó:
Maradjak belépve
Elfelejtett jelszó
Belépés
2 ADATOK MEGADÁSA
3 SZÁLLÍTÁSI MÓD
SZEMÉLYES ADATOK
SZÁMLÁZÁSI CÍM
SZÁLLÍTÁSI CÍM
SZÁLLÍTÁSI MÓD
FIZETÉSI MÓD

11.


Csak egy kattintás
Főoldal | Rólunk | Hibabejelentés | Vásárlási feltételek | Kapcsolat | Kilépés | Fiók
Kosár Összesen bruttó: 5.990 Ft
Megtekintés Pénztár
Minden kategór
keresés...
ÉLELMISZEREK
JÁTÉKOK
KÖNYVEK
RUHÁZAT
SZÉPSÉGÁPOLÁS
ÚJDONSÁGOK
Ön itt jár: Kezdőlap > Korábbi rendelések
TOP TERMÉKEK
Viso Bas sapka
8.995 Ft
SoulCal Fairisle Scarf
12.500 Ft
A Wall Street farkasa
2.590 Ft
Firetrap Two Layer Scarf
14.400 Ft
Bayreuth II M oldaltáska
3.995 Ft
INFORMÁCIÓK
Hírek
Rólunk
Hibabejelentés
Vásárlási feltételek
Adatvédelmi nyilatkozat
KORÁBBI RENDELÉSEIM
Rendelési szám: #38
Állapot: Függőben lévő
Rendelés dátuma: 2014. 12. 11. 11:47:56
Termékek: 1
Vevő: Ildiko Somogyi
Összesen: 2.490 Ft
Megnéz
Rendelési szám: #37
Állapot: Függőben lévő
Rendelés dátuma: 2014. 12. 08. 13:38:08
Termékek: 1
Vevő: Ildiko Somogyi
Összesen: 2.499 Ft
Megnéz
Rendelési szám: #33
Állapot: Teljesítve
Rendelés dátuma: 2014. 11. 20. 15:18:21
Termékek: 1
Vevő: Ildiko Somogyi
Összesen: 7.559 Ft
Megnéz
1 - 4 / 4 termék
Tovább

12. Annex 10: Description of the experiment

1. PURCHASE OF AN OFFLINE PRODUCT

For Christmas Your relatives would like to by to You a clothing accessory. Unfortunately they do not know exactly what your style/aste is, so they asked You to buy this clothing accessories (hats / scarves / gloves / bag) for Yourself in determined price.

By using „Csak egy kattintás" webshop, buy the selected accessory/ accessories, which summed price cannot be more than HUF 8,300 without the shipping charge.

Choose the delivery and COD payments when buying.

After your purchase you will get an e-mail to the given e-mail address where you will find a link for further instructions.

The webshop: http://csakegykattintas.shoprenter.hu/

2. PURCHASE OF AN ELECTRONIC PRODUCT

Your best friend got for his/her birthday a Kindle 6 e-book reader from his/her family, which has the following parameters:

- *Display: 6 inches (15.2 cm), E-Ink Pearl display with 16 shades of gray, with touch screen panel.*
- *Dimensions: 166 * 115 * 9 mm and weighs 170 grams device.*
- *WiFi: WiFi built in, which can detect and connect to these standard 802.11b, 802.11g or 802.11n networks*
- *Battery: use without WiFi and a half hours daily reading time after assuming the device to upload Total operational for about a month.*
- *Supported formats:*
- *Text formats: AZW, TXT, PDF, MOBI, PRC, HTML, DOC, DOCX.*
- *Image formats: JPEG, GIF, PNG, BMP.*
- *Built-in memory: 4GB, which can store about 1,000 e-book.*
- *Color: black*

You decided that for Christmas You want to surprise your friend with one or more e-books.

By using „Csak egy kattintás” webshop, buy the e-book(s). The amount of the purchased e-books / e-books should not exceed 2,700 HUF.During Your purchaes choose download as delivery method and bank transfer as payment method.

After your purchase you will receive an e-mail, and You can download the e-book from You account / downloads menu. In the downloaded "book" you'll find the further instructions.

3. INSTRUCTIONS RECEIVED BY THE CUSTOMER AFTER THE PURCHASE IN E-MAIL:

Your order has been received, this phase of the experiment is completed. To continue, please CAREFULLY READ the instructions that are included in this e-mail and listen to your case WHICH instructions should be followed.

If at this stage of the experiment You had to buy e-books, please go to the webshop's MY ACCOUNT and download the ordered e-book from the Downloads section and follow the instructions, You will find in the download document.

If You had to purchase CLOTHING ACCESSORY at this stage, and it was Your FIRST PURCHASE during the experiment (Scenario A), follow the instructions using the following link: http://megkerdezes.e-businessportal.hu/index.php?sid= 81528 & lang = en

If You had to purchase CLOTHING ACCESSORY at this stage, and it was Your second PURCHASE during the experiment (Scenario B), please follow the instructions for using the link below: http://megkerdezes.e-businessportal.hu/index.php?sid=75159&lang=hu

13. Annex 11: Pilot studies

1. Pilot study: Consumer satisfaction and word-of-mouth in Electronic Commerce

Over the last 10 years the B2C online market and its characteristics – for example the perceived electronic service quality (e-SQ) – has become a relevant research area, not only in the Western countries but also in smaller, less-developed countries. Therefore the first aim of this paper is to provide a description of an analysis into how the dimensions of perceived e-SQ relate to satisfaction and WOM intention in Hungary. Secondly, using the results of a PLS-SEM model we show how consumers may be segmented based on their perceptions of quality. According to our research only the dimension of efficiency and responsiveness have a significant positive effect on satisfaction, and the perception of the quality of fulfilment's also significantly influences word-of-mouth intention.

Based on these facts, e-service quality needs a new approach, but the dimensions of e-service quality are differently defined in marketing literature. To better understand the concept of e-service quality perception, Parasuraman, Zeithalm and Malhotra (2005) suggest that the differences between traditional services quality and e-service quality should be analysed.

In this study we used the broadly-accepted E-S-Qual scale, and a second scale, E-RecS-Qual, which was established in 2005 by Parasuraman, Zeithalm and Malhotra (with 4+3 dimension with 22+11 items). The main scale has a second scale because the results of the research showed that e-service has some dimensions connected to compensation and responsiveness, but these items are not relevant to all customers. This scale is relevant only to customers who had a problem with the site or purchasing process.

In this study we investigate only one aspect of satisfaction, word of mouth (Dolen, Dabholkar, & Ruyter, 2007, Ltifi & Gharbi, 2012), which may be divided into traditional WOM and electronic WOM. Traditional WOM is defined as a negative or positive informal communication about a business or its products and services (Tax, Chandrasrekaran, and Christiansen, 1993), and e-WOM refers to "any positive or negative statements made by potentional, actual or former customers about a product or a company… via Internet" (Henning – Thurau, Gwinner, Walsh, & Gremler, 2004, 39.

pp.). During our research we will concentrate only on the traditional word-of-mount intention.

Empirical research

Our research included two main phases. In the first phase the direct effect of perceived e-service quality's dimensions on satisfaction and on traditional word-of-mouth were analysed using the PLS-SEM method. The second phase provides a segmentation of the sample based on those perceptions of quality dimensions which are relevant to the satisfaction and word-of-mouth intention. In this part we also describe the different consumer segments by using multivariate analysis of variance. The data were analysed using Smart PLS and SPSS 20.

Research design

A research was designed to measure perceived electronic-service quality in Hungary using the E-S-Qual and E-RecS-Qual scale. This scale was chosen because it is a well-accepted scale in marketing because its roots come from traditional service marketing (Parasuraman, Zeithaml, & Malhotra, 2005). Word-of-mouth intention was also measured using a multi-item scale from Zeithalm, Berry, and Parasuraman (1996), and satisfaction was measured with one item described in Parasuraman, Zeithaml and Malhotra (2005).

The data were collected about the users of one of the most popular Hungarian online bookshops. An online bookstore was chosen because most Hungarian e-shoppers buy books on the internet (NRC, 2009). An online survey was used and in one week 277 responses arrived. Table 1. shows a description of the sample. The translation of the scale was a two-stage process: first the English scale was translated to Hungarian, and after that the Hungarian items were translated to English. With this checking process, the validity of the scale was guaranteed.

Table 1. – Profiles of the sample. Source: Authors' own data.

N=277 people	**Freq.**	**%**	**N=277 people**	**Freq.**	**%**
Sex[23]			**For how long have you been using the web-store?**		
Male	45	16%	For less than 3 months	17	6%
Female	232	84%	for 3-6 months	17	6%
Age			for 6-10 months	41	15%
< 20	21	8%	For more than 1 year	202	73%

[23] According to a survey by Gemius, 60% of website users are women.

20-29	78	28%	**How often do you visit this web-store?**		
30-39	95	34%	Less the 5 times per month	56	20%
40-49	41	15%	5-8 times per month	103	37%
>49	42	15%	9-12 times per month	52	19%
Net monthly income			More than 12 times per month	66	24%
>50.000 HUF*	65	26%	**When was your last purchase?**		
50.000-99.999 HUF	87	35%	Less than a week age	40	14%
100.000-149.999 HUF	48	19%	1-2 weeks ago	41	15%
150.000-199.999 HUF	35	14%	2-4 weeks ago	22	8%
200.000 – 499.999 HUF	16	6%	4-8 weeks ago	43	16%
> 499.999 HUF	1	0,4%	more than 8 weeks ago	131	47%
n.d.	25,00	9%	**The last average purchase size**	5004 HUF*	
*230 HUF ~ 1 USD (Jan 2014)					

Research methods

The PLS technique was used to estimate the relationships between the latent variables. The use of this method is recommended for relatively low sample numbers (Henseler, 2010), or when the construct scores are required for the analysis (Mandják, Henseler, Simon, & Szalkai, 2012).

Before analysing the expected relationships, the reliability and validity of the scales – such as the internal consistency reliability, convergence validity, and discriminant validity – should be tested (table 2-3.). Our results show that the scales used have the expected reliability and validity and were suitable for use in our analyses.

Table 2. – The reliability and validity of the multi-item scales employed. Source: Authors' own data.

		Convergence validity	**Internal consistency**		**Discriminant validity**
Scale		**AVE**	**Dillon-Goldstein's Rho**	**Cronbach-alpha**	**AVE>r_{ij}^2+r_{ij}^2**
E-S-Qual	**Fulfilment**	0,582	0,906	0,878	Yes
	System availability	0,644	0,878	0,815	Yes
	Efficiency	0,601	0,923	0,903	Yes
	Security	0,806	0,926	0,880	Yes
E-RecS-Qual	**Compensation**	0,673	0,860	0,776	Yes
	Contact	0,745	0,897	0,827	Yes
	Responsiveness	0,776	0,945	0,928	Yes
WOM		0,863	0,950	0,920	Yes
Expected value		AVE > 0,5 (Fornell – Larcker, 1981)	D-G-R > 0,7 (Vandenbosch, 1996)	α > 0,7 (Nunnaly – Bernstein, 1994)	Fornell-Larcker Criterium

Fornell-Larcker Criterium									
	Sec	**Sys.Av**	**Eff**	**Cont**	**Comp**	**SAT**	**Ful**	**Resp**	**WOM**
Sec	**0,806**								
Sys.Av	0,187	**0,644**							
Eff	0,246	0,462	**0,601**						
Cont	0,386	0,198	0,340	**0,745**					
Comp	0,236	0,086	0,169	0,333	**0,673**				
SAT	0,192	0,327	0,503	0,248	0,131	**1,000**			
Ful	0,360	0,178	0,340	0,334	0,203	0,207	**0,582**		
Resp	0,380	0,167	0,322	0,654	0,515	0,286	0,274	**0,776**	
WOM	0,183	0,265	0,453	0,230	0,147	0,419	0,262	0,298	**0,863**

The explained variances of the endogenous variables are substantial ($R2_{SAT}$=0,612, $R2_{WOM}$=0,558). The path coefficient of the variables shows that the efficiency, system availability and responsiveness have a relevant positive effect on satisfaction, (β_{18}=0,550, β_{28}=0,144, β_{58}=0,264). The positive effect of efficiency, fulfilment, responsiveness, and satisfaction on word-of-mouth intention is also significant (β_{19}=0,248, β_{39}=0,165, β_{59}=0,247, β_{78}=0,338) (Table 3.). In order to observe the significance of the assumed relationships, the following hypotheses should be analysed by using the bootstrapping method (sample size 5000) (Table 3.):

H0: β=0, the path coefficient does not significantly differ from 0.

H1: $\beta \neq 0$

Table 3. – Path coefficients and results of analysis of hypotheses. Source: Authors' own data.

	path coeff	**t-stat**	**reliability: 95%**
			t_{emp}=1,67
efficiency→ SAT	**0,550**	5,678	✓ (do not reject)
system availability→ SAT	0,144	1,454	☒ (do reject)
fulfilment → SAT	-0,029	0,348	☒ (do reject)
privacy → SAT	0,016	0,223	☒ (do reject)
responsiveness→ SAT	**0,264**	2,501	✓ (do not reject)
compensation→ SAT	-0,034	0,697	☒ (do reject)
contact → SAT	-0,037	0,425	☒ (do reject)
efficiency→ WOM	**0,248**	1,837	✓ (do not reject)
system availability→ WOM	0,054	0,600	☒ (do reject)
fulfilment → WOM	**0,165**	2,470	✓ (do not reject)
privacy → WOM	-0,029	0,389	☒ (do reject)
responsiveness→ WOM	**0,247**	2,324	✓ (do not reject)
compensation→ WOM	-0,033	0,651	☒ (do reject)
contact → WOM	-0,128	1,383	☒ (do reject)
sat → WOM	**0,338**	3,305	✓ (do not reject)

Our results show that the variance of online consumers satisfaction is explained 61.2% by the positive effects of efficiency (path of 0.55), and responsiveness (path of 0.264). The variance of word-of-mouth intention is explained 55.8% by the positive effects of efficiency (weight of 0.248), fulfilment (path of 0.165) responsiveness (path of 0.247), and satisfaction (weight of 0.338).

2. Pilot study: Online-services buyers and products buyers: Do they behave different?

Lots of studies in the marketing literature have focused on the understanding and measuring of electronic service quality (e-sq), online consumer satisfaction, and effects

of word of mouth (WOM and e-WOM). Most of these studies neglected to take into account the heterogeneity of e-commerce. The aim of this study is to analyze the relationship between e-sq, satisfaction and WOM for service buyers and products buyers separately. Our results show that in the case of product buyers, e-sq does not have a significant effect on WOM, and there is no relationship between satisfaction and e-WOM for both categories.

We tested the following hypotheses for the second order service quality construct model we developed (Fig. 1, Fig. 2):

H1a: In case of service buyers the e-sq has a positive effect on satisfaction in e-commerce.

H1b: In case of product buyers the e-sq has a positive effect on satisfaction in e-commerce.

H2a: In case of service buyers the e-sq has a positive effect on WOM in e-commerce.

H2b: In case of product buyers the e-sq has a positive effect on WOM in e-commerce.

H3a: In case of service buyers the e-sq has a positive effect on e-WOM in e-commerce.

H3b: In case of product buyers the e-sq has a positive effect on e-WOM in e-commerce.

H4a: In case of service buyers the satisfaction has a positive effect on WOM in e-commerce.

H4b: In case of product buyers the satisfaction has a positive effect on WOM in e-commerce.

H5a: In case of service buyers the satisfaction has a positive effect on e-WOM in e-commerce.

H5b: In case of product buyers the satisfaction has a positive effect on e-WOM in e-commerce.

We collected 148 responses from a university student population using an online survey instrument. 56 responses addressed services and 92 responses addressed products. Data collection took place over 2 weeks in 2012. For path model analysis we used Smart PLS (Henseler, 2010).

Results

We analyzed the effects of e-sq on satisfaction, WOM and e-WOM separately for products and services buyers. Descriptive statistics of the responses to the questions in the instrument appear in Table 2.

Table 2. – Descriptive statistics of the used scales

	Services (N=56 person)		*Product (N=92 person)*	
	Mean	**St. dev**	**Mean**	**St.dev**
Electronic service quality *(Wolfinbarger & Gilly, 2003)*	**5,73**		**5,82**	

Design	**5,61**		**5,80**	
The website provides in-depth information.	5,75	1,297	6,11	,831
The site doesn't waste my time.	5,55	1,595	5,58	1,549
It is quick and easy to complete a transaction at this website.	6,05	1,367	6,16	1,225
The level of personalization at this site is about right, not too much or too little.	4,68	1,454	4,87	1,491
This website has good selection.	6,02	1,152	6,28	,941
Fulfillment/reliability	**6,63**		**6,29**	
The product that came was represented accurately by the website.	6,61	,888	6,36	1,054
You get what you ordered from this site.	6,70	,711	6,55	,856
The product is delivered by the time promised by the company.	6,57	,850	5,96	1,283
Security/privacy	**5,89**		**5,66**	
I feel like my privacy is protected at this site.	5,91	1,431	5,65	1,270
I feel safe in my transactions with this website.	5,96	1,388	5,79	1,322
The website has adequate security features.	5,79	1,289	5,52	1,209
Customer service	**4,80**		**5,52**	
The company is willing and ready to respond to customer needs.	4,88	1,820	5,73	1,335
The company is willing and ready to respond to customer needs.	5,09	1,481	5,53	1,321
Inquiries are answered promptly.	4,45	1,683	5,29	1,305
SATISFACTION *(Chang, Wang, and Yang, 2009)*	**6,38**		**6,36**	
I am satisfied with my decision to purchase from this website.	6,41	1,332	6,36	,944
If I had to purchase again, I would feel differently about buying from this website.	6,45	1,306	6,34	1,041
My choice to purchase from this website was a wise one	6,29	1,232	6,37	1,024
WORD OF MOUTH *(Zeithaml, Berry, and Parasuraman 1996)*	**5,73**		**5,95**	
I say positive things about the company to other people.	5,41	1,385	5,95	1,278
I would recommend the company to those who seek my advice about such matters.	5,91	1,210	6,12	1,221
I would encourage friends and relatives to use the company.	5,86	1,299	5,79	1,371
E-WORD OF MOUTH *(Yang & Peterson, 2004)*	**4,38**		**4,41**	
I would post positive messages about the company on some Internet message board	4.38	1,87	4,41	2,142

The most relevant dimensions of e-sq for services are design and security (Λ2=0,897, Λ4=0,738), For products, the most relevant dimensions are consumer service and design (Λ1=0,872, Λ2=0,837). For the analysis of the assumed relationships we used SmartPLS. The PLS technique can be used to estimate relationships between latent variables with relatively low sample numbers. Our sample size of n=148 satisfies the recommended sample size for the PLS method (Henseler, 2010).

The internal consistency of the used scales are good: in both subsample the Cronbach-alphas are higher than 0,7 (Nunnaly & Bernstein, 1994), and the Dillon-Goldstein's Rho values are also higher than 0,6. The discriminant validity of the scales is also sufficient, the AVE-s are higher than 0,5 (Fornell & Larcker, 1981) (Table 3).

Table 3. – The reliability of the multi-item scales, source: own results

	Service	***Product***	***Service***	***Product***	***Service***	***Product***
	AVE		**Dillon-Goldstein's Rho**		**Cronbach-alpha**	
Consumer service	0,7813	0,7494	0,9146	0,8997	0,8599	0,8325
Design	0,528	*0,4856*	0,8475	0,8243	0,7736	0,7322
Reliability	0,6252	0,6125	0,8256	0,8252	*0,683*	*0,6823*
Security	0,8244	0,7231	0,9336	0,8866	0,8926	0,8087
E-SQ (second order construct)	0,5753	0,6175	0,7886	0,7414	0,8753	0,875
SAT	0,8639	0,8733	0,9501	0,9539	0,9223	0,9275
WOM	0,8158	0,8209	0,9299	0,9321	0,8859	0,8907

The explained variance of the latent variables is different in the two sub-samples. The explained variance of satisfaction for products is $R2_{prodSAT}$=0,371, and for services it is $R2_{servSAT}$=0,037. The explained variance of WOM and e-WOM is higher for services ($R2_{servWOM}$=0,523, and $R2_{prodWOM}$=0,384, $R2_{servEWOM}$=0,180, and $R2_{prodEWOM}$=0,081).

The path coefficient of e-sq for services shows that it has a relevant effect on WOM and e-WOM (β_{57serv}=0,584, β_{58serv}=0,416), but its effect on satisfaction is very low (β_{56serv}=0,194). The relationship between satisfaction and WOM is also relevant (β_{67serv}=0,584). Contrary to the results for products buyers, the e-sq has a relevant effect on satisfaction (β_{56prod}=0,609), but its relationship with WOM and e-WOM is weaker (β_{57prod}=0,173, β_{58prod}=0,203). The satisfaction for both categories has also a relevant effect on WOM (β_{67prod}=0,499, $\beta_{67pserv}$=0,327), but no or weak effect on e-WOM (β_{68prod}=0,111, $\beta_{68pserv}$=0,035)

In order to observe the significance of the assumed relationships, the following hypotheses should be analyzed by using bootstrapping method (sample size 1000):

H0: β=0, the path coefficient does not significantly differ from 0.
H1: β≠0
Table 4. summarizes the significance levels of the path coefficients.

Table 4. – The result of the hypotheses analyzing, source: own results

		t-stat	**reliability: 95%**	**reliability: 99%**
			t_{emp}=1,67	**t_{emp}=2,38**
H1a	e-sq→ sat (service)	2,118	✓ (do not reject)	☒
H1b	e-sq→ sat (product)	8,656	✓ (do not reject)	✓ (do not reject)
H2a	e-sq→ WOM (service)	9,008	✓ (do not reject)	✓ (do not reject)
H2b	e-sq→ WOM (product)	1,472	☒	☒
H3a	e-sq→ e-WOM (service)	6,697	✓ (do not reject)	✓ (do not reject)
H3b	e-sq→ e-WOM (product)	2,092	✓ (do not reject)	☒
H4a	sat→ WOM (service)	5,149	✓ (do not reject)	✓ (do not reject)
H4b	sat→ WOM (product)	3,127	✓ (do not reject)	✓ (do not reject)
H5a	sat→ e-WOM (service)	0,766	☒	☒
H5b	sat→ e-WOM (product)	1,099	☒	☒

Conclusion

As e-commerce's importance grows along with the increase in the number of customers who buy products and services online so emerges the need for researchers to study the expectations of online shoppers. Parts of these relevant research directions include the investigations into quality perceptions, satisfaction, word of mouth and e-word of mouth. Based on emerging evidence, the differences in perceptions related to products and

services also need to be looked into. In this study we looked at exactly these relationships as they apply to the distinct purchase categories of products and services.

Our contribution from this study are the results that show that the effects of e-sq on satisfaction, word of mouth, and e-word of mouth and the effects of satisfaction on word of mouth differ and e-word of mouth in the two e-commerce categories, and as a consequence, they should be studied separately.

Fig. 1. – Results of the PLS path model for service buyers

Source: own results

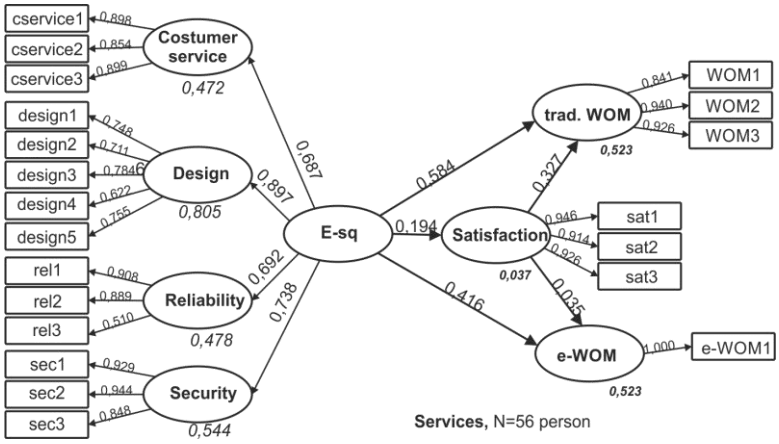
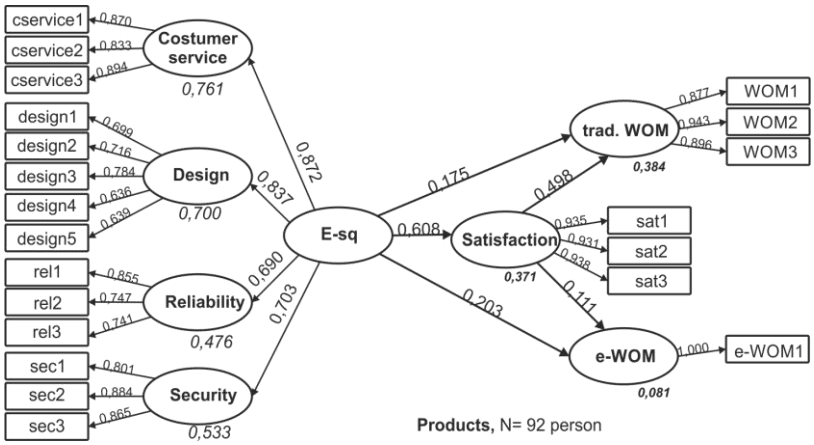


Fig. 2. – Results of the PLS path model for product buyers

Source: own results



Future research will address the limitations of our study, which are two-fold. First, a larger sample size and randomized sampling from a more general population will allow for stronger generalizations. Second, differentiation of offline goods and services from online goods and services will increase the granularity of research findings. These future

contributions will also require the modification of the e-sq instrument or the development of a new scale.

1. Publications of the author in the topic of the dissertation

Hungarian academic volumes, chapters in academic volumes

1. Nagy Ákos - Kemény Ildikó – Szűcs Krisztián – Simon Judit (2014): Online szájreklám és Satisfaction közti kapcsolat – Az 'első benyomás' szerepe az eWOM elfogadásban. In: Elméleti igényességgel – a gyaAgelat igényei szerint… Szerk: Fojtik János. ISBN: 978-615-5457-26-5, 285 – 300. old.

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2. Somogyi Ildikó (2013): Az online-fogyasztói Satisfactionmérés hatása a vállalatok versenyképességére. Vezetéstudomány 2013/3, 49-60. old.
3. Kemény Ildikó – Simon Judit (*publication expected later in 2015*): Az online purchasehoz köthető miFemaleségészlelés alakulása egy konkrét hazai online könyvesbolt esetében. Marketing és Menedzsment.

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2. Nagy Ákos - Kemény Ildikó – Szűcs Krisztián – Simon Judit (2014): Az online purchaset befolyásoló tényezők vizsgálata, különös tekintettel az elektronikus szájreklám hatására. A Magyar Marketing Szövetség Marketing Oktatók Klubja 20. országos konferenciája, Aug 27-29, 2014, Szeged. ISBN: 9789633063125, 1-8. old
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   Accessible at: http://unipub.lib.uni-corvinus.hu/865/1/TM23_Somogyi.pdf
2. Besenyei Mónika - Eszlári Nikolett - Felsmann Balázs - Gáti Mirkó György - Havran Zsolt - Jandó Zoltán - Kiss Ágnes - Markos-Kujbus Yeara - Melicher Orsolya - Kemény Ildikó (2011): Fejezetek a Genderzetközi üzleti gazdaságtanból 4. Műhelytanulmány. BCE Vállalatgazdaságtan Intézet, Budapest. *Accessible at: http://edok.lib.uni-corvinus.hu/355/1/Nkzi_PhD_muhely_2011_4_.pdf*

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1. Kemény Ildikó – Ugray Zsolt – Simon Judit (2013): Online-consumer satisfaction and word of mouth in case of services buyers and products buyers. EMAC Regional Conference, Sept 25-27. 2013, Szentpétervár. ISBN 978-5-9924-0081-6. 152 – 160 old. *Accessible at: http://www.gsom.spbu.ru/files//4th_emac_cee_conference_2013_proceedings.pdf*
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