E-COMMERCE RESEARCH AND APPLİCATİONS: A PROPOSAL FOR CLASSİFİCATİON AND AN UPDATED LİTERATURE REVİEW

Ali İhsan BOYACI[a][*]ve Kasım BAYNAL[b]

aIndustrial Engineering, Engineering Faculty, Kocaeli University, Kocaeli, Turkey

ali.ihsan@kocaeli.edu.tr

bIndustrial Engineering, Engineering Faculty, Kocaeli University, Kocaeli, Turkey

kbaynal@kocaeli.edu.tr

Abstract

Electronic commerce (EC) is a term for any type of business, or commercial transaction that involves the transfer of information across an electronic network, primarily the Internet. EC has expanded rapidly over the past decade and is predicted to continue at this rate, or even accelerate because it allows consumers to exchange goods and services with no barriers of time or distance and it is often faster, cheaper and more convenient than the traditional methods of commerce. It is clear to see that EC is an area of importance in the field of business research, but there have been only few literature review on this area, and hardly any of them are recent study. In this paper, an updated literature review and classification framework for EC research is presented. The study is based on the analysis of a large number of publications (especially journal articles) related to EC using various electronic journal databases and printed journals. All of the papers in the review are classified according to proposed classification framework which consists of main and sub-categories based on their main focus and results of these are presented. The results of this study demonstrate that an increasing quantity of EC research has been conducted for a wide range of areas. It is to be hoped that this study will be helpful for anyone interested in EC as a source and arouse more interest.

Keywords: Electronic commerce studies, literature review, Classification of e-commerce publications.

1. INTRODUCTION

The rapid developments in the communication technologies result in crucial transformations in human life. One of these transformations is related to the changes in shopping styles. Along with the improvements in the internet, online shopping has been more popular among users. Consumers can shop from online stores that allow them to shop without physically going into shops (Dündar et. al., 2007). Nowadays, the internet has been an essential business platform for the product trade of products between organizations and consumers and even between consumers themselves (Kang et. Al. 2016; Corbit et. al. 2003).

---

[*]Corresponding author. Tel.:0262 303 33 16
E-mail address: ali.ihsan@kocaeli.edu.tr (Ali İhsan, Boyacı).

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

With EC, companies can have a competitive advantage by accomplishing just in time production and distribution. EC can be basically defined as the production, promotion, selling and distribution of products and services in an online environment. Besides, EC can also be defined from several different aspects as follows (Turban and King, 2003; Ngai and Wat, 2002):

Communication aspect: EC is the distribution of products, services, information or payments via computer networks or any other electronic environment.

Business process aspect: EC is the usage of the technology by the automation of process and work-flows of companies.

Service aspect: EC is a tool helping companies, consumers or managements to decrease their costs while increasing the speed and quality of a service.

Online aspect: EC is the buying and selling of products or information with the help of the internet or other online services.

Considering the characteristics of its business operations, EC can be classified under five categories (Kang et.al. 2016; Chou, 2001; Duffy and Dale, 2002; Wu and Hisa, 2004):

Business-to business (B2B): B2B EC, also known as inter-enterprise commerce, consists of the trade between companies by using the internet or computer networks.

Business-to consumer (B2C): B2C EC is defined as the selling of the businesses into the general public which is the most attractive trade through the internet. Online insurance and banking can be counted under this category (Erbaşlar and Dokur, 2008).

Consumer-to-consumer (C2C): C2C EC which is defined as the electronic trade between consumers is very similar to the retail market. This kind of EC consists of the trade of the second-hand products (Kırçova, 2006). Sahibinden.com is one of the examples for this category.

Consumer-to-business (C2B): C2B EC consists of a bidding process in which consumers announce a project and the budget while companies make their bids for that project. After that, a company is selected by the consumer after examining the bids.

Business to government (B2G): In B2G EC, businesses sell their products and information to governments or government bodies through the usage of online transactions. An example of B2G is the applications and follow-up of government auctions through the internet.

The interest through EC has been increasing day by day because it allows an unlimited freedom to choose the products and shopping style as well as a 24 hour e-trade environment. Additionally, it provides products and services quickly and informs from the newest products and services, etc. Besides, entrepreneurs are interested in with this type of business since it is

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

more profitable compared to the classical trade due to smaller costs of storage, transportation, personnel, etc. As a result, EC volume has been increasing with an exponential rate.

The rapid increase in EC, which is realized through the internet and computer networks, has attracted academics as well as entrepreneurs. Many academics from different disciplines has been questioning why consumers want to make online shopping, how much they trust to online shops and what this trust is based on (Chaparro-Peláez et al., 2016). In addition to that, many academics study the infrastructure and reliability of electronic payment systems used in EC.

This study presents a review and classification of the papers related to EC dated from 1995 until now. By emphasizing the sub-categories and application areas in these papers, the current and future trends are identified. We aim to widen the horizons and provide a road map to entrepreneurs, academics and executives of EC.

The study comprises four sections. In the first section, the purpose of the study is emphasized along with the definitions related to EC. In the second section, we design a classification framework to categorize the studies and explain these categories in more detail. In the third section, the studies are classified according to this framework and several statistical results are obtained and analysed. The last section gives a small summary and emphasize the most important findings.

2. RESEARCH METHODOLOGY

Considering various research interests in EC such as application areas, technological infrastructure, and public policy, it is clear that EC researches cannot be classified in a narrow scope. Today, EV studies are published in various journals by researchers from different disciplines. For instance, while researches from engineering disciplines are interested in EC's technological infrastructure, researches from social disciplines dealing with public policy subjects of EC such as loyalty and trust. For this reason, various databases including publications in a variety of disciplines, especially ABI Complete, Taylor & Francis Online Journals, Science Direct, Springer Link Journals, Wiley Online Library Journals were examined.

Published articles in journals and conference proceeding papers was taken into consideration in this literature review. Master's and doctoral theses, books and articles publication process of which has not yet ended were excluded. This survey was performed using "electronic commerce", "e-commerce" "electronic business" "e-business" and "internet commerce" keywords. Papers from a large number of journals including International Journal of Electronic

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Commerce, Journal of Business Research, Information & Management and Decision Support Systems were covered. The full text of the articles were examined and those articles that were not exactly related to EC in terms of content were eliminated.

3. CLASSIFICATION FRAMEWORK

A classification framework which is shown in Figure 1 is constructed for EC studies. This framework is based on literature review, studies of existing classification schemes of Ngai and Wat (2002) and Turban et al. (2000) and other schemes built for IS in studies of Alavi and Carlson, (1992) and Barki, et. al, (1993). EC literature is classified in 4 main categories as Case and Applications, Technological Infrastructure, Public Policy and Others.

3.1. Case and Applications (CA)

Case and applications category include payment system, intra-organizational applications, training, advertising, retailing, financial services sub categories.

3.1.1. Payment Systems (PS)

Electronic payment (EP) covers the payment methods for online shopping. The most common forms of EP system are online credit card transaction, electronic wallet, electronic cash, online stored value systems, digital accumulating balance systems, digital checking payment systems and wireless payment systems (Treiblmaier et al. 2006; Junadi and Sfenrianto 2015).

3.1.2. Inter-organizational Applications (IOA)

This covers applications made among several business partners such as electronic data interchange, electronic funds transfer and supply chain management (Ngai and Wat 2002).

3.1.3. Training (TR)

This topic related to EC in the field of education and training such as publishing and selling educational and academic documents like articles, books etc. and virtual classroom applications.

3.1.4. Advertising (AD)

This include advertising applications so-called online advertising in EC. Online advertising, is a form of marketing and advertising which uses the internet to deliver promotional marketing messages to consumers. It includes email, search engine and social media marketing.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

3.1.5. Retailing (RE)

This covers literature about retailing applications conducted online. A lot of things such as, consumer electronics, office supplies, sporting goods jewellery, cars can be sold through electronic retailing over the Internet.

3.1.6. Financial Services (FS)

This contains studies related to online financial services such as, Internet banking, in other words virtual banking, on-line stock exchange and on-line insurance. Beside these, today, nearly all of the transections can be conducted over the Internet.

3.2. Public Policy (PP)

Four sub categories related with this main category are take into consideration; trust, fraud, taxation and legal issue.

3.2.1. Trust (TS)

Trust is one of the most popular topic studied in EC researches. Especially consumer perception evaluation about trust, factors affecting trust are some of the studied subjects.

3.2.2. Loyalty (LO)

This contain publications related to customer loyalty in EC studies. According to Srinivasan et al. 2002, loyalty in EC is a customer's favorable attitude toward the electronic seller that results in repeat buying behaviour.

3.2.3. Taxation (TA)

Taxation on commerce conducted over Internet and computer networks should seek to be impartial and fair between forms of electronic commerce and between conventional and electronic forms of commerce. Taxpayers in similar situations conducting similar transactions should be subject to similar levels of taxation. The systems for the taxation of EC should be flexible and dynamic to ensure that they keep pace with technological and commercial developments and should be clear and simple to understand so that taxpayers can anticipate the tax consequences in advance of a transaction, including knowing when, where and how the tax is to be accounted.
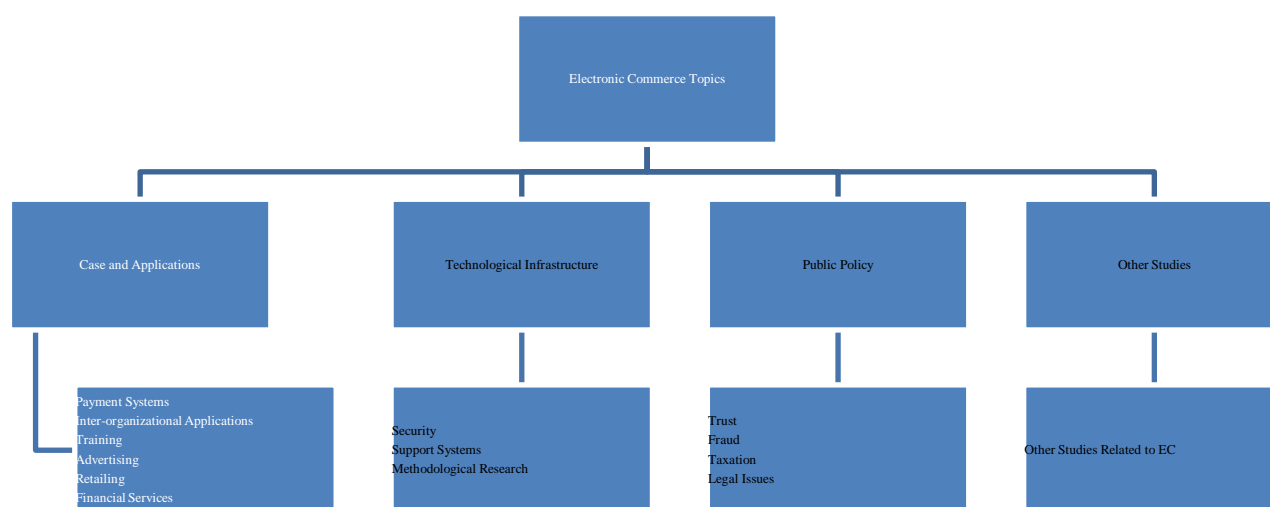
7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Figure 1: Classification framework for EC literature

3.2.4. Legal Issues (LI)

This topic includes literature pertaining to legal regulations which is another important issue in EC. There exists some vagueness about whether states and local governments have a legal right to collect taxes on their sales because the EC is not adequately defined by existing laws or regulated by one government entity. Authorities seeking to apply their laws in traditional ways or to expand legal control over EC face many challenges due to the global nature of the Internet.

3.3. Technological Infrastructure (TI)

Security, network systems, technological support and methodological research sub categories are determined for this main topic.

3.3.1. Security (SE)

Privacy and security concerns are the most important reason customers are not purchasing over the Internet. Security is described as the protection of data against accidental or intentional disclosure to unauthorized persons, or unauthorized modifications or destruction (Udo 2001). This topic covers literature regarding security issues like secure sockets layer, secure electronic transactions, firewalls and proxy servers.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

3.3.2. Support Systems (SS)

This sub category covers decision support systems like multi criteria decision making systems and structural equations modelling and also their applications on EC such as evaluation of EC website and improve electronic store business.

3.3.3. Methodological Research (MR)

This topic include published articles related to methodology and algorithm proposed for enhance the usefulness and security of EC applications.

3.4. Other Studies (OS)

This category include literatures regarding to general information and introduction about EC.

4. CLASSIFICATION RESULTS

After the preliminary evaluation and eliminating a total of more than 90 paper were categorized according to classification framework proposed in Section 3 as seen in Table 1. This table can be helpful for anyone looking for papers related to EC in a specific field. Reviewed papers were analysed by year and percentage of the total number of articles related to main and sub topics. According to distribution of papers by year which is shown in Figure 2, It can be clearly expressed that number of papers was increased steadily especially from 2010 to present.

Table 1: Distribution of articles according to classification framework

Case and Applications	PS	Junadi and Sfenrianto 2015, Treiblmaier et al. 2006, Kim et al. 2010, Tsiakis and Sthephanides 2005, Yu et al. 2002, Köster et al. 2016, Lin and Liu 2009, Katsaros 2009, Wang et al. 2009
	IOS	Helms et al. 2008, Bendoly and Kaefer 2004, Hollenstein and Woerter 2008, Hong and Zhu 2006, Avlonitis and Karayanni 2000
	TR	Etheridge et al. 2001, Durlabhji and Fusilier 2002, Şehirli and Orak 2014
	AD	Hung et al. 2012, Acampora et al. 2006, Heuer et al. 2015, Zhang et al. 2016
	RE	Jelassi and Leenen 2003, Lewis and Cockrill 2002, Burt and Sparks 2003, Kang et al. 2016, Crespo and Bosque 2010, Rosaci and Sarnè 2014
	FS	Kanno 2015, Takieddine and Sun 2015, Şanlı and Hobikoğlu 2015, Akhisar et al. 2015, Montazer and ArabYarmohammadi 2015, Fonseca 2014, Ratten 2008, Ladhari and Leclerc 2013, Vera and Trujillo 2013
Technological	SE	Udo 2001, Yenisey et al. 2005, Belanger et al. 2002, Nilashi et al. 2015, Potoglou et al. 2015, Leu et al. 2015, Zhang et al. 2012, Atif 2004

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Public Policy	SS	Yuen 2013, Gandhi and Muruganantham 2015, Chiu 2013, Yu et al. 2011, Ngai and Wat 2005, Grandón et al. 2011, Valmohammadi and Dashti 2016, Lee and Ahn 2009, Wu et al. 2014
	MR	Su and Chen 2015, Lee et al. 2007, Lee and Lin 2012, Han et al. 2016, Mitrevski and Hristoski 20014, Wu and Chou 2011
	TS	Kim et al. 2011, Jøsang et al. 2007, Lee and Turban 2001, Kim et al. 2008, Wang and Emurian 2005, Fan et al. 2012, Liu et al. 2005, Pavlou 2003, Kim et al. 2012, Moody et al. 2014
	LO	Srinivasan et al. 2002, Audrain-Pontevia et al. 2013, Durmuş et al. 2013, Safa and Ismail 2013, Yoo et al. 2013, Ergün and Kuşcu 2013, Ramanathan 2010
	TA	Ahmed and Hegazi 2007, Yapar et al. 2015, Ahmed and Wirjanto 2008, Hu and Tang 2014, Xing and Whalley 2014
	LI	Hale and McNeal 2011, Gomez-Herrera et al. 2014, Kurnia et al. 2015
Other Studies	OS	Reddy and Divekar 2014, Deng and Poole 2012, Wu and Hisa 2004, Zhang et al. 2013, Falk and Hagsten 2015, Ma and Wei 2012, Aydın and Savrul 2014, Hwang 2010

Figure 3 (a) provides the distribution of articles by main topics. As seen in figure CA topic has the most prominent importance between main topics with rate of 39%. This is followed by PP and TI main topics with rate of 27% and 25% respectively.
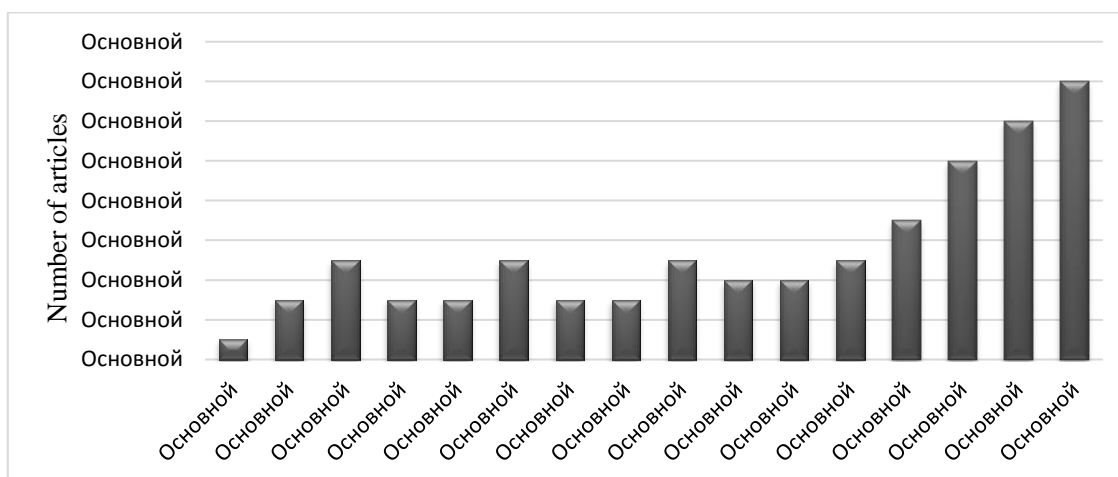

Figure 2: Distribution of e-commerce papers by year

In Figure 3 (b), distribution of sub-topics related to technological infrastructure is presented. Rate of 39% divulges that support systems are most outstanding field in this main topic. This is followed by security and methodological research with rates of 35% and 26% respectively.

7th International Congress on Entrepreneurship (ICE 2016)

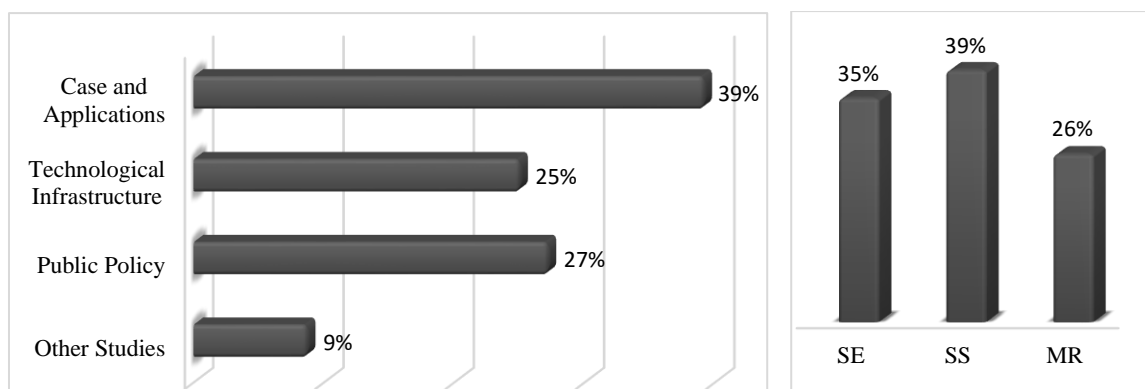Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Figure 3: (a) Distribution of papers by main topics; (b) Distribution of papers by TI sub topics

Figure 4 (a) presents distribution of case and applications sub topics. The case and applications are classified into six sub categories. PS and FS are the most prominent sub fields at the rate of 25% in this main category as seen in figure. This is followed by RE and IOA with rates of 17% and 14%. We also have to note that training sub field is seen as the least studied topics from the figure with rate of 8%. Training can be considered as a silent area in EC topics.
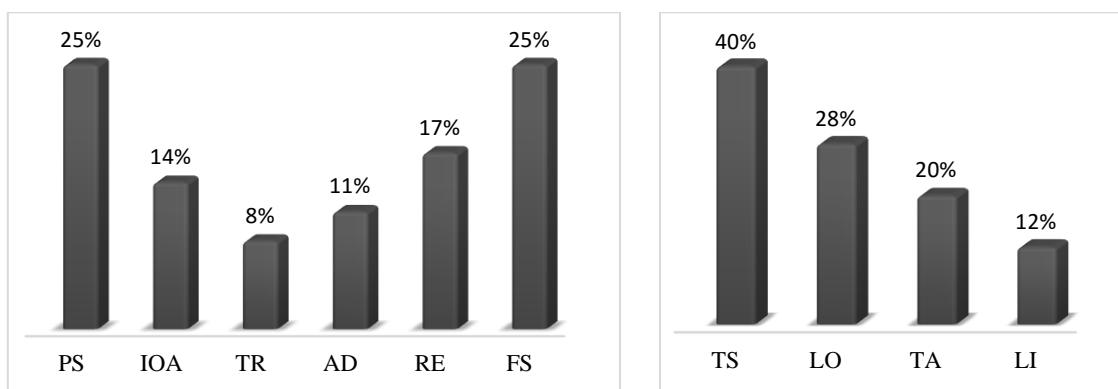

Figure 4: (a) Distribution of papers by CA sub topics; (b) Distribution of papers by PP sub topics

In Figure 4 (b), distribution of sub topics regarding public policy are presented. It is clear from the figure that, while trust is seen as the most prominent sub topic, legal issues is the least studied sub topic. Loyalty and taxation sub categories' rate are 28% and 20% respectively in the main topic.

5. CONCLUSION

Advantages of EC like around-the-clock availability, the speed of access, a wider selection of goods and services, and international reach are make it a candidate to be one of the great

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

economic developments of the 21st Century. Beside this it has some drawbacks like necessitated wait time for product shipping and not being able to see or touch a product prior to purchase.

Because subjects of EC are very comprehensive, studies related to EC are scattered into various journals and database. In this paper, a classification framework which consist of 4 main and 14 sub field is presented and EC literature is reviewed and categorized according to this framework. It can be concluded from the study that EC studies will increase with rising acceleration in term of number in the coming years. We also have to note that training and legal issues can be considered as a silent areas of EC. Despite the fact that this literature review is not extensive, we hope that it serves as a comprehensive base for researches interested in EC.

REFERENCES

Duffy, G. and Dale, B.G. (2002). E-commerce processes: a study of criticality, *Industrial Management & Data Systems*, 102(8), pp. 432 – 441.

Aljifri, H. A., Pons, A. and Collins, D. (2003). Global e-commerce: a framework for understanding and overcoming the trust barrier, *Information Management & Computer Security,* 11(3), pp. 130 – 138.

Dündar, S., Ecer, F. and Özdemir, Ş. (2007). Fuzzy Topsis Yöntemi İle Sanal Mağazalarin Web Sitelerinin Değerlendirilmesi. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi,* 21(1), pp. 287-305.

Kalakota, R. and Whinston, A.B. (1996). *Frontiers of the Electronic Commerce*, Addison Wesley Longman Publishing, Redwood City, CA, USA.

Turban, E. Lee, J., King, D. andChung, H.M. (2000). *Electronic Commerce: A Managerial Perspective,* Prentice Hall, United States.

Alavi, M. and Carlson, P. (1992). A review of MIS research and disciplinary development, *Journal of Management Information Systems*, 8, pp. 45–62.

Barki, H., Rivard, S. and Talbot, J. (1993). A keyword classification scheme for IS research literature: an update, *MIS Quarterly* 17(2), pp. 226–309.

Turban, E. and King, K. (2003). *Introduction to E-Commerce*, Prentice Hall, United States.

Ngai, E.W.T. and Wat, F.K.T. (2002). A literature review and classification of electronic commerce research. *Information & Management*, 39, pp. 415–429.

Erbaşlar, G. and Dokur, Ş. (2008). *Elektronik Ticaret*, Nobel Yayın Dağıtım. Ankara, Türkiye.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Kırçıova, G. (1999*). İnternette Pazarlama*, Beta Yayınları, İstanbul, Türkiye.

Ngai, E.W.T. and Gunasekaran, A. (2007). A review for mobile commerce research and applications, *Decision Support Systems,* 43, pp. 3 – 15.

Su, Q. and Chen, L. (2015). A method for discovering clusters of e-commerce interest patterns using click-stream data, *Electronic Commerce Research and Applications,* 14, pp. 1–13.

Junadi and Sfenrianto (2015). A Model of Factors Influencing Consumer's Intention To Use E-Payment System in Indonesia, *Procedia Computer Science,* 59, pp. 214 – 220.

Treiblmaier, H., Pinterits, A. and Floh, A. (2006). The Adoption of Public E-Payment Services, *Journal of E-Government*, 3(2), pp. 33-51.

Kim, C., Tao, W., Shin, N. and Kim, K. S. (2010). An empirical study of customers' perceptions of security and trust in e-payment systems, *Electronic Commerce Research and Applications,* 9, pp. 84–95.

Tsiakis, T. and Sthephanides, G. (2005). The concept of security and trust in electronic payments, *Computers & Security,* 24, pp. 10-15.

Kim, M. J., Chung, N. and Lee, C. K. (2011). The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea, *Tourism Management,* 32, pp. 256–265.

Yu, H. C., Hsi, K. H. and Kuo, P. J. (2002). Electronic payment systems: an analysis and comparison of types, *Technology in Society,* 24, pp. 331–347.

Helms, M. M., Ahmadi, M., Jih, W. J. K. and Ettkin, L. P. (2008). Technologies in support of mass customization strategy: Exploring the linkages between e-commerce and knowledge management, *Computers in Industry,* 59, pp. 351–363.

Bendoly, E. and Kaefer, F. (2004). Business technology complementarities: impacts of the presence and strategic timing of ERP on B2B e-commerce technology efficiencies, *Omega,* 32. pp. 395 – 405.

Hollenstein, H. and Woerter, M. (2008). Inter- and intra-firm diffusion of technology: The example of E-commerce an analysis based on Swiss firm-level data, *Research Policy,* 37, pp. 545–564.

Hong, W. and Zhu, K. (2006). Migrating to internet-based e-commerce: Factors affecting e-commerce adoption and migration at the firm level, *Information & Management,* 43, pp. 204–221.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Etheridge, H. L., Hsu, K. H. Y. and Wilson, T. E. (2001).E-Business Education at AACSB-Affiliated Business Schools: A Survey of Programs and Curricula, *Journal of Education for Business,* 76(6), pp. 328-331.

Durlabhji, S. and Fusilier, M. R. (2002). Ferment in Business Education: E-Commerce Master's Programs, *Journal of Education for Business,* 77(3), pp. 169-176.

Udo, G. J. (2001). Privacy and security concerns as major barriers for e-commerce: a survey study, *Information Management & Computer Security,* 9(4), pp. 165-174.

Yenisey, M. M., Ozok, A. A. and Salvendy, G. (2005). Perceived security determinants in e-commerce among Turkish university students, *Behaviour & Information Technology,* 24(4), pp. 259 – 274.

Yuen, K. K. F. (2013). Toward a ranking strategy for e-commerce products in an e-alliance portal using Primitive Cognitive Network Process, *Procedia Computer Science,* 17, pp. 1091 – 1096.

Gandhia, M. and Muruganantham, A. (2015). Potential Influencers Identification Using Multi-Criteria Decision Making (MCDM) Methods, *Procedia Computer Science,* 57, pp. 1179 – 1188.

Hung, Y. H., Huang, T. L., Hsieh, J. C., Tsuei, H. J., Cheng, C.C. and Tzeng, G. H. (2012). Online reputation management for improving marketing by using a hybrid MCDM model, *Knowledge-Based Systems,* 35, pp. 87–93.

Chiu, W. Y., Tzeng, G. H. and Li, H. L. (2013). A new hybrid MCDM model combining DANP with VIKOR to improve e-store business, *Knowledge-Based Systems,* 37, pp. 48–61.

Yu, X., Guo, S., Guo, J. and Huang, X. (2011). Rank B2C e-commerce websites in e-alliance based on AHP and fuzzy TOPSIS, *Expert Systems with Applications,* 38, pp. 3550–3557.

Ngai, E.W.T. and Wat, F.K.T. (2005). Fuzzy decision support system for risk analysis in e-commerce development, *Decision Support Systems,* 40, pp. 235– 255.

Avlonitis, G. J. And Karayanni, D. A. (2000). The Impact of Internet Use on Business-to-Business Marketing, *Industrial Marketing Management,* 29, pp. 441–459.

Ahmed, E. and Hegazi, A.S. (2007). A dynamic model for e-commerce taxation, *Applied Mathematics and Computation,* 187, pp. 965–967.

Lee, S., Lee, S. and Park, Y. (2007). A prediction model for success of services in e-commerce using decision tree: E-customer's attitude towards online service, *Expert Systems with Applications,* 33, pp. 572–581.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Lee, J. S. and Lin, K. S. (2012). A robust e-commerce service: Light-weight secure mail-order mechanism, *Electronic Commerce Research and Applications,* 11, pp. 388–396.

Reddy, N. A. and Divekar, B. R. (2014). A Study Of Challenges Faced By E-Commerce Companies In India And Methods Employed To Overcome Them, *Procedia Economics and Finance,* 11, pp. 553 – 560.

Jøsang, A., Ismail, R. and Boyd, C. (2007). A survey of trust and reputation systems for online service provision, *Decision Support Systems,* 43, pp. 618– 644.

Lee, M. K. O. and Turban, E. (2001). A Trust Model for Consumer Internet Shopping, *International Journal of Electronic Commerce*, 6(1), pp. 75-91.

Kim, D. J., Ferrin, D. L. and Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents, *Decision Support Systems,* 44, pp. 544–564.

Han, J.,Yang, Y., Huang, X., Yuen, T. H., Li, J. and Cao, J. (2016). Accountable mobile E-commerce scheme via identity-based plaintext-checkable encryption, *Information Sciences*, 345, pp. 143–155.

Deng, L. and Poole, M. S. (2012). Aesthetic design of e-commerce web pages – Webpage Complexity, Order and preference, *Electronic Commerce Research and Applications,* 11, pp. 420–440.

Jelassi, T. and Leenen, S. (2003). An E-Commerce Sales Model for Manufacturing Companies: A Conceptual Framework and a European Example, *European Management Journal,* 21(1), pp. 38–47.

Acampora, G., Alghazzawi, D., Hagras, H. and Vitiello, A. (2006). An interval type-2 fuzzy logic based framework for reputation management in Peer-to-Peer e-commerce, *Information Sciences,* 333, pp. 88–107.

Wang, Y. D. and Emurian, H. H. (2005). An overview of online trust: Concepts, elements, and implications, *Computers in Human Behavior,* 21, pp. 105–125.

Wu, J. H. and Hisa, T. L. (2004). Analysis of E-commerce innovation and impact: a hypercube model, *Electronic Commerce Research and Applications*, 3, pp. 389–404.

Mitrevski, P. J. and Hristoski, I. S. (2014). Behavioral-based performability modeling and evaluation of e-commerce systems, *Electronic Commerce Research and Applications,* 13, pp. 320–340.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Fan, X., Li, M., Ma, J., Ren Y., Zhaod, H. and Su, Z. (2012). Behavior-based reputation management in P2P file-sharing networks, *Journal of Computer and System Sciences,* 78, pp. 1737–1750.

Liua, C., Marchewka, J. T., Lu, J. and Yu, C. S. (2005). Beyond concern—a privacy- trust-behavioral intention model of electronic commerce, *Information & Management,* 42, pp. 289–304.

Heuer, D., Brettel, M. and Kemper, J. (2015). Brand competition in fashion e-commerce, *Electronic Commerce Research and Applications,* 14, pp. 514–522.

Zhang, K. Z. K., Benyoucef, M. and Zhao, S. J. (2016). Building brand loyalty in social commerce: The case of brand microblogs, *Electronic Commerce Research and Applications,* 15, pp. 14–25.

Köster, A., Matt, C. and Hess, T. (2016). Carefully choose your (payment) partner: How payment provider reputation influences m-commerce transactions, *Electronic Commerce Research and Applications,* 15, pp. 26–37.

Grandón, E. E., Nasco, S. A. and Mykytyn Jr., P. P. (2011). Comparing theories to explain e-commerce adoption, *Journal of Business Research,* 64, pp. 292–298.

Zhang, Y., Mukherjee, R. and Soetarman, B. (2013). Concept extraction and e-commerce applications, *Electronic Commerce Research and Applications,* 12, pp. 289–296.

Pavlou, P. A. (2003). Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model, *International Journal of Electronic Commerce*, 7(3), pp. 101-134.

Yapara, B. K., Bayrakdara, S. and Yapar, M. (2015). The Role of Taxation Problems on the Development of E Commerce *Procedia - Social and Behavioral Sciences,* 195, pp. 642 – 648.

Lewisa, R. and Cockrill, A. (2002). Going global—remaining local: the impact of e-commerce on small retail firms in Wales, *International Journal of Information Management,* 22, pp. 195–209.

Ahmed, S. and Wirjanto, T. S. (2008). The impact of sales taxation on internet commerce — An empirical analysis, *Economics Letters,* 99, pp. 557–560.

Hale, K. and McNeal, R. (2011). Technology, politics, and e-commerce: Internet sales tax and interstate cooperation, *Government Information Quarterly,* 28, pp. 262–270.

Burt, S. and Sparks, L. (2003). E-commerce and the retail process: a review, Journal of Retailing and Consumer Services, 10, pp. 275–286.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Srinivasan, S. S., Andersona, R. and Ponnavolu, K. (2002). Customer loyalty in e-commerce: an exploration of its antecedents and consequences, *Journal of Retailing,* 78, 41–50.

Falk, M. and Hagsten, E. (2015). E-commerce trends and impacts across Europe, *Int. J. Production Economics,* 170, pp. 357–369.

Ma, B. and Wei, Q. (2012). Measuring the coverage and redundancy of information search services on e-commerce platforms, *Electronic Commerce Research and Applications,* 11, pp. 560–569.

Wu, R. S. and Chou, P. H. (2011). Customer segmentation of multiple category data in e-commerce using a soft-clustering approach, *Electronic Commerce Research and Applications,* 10, pp. 331–341.

Kang, D., Jang, W. and Park, Y. (2016). Evaluation of e-commerce websites using fuzzy hierarchical TOPSISbased on E-S-QUAL, *Applied Soft Computing,* 42, pp. 53–65.

Kim, H. W., Xu, Y. and Gupta, S. (2012). Which is more important in Internet shopping, perceived price or trust?, *Electronic Commerce Research and Applications,* 11, pp. 241–252.

Moody, G. D., Galletta, D. F. and Lowry, P. B. (2014). When trust and distrust collide online: The engenderment and role of consumer ambivalence in online consumer behavior, *Electronic Commerce Research and Applications,* 13, pp. 266–282.

Valmohammadi, C. and Dashti, S. (2016). Using interpretive structural modeling and fuzzy analytical process to identify and prioritize the interactive barriers of e-commerce implementation, *Information & Management,* 53, pp. 157–168.

Belanger, F., Hiller, J. S. and Smith, W. J. (2002). Trustworthiness in electronic commerce: the role of privacy, security, and site attributes, *Journal of Strategic Information Systems,* 11, pp. 245–270.

Aydına, E.and Savrul, B. K. (2014). The Relationship between Globalization and E-Commerce: Turkish Case, *Procedia - Social and Behavioral Sciences,* 150, pp. 1267 – 1276.

Crespo, A. H. and Bosque, I. R. (2010). The influence of the commercial features of the Internet on the adoption of e-commerce by consumers, *Electronic Commerce Research and Applications,* 9, 562–575.

Rosaci, D. and Sarnè, G. M. L. (2014). Multi-agent technology and ontologies to support personalization in B2C E-Commerce, *Electronic Commerce Research and Applications,* 13, pp. 13–23.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Kanno, M. (2015). Assessing systemic risk using interbank exposures in the globalbanking system, *Journal of Financial Stability,* 20, pp. 105–130.

Takieddine, S. and Sun, J. (2015). Internet banking diffusion: A country-level analysis, *Electronic Commerce Research and Applications,* 14, pp. 361–371.

Şanlı, B. and Hobikoğlu, E. (2015). Development of Internet Banking as the Innovative Distribution Channel and Turkey Example, *Procedia - Social and Behavioral Sciences,* 195, pp. 343 – 352.

Akhisar, İ., Tunay, K. B. and Tunay, N. (2015). The Effects of Innovations on Bank Performance: The Case of Electronic Banking Services, *Procedia - Social and Behavioral Sciences,* 195, pp. 369 – 375.

Montazera, G. A. and ArabYarmohammadi, S. (2015). Detection of phishing attacks in Iranian e-banking using afuzzy–rough hybrid system, *Applied Soft Computing,* 35, pp. 482–492.

Fonseca, J. R. S. (2014). e-banking culture: A comparison of EU 27 countries and Portuguese case in the EU 27 retail banking context, *Journal of Retailing and Consumer Services,* 21, pp. 708–716.

Ratten, V. (2008). Technological innovations in the m-commerce industry: A conceptual model of WAP banking intentions, *Journal of High Technology Management Research,* 18, pp. 111–117.

Nilashi, M., Ibrahim, O., Mirabi, V. R., Ebrahimi, L. and Zare, M. (2015). The role of Security, Design and Content factors on customer trust in mobile commerce, *Journal of Retailing and Consumer Services*, 26, pp. 57–69.

Potoglou, D., Palacios, J. F. and Feijóo, C. (2015). An integrated latent variable and choice model to explore the role of privacy concern on stated behavioural intentions in e-commerce, *The Journal of Choice Modelling*, 17, pp. 10–27.

Leu, F. Y., Huang, Y. L. and Wang, S. M. (2015). A Secure M-Commerce System based on credit card transaction, Electronic Commerce Research and Applications, 14, pp. 351–360.

Zhang, Y., Deng, X., Wei, D. and Deng, Y. (2012). Assessment of E-Commerce security using AHP and evidential reasoning, *Expert Systems with Applications,* 39, pp. 3611–3623.

Atif, Y. (2004). A distributed and interoperable object-oriented support for safe e-commerce transactions, *Information and Software Technology,* 46, pp. 149–164.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Lee, S. and Ahn, H. (2009). Fuzzy cognitive map based on structural equation modeling for the design of controls in business-to-consumer e-commerce web-based systems, *Expert Systems with Applications,* 36, pp. 10447–10460.

Gomez-Herrera, E., Martens, B. and Turlea, G. (2014). The drivers and impediments for cross-border e-commerce in the EU, *Information Economics and Policy,* 28, pp. 83–96.

Kurnia, S., Choudrie, J., Mahbubur, R. M. and Alzougool, B. (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study, *Journal of Business Research,* 68, pp. 1906–1918.

Audrain-Pontevia, A. F., N'Goala, G. and Poncini I. (2013). A good deal online: The Impacts of acquisition and transaction value on E-satisfaction and E-loyalty, *Journal of Retailing and Consumer Services*, 20, pp. 445–452.

Durmuş, B., Ulusu, Y. and Erdem, Ş. (2013). Which dimensions affect private shopping e-customer loyalty?, *Procedia - Social and Behavioral Sciences,* 99, pp. 420 – 427.

Safa, N. S. and Ismail, M. A. (2013). A customer loyalty formation model in electronic commerce, *Economic Modelling,* 35, pp. 559–564.

Yoo, C. W., Sanders, G. L. and Moon, J. (2013). Exploring the effect of e-WOM participation on e-Loyalty in e-commerce, *Decision Support Systems,* 55, pp. 669–678.

Ergün, H. S. and Kuşcu, Z. K. (2013). Innovation orientation, market orientation and e-loyalty: evidence from Turkish e-commerce customers, *Procedia - Social and Behavioural Sciences,* 99, pp. 509 – 516.

Ladhari, R. and Leclerc, A. (2013). Building loyalty with online financial services customers: Is there a gender difference?, *Journal of Retailing and Consumer Services*, 20, pp. 560–569.

Vera, J. and Trujillo, A. (2013). Service quality dimensions and superior customer perceived value in retail banks: An empirical study on Mexican consumers, *Journal of Retailing and Consumer Services,* 20, pp. 579–586.

Hu, Y. J. and Tang, Z. (2014). The impact of sales tax on internet and catalog sales: Evidence from a natural experiment, *International Journal of Industrial Organization,* 32, pp. 84–90.

Xing, W. and Whalley, J. (2014). The Golden Tax Project, value-added tax statistics, and the analysis of internal trade in China, *China Economic Review,* 30, pp. 448–458.

Şehirli, E. and Orak, İ. M. (2014). E-Commerce According To Hobby, *Procedia - Social and Behavioral Sciences,* 143, pp. 1144 – 1147.

7th International Congress on Entrepreneurship (ICE 2016)

Proceedings, 12-14 May 2016, Bishkek, Kyrgyzstan, Pages: 810-827.

Wu, J., Li, L. and Xu, L. D. (2014). A randomized pricing decision support system in electronic commerce, *Decision Support Systems,* 58, pp. 43–52.

Ramanathan, R. (2010). The moderating roles of risk and efficiency on the relationship between logistics performance and customer loyalty in e-commerce, *Transportation Research Part E: Logistics and Transportation Review,* 46(6), pp. 950–962.

Lin, S. J. and Liu, D. C. (2009). An incentive-based electronic payment scheme for digital content transactions over the Internet, *Journal of Network and Computer Applications,* 32(3), pp. 589–598.

Katsaros, P. (2009). A roadmap to electronic payment transaction guarantees and a Colored Petri Net model checking approach, *Information and Software Technology,* 51(2), pp. Pages 235–257.

Wang, J. H., Liu, J. W., Li, X. H. and Kou, W. D. (2009). Fair e-payment protocol based on blind signature, *The Journal of China Universities of Posts and Telecommunications,* 16(5), pp. 114–118.

Hwang, Y. (2010). The moderating effects of gender on e-commerce systems adoption factors: An empirical investigation, *Computers in Human Behaviour,* 26(6), pp. 1753–1760.