E-COMMERCE SOLUTIONS AND CULTURE: A COMPARATIVE ANALYSIS OF PROPRIETARY AND OPEN SOURCE E-COMMERCE SOLUTIONS IN THE UNITED STATES AND IN TURKEY

A research project submitted to the faculty of
San Francisco State University
in partial fulfillment of the
requirements for the degree

Master of Business Administration

by

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San Francisco, California

December, 2007

CERTIFICATION OF APPROVAL

I certify that I have read E-COMMERCE SOLUTIONS AND CULTURE: A COMPARATIVE ANALYSIS OF PROPRIETARY AND OPEN SOURCE E-COMMERCE SOLUTIONS IN THE UNITED STATES AND IN TURKEY by Can Karaosmanoglu, and that in my opinion this work meets the criteria for approving a research project submitted in partial fulfillment of requirements for the Master of Business Administration degree at San Francisco State University.

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ABSTRACT

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The purpose of the project is to analyze and compare electronic commerce solutions in the United States and in Turkey. This investigation specifically explores e-commerce solutions as they are categorically classified as either proprietary or open source software and identifies their correlation with organizational strategic factors.

The methods used in the research were literature review and evaluating 27 sample websites from different sectors through a survey with 8 main categories and 39 questions.

The outcome of this project is a report containing amassed results from this survey. Based on these results, recommendations and estimations for the improvement of developing e-commerce markets are made.

I certify that the Abstract is a correct representation of the contents of this research project.

_____ _____

Robert C. Nickerson, Professor of Information Systems Date

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CHAPTER 1

INTRODUCTION

1.1 Electronic Commerce in the World

Many companies of various sizes and industries are steadily increasing their dependence on and involvement in electronic commerce. As the online market continues to increases in size, e-commerce options tend to become more and more complex. In such an unpredictable and rapidly advancing environment, it is hard to evaluate and choose between the plethora of potential strategies available for companies in terms of electronic commerce solutions.

When choosing and implementing an electronic commerce solution, companies must examine several strategic factors. These can be broken down into two major categories: organizational and individual variables. According to Zinovy Radovilsky, "the organizational factors include: culture, structure and systems, technology, and expertise," whereas the individual factors are related to "perception, training and competences, and leadership."[1]

From another perspective, these factors can be seen a functions of the location where the company operates and what type of an e-commerce solution it uses. In terms

[1] Zinovy Radovilsky, "Factors influencing e-commerce implementation: analysis of survey results," *Journal of the Academy of Business and Economics*, March 2004, http://www.findarticles.com/p/articles/mi_m0OGT/is_1_4/ai_n8690393 (accessed February 25, 2007).

of 'location,' each specific nation has a specific set of parameters such infrastructures, cultures, government regulations, consumer histories, and purchasing power. 'Type' refers to what specific type of e-commerce package a company chooses to implement. E-commerce solutions may be seen as falling into two categories: open source and proprietary. Open source solutions are "usually available for free download or off-the-shelf at a low cost"[2], highly customizable, but may have limited customer support. Proprietary solutions are retailed for varying prices, generally not as customizable, but may provide superior customer support.

1.2 Problem Statement

The aim of this study is to analyze proprietary and open source electronic commerce solutions as they function in the United States and Turkey, and to assess how culture, structure and systems, technology, expertise, and economics impact these systems. The U.S. and Turkey are ideal locations for this study in that they represent two vastly different environments. The U.S. serves as a model of highly developed and modernized society, which has a huge investment in and a long history with e-commerce. Turkey, on the other hand, signifies a nation on the periphery in many ways. It exists between Europe and Asia; modern and traditional, and developed and developing. The findings of this examination will be extremely telling in that they will reveal how

[2] Business Link, "Practical advice for business: Computer software: the basics," http://www.businesslink.gov.uk/bdotg/action/detail?type=RESOURCES&itemId=1073791277 (accessed February 25, 2007).

different variables present in each nation affect its electronic commerce needs and requirements. The goal of this research will also be to reveal what can be done to improve the chances of success for these systems.

This paper aims to examine e-commerce solutions as they are implemented in two countries: Turkey and the U.S. Such an investigation will aim to reveal a correlation among organizational factors –namely culture, structure and systems, technology, and expertise,- and how they correspond best with a particular e-commerce strategy.

CHAPTER 2

LITERATURE REVIEW AND TOPIC DEVELOPMENT

2.1 E-commerce and Culture

In the last decade, E-commerce, or "the purchase of goods and services over the Internet's World Wide Web,"[3] has come to comprise a significant portion of the world wide economy. Because this form of trade requires technology, e-commerce is currently more widespread in 'developed' and primarily 'westernized' nations. Yet, as technology continues to rapidly spread in enormously populated and rapidly developing nations such as India and China[4], e-commerce is swiftly gaining popularity in specific regions of the 'developing' world[5].

There are several determinants that affect how prevalent the use of e-commerce will be in a specific nation; Economics, infrastructure, and culture are some of the major factors that affect the utilization of e-commerce in any given country. While the direct effects of a nation's economic potency and technological infrastructure are clearly discernable, the effects of culture are more complicated and harder to estimate.

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[3] Jae K. Shim, Anique A. Qureshi, Joel G. Siegel, and Roberta M. Siegel, *The International Handbook of Electronic Commerce* (Chicago: The Glenlake Publishing Company, Ltd., 2000), 1.
[4] Tech Crunch, "Chinese Internet Usage Rivals U.S.," http://www.techcrunch.com/2007/07/12/chinese-internet-usage-rivals-us (accessed November 26, 2007).
[5] Sherif Kamel, *Electronic Comerce in Developing Countries*, (Cairo, Egypt, 2006), 392-399.

As with any form of commerce, the more money revolving in a given market translates into higher chances of a larger volume of electronic commerce. In term of highly developed and/or westernized nations with an advanced technological infrastructure, e-commerce functions as a valuable aspect of the economy. Money is needed to build a strong technological infrastructure, and the stronger the technological infrastructure, the more it capable of contributing to the country's economy.

When considering e-commerce role in developing economies, it is notable that e-commerce "helps countries improve trade efficiency and facilitates the integration of developing countries into the global economy."[6] Therefore, e-commerce can be an invaluable resource in helping developing nations improve their economic development and develop their technological infrastructure.

The effects of culture on e-commerce, and e-commerce on culture for that matter, are not as straight forward as the effects of location, infrastructure, and economy.

Culture, as an amalgamation of language, religions, tradition, history, essentially- "the way of life for an entire society[7]," inevitably functions as a variable in determining the role of e-commerce in a specific population. Therefore, deep understanding and cultural insight is essential when implementing e-commerce applications successfully in a specific nation. Therefore, when choosing a specific e-commerce solution, it is essential

[6] United Nations Conference on Trade and Development, "E-commerce and development report 2002", < http://r0.unctad.org/ecommerce/docs/edr02_en/ecdr02.pdf> (accessed April 23, 2007)
[7] David Jary, and Julia Jary, *The HarperCollins Dictionary of Sociology*, (New York: HarperPerennial, 1991), 101.

to consider both material factors, such as economy and infrastructure, and the cultural nuances specific to a location.

In the 1990s, it was believed that "every IT solution had a meaning in terms of 'one size fits all.'"[8]

Later, the evolving concept of globalization and the innately progressive nature of e-commerce and IT in general, led to the rise of 'global-localization.' Thus IT solutions started to become more and more flexible. From the smallest businesses to great nations, many organizations have realized the intricate balance between pre-made solution packages and fully customized solutions for their specific commerce needs. Although it may appear as if the ideal solution for every institution is a customized IT solution, this is not viable in every reality. Similarly, solutions that can 'fit all' do not work effectively in terms of business measures.

In searching for a working balance between these two extremes, new concepts continue to arise. One of these possible concepts is the 'open-source solution.' However, the open-source approach is not the only solution to this problem, and it does not solve the every need completely. Rather, it should be viewed as a solution that can be very effective in economies with a specific set of economic, technological, and cultural conditions.

[8] Theerasak Thanasankit, *E-commerce and Cultural Values* (Hershey: Idea Group Publishing, 2003), 13.

2.2 Types of E-commerce Solutions

E-commerce solutions can be classified under two main categories depending on if its source code is free and avail to the general population, or if it is protected by copyright. These categories are:

1) Proprietary E-commerce Solutions
2) Open Source E-commerce Solutions

2.2.1 Proprietary E-commerce Solutions

It has only been about 30 years since the concept of "e-commerce" first originated (of course, it was not called "e-commerce" until 1990s).[9] The concept of electronic commerce began with the introduction of "electronic funds transfer" (EFT), "whereby funds could be routed electronically from one organization to another."[10] The next breakthrough in the development of e-commerce concept was "electronic data interchange" (EDI), which allowed further transfer of data – not only financial.[11] However, these technologies were only available to and viable for large corporations, and other financial institutions. Relatively small end-users, like individuals and small businesses had to wait until the 1990s to become involved in e-commerce. With the development of the World Wide Web, e-commerce rapidly opened up new and seemingly limitless possibilities. The technologies that particularly aided in the spread of electronic

[9] Efraim Turban, David King, Dennis Viehland, and Jae Lee, *Electronic commerce 2006: a managerial perspective* (New Jersey: Pearson Education, Inc., 2006), 10-11.
[10] Ibid.
[11] Ibid.

commerce were most notably "new networks, protocols, and EC (e-commerce) software,"[12] to name a few.

Software used in creating and running these processes which is kept private and protected by copyrights, the software is classified as "proprietary software." As e-commerce software was a new field in the early 90s, it required large teams of coders, as well as serious financial support to develop. Because of these factors, e-commerce primarily originated from software created and retailed by large companies. This legacy of private development has greatly impacted the nature of ecommerce software today.

Today, the basic functions of e-commerce can be listed as follows[13]:

- Business relationship management
- Product search and comparison
- Product information presentation and promotion
- Purchase transaction management
- Product delivery
- Post-purchase customer support
- Other

All of these functions were originally introduced by private companies. This type visually constitutes the vast majority of the software used in the e-commerce industry, although there are no concrete figures to support this argument.

[12] Ibid.
[13] Robert C. Nickerson, "E-commerce Site Design" (lecture, San Francisco State University, San Francisco, CA, Spring 2006).

2.2.2 Open Source E-commerce Solutions

The "open source" movement did not become popular until 1998, despite the fact that there have been cases of open source collaboration since the development of UNIX in the late 60s.[14] "Open source," as briefly mentioned in the previous section, stemmed from necessity, in that smaller companies could not afford heavy licensing fess associated with proprietary software. Later, it gained widespread popularity by way of philosophy, by people who believed in the power of sharing knowledge with others. As open source increasingly gained worldwide prevalence, it eventually penetrated the e-commerce industry.

As early as 2001, Gunnison Carbone and Duane Stoddard foresaw the potential of open source software used in e-commerce applications.[15] From server operating systems to tiny scripts for "shopping carts," open source has been being used in e-commerce since the late 90s. A research company, IDC, stated that "Linux represented 25 percent of the enterprise server market in 1999 and Apache Web Server powers approximately 59 percent of Web sites on the Internet."[16] The statistics about these two open source software systems are a good way to see that there are many different ways to evaluate the overall effects of open source culture on the e-commerce industry.

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[14] Steven Weber, *The Success of Open Source* (Harvard College: Library of Congress Cataloging-in-Publication Data, 2004), 25-28.
[15] Gunnison Carbone, and Duane Stoddard, *Open source enterprise solutions: developing an e-business strategy* (New York: John Wiley & Sons, Inc., 2001), xiii.
[16] Ibid.

Given the inherent nature of open source solutions, users are free to modify, edit, and combine programs as they desire. Therefore, practically speaking, many businesses choose to use a combination of both proprietary and open source software. For the working purposes of this paper, open source will refer specifically to only e-commerce packages which follows the Open Source Initiative OSI - The GPL: Licensing guidelines[17]. Basically, these guidelines state that "free software" as in open source software is "referring to freedom, not price."[18] From the original text:

> *"Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things."*[19]

Further explanation is available under 3.1 Methodology.

[17] Open Source Initiative, "The GNU General Public License (GPL): Version 2, June 1991," http://www.opensource.org/licenses/gpl-license.html (accessed November 30, 2007).
[18] Ibid.
[19] Ibid.

2.3 E-commerce in the U.S. vs. E-commerce in Turkey

2.3.1 E-commerce in the U.S.

The history of the Internet ostensibly began when J.C.R. Licklider joined ARPA (Advanced Research Projects Agency) in 1962[20]. Licklider, articulated concept of the 'internet' in his January 1960 paper, "Man-Computer Symbiosis." Here he states

> *"A network of such [computers], connected to one another by wide-band communication lines" which provided "the functions of present-day libraries together with anticipated advances in information storage and retrieval and [other] symbiotic functions.*[21] *"*

Based on this idea, three major network terminals were established: Project Genie at the University of California, Berkeley (USB), the Multics project SHOPPING at the Massachusetts Institute of Technology (MIT) and the System Development Corporation in Santa Monica. In 1981 ARPA was renamed to Defense Advanced Research Projects Agency (DARPA). As the pioneer in developing inter-networking as a military research project, the United States has long served as the world leader in developing and utilizing internet technology. As *The Economist* states *"US companies have a dominant global*

[20] Jeremy N. Smith, "The Making of the Internet," *World Trade*, Vol. 20, Iss. 6, (Troy: Jun 2007): 62, http://0-proquest.umi.com.opac.sfsu.edu/pqdweb?index=2&did=1355666971&SrchMode=1&sid=2&Fmt=4&VInst=PROD&VType=PQD&RQT=309&VName=PQD&TS=1196207834&clientId=17866 (accessed October 3, 2007).

[21] J. C. R. Licklider "Man-Computer Symbiosis," *Transactions on Human Factors in Electronics*, Vol. HFE-1 (March 1960): 4-11, http://memex.org/licklider.pdf (accessed October 17, 2007).

role in the manufacture of computers, the development of computer software and the provision of Internet access.[22]"

According to the United States CIA World Factbook, 208 million Americans (out of a total population of approx. 301 million) are classified as 'internet users.'[23] This trend will most likely continue to increase the internet continues to become integrated into American consumer culture, as children become users at a younger age, and as technology becomes more affordable and the 'digital divide' continues to narrow.

This high rate of internet usage translates into similarly high volume of e-commerce. As *The Economist* states *"The US is also the largest market for electronic commerce and leads the world in the development of e-commerce in the separate segments of business to consumer (B2C), business to business (B2B) and consumer to consumer (C2C).*[24]"

A recent study on internet use by Stanford University shows that out of 4,000 respondents, 36% of internet users engaged in 'buying' or e-commerce (Figure 1).

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[22] The Economist, "United States of America: Country Commerce - Main report: April 23rd 2007: E-commerce: Forms of e-commerce," http://0www.eiu.com.opac.sfsu.edu/index.asp?layout=displayIssueArticle&issue_id=1962165581&article_id=42165789 (accessed October 25, 2007).

[23] Central Intelligence Agency, "The World Factbook, 2007," under "Rank Order – Population," https://www.cia.gov/library/publications/the-world-factbook/geos/us.html (accessed November 15, 2007).

[24] The Economist, "Country Commerce - Main report: April 23rd 2007: E-commerce: Forms of e-commerce," http://0www.eiu.com.opac.sfsu.edu/index.asp?layout=displayIssueArticle&issue_id=1962165581&article_id=42165789 (accessed October 25, 2007).

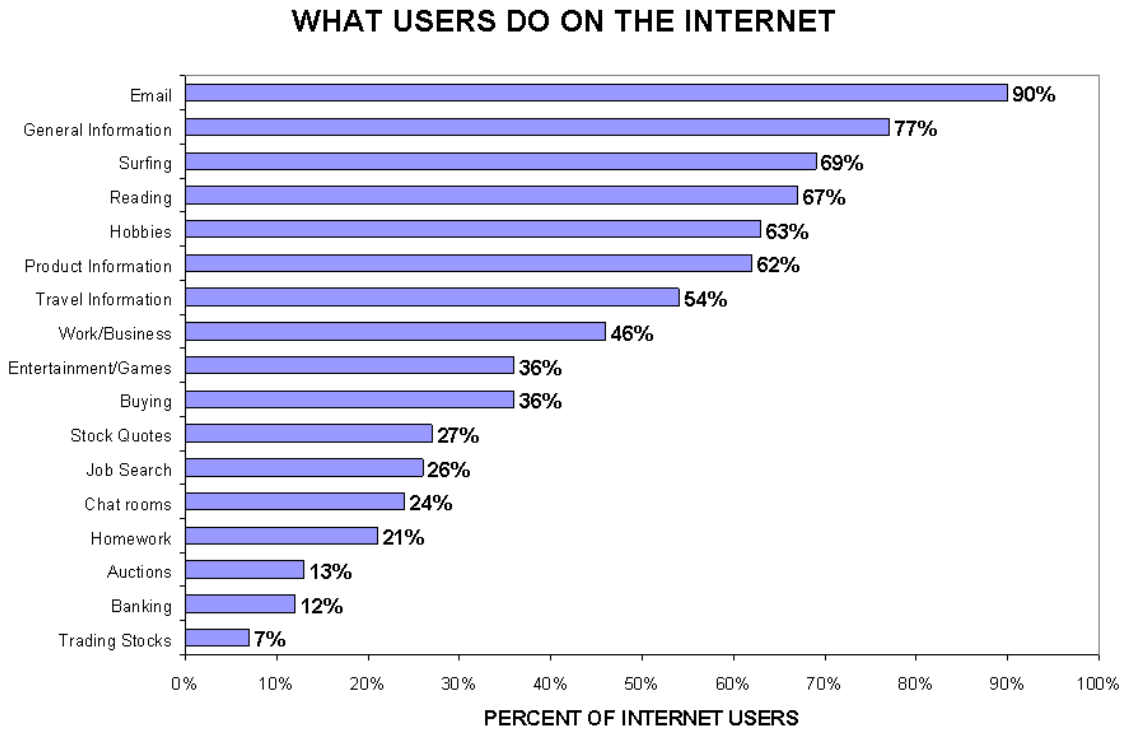

Figure 1. Internet Use in the U.S.[25]

Likewise, based on reports from the US Department of Commerce, total e-commerce sales in 2006 are estimated at $108.7 billion USD. This figure is up from $86.3billion USD in 2005, representing a 25.96% increase. E-commerce is also rapidly expanding in terms of total market percentage. In 2006, e-commerce accounted for 2.8% of all US sales in 2006, up from 2.4% in 2005.[26]

Figure 2, which is from the US Census Bureau, detail a trend of continued increase in e-commerce market.

[25] Stanford University, "The Internet Study," under "The More Time People Spend Using the Internet," http://www.stanford.edu/group/siqss/Press_Release/press_detail.html (accessed November 28, 2007).
[26] U.S. Census Bureau, "Quarterly Retail E-commerce Sales: 4th Quarter 2006," http://www.census.gov/mrts/www/data/html/06Q4.html (accessed April 17, 2007).

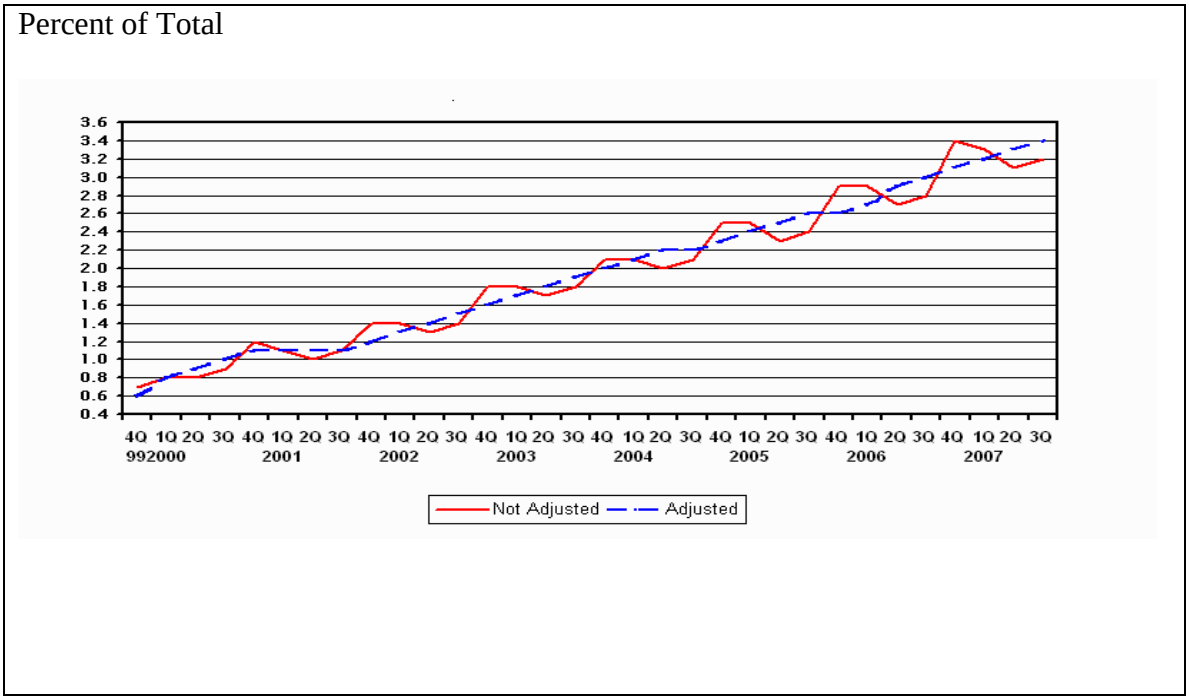

Figure 2. Estimated Quarterly U.S. Retail E-commerce Sales as a Percent of Total Quarterly Retail Sales: 4th Quarter 1999 – 3rd Quarter 2007[27]

According to figures from U.S. Census Bureau (Figure 3), electronic commerce is steadily gaining a bigger share in the total commerce of the U.S.

[27] U.S. Census Bureau, "Quarterly Retail E-commerce Sales," http://www.census.gov/mrts/www/ecomm.html (accessed April 17, 2007).

Quarter	Retail Sales (millions of dollars)		E-commerce as a Percent of Total	Percent Change From Prior Quarter		Percent Change From Same Quarter A Year Ago	
	Total	E-commerce		Total	E-commerce	Total	E-commerce
Adjusted							
3rd quarter 2007(p)	1,020,404	34,688	3.4	0.8	3.6	3.8	19.3
2nd quarter 2007(r)	1,012,375	33,477	3.3	1.3	5.9	3.7	20.2
1st quarter 2007	999,534	31,613	3.2	1.7	3.3	3.2	18.8
4th quarter 2006	982,809	30,592	3.1	0.0	5.2	4.6	23.6
3rd quarter 2006(r)	982,936	29,085	3.0	0.7	4.4	5.1	20.9
Not Adjusted							
3rd quarter 2007(p)	1,016,591	32,222	3.2	-1.4	1.2	3.2	18.9
2nd quarter 2007(r)	1,030,508	31,828	3.1	10.3	3.9	3.8	20.7
1st quarter 2007	934,619	30,624	3.3	-9.0	-13.3	3.9	18.5
4th quarter 2006	1,027,047	35,322	3.4	4.3	30.4	4.1	24.3
3rd quarter 2006	984,776	27,092	2.8	-0.8	2.8	4.8	20.1

(p) Preliminary estimate. (r) Revised estimate.

[1]E-commerce sales are sales of goods and services where an order is placed by the buyer or price and terms of sale are negotiated over an Internet, extranet, Electronic Data Interchange (EDI) network, electronic mail, or other online system. Payment may or may not be made online.[2]Estimates are adjusted for seasonal variation and holiday and trading-day differences, but not for price changes.Note: Table 2 provides estimated measures of sampling variability. For information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions, see www.census.gov/mrts/www/nrely.html.

Figure 3. Estimated Quarterly U.S. Retail Sales: Total and E-commerce – 1st Quarter 2007[28]

These growth trends in computer usage and e-commerce will most likely continue as the internet becomes more and more integrated into daily life. For example, mobile/ handheld internet devices become more and more popular. According to Telephia, "Mobile Internet population jumps to 34.6 million, with email, weather and sports websites securing the highest reach.[29]" An increase in internet accessibility will undoubtedly lead to an increase in e-commerce.

[28] U.S. Census Bureau, "Quarterly Retail E-commerce Sales, 1st Quarter 2007," http://www.census.gov/mrts/www/data/html/07Q3table1.html (accessed April 17, 2007).
[29] Telephia, "Openwave, Motorola and Nokia are the Top Internet Browsers among Mobile Web Users," (San Francisco: August 14, 2006), http://www.telephia.com/documents/InternetandDeviceReleaseJune2006v68.14.06FINAL.pdf (accessed November 29, 2007).

2.3.2 E-commerce in Turkey

Turkey, the third most populated country in Europe (after Russia and Germany)[30], has seen a substantial increase in the percentage of people using the Internet over the past few years – specifically following the rise in availability of DSL. Following over a decade of poor Internet infrastructure, with slow connection speeds provided at outrageously expensive rates, the new DSL services have stimulated the number of Internet users in Turkey grow rapidly. This growth in the percentage translates into new possible opportunities for the developing e-commerce industry in Turkey.

According to the most recent survey by the Turkish Statistical Institute, 29.46% of the 74 million individuals in Turkey are regular Internet users, and 61.1% of these users go online every day.[31] Table 1 shows the percentages of users who purchased goods or services online based on location and timeframe.

Percentage of users that purchased goods or services online			
	Turkey	**Urban**	**Rural**
Within the last three months	5.65	5.52	6.19
Between three months and a year ago	2.02	2.03	2.00
More than one year ago	1.43	1.25	2.11
Never	90.89	91.20	89.70

Table 1. Percentage of Users That Purchased Goods or Services Online[32]

[30] Central Intelligence Agency, "The World Factbook, 2007," under "Rank Order – Population," https://www.cia.gov/library/publications/the-world-factbook/rankorder/2119rank.html (accessed November 15, 2007).
[31] Turkish Statistical Institute, "ICT Usage Statistics, 2007," under "Household ICT Usage Survey," http://www.turkstat.gov.tr/PreTablo.do?tb_id=60&tb_adi=ICT%20Usage%20Statistics&ust_id=2 (accessed November 15, 2007).
[32] Turkish Statistical Institute, "ICT Usage Statistics, 2007," under "Household ICT Usage Survey," http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=605&tb_id=17 (accessed November 15, 2007).

It can be inferred from the figures on Table 1 that there has been a swift growth in internet usage over the last year. Likewise, *The Turkish Daily News* estimates that the number of internet users has increased from 7.5 million to 20 million between 2002 and 2007[33]. However, the figures are still very low compared to that of the U.S. – both in terms of percentage and number wise.

A report by *the Economist* revealed that by June 2007 e-commerce is on the rise in Turkey, "but had yet to become fully established."[34] As per *the Economist*'s findings, Turkey has about 18 million Internet users, of which approximately 6 million are regular users. Doing the math, these figures are slightly lower than Turkish Statistical Institute's (around 21 million), which is possibly due to the variance of the respondents. In this case, it could be estimated that Turkey has about 20 million regular Internet users.

Other than technical restraints, there are cultural issues regarding the expansion of e-commerce in Turkey: Unlike the U.S., Turkish society does not have a habit of purchasing goods through telephone or mail order.[35] Unlike the US, Turkey did not experience a slow and steady rise in internet purchasing, resulting in a high level of confidence in online purchasing. Turkey effectively 'missed out' on e-commerce's

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[33] Ebru Tuncay, and Sevda Yuzbasioglu, "Turks find 'net' in the Internet," *Turkish Daily News*, November 6, 2007, ,http://www.turkishdailynews.com.tr/article.php?enewsid=87811 (accessed November 6, 2007).
[34] The Economist, "Turkey: Country Commerce - Main report: July 20th 2007: E-commerce: Forms of e-commerce," http://0-portal.eiu.com.opac.sfsu.edu/index.asp?layout=displayIssueArticle&issue_id=562422241&article_id=622422447&rf=0 (accessed October 25, 2007).
[35] Ibid.

gradual inundation into the mind's of consumers. Therefore, confidence in online purchases, especially in regards to credit cards fraud and identity fraud, is lacking in Turkey. Similarly, Turkey has no particular laws or ministry dealing with electronic commerce. This fact discourages (or at least fails to encourage) businesses to invest in this potentially very risky industry.

Table 2. includes data published by The Turkish Statistical Institute that offers a numerical breakdown of how internet users in Turkey spend their online time.

Activities of individuals over the Internet		
Activities		(%)
COMMUNICATION		**78.23**
	Sending / receiving e-mails	66.84
	Telephoning over the Internet / Videoconferencing	11.36
	Chatting, blogging, posting, et cetera	40.39
INFORMATION SEARCH AND ONLINE SERVICES		**90.16**
	Searching for information about goods and services	43.31
	Using services related to travel and accommodation	14.25
	Listening to online radios/watching online television	28.18
	Playing or downloading games, images or music	43.58
	Downloading software	22.81
	Reading/downloading online newspapers/news magazines	55.77
	Looking for a job or sending a job application	10.57
ORDERING AND SELLING OF		**15.95**

GOODS AND SERVICES		
	Banking	12.90
	Other financial services (e.g. Share purchasing)	2.95
	Purchasing/ordering goods and services (excl. Shares/financial services)	5.59
	Selling goods and services (eg. Via auctions)	1.07
INTERACTION WITH GOVERNMENT AUTHORITIES AND CIVIL AGENCIES		**39.97**
	Obtaining information from public authorities web sites	37.64
	Downloading official forms	10.65
	Filling out and sending forms	6.02
TRAINING AND EDUCATION		**30.71**
	Structured educational activities (school, university et cetera.)	26.83
	Post educational courses	7.22
	Other educational activities related specifically to employment	4.37
HEALTH INQUIRIES		**22.97**
	Seeking health-related information	22.38
	Making an appointment online with practitioner	0.50
	Requesting a prescription online from a practitioner	0.02
	Seeking medical advice online from a practitioner	1.86

Table 2. Internet Activities in Turkey[36]

[36] Turkish Statistical Institute, "Household ICT Usage Statistics," under "Activities of Individuals Over the Internet," http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=605 (accessed October 10, 2007).

Although these figures show that only 5.59% of internet users in Turkey use the internet for the purchase of goods and services, it is possible that these figures under-represent the actual prominence of e-commerce. This is due to the fact that, as noted, Turkey has no particular laws or ministry dealing with electronic commerce, rather only the Turkish Statistical Institute. This entity functions to gather information and statistics related to Turkish society in general, and is similar to the United States Census Bureau. The data regarding internet usage and electronic commerce is very limited. This is because of relatively low internet usage demographics and investment in electronic commerce.

When accessing these figures, it is important not to focus on the relatively small number of Turkish consumers making purchases online. Rather, a more complete perspective is to perceive the rapidly increasing role of the internet in Turkey, and the potential for e-commerce in this evolving society. As *The Turkish Daily News* reports, "Global Internet Statistics reveal that Internet use in Turkey has increased by 700 percent since 2000.[37]" The publication also reveals that the commercial worth of the sector is expected to reach $1 billion USD in 2008. Recent developments in Turkey's European Union membership have acted as a catalyst for a great deal of social and political reform and modernization. As Turkish society becomes more Europeanized in these respects, economic practices will almost certainly follow suit.

[37] Sevda Yuzbasioglu, "Foreigners click on Turks' e-trade," *Turkish Daily News*, October 16, 2007, http://www.turkishdailynews.com.tr/article.php?enewsid=86035 (accessed November 17, 2007).

CHAPTER 3

RESEARCH AND ANALYSIS

3.1 Methodology

Because of the differences between cultures and technological applications as mentioned in Chapter 2, the selection of sample websites requires an extremely in-depth and comprehensive methodology. This fact is due to the complexity of the many parameters and variables involved in obtaining and accessing information.

The basic method of this survey is as follows: determining what constitutes an 'open source ecommerce solution package,' identifying analogous American and Turkish retailers, establishing which use proprietary ecommerce solutions versus open source ecommerce solutions, collecting data from these retailers via a survey of 39 criteria, and analyzing this data in order to draw conclusions regarding specific national variables and proprietary versus open source ecommerce solutions.

The little information does exist on this topic is often quantified in a variety of way. Thus, some data has required some conversion. For example, the available data regarding Turkey and e-commerce is often quantified in Turkish Liras rather than US Dollars. The fluctuating nature of currency is just one of many dynamic variables adding complexity to the case studies at hand. Data collection is also complicated by the fact that old data does not mean much in the world of technology, and the available data from

the two countries are from different timeframes and qualities. For instance, Turkish e-commerce may be considered as under-reported as compared to the US, due to its low volume and short history. The selection of companies, survey and analysis of survey results all attempt to take national differences into account.

3.1.1 Distinguishing Between Proprietary and Open Source

In electronic commerce today, a large variety of proprietary and open source software applications are often integrated and used together: From server side, to client side; from operating systems, to tiny scripts on web pages, a mixture of the two can be combined successfully. A prime example is Facebook, a social networking website which is extraordinarily popular today.[38] Despite its emphasis on social networking, Facebook can also be classified as an unusual type of e-commerce website that makes large sums of money from online advertisements and allows users to buy and sell things[39] without directing them to an external website.[40] This website that is filled with applications created by its own engineers as well as its users, "is built in PHP, C++, Perl, Python, Java, and even a little bit of ML—and it all works together."[41]

To simplify matters, and to deduce some practical conclusions from this mass of information, as stated previously, open source will refer specifically to only e-commerce

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[38] Laura Locke, "The Future of Facebook," *Time*, July 17, 2007, http://www.time.com/time/business/article/0,8599,1644040,00.html (accessed November 22, 2007).
[39] Facebook Marketplace, http://www.facebook.com/marketplace/ (accessed November 22, 2007).
[40] Facebook Developers, f8 Keynote, http://developers.facebook.com/videos.php (accessed November 22, 2007).
[41] Facebook Jobs, Engineering, http://www.facebook.com/jobs/engineering.php (accessed November 22, 2007).

packages which follows the Open Source Initiative OSI – The GPL:Licensing. Additionally, this thesis will make the assumption that only a package of e-commerce applications that feature a "set of out-of-the-box online shopping cart functionality that allows store owners to setup, run, and maintain their online stores … with no costs, fees, or limitations involved"[42] functions as an "open source e-commerce solution."

Because at this time, there are a small number of open source e-commerce providers, the sample websites for the open source portion of the survey have been selected from two of the major providers, osCommerce[43] and Zen Cart[44], based on the categories listed in 3.1.3 Choosing Sample Websites. As Zen Cart states regarding the notion of open source

> *"Zen Cart is open-source. As such, the intent is that it is extensible. The core of Zen Cart is intended to support a very diverse range of users; however, it is not intended to suit "everyone's" needs directly. Instead, we endeavour to continually make the code more adaptable and able to be enhanced by the way of community-contributed/supported plug-in's that can be added to Zen Cart with minimal difficulty. In this regard, we encourage community contributions.*[45]"

[42] osCommerce, Welcome to osCommerce, http://www.oscommerce.com/ (accessed November 22, 2007).
[43] Ibid.
[44] Zen Cart, http://www.zen-cart.com/ (accessed November 22, 2007).
[45] Ibid.

3.1.2 Selection Based on Dimensions of E-commerce

As per model introduced by A.B. Whinston (et al.) in 1997, electronic commerce has three dimensions as seen in Figure 4. Dimensions of Electronic Commerce:

1. Type of product or service sold
2. Type of process
3. Type of delivery agent or intermediary

Breaking down each dimension as physical vs. virtual, there are $2^3 = 8$ different types of e-commerce according to this model. These eight different types range from "brick-and-mortar organizations" (traditional commerce with all three dimensions being physical) to "pure play (virtual) organizations" (pure electronic commerce with all three dimensions being virtual). In between the two extremes, there are six hybrid types, which can be classified as "click-and-mortar (click-and-brick) organizations" (partial electronic commerce). For the survey used in this paper, sample websites were selected in a way that would exemplify "pure play" and "click-and-mortar" organizations.

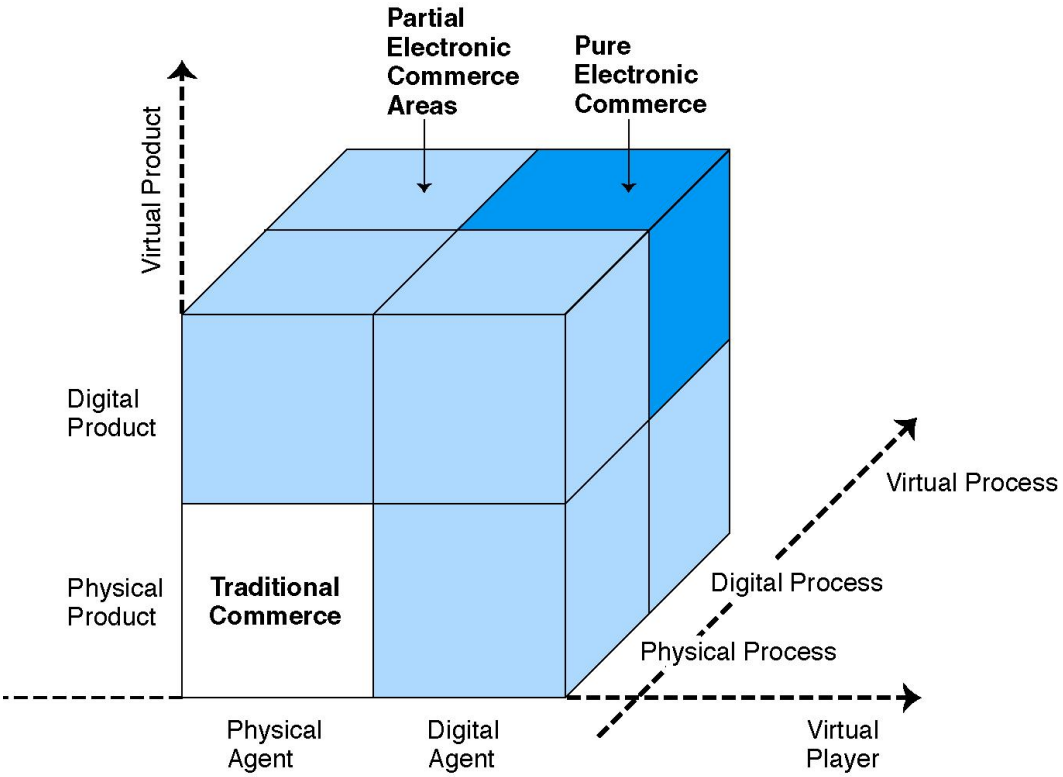

Figure 4. Dimensions of Electronic Commerce[46]

3.1.3 Choosing Sample Websites

As mentioned, only very limited data about e-commerce in Turkey is available. Likewise, the number of e-commerce players is far less in Turkey in comparison to the United States. These restraints played a major role in deciding on the sectors of the sample companies. The top seven most popular sectors in Turkish e-commerce according

[46] A. B. Whinston, D. O. Stahl, and S. Choi, "The Economics of Electronic Commerce," (Indianapolis, IN: Macmillan Technical Publishing, 1997), quoted in Efraim Turban, David King, Dennis Viehland, and Jae Lee, *Electronic commerce 2006: a managerial perspective* (New Jersey: Pearson Education, Inc., 2006), 5.

to a survey made by the Turkish Statistical Institute were selected. The top seven sectors with corresponding percentages are taken from Table 3.

Percentage of products or services purchased online in the last 12 months in Turkey						
	Percentage among online shoppers in the last 12 months			Percentage among all internet users		
	Turkey	**Urban**	**Rural**	**Turkey**	**Urban**	**Rural**
Electronics	28.20	30.04	21.65	2.17	2.27	1.77
Books, magazines, newspapers and e-books	24.45	21.40	35.29	1.88	1.61	2.89
Clothing, sporting goods	22.29	21.51	25.05	1.71	1.62	2.05
Household goods (furniture, toys, etc.)	21.21	19.01	29.01	1.63	1.43	2.38
Food or groceries including tobacco and cosmetics	19.29	19.27	19.36	1.48	1.45	1.59
Music, film	18.35	20.43	10.93	1.41	1.54	0.90
Computer hardware	16.47	16.33	16.93	1.26	1.23	1.39
Travel (reservations, tickets, car rental, etc.)	15.59	16.32	12.99	1.20	1.23	1.06
Computer software (including video games)	11.12	10.22	14.33	0.85	0.77	1.17
Tickets for events	7.61	8.23	5.38	0.58	0.62	0.44
Stock purchases, financial services and insurance	5.02	4.41	7.18	0.39	0.33	0.59
Other	1.38	1.77	0.00	0.11	0.13	0.00
Lottery and gambling	1.31	1.67	0.00	0.10	0.13	0.00

Table 3. Percentage of Products or Services Purchased Online in the Last 12 Months in Turkey[47]

These particular websites have been selected for review for several reasons. First of all, they serve as an appropriate representative for (at least one of) the selected sectors.

[47] Turkish Statistical Institute, "ICT Usage Statistics, 2007," under "Household ICT Usage Survey," http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=605&tb_id=18 (accessed November 15, 2007).

The fact that most of these companies operate with a broad spectrum of products or services available via electronic commerce makes the survey more comprehensive. As shown in Table 3, electronics, books, magazines, newspapers and e-books, clothing, sporting goods, household goods (furniture, toys, etc.), food or groceries including tobacco and cosmetics, music and film, and computer hardware make up the top seven ecommerce markets. Moreover, these companies represent markets that have a comparable counterpart in both the US and in Turkey. For example, Circuit City offers primarily the same products and services in the US as Teknosa does in Turkey.

The open source websites have been selected solely from osCommerce and Zen Cart's customer showcases. This is because there can be varying and complicated definitions of what an 'open source ecommerce solution' is. Both oScommerce and Zen Cart espouse the same definition of open source- as defined by *The Open Source Initiative* (OSI). Thus, all examples used will fit the same model of an open source e-commerce solution package.

Table 4 shows the list of all the companies surveyed with their corresponding sector and category.

	United States	Turkey	*Sector*
Proprietary	Circuit City	Teknosa	*Electronics*
	Barnes & Noble	Ideefixe	*Books, magazines, newspapers and e-books*
	Neiman Marcus	Baykush	*Clothing, sporting goods*
	Amazon	Hepsiburada	*Household goods (furniture, toys, etc.)*
	Safeway	Migros	*Food or groceries including tobacco and cosmetics*
	Ebay	Gittigidiyor	*Music, film*
	Dell	Vatan Bilgisayar	*Computer hardware*
Open Source	Big City Gadgets	Nettemarket	*Electronics*
	Badger Comics	N/A	*Books, magazines, newspapers and e-books*
	Recycled by Hyena	Bebek Market	*Clothing, sporting goods*
	Patio Toys	Ne Alsak	*Household goods (furniture, toys, etc.)*
	Back To Earth Organic Bars	Medikal Al	*Food or groceries including tobacco and cosmetics*
	Strange Famous Records	Muzikbazaar	*Music, film*
	Power Brixx	Teknosit	*Computer hardware*

Table 4. Companies Surveyed

3.1.4 Creating the Survey

After identifying sample websites, a survey for evaluating them was formed. The survey was based on multiple sources. Figure 5 shows the functions of electronic commerce systems taken from Robert C. Nickerson's e-commerce model from *Business and Information Systems*[48] that were used to build the main categories of the survey questions. The main evaluation categories of the survey are company information, product presentation, order entry, payment, product distribution, customer service, product support, and data acquisition, respectively.

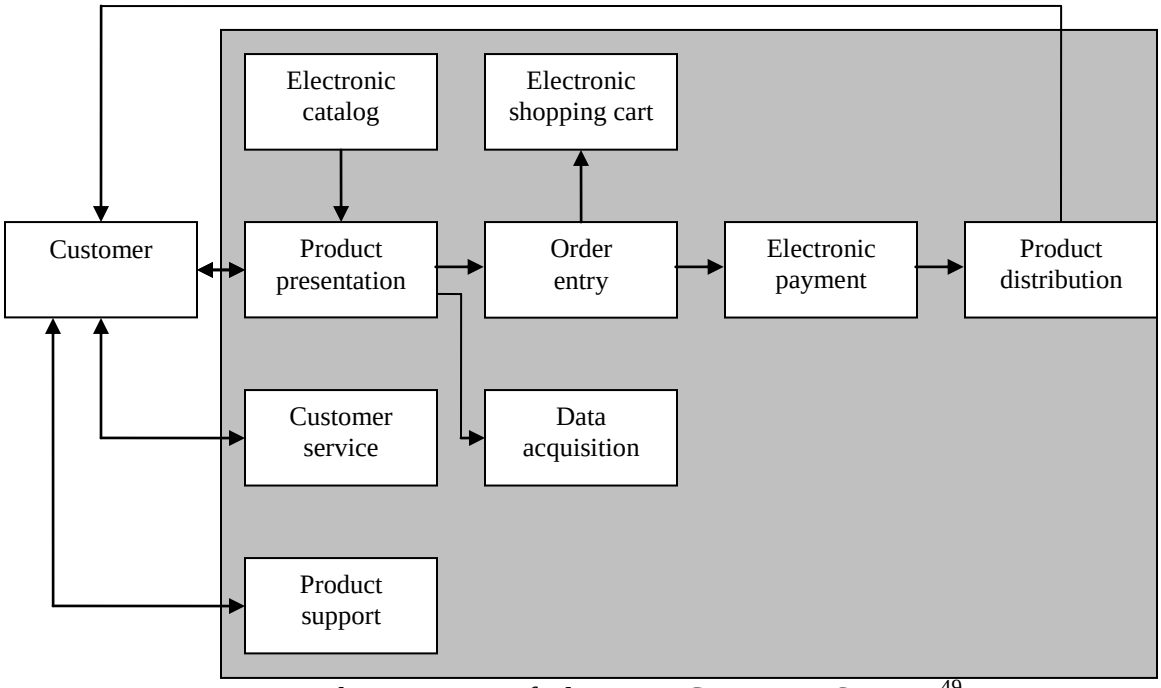

Figure 5. The Functions of Electronic Commerce Systems[49]

[48] Robert C. Nickerson, *Business and Information Systems*, 2nd ed. (New Jersey: Prentice-Hall, Inc., 2001), 377-379.
[49] Ibid, 378.

A research project made by Stephanie Turberg in 2002[50] has also been inspirational in designing the survey and creating the criteria for evaluating the websites. However, original questions have been designed as necessary based on the focus of this study, recent developments in e-commerce website design, and measures from Turban's (et al.) *Electronic Commerce 2006: A Managerial Perspective*.[51] This combination of different evaluative perspectives has taken its final form by some more ingredients from another research study done by Silke Rischko in 2001.[52] The final survey that is used in this study can be found in Appendix 1.

3.2 Results and Analysis

After evaluating all the selected websites, the data gathered has been analyzed statistically in order to draw conclusions. The complete evaluations are available in Appendix 2. This section elaborates on the main categories of the survey, and individual websites as necessary.

3.2.1 Company Information

To begin with, 28 companies are going to be analyzed: Seven companies from each one of the four categories in Table 4.

[50] Stephanie Turberg, "E-commerce in Europe: An Analysis of Current Practices" (master's thesis, San Francisco State University, 2002), 57-58.
[51] Efraim Turban, David King, Dennis Viehland, and Jae Lee, *Electronic commerce 2006: a managerial perspective* (New Jersey: Pearson Education, Inc., 2006), 663-698.
[52] Silke Rischko, "Click Meets Brick: The Impact of the Internet on Fashion Apparel Retailers" (master's thesis, San Francisco State University, 2001), 39-45.

All companies are selected based on their primary sector of operation in e-commerce. Out of 4 x 7 = 28 sample websites intended to be surveyed only the Turkish – Open Source sample in the "books, magazines, newspapers, and e-books" category could not be found. However, since most of these companies operate in more than one sector, other Turkish companies using open source e-commerce solutions make up for the missing sample in a sense. Because it is difficult to distinguish between electronics and computer hardware, both categories are combined under the "electronics" category.

The number of companies from each sector (including the overlapping sectors) is shown in Figure 6.

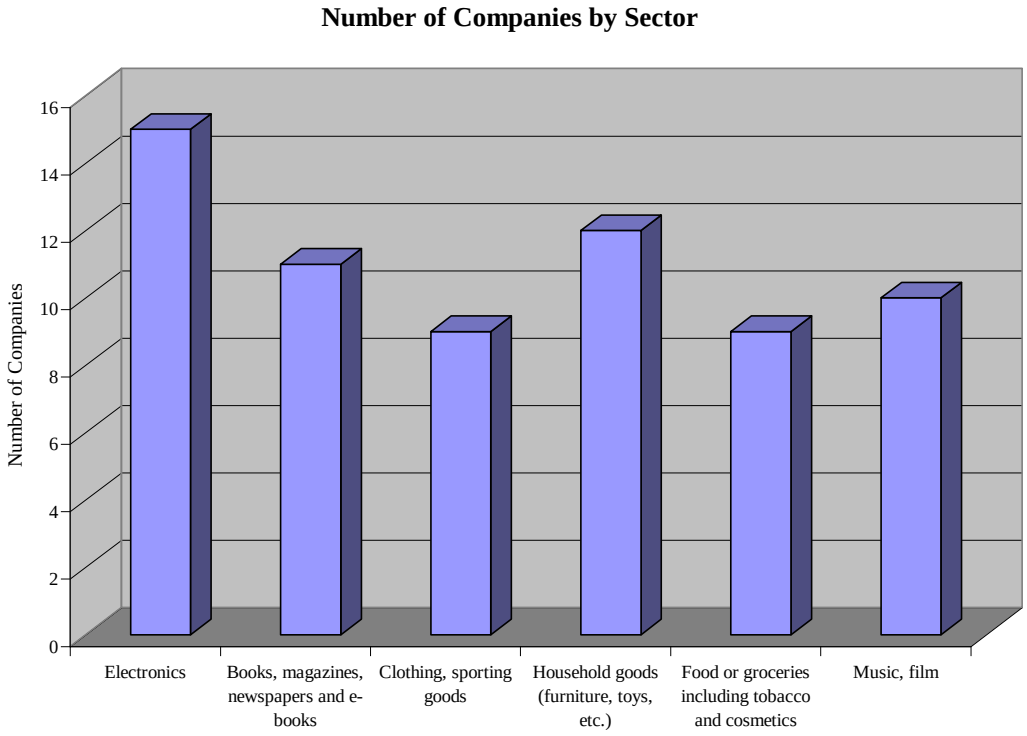

Figure 6. Total Number of Companies per Sector

Among these websites, 18 of them are pure play companies – double the number of click-and-mortar ones. No brick-and-mortar companies are included in the survey as they are not part of the main focus of this study.

Figure 7 helps understand the distribution of sample websites in greater detail, with the total number of websites in a certain sector broken down into the four categories mentioned in Table 4.

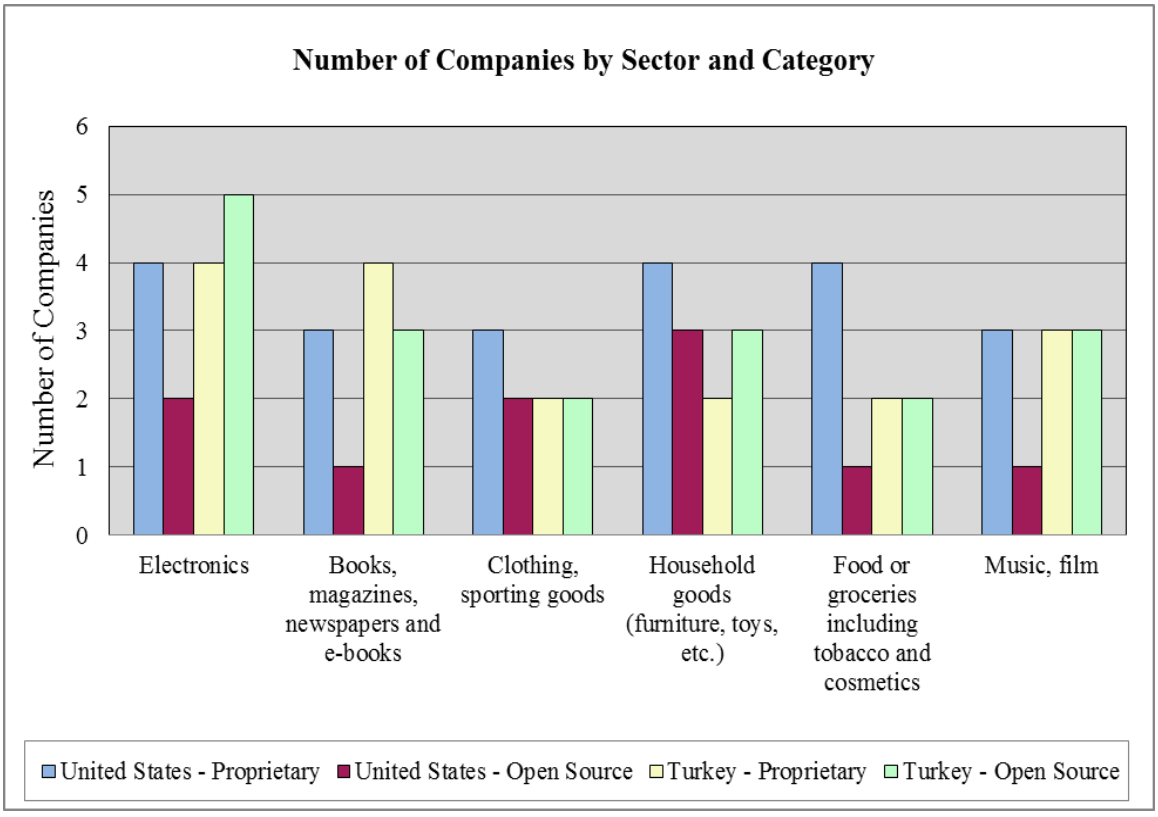

Figure 7. Total Number of Companies per Sector by Category

3.2.2 Product Presentation

Not surprisingly, every single company evaluated in this survey has 2-dimensional pictures of the products or services they are selling. Only one company from Turkey, namely Vatan Bilgisayar, does not have the option to view an enlarged picture of their products.

Different colors or models are mostly available on the surveyed websites – mainly depending on what sector they were operating in. For instance, companies from clothing or electronics sectors have a better chance of having different colors or models compared to the ones selling books.

3-dimensional views of products are only available on Dell's, and to some extent on Circuit City's website. It seems that as broadband internet connections are becoming more common, capacities of computer hardware are steadily increasing, and there is an evolution towards Web 2.0, zoomable 3-D models have not become the de facto standard yet.

Product descriptions are available on every website evaluated, but Vatan Bilgisayar again. Their lack of zoomable images and product descriptions could be described by their reliance on their large showrooms in large cities of Turkey. They probably expect their clientele to see the products in store, or get the information on the product elsewhere on the internet.

Only two Open Source websites in the U.S. do not have a search tool. Other than using Zen Cart as the open source e-commerce solution, what these websites have in

common is that they have a limited selection of products, which is probably why they do not feel the need for a search tool.

Product presentations in overall tend to be well-structured among proprietary websites compared to their open source counterparts both in the U.S. and in Turkey.

3.2.3 Order Entry

Conversion rate, the ratio of visitors on a website that complete a purchase to the total number of visitors, is a widely used e-commerce success metric. Although it may depend on the overall experience in a certain website, some studies suggest that the lower the number of clicks required to complete a purchase (checkout), the higher the conversion rate is[53]. The e-commerce websites in the U.S. -especially the proprietary category which are more experienced in the industry- seem to understand and utilize this better. Figure 8 shows a comparison of individual averages of U.S. – Proprietary, U.S. – Open Source, Turkey – Proprietary, and Turkey – Open Source categories with the overall average of all of the 27 companies.

[53] Efraim Turban, David King, Dennis Viehland, and Jae Lee, *Electronic commerce 2006: a managerial perspective* (New Jersey: Pearson Education, Inc., 2006), 140-177.

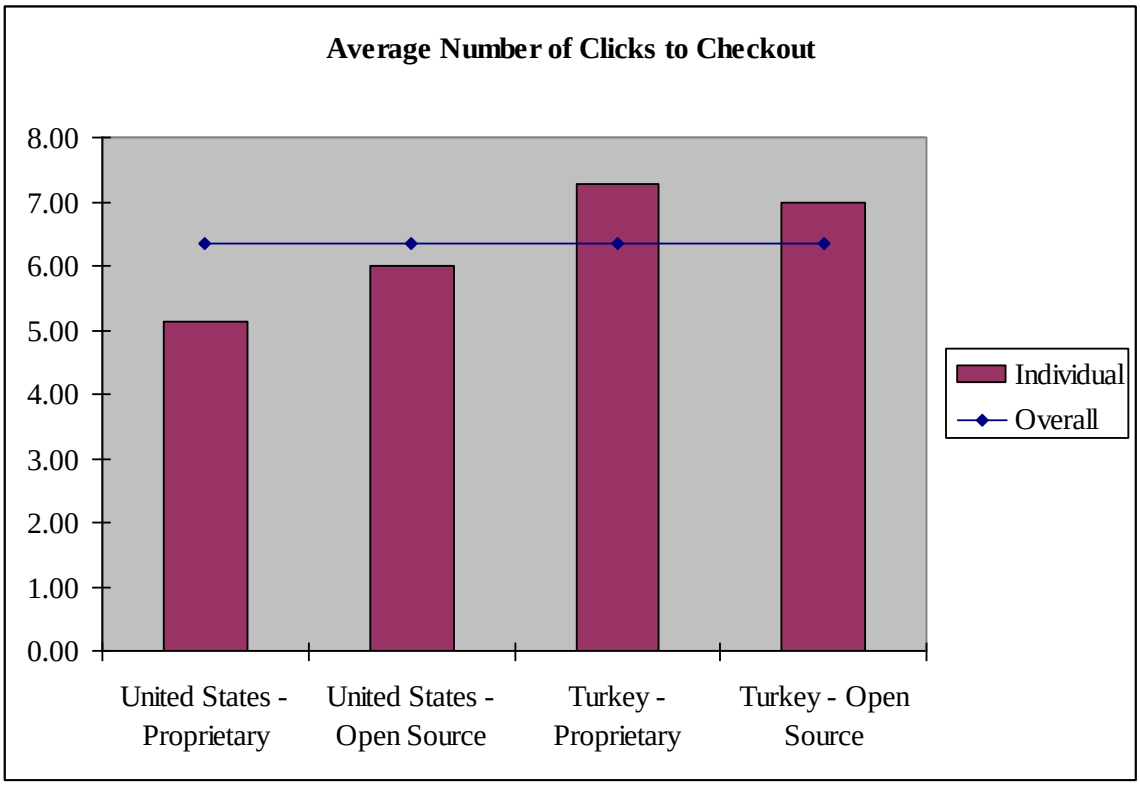

Figure 8. Average Number of Clicks to Checkout

The average number of clicks required to checkout takes into account that most of the surveyed websites require registration to be able to complete the checkout, which certainly increases the number. As expected, most of the websites that offer checkout without registration are from the U.S. – Proprietary category. It is probable that with time and with customer feedback, these companies realized that not every customer is willing to register just to complete a one-time or a small transaction. Figure 9 compares the ability to checkout without having to register in all four categories.

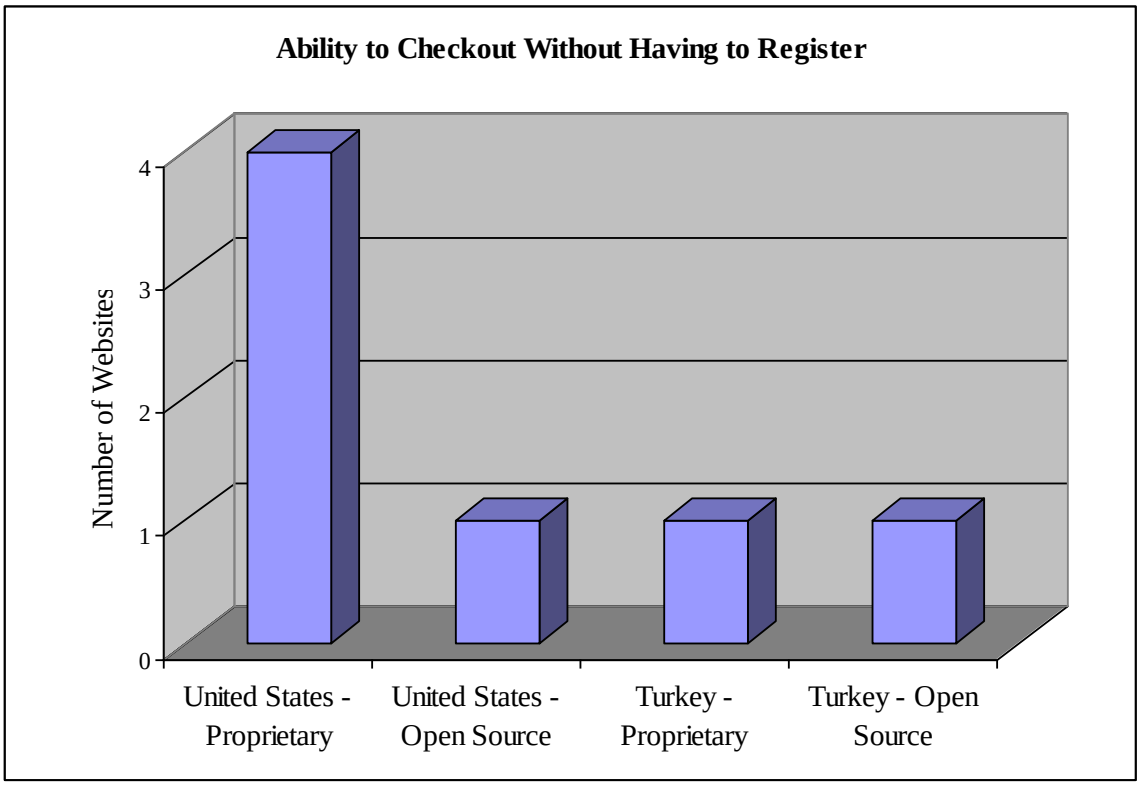

Figure 9. Ability to Checkout Without Having to Register

So, only 7 websites out of 27 (about 26%) offer this feature, with the U.S. – Proprietary category leading with 4 websites.

3.2.4 Payment

Credit cards dominate the league of payment types by far. Even though practically every website in the survey accepts major credit cards, technically some of the companies that use open source e-commerce systems can only achieve this through PayPal and/or Google Checkout.

The cultural differences in terms of payment types are striking. All of the U.S.-based companies accept debit cards whereas none of the Turkish ones do. Debit cards in Turkey are only available through Visa Electron, a subdivision of Visa, and are not commonly accepted. On the other hand, almost every Turkey-based company accepts payments in installments through credit cards. Cash on delivery (COD) is not a common option in either country offered by only three companies in Turkey and none in the U.S.. Likewise, checks are honored by only two of the U.S. companies and none in Turkey. Gift cards seem to be more popular in the U.S. and among proprietary e-commerce software users. Figure 10 shows gift card acceptance by categories.

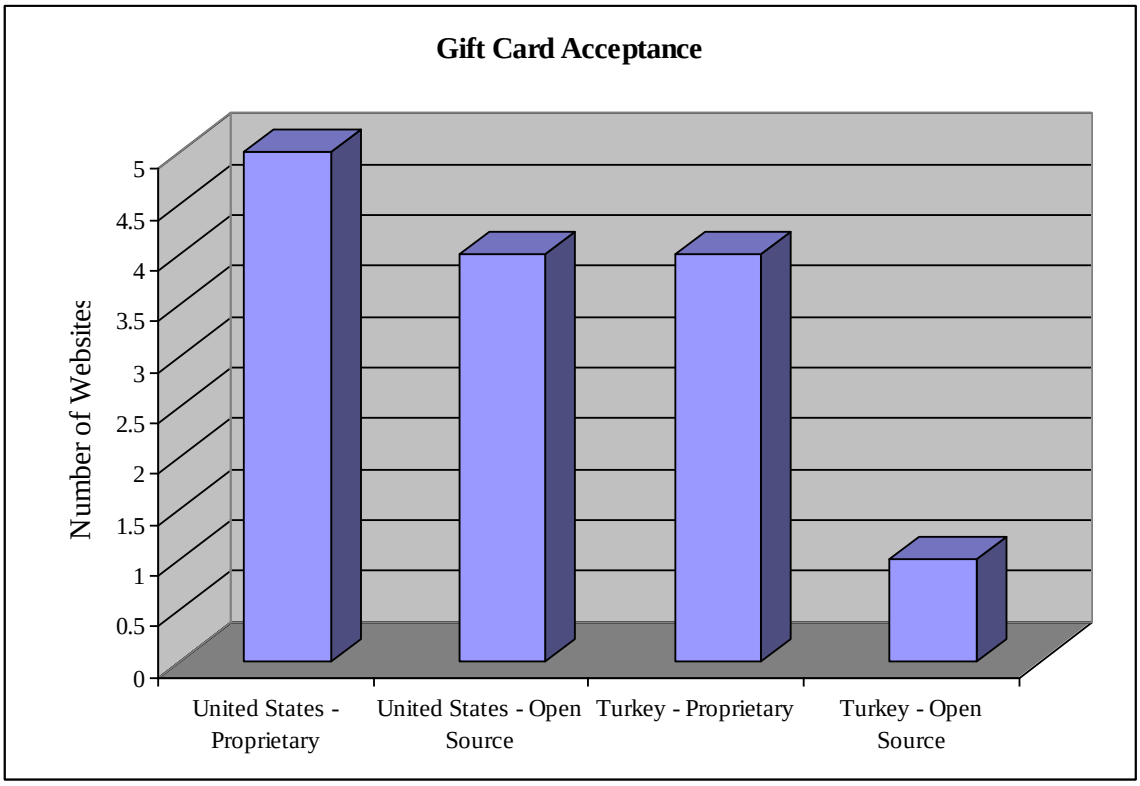

Figure 10. Gift Card Acceptance

All the websites carry transactions by secured forms of payment. 128-bit SSL protection can be regarded as the de facto industry standard of e-commerce today.

3.2.5 Product Distribution

Of the physical and electronic product delivery types, only three U.S. – Proprietary, one U.S. – Open Source, and one Turkey – Proprietary websites offer both. None of the websites surveyed offers electronic product delivery alone.

Multiple shipping options are popular among U.S.-based companies. This is possibly due to the relatively larger geography and population of the U.S. and its better established logistics industry. Companies that ship internationally generally tend to offer multiple shipping options. Order tracking however, does not seem to be related to shipping options. The comparative figures can be seen in Figure 11.

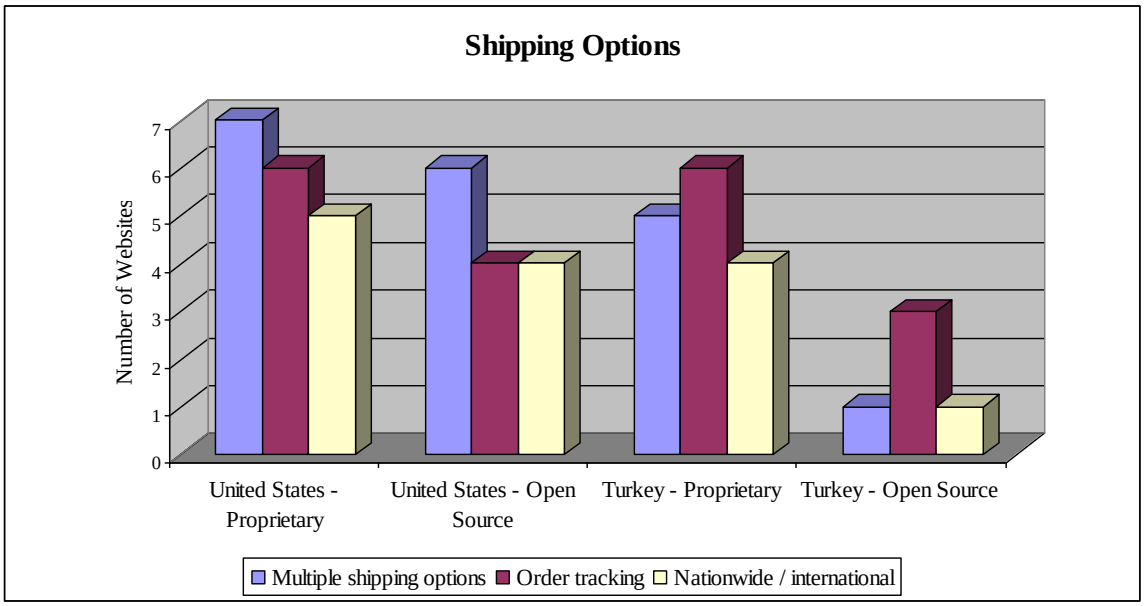

Figure 11. Shipping Options

3.2.6 Customer Service

All of the 27 companies provide customer service through e-mail. Customer service through phone appears to be more common in Turkey, especially in the open source category. Possibly due to very high call volumes, U.S.-based companies tend to move away from phone support. Feedback forms are also utilized more in Turkey-based companies. Live chat is not a popular way of assisting customers in any category. Customer service comparisons are provided in Figure 12.

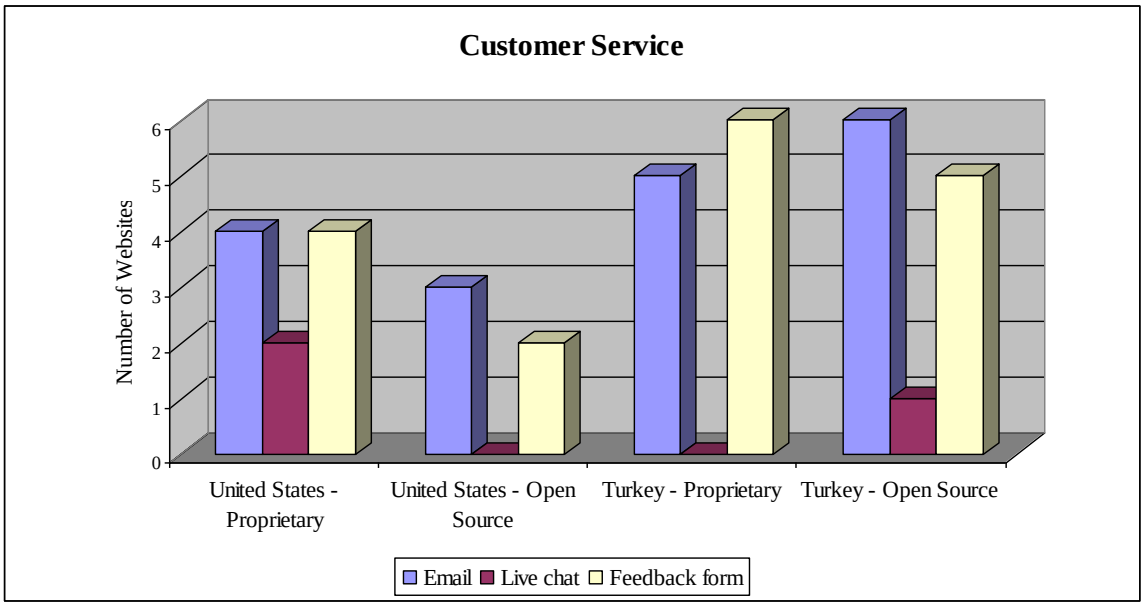

Figure 12. Customer Service

3.2.7 Product Support

Frequently Asked Questions (FAQ) sections, which can significantly reduce the customers' need for live support, are utilized by majority of the websites – except by the U.S. – Open Source category. Product returns are accepted by the vast majority of websites, based on different terms and conditions. Figures can be seen in Figure 13.

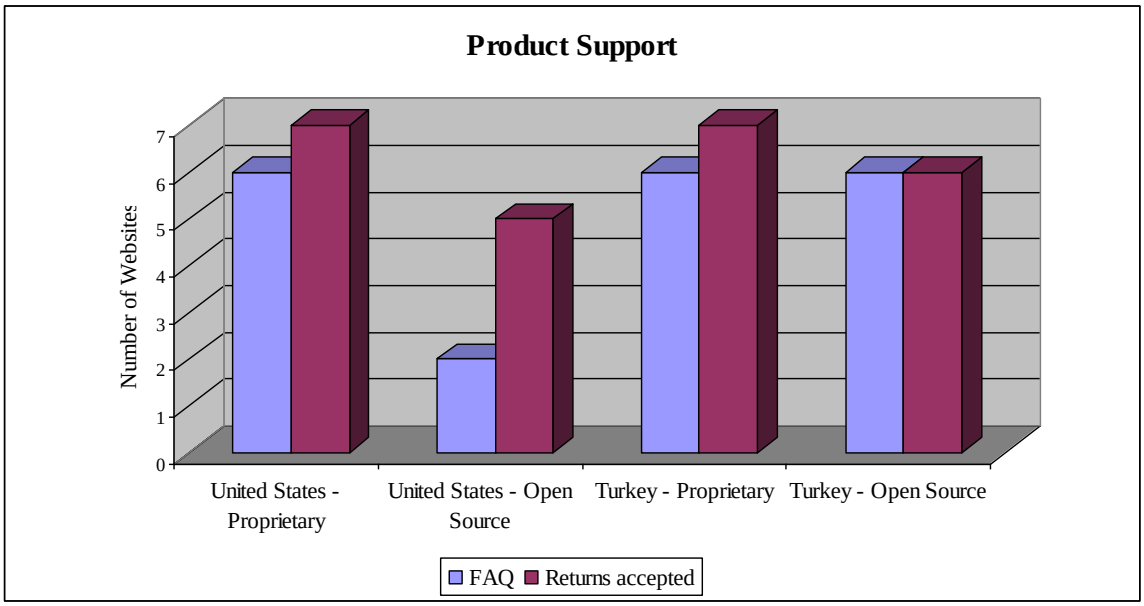

Figure 13. Product Support

3.2.8 Data Acquisition

Customers are mostly provided with privacy statements by companies under any category. If a privacy statement is available, almost all the website designs allow customers to view it from all pages as seen in Figure 14. One interesting statistic here is that all the U.S. – Proprietary companies share their customer information with their partners or affiliates, whereas none of the Turkey – Proprietary companies do.

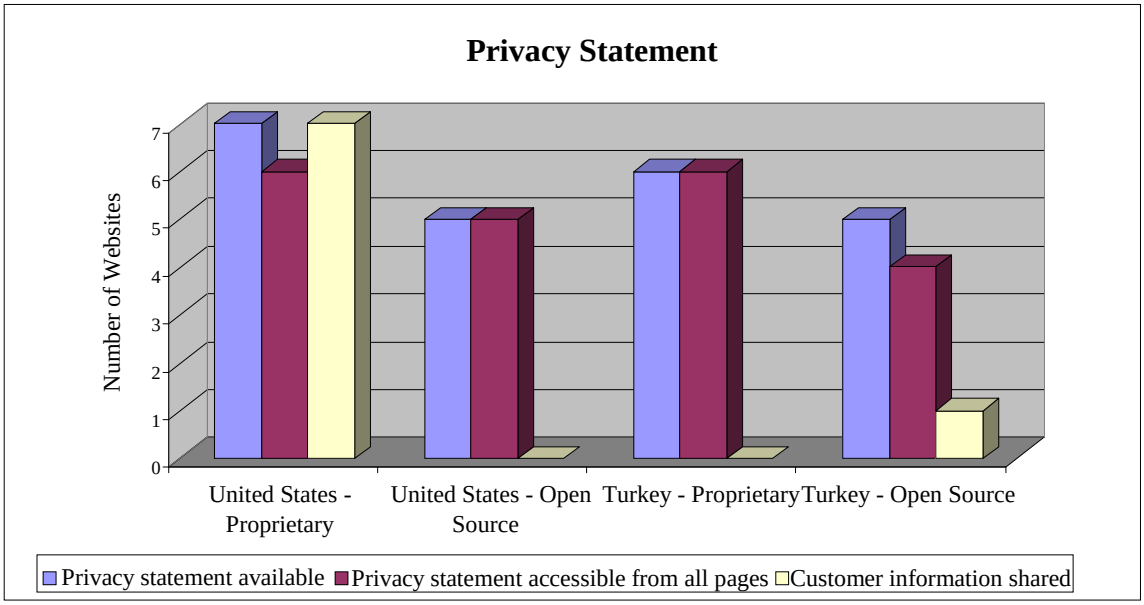

Figure 14. Privacy Statement

Among all website categories, cross-marketing is a popular way of promoting different products or services while acquiring related customer data. 100% of the Turkey-based websites in the survey utilize this marketing tool. In the same way, about half the companies in the survey use customer reviews to obtain information about their customers and help other customers learn more about the products or services they are offering. Customer review and cross-marketing utilization can be seen in Figure 15.

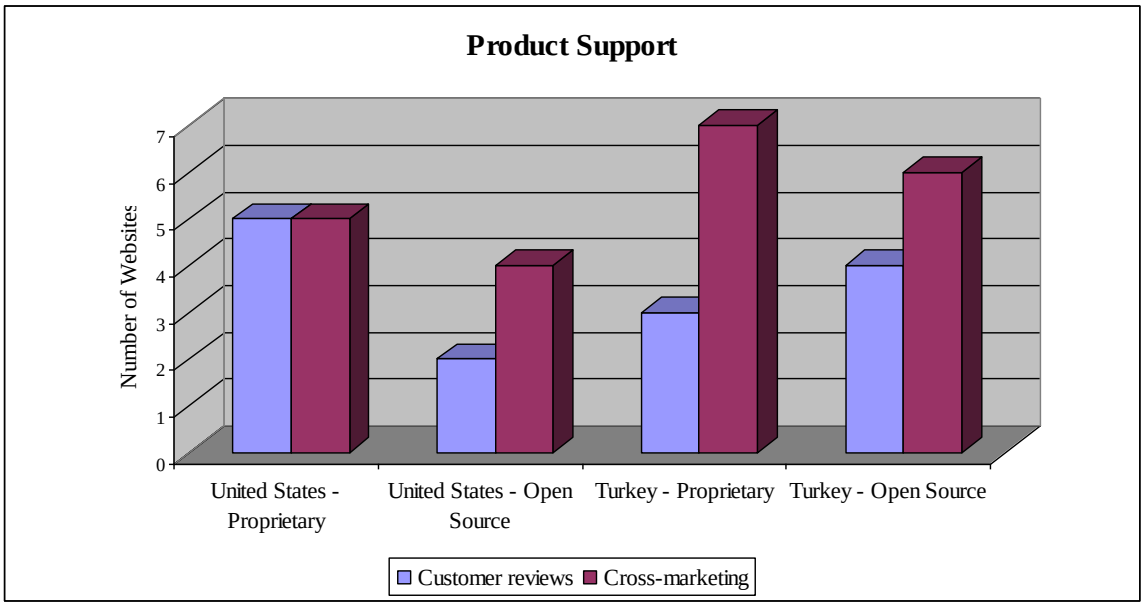

Figure 15. Product Support

CHAPTER 4

SUMMARY, CONCLUSION, IMPLICATIONS, AND RECOMMENDATIONS

The aim of this study is to analyze proprietary and open source electronic commerce solution as they function in the United States and Turkey, and to evaluate how organizational strategic factors (culture, structure and systems, technology, and expertise) together with economics impact these systems. The goal of this research has also been to reveal what can be done to improve the chances of success for these systems.

Based on this study, it seems there are significant differences in how electronic commerce acts under different conditions.

Culture plays a major role in how people respond to new technologies, and how soon these technologies are mainstreamed: In the age of technology, culture is greatly influenced by technology and vice versa. So, the two factors closely interact with each other, and it is not easy to analyze one without the other. As the innovator in this field, the U.S. has much stronger connections with e-commerce than Turkey. This, of course, is relevant to another organizational factor: Expertise. Because of its deeper roots in internet culture as well as other means of remote shipping, the U.S. society utilizes electronic commerce much more widely than Turkey. In this case, both proprietary and open source solutions seem to function appropriately in the U.S. On the other hand, Turkey only has a

few proprietary e-commerce players that are well established. Even the largest corporations in Turkey appear to be hesitant about relying on income from e-commerce. Parallel to the changing attitude in the Turkish society towards the internet and e-commerce, businesses are getting more involved in them.

It appears that open source-commerce solutions, just like the Turkish society, are going through a passing phase. The idea of open source is fresh in the e-commerce industry. There are very successful utilizations of it as well as very poor ones. Because it is free, even not-so-serious entrepreneurs give the open source e-commerce systems a try. This results in abandoned websites, expired domains, and similar unsuccessful attempts of doing electronic commerce. Again, due to the fact that it is free, open source attracts small companies, or entrepreneurs with very little capital. This is another reason why there is such a big difference in terms of professionalism between open source and proprietary e-commerce websites.

Turkey may not be able to get involved in electronic commerce as much as the U.S. in the near future, but the e-commerce industry in Turkey is growing rapidly. Opportunities that arise due to open source e-commerce solutions may quicken this process. On the contrary, the U.S., with its culture and army of developers, is more likely to exploit the benefits of open source in the short run. One thing is almost certain in either case: Open source is helping and will continue to help electronic commerce flourish and thrive.

This research has merely enough data to draw conclusions about such a broad topic, and it could be improved by doing the survey on some hundreds of websites from all four categories. Nonetheless, the challenge then is find a sufficient number of websites created with open source e-commerce solutions. The open source portion of this survey has proven difficult, in that only small numbers of websites are available in that category. Many of the websites originally considered for this study, did not meet the criteria of a professional website even at the first glance. Some of the open source websites that were used in the surveying had to be replaced with their equivalents due to expired domains, expired security certificates, and broken functionality within the duration of this research. Moreover, it is not considerably easy to find Turkish websites that can be considered 'competitive' or 'comparable' operating in the selected fields.

Yet, there are possibilities in terms of expanding this research in order to produce more reliable statistics.

Essentially, this study reveals that there is room for improving in all four categories of the survey. The proprietary e-commerce sector in the United States, however, is the trailblazer, leading by way of successful example. After years of experience and a large volume of customers, companies involved in e-commerce in the U.S. have matured. Many companies in the US are successfully able to utilize open source e-commerce solutions primarily because

1. These solutions are primarily developed and available in English and in the U.S.,

2. The American public is comfortable with shopping online due to its culture of mail and phone ordering,
3. In terms of economies of scale, U.S. entrepreneurs have more access to capital, and
4. Businesses in the U.S. have the benefit of a longer history and more experience with e-commerce.

It will remain a challenge for Turkey to follow this example as its economy and culture continue to modernize and develop. There are lessons that Turkey can learn from the U.S. in terms of electronic commerce. Observing the phases the U.S. e-commerce industry has gone through over time can help understand and estimate what will happen in Turkey next. What is more, current e-commerce practices in the U.S. can help Turkish companies create a strategic advantage over their competitors if taken appropriately.

Open source is yet too young in the electronic commerce world, but still promises a bright future. Today, it allows even the entrepreneurs with the smallest capitals take part in the e-commerce game. Some successful applications of open source e-commerce systems are almost as good as that of large corporations. With an ever increasing number of volunteer developers and its growing culture, open source solutions may be able to penetrate into big companies in the near-to-middle future.

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APPENDICES

Appendix 1. Survey Questions

	SURVEY QUESTIONS	OPTIONS
	Company Information	
1	Company	Name of the company
2	Sector	E: Electronics
		B: Books, magazines, newspapers and e-books
		C: Clothing, sporting goods
		H: Household goods (furniture, toys, etc.)
		F: Food or groceries including tobacco and cosmetics
		M: Music, film
3	Website URL	Online address of the company's website
4	Date accessed	The date that the website was visited on
5	Country of Headquarters	U: United States, T: Turkey
6	Software or platform	P: Proprietary, O: Open source
7	Type of e-commerce	C: Click-and-mortar, P: Pure play
	Product presentation	
8	2D pictures	Y: Yes, N: No
9	Zoomable	Y: Yes, N: No
10	Different colors or models	Y: Yes, N: No
11	3D model	Y: Yes, N: No, L: Limited
12	Product description	Y: Yes, N: No
13	Search tool present	Y: Yes, N: No
	Order Entry	
14	Number of clicks to checkout	Minimum number of clicks to checkout

	SURVEY QUESTIONS	OPTIONS
15	Inventory availability display	Y: Yes, N: No
16	Ability to checkout without having to register (creating a user account)	Y: Yes, N: No
	Payment	
17	Credit Card	Y: Yes, N: No
18	Debit Card	Y: Yes, N: No
19	COD	Y: Yes, N: No
20	Check	Y: Yes, N: No
21	Gift Card	Y: Yes, N: No
22	Other	Y: Yes, N: No
23	Secured Payment	Y: Yes, N: No
	Product Distribution	
24	Distribution type	E: Electronic, P: Physical, B: Both
25	Multiple shipping options	Y: Yes, N: No
26	Order tracking	Y: Yes, N: No
27	Nationwide / international	N: Nationwide, I: International
	Customer Service	
28	Email	Y: Yes, N: No
29	Phone	Y: Yes, N: No
30	Live chat	Y: Yes, N: No
31	Feedback form	Y: Yes, N: No
	Product Support	
32	FAQ	Y: Yes, N: No
33	Returns accepted	Y: Yes, N: No
	Data Acquisition	
34	Privacy statement	Y: Yes, N: No
35	Location of privacy statement	A: All pages, C: Checkout page only, O: Other
36	Customer information shared with other parties	Y: Yes, N: No
37	Customer reviews	Y: Yes, N: No
38	Cross-marketing	Y: Yes, N: No
39	Comments	Comments about the website

Appendix 2. Survey Results

Company Information							
1	2						3
Circuit City	E						http://www.circuitcity.com
Barnes & Noble		B		H		M	http://www.barnesandnoble.com
Neiman Marcus			C	H	F		http://www.neimanmarcus.com
Amazon	E	B	C	H	F	M	http://www.amazon.com
Safeway					F		http://shop.safeway.com
Ebay	E	B	C	H	F	M	http://www.ebay.com
Dell	E						http://www.dell.com
Big City Gadgets	E						http://www.bigcitygadgets.com
Badger Comics		B		H			http://badgercomics.com
Recycled By Hyena			C	H			http://www.recycledbyhyena.com
Patio Toys				H			http://www.patiotoys.com
Back To Earth Organic Bars					F		http://btebars.com
Strange Famous Records			C			M	http://www.strangefamousrecords.com
Power Brixx	E						http://www.powerbrixx.com
Teknosa	E						http://www.teknosa.com.tr
Ideefixe		B				M	http://www.ideefixe.com
Baykush			C				http://www.baykush.com
Hepsiburada	E	B		H		M	http://www.hepsiburada.com
Migros					F		http://www.migros.com.tr
Gittigidiyor	E	B	C	H	F	M	http://www.gittigidiyor.com
Vatan Bilgisayar	E	B					http://www.vatanbilgisayar.com
Nettemarket	E	B		H			http://www.nettemarket.com
Bebek Market	E	B	C	H	F	M	http://www.bebekmarket.com
Ne Alsak	E	B		H		M	http://www.nealsak.com
Medikal Al	E				F		http://www.medikalal.com
Muzikbazaar			C			M	http://www.muzikbazaar.com
Teknosit	E						http://www.teknosit.com

Company Information	Company				Product						Order		
1	4	5	6	7	8	9	10	11	12	13	14	15	16
Circuit City	11/19/2007	U	P	C	Y	Y	Y	L	Y	Y	5	Y	Y
Barnes & Noble	11/19/2007	U	P	C	Y	Y	N	N	Y	Y	6	Y	Y
Neiman Marcus	11/19/2007	U	P	C	Y	Y	Y	N	Y	Y	5	Y	Y
Amazon	11/19/2007	U	P	P	Y	Y	Y	N	Y	Y	6	Y	N
Safeway	11/19/2007	U	P	C	Y	Y	Y	N	N	Y	6	N	N
Ebay	11/19/2007	U	P	P	Y	Y	Y	N	Y	Y	2	Y	N
Dell	11/19/2007	U	P	P	Y	Y	Y	Y	Y	Y	6	Y	Y
Big City Gadgets	11/20/2007	U	O	P	Y	Y	N	N	Y	Y	7	N	N
Badger Comics	11/20/2007	U	O	P	Y	Y	Y	N	Y	Y	7	Y	N
Recycled By Hyena	11/20/2007	U	O	C	Y	Y	N	N	Y	N	7	N	N
Patio Toys	11/20/2007	U	O	P	Y	Y	Y	N	Y	Y	4	N	N
Back To Earth Organic Bars	11/20/2007	U	O	P	Y	Y	Y	N	Y	Y	6	N	N
Strange Famous Records	11/20/2007	U	O	P	Y	Y	Y	N	Y	N	7	N	N
Power Brixx	11/20/2007	U	O	P	Y	Y	Y	N	Y	Y	4	Y	Y
Teknosa	11/22/2007	T	P	C	Y	Y	Y	N	Y	Y	8	Y	N
Ideefixe	11/22/2007	T	P	P	Y	Y	N	N	Y	Y	7	Y	N
Baykush	11/22/2007	T	P	P	Y	Y	Y	N	Y	Y	8	Y	N
Hepsiburada	11/22/2007	T	P	P	Y	Y	Y	N	Y	Y	10	Y	N
Migros	11/22/2007	T	P	C	Y	Y	Y	N	Y	Y	7	Y	Y
Gittigidiyor	11/22/2007	T	P	P	Y	Y	Y	N	Y	Y	4	Y	N
Vatan Bilgisayar	11/22/2007	T	P	C	Y	N	N	N	Y	Y	7	Y	N
Nettemarket	11/23/2007	T	O	P	Y	Y	Y	N	Y	Y	7	Y	N
Bebek Market	11/23/2007	T	O	C	Y	Y	Y	N	Y	Y	7	Y	N
Ne Alsak	11/23/2007	T	O	P	Y	Y	N	N	Y	Y	4	Y	Y
Medikal Al	11/23/2007	T	O	P	Y	Y	N	N	Y	Y	8	Y	N
Muzikbazaar	11/23/2007	T	O	P	Y	Y	Y	N	Y	Y	8	N	N
Teknosit	11/23/2007	T	O	P	Y	Y	N	N	Y	Y	8	Y	N

Company Information	Payment							Product				Customer			
1	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Circuit City	Y	Y	N	N	Y	N	Y	P	Y	Y	N	Y	N	N	N
Barnes & Noble	Y	Y	N	N	Y	Y	Y	P	Y	Y	I	Y	Y	N	N
Neiman Marcus	Y	Y	N	N	Y	N	Y	P	Y	Y	I	Y	Y	Y	N
Amazon	Y	Y	N	Y	Y	Y	Y	B	Y	Y	I	Y	Y	N	Y
Safeway	Y	Y	N	N	Y	N	Y	P	Y	N	N	Y	Y	N	Y
Ebay	Y	Y	N	N	Y	Y	Y	B	Y	Y	I	Y	N	N	Y
Dell	Y	Y	N	N	Y	N	Y	B	Y	Y	I	Y	P	Y	Y
Big City Gadgets	Y	Y	N	N	Y	Y	Y	P	N	N	N	Y	N	N	N
Badger Comics	Y	Y	N	N	Y	Y	Y	P	Y	Y	I	Y	Y	N	N
Recycled By Hyena	Y	Y	N	N	N	Y	Y	P	Y	N	I	Y	N	N	Y
Patio Toys	Y	Y	N	N	Y	Y	Y	P	Y	Y	I	Y	Y	N	N
Back To Earth Organic Bars	Y	Y	N	N	N	Y	Y	P	Y	Y	N	Y	N	N	N
Strange Famous Records	Y	Y	N	Y	Y	Y	Y	B	Y	N	I	Y	N	N	Y
Power Brixx	Y	Y	N	N	N	Y	Y	P	Y	Y	N	Y	Y	N	N
Teknosa	Y	N	N	N	Y	Y	Y	P	Y	Y	N	Y	Y	N	Y
Ideefixe	Y	N	N	N	Y	Y	Y	P	Y	Y	I	Y	Y	N	Y
Baykush	Y	N	Y	N	Y	Y	Y	P	Y	Y	I	Y	Y	N	Y
Hepsiburada	Y	N	N	N	N	Y	Y	P	Y	Y	I	Y	N	N	Y
Migros	Y	N	Y	N	Y	Y	Y	P	N	N	N	Y	Y	N	Y
Gittigidiyor	Y	N	N	N	N	Y	Y	B	Y	Y	I	Y	N	N	Y
Vatan Bilgisayar	Y	N	N	N	N	Y	Y	P	N	Y	N	Y	Y	N	N
Nettemarket	Y	N	Y	N	N	Y	Y	P	N	Y	N	Y	Y	Y	Y
Bebek Market	Y	N	N	N	Y	Y	Y	P	N	N	N	Y	Y	N	Y
Ne Alsak	Y	N	N	N	N	Y	Y	P	N	Y	N	Y	Y	N	N
Medikal Al	Y	N	N	N	N	Y	Y	P	N	Y	N	Y	Y	N	Y
Muzikbazaar	Y	N	N	N	N	Y	Y	P	N	N	I	Y	Y	N	Y
Teknosit	Y	N	N	N	N	Y	Y	P	Y	N	N	Y	Y	N	Y

Company Information	Product		Data Acquisition				
1	32	33	34	35	36	37	38
Circuit City	Y	Y	Y	C	Y	Y	N
Barnes & Noble	Y	Y	Y	A	Y	Y	Y
Neiman Marcus	Y	Y	Y	A	Y	N	Y
Amazon	Y	Y	Y	A	Y	Y	Y
Safeway	N	Y	Y	A	Y	N	N
Ebay	Y	Y	Y	A	Y	Y	Y
Dell	Y	Y	Y	A	Y	Y	Y
Big City Gadgets	N	N	Y	A	N	Y	Y
Badger Comics	Y	Y	Y	A	N	Y	N
Recycled By Hyena	N	Y	Y	A	N	N	N
Patio Toys	N	Y	N	N/A	N/A	N	Y
Back To Earth Organic Bars	N	Y	Y	A	N	N	N
Strange Famous Records	Y	N	N	N/A	N/A	N	Y
Power Brixx	N	Y	Y	A	N	N	Y
Teknosa	Y	Y	Y	A	N	Y	Y
Ideefixe	Y	Y	Y	A	N	Y	Y
Baykush	Y	Y	Y	A	N	N	Y
Hepsiburada	Y	Y	Y	A	N	Y	Y
Migros	Y	Y	Y	A	N	N	Y
Gittigidiyor	Y	Y	Y	A	N	N	Y
Vatan Bilgisayar	N	Y	N	N/A	N/A	N	Y
Nettemarket	Y	Y	Y	O	N	Y	Y
Bebek Market	Y	Y	Y	A	Y	Y	Y
Ne Alsak	Y	Y	N	N/A	N/A	Y	Y
Medikal Al	Y	Y	Y	A	N	Y	Y
Muzikbazaar	Y	Y	Y	A	N	N	Y
Teknosit	Y	Y	Y	A	N	N	Y

Company Information	Comments
1	38
Circuit City	Restrictions on returns, 14- 30 days, 15%- 25% restocking fee, easy to navigate, offers in-store pick-up.
Barnes & Noble	Within 30 days, item must be un-opened, original condition, including PAYPAL which offers additional payment options, home page annimated with scrolling products.
Neiman Marcus	Zoom is "dragable," order quantities can be limited, great customer service, 24 hrs a day, offers link to a designer's collection.
Amazon	Including PAYPAL which offers additional payment options, many weblogs complain that the telephone number is very difficult to find and not displayed unless a user is logged in, varies between products, sometimes includes customer photos and videos.
Safeway	$50 minimum order for any purchase, email/ feedback form are the same, stores stores in Canada may deliver, but deliver is not internationalclub card discount available online, very basic website.
Ebay	Including PAYPAL which offers additional payment options, this depends on the seller, this depends on the seller, this only applies to "buy it now" items, this depends on the seller, this depends on the seller.
Dell	Dell has kiosks in malls, but they do not sell products, rather assist with online orders, this number only applies to products that are not customized otherwise the number varies greatly, the customer service is located in India and operators are very ha

Company Information	Comments
1	38
Big City Gadgets	Major credit card gift cards, including PAYPAL which offers other payment options, this option may be available if special arrangements are made by contacting the owner, this option may be available if special arrangements are made by contacting the owner
Badger Comics	Some images are not available, major credit card gift cards, including PAYPAL which offers other payment options, shipping available to the U.S. & Canada, returns within 7 days of purchase if damaged some items subject to 15% restocking fee, many product
Recycled By Hyena	Offers many different views, including PAYPAL which offers other payment options, other options may be arranged by contacting the owner.
Patio Toys	Major credit card gift cards, including PAYPAL which offers other payment options and Google Checkout, within 15 days of arrival, extensive variety, standard free shipping.
Back To Earth Organic Bars	Including PAYPAL which offers other payment options, returns of unopened bars within 30 of purchase, tecnically the site does allow reviews, but none are posted at this time.
Strange Famous Records	Major credit card gift cards, including PAYPAL which offers other payment options, visually interesting interface.
Power Brixx	Including PAYPAL which offers other payment options and Google Checkout, tecnically the site does allow reviews, but none are posted at this time.

Company Information	Comments
1	38
Teknosa	Has installment payment plans for credit cards, accpets payment through SMS (Short Message Service or text messaging), EFT (Electronic Funds Transfer) and miles from credit cards, customer support through SMS available.
Ideefixe	Accepts payment through EFT, and SMS, can track orders through SMS.
Baykush	Has installment payment plans for credit cards, accepts payment through EFT.
Hepsiburada	Has installment payment plans for credit cards, accepts payment through SMS, 3D Secure, and corporate accounts.
Migros	Accepts 3D Secure payment, can deliver alternate products or contact the customer if product is not in stock.
Gittigidiyor	Has installment payment plans for credit cards, accepts payment through EFT.
Vatan Bilgisayar	Has installment payment plans for credit cards, accepts payment through EFT.

Company Information	Comments
1	38
Nettemarket	Has installment payment plans for credit cards, accepts payment through EFT, and mail order, privacy statement under help menu.
Bebek Market	Has installment payment plans for credit cards, accepts payment through EFT.
Ne Alsak	Has installment payment plans for credit cards, accepts payment through EFT and credit cards over the phone.
Medikal Al	Has installment payment plans for credit cards, accepts payment through EFT.
Muzikbazaar	Has installment payment plans for credit cards, accepts payment through EFT, mail order, and PayPal.
Teknosit	Has installment payment plans for credit cards, accepts payment through EFT.