The Impact of E-Commerce on Supply Chain Management (SCM) and E-Marketplace Usage:

Analytical Study on Companies that Use E-Commerce in Amman – Managers' Perspective

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

Master of E-Business

In the Faculty of Business

Middle East University

Amman/Jordan

May/2011

AUTHORIZATION

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DISCUSSION COMMITTEE DECISION

This dissertation was discussed under title:

"The Impact of E-Commerce on Supply Chain Management (SCM) and E-Marketplace Usage: Analytical Study on Companies that Use E-Commerce in Amman – Managers' Perspective"

It was approved on June/4/2011

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ACKNOWLEDGMENT

I want to thank my family who supported me and helped me to accomplish this study.

Also special thanks go to my supervisor Dr. Laith Al-rubaiee who was full of knowledge and wisdom and without him I have never finished this study.

Also, I want to say for every person who helped me to accomplish this study: thank you.

DEDICATION

To my precious family….

I present you my effort.

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Abstract

The main purpose of this study is to clarify the impact of E-commerce on Supply chain management and E-marketplace usage in the companies that use B2B e-commerce in Amman city.

The study was conducted on (66) companies that use B2B E-commerce in Amman. (130) questionnaires were distributed on executive and purchasing managers and also other employees related to the purchasing function and E-business. The statistical package for social sciences (SPSS) program was used to analyze and examine the hypotheses using different statistical methods such as path analysis and multiple regression. After executing the analysis to study hypotheses; the study concluded the following results:

- The moderate level of perceived benefits of E-commerce application in companies that use B2B E-commerce in Amman. The study also indicates the moderate level of E-marketplace usage as well as Supply chain management for those companies.

- The importance level of E-commerce benefit; E-marketplace usage and Supply chain management in companies that use B2B E-commerce in Amman was much close to each other.

- There is a significant positive impact of E-commerce benefit on Supply chain management in companies that use B2B E-commerce in Amman at level **($\alpha \leq$ 0.05).**

- There is a significant positive impact of E-marketplace usage on Supply chain management in companies that use B2B E-commerce in Amman at level **($\alpha \leq$ 0.05).**

- The direct effect of E-commerce benefit on Supply chain management was higher than the direct effect of E-marketplace usage on Supply chain management.

- There is a significant positive impact of E-commerce benefit on E-marketplace usage in companies that use B2B E-commerce in Amman at level **($\alpha \leq$ 0.05).**

- E-commerce benefit had a higher explanation than E-marketplace usage in the differences of Supply chain management values separately.

- There is a significant indirect effect of E-commerce benefit on Supply chain management through E-marketplace usage as a mediator in companies that use B2B E-commerce in Amman at level **($\alpha \leq$ 0.05).**

الملخص

هدفت هذه الدراسة إلى توضيح أثر التجارة الألكترونية على إدارة سلسلة التوريد وإستخدام الأسواق الألكترونية في شركات الاعمال التي تستخدم التجارة الألكترونية في مدينة عمان.

تم تطبيق الدراسة على (66) شركة اعمال تستخدم التجارة الألكترونية في مدينة عمان. تم توزيع (130) استبيان على المديرين التنفيذيين ومديري المبيعات وكذلك على الموظفين العاملين في مجال المشتريات ومجال التجارة الألكترونية. لدراسة وتحليل الفرضيات تم استخدام برنامج (SPSS) وتم استخدام عدة طرق مثل (تحليل المسار) و (الانحدار المتعدد). وبعد الانتهاء من عملية التحليل توصلت الدراسة للنتائج التالية:

- المستوى المتوسط للمنافع المدركة من تطبيق التجارة الألكترونية في شركات الاعمال العاملة بالتجارة الالكترونية في مدينة عمان. وكان المستوى متوسط ايضا لكل من استخدام الاسواق الالكترونية وادارة سلسلة التوريد.
- مستوى الاهمية لكل من منافع التجارة الالكترونية واستخدام الاسوق الالكترونية وادارة سلسلة التوريد في شركات الاعمال العاملة بالتجارة الالكترونية في مدينة عمان كان متقاربا.
- يوجد اثر ايجابي مباشر لمنافع التجارة الالكترونية على ادارة سلسلة التوريد في شركات الاعمال العاملة بالتجارة الالكترونية في مدينة عمان.
- يوجد اثر ايجابي مباشر لاستخدام الاسواق الالكترونية على ادارة سلسلة التوريد في شركات الاعمال العاملة بالتجارة الالكترونية في مدينة عمان.
- التأثير المباشر لمنافع التجارة الألكترونية على ادارة سلسلة التوريد كان اعلى من التأثير المباشر لاستخدام الاسواق الالكترونية على ادارة سلسلة التوريد.
- يوجد اثر ايجابي مباشر لمنافع التجارة الالكترونية على استخدام الاسواق الالكترونية في شركات الاعمال العاملة بالتجارة الالكترونية في مدينة عمان.
- لمنافع التجارة الالكترونية تفسير للاختلافات في القيم اعلى من ادارة سلسلة التوريد.
- يوجد اثر ايجابي غير مباشر لمنافع التجارة الالكترونية على ادارة سلسلة التوريد من خلال استخدام الاسواق الالكترونية كمتغير وسيط في شركات الاعمال العاملة بالتجارة الالكترونية في مدينة عمان.

CHAPTER ONE

STUDY OF GENERAL FRAMEWORK

(1-1): Introduction

(1-2): Study Problem and Its Questions

(1-3): Study Hypotheses

(1-4): Significance of the Study

(1-5): Objectives of the Study

(1-6): Study Delimitations

(1-7): Study Limitations

(1-8): Study Difficulties

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(1-10): Study Model

(1-11): Terminologies of the Study

(1-1): Introduction

E-commerce is the fastest growth area in the global economy and almost carries potentials beyond measure. It provides consumers with the benefits of any time, any where transactions, with lower costs. Moreover it, shortens the distance between the buyer and the seller and shrinks the world into a small village. (Porter, 2001; Alberta E-Future Center, 2007)

The uptake of e-commerce is influenced by its potential to create business value and by awareness of its participants of the potential benefits (Salnoske, 1997). A major reason for most companies, irrespective of size, to participate in business is to extract some benefit from it. E-commerce is no different (Kuzic, Fisher and Scollary, 2002). In his research, Standing [2001] stated more than ten e-commerce benefits for both buyer and seller. Such as cost savings and speed in selling and purchasing, exposure to new customers (global reach), convenience and transparency to users, better quality of product/service (global reach), reduce need for office space and fewer resources required (ecological).

The development of information technology and computer networks enhanced the usage of e-commerce and improved the use of supply chain management (SCM). SCM focuses on the integrated planning, co-ordination and control of all logistical business processes and activities in the supply chain to deliver superior consumer value at less cost to the chain as a whole, whilst satisfying requirements of other stakeholders, such as consumer interest organisations and government. Eventually, the complete implementation of the SCM concept should result in fully integrated, much more effective supply chains with full information transparency and optimal allocation of value-adding processes (Mentzer & John, 2001; Vorst, 2002).

All transactions are done in a specific virtual place called Business-to-Business (B2B) electronic marketplaces (e-marketplaces). E-marketplaces are one of the most heralded developments in recent years. These marketplaces bring together businesses buying and selling goods and services in an online buying community. E-marketplaces propose to increase the efficiency and effectiveness of procurement activities by replacing traditional manual processes with automated electronic procedures and by expanding the number of available trading partners (Koch 2003; Chong, Shafaghi, Woollaston and Lui, 2010).

According to all mentioned above, the main purpose of this study is to investigate the relationship among e-commerce benefits, supply chain management and e-marketplace usage.

(1-2): Study Problem and Its Questions

Many studies have indicated the relationship between e-commerce benefits and supply chain management also between e-commerce benefits and e-marketplace usage as well as between e-marketplace usage and supply chain management. These relationships were examined in different markets either in the American or in the European. These studies have indicated the significant role of each variable in those markets. So, the question still stands: what is the nature of the relationship among these variables in the Jordanian market?

Based on the above, the researcher has demonstrated the study problem via stirring up the questions below:

First question: To what extent e-commerce benefits affect supply chain management?

Second question: To what extent e-commerce benefits affect e-marketplace usage?

Third question: To what extent e-marketplace usage affect supply chain management?

Fourth question: To what extent e-commerce benefits affect supply chain management with e-marketplace usage as mediator?

(1-3): Study Hypotheses

Based on the study problems and the literature review, the research hypotheses are:

H1: E-commerce benefits have a positive direct effect on supply chain management at level ($\alpha \leq 0.05$).

H2: E-commerce benefits have a positive direct effect on e-marketplace usage at level ($\alpha \leq 0.05$).

H3: E-marketplace usage have a positive direct effect on supply chain management at level ($\alpha \leq 0.05$).

H4: E-commerce benefits have a positive indirect effect on supply chain management with e-marketplace usage as a mediator at level ($\alpha \leq 0.05$).

(1-4): Significance of the Study

Investment of B2B e-commerce has become an industry trend for every company. Today, studying the value and impact of B2B e-commerce is a great interest to both academic researchers and IT practitioners. Reviewing literature on e-commerce benefits and their impact on supply chain management and e-marketplace usage can gradually help to understand the relationship among them. A research model was developed to study the relationships among the variables in Amman B2B e-commerce context. The overall significance of this study is to develop a proposed research model and identify the nature of the relationship among e-commerce benefits, supply chain management and e-marketplace usage. To evaluate and validate this model, a survey questionnaire was formulated to test the relationships between these variables. As a result, this study will provide a better understanding of the importance of these variables in Amman B2B e-commerce context. Discovering the nature of the relationship among these variables is important because business executives and users could invest wisely in B2B e-commerce technology for their business practices in order to receive maximum benefits and avoid technology failures.

(1-5): Objectives of the Study

The main objective of this study is to clarify the impact of e-commerce on supply chain management and e-marketplace usage the companies that use B2B e-commerce in Amman city through achieving the following objectives:

1 – Examine the effect of e-commerce benefits on supply chain management in the companies that use B2B e-commerce in Amman city.

2 – Examine the effect of e-commerce benefits on e-marketplace usage in the companies that use B2B e-commerce in Amman city.

3 – Examine the effect of e-marketplace usage on supply chain management in the companies that use B2B e-commerce in Amman city.

4 – Examine the indirect effect of e-commerce benefits on supply chain management through e-marketplace usage as a mediator in the companies that use B2B e-commerce in Amman city.

(1-6): Study Delimitations

The study scope deals with the following:

Human delimitations: the employees working in the companies that use B2B e-commerce in Amman who occupy these positions: (General manager, purchasing manager, purchasing employee, and specialists in e-business).

Place delimitations: companies using B2B e-commerce in Amman.

Time delimitations: the time absorbed to study accomplishment.

(1-7): Study Limitations

1 – Implementing the study on the companies that use B2B e-commerce, especially, companies that works in Jordan.

2 – The study is limited to the General manager, purchasing manager, purchasing employee, and specialists in e-business in the companies that use B2B e-commerce in Jordan.

3 – The studies related the e-commerce benefits with supply chain management through e-marketplace usage are little.

(1-8): **Study Difficulties**

The study was implemented on the companies that use B2B e-commerce, especially, companies that work in Amman city. And it was limited to the general manager, purchasing manager, purchasing employee, and specialists in e-business in those companies. The main difficulty faced the researcher was the lack of response and interest of the respondent and the delay of returning back the questionnaire to the researcher.

(1-9): **Study Tools**

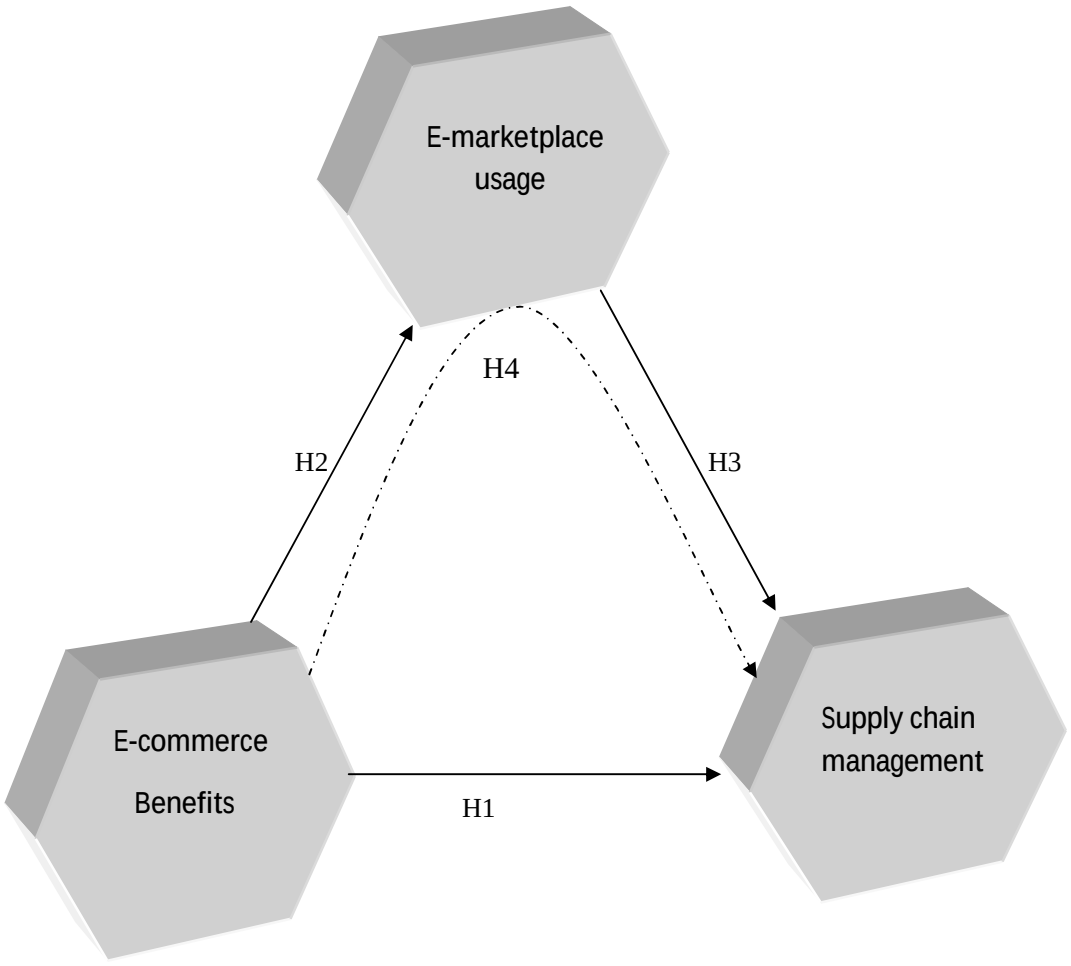
The researcher depended on e-commerce benefits variables suggested from (Lin, Huang and Burn, 2007) and (Chen, 2010). While in supply chain management the researcher depended on (Eng, 2004) and (Rao, Truong, Senecal and Le, 2007). In

e-marketplace usage, the researcher depended on (Naidoo, 2007) and (Rao, Truong, Senecal and Le, 2007).

(1-10): Study Model

Diagram (1-1)

The study conceptual model



It is obvious that the model consists of three variables: e-commerce benefits, supply chain management, and e-marketplace usage. The researcher assumed that e-commerce benefits affect supply chain management with a positive direct impact (H1)

and e-commerce benefits affect e-marketplace usage with a positive direct impact (H2) also e-marketplace usage affects supply chain management with a positive direct impact (H3) finally e-commerce benefits affect supply chain management with a positive indirect impact with e-market place usage as a mediator (H4). To formulate the model, the researcher depended on e-commerce benefits variables suggested from (Lin, Huang and Burn, 2007) and (Chen, 2010). While in supply chain management the researcher depended on (Eng, 2004) and (Rao, Truong, Senecal and Le, 2007). In e-marketplace usage, the researcher depended on (Naidoo, 2007) and (Rao, Truong, Senecal and Le, 2007).

(1-11): Terminologies of the Study

E-commerce: is the process of buying, selling, or exchanging products, services, or information via computer. (Turban, et.,al ,2010)

Supply chain management: is the coordination of all supply activities of an organization from its suppliers and partners to its customers. (Chaffey, 2009)

E-marketplace: is an online business transaction platform for buyers and sellers. (Dou & Chou, 2002)

CHAPTER TWO

THEORETICAL FRAMEWORK AND PREVIOUS STUDIES

(2-1): Introduction

(2-2): What is e-commerce?

(2-3): what is supply chain management?

(2-4): what is e-marketplace?

(2-5): Previous Studies

(2-6): Difference between Current Study & Previous Studies

(2-1): Introduction

The main reason of this chapter is to explain and clarify every variable of the study in detail and also scope on the previous studies and what makes this study different from them.

(2-2)What is e-commerce?

Turban and his colleagues [2010] defined e-commerce as the process of buying, selling, or exchanging products, services, or information via computer. While Linda [2001] defined it as the commercial activity of buying and selling goods and services over the Internet. Hoffman and Novak [2000] defined e-commerce as an Internet technology that provides the capability to buy and sell online – including market creation, ordering, supply chain management, and transfers through opening protocol.

Forster research predicts that e-commerce sales in the U.S. will keep growing at a 10 percent compound annual growth rate through 2014. It forecasts online retail sales in the U.S. will be nearly $250 billion, up from $155 billion in 2009. In 2010, online retail sales were up 11 percent, compared to 2.5 percent for all retail sales. While In Western Europe, Forrester expects a slightly faster 11 percent growth rate for online retail sales, going from $93 billion (68 billion Euros) in 2009 to $156 billion (114.5 billion Euros) in 2014. Forrester's estimates exclude online sales of autos, travel, and prescription drugs.

Forster predicts that e-commerce sales will represent 8 percent of all retail sales in the U.S. by 2014, up from 6 percent in 2009

In 2009, 154 million people in the U.S. bought something online, or 67 percent of the online population (4 percent more than in 2008). (techcrunch.com)

Figure (2-1)

Forster's forecast

Source: techcrunch.com

Despite controversies surrounding e-commerce and the burst of the "dot com" bubble, many large companies continue to deploy e-commerce extensively in their enterprise value chains and develop Internet-enabled initiatives to manage inventory using electronic links to suppliers, to strengthen online integration with distributors and business partners, to design and customize products and services, and to attempt to serve customers more effectively. (Zhu & Kraemer, 2002)

E-Commerce is going to be subsumed under a general concept of Commerce or business transactions. One may argue against the validity of this statement by referring to the billion people living still completely off-line, both in developed and in lesser developed countries around the globe. The oft-cited digital divide should rather be seen as a challenge than being accepted as a fate for off-liners. This holds true for both the global and the social digital divide. (Rolletschek, 2006)

Today, e-commerce has been widely used and many businesses have moved from the offline to the online world in order to serve the global Internet population. (Rachjaibun, 2007)

E-commerce classifications

E-commerce utilizes information and communication technologies to carry out market transactions among two or more parties usually businesses and consumers. At times one of these parties may be the government as well. (Bhaskar, 2004)

Turban and his colleagues [2010] classified e-commerce by the nature the transactions or the relationship among the participants into these categories:

Business-to-Business B2B

E-commerce model in which all the participants are businesses or other organizations for example dell sells its products to other companies

Business-to-Consumer B2C

E-commerce model in which businesses sell to individual shoppers for example any person can enter amzon.com and buy products from that web site

Business-to-Business-to-Consumer B2B2C

E-commerce model in which a business provides some product or service to a client business that maintains its own customers for example Intel manufacturing computer processors and sell it to HP which makes computers that final consumer can buy

Consumer-to-Business C2B

E-commerce model in which individuals use the internet to sell products or services to organizations or individuals who seek sellers to bid on products or services they need. Priceline.com is a well-known organizer for C2B transactions

Intra-business EC

E-commerce category that includes all internal organizational activities that involve the exchange of goods, services, or information among various units and individuals in an organization. Like online training.

Business-to-Employees B2E

E-commerce model in which an organization delivers services, information, or products to its own employees. It is considered a subset of Intra-business EC.

Consumer-to-Consumer C2C

E-commerce model in which consumers sell directly to other consumer. Various marketplaces plays the role of mediator by enable the user to buy from other users like ebay.com

E-learning

The online delivery of information for purposes of training or education. It is used heavily by organizations training and also practiced at virtual universities.

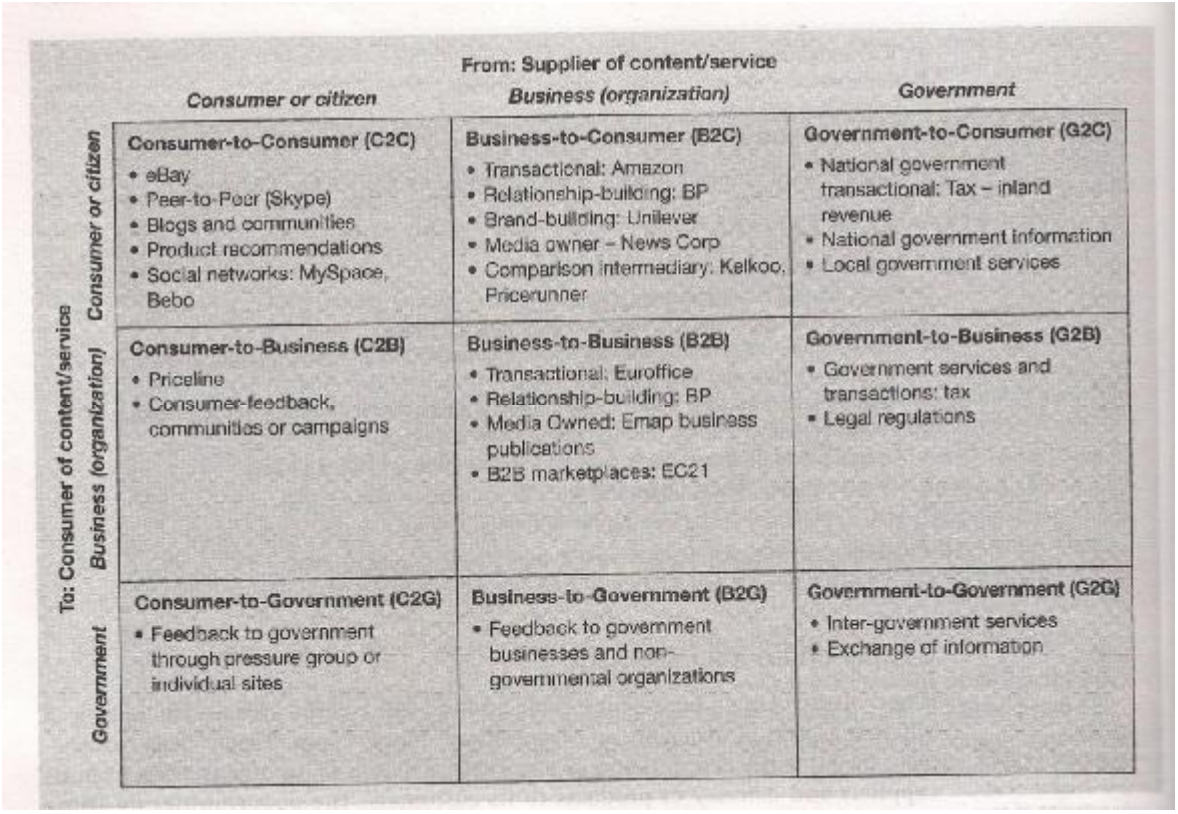
E-government

E-commerce model in which a government entity buys or provides goods, services, or information from or to business or individual citizens. Like electronic voting.

Whereas Chaffy (2009) summarized the relationships among participants in the following figure:

Figure (2-2)

Chaffy's e-commerce classification



Source: Chaffy 2009

E-commerce applications

Bhasker (2004) stated the most significant commonly used applications which have been successfully used in different areas in e-commerce in the past few years:

1- **Electronic auctions**

Auctions have been a well established market mechanism for trading items at a market negotiated price, based upon demand and supply. The internet has added a new dimension by creating an online mechanism for implementing the auction process. Today, the same auction mechanisms can be implemented using e-commerce technologies, allowing people connected through the internet to bid. Electronic auctions potentially encourage greater participation as internet users can connect to a web site hosting an auction and bid for an item.

2- **Electronic banking**

The increase of penetration of personal computers in home segments has led to the emergence of several financial management software packages such as Quicken, Microsoft Money, and Peachtree. Software packages such as Quicken permit users to organize, interpret, and manage personal finances. Using Quicken, user record and categorize all financial transactions on PC. The user can later use the software to balance the checkbook, summarize credit card purchases, track stocks and other investments.

3- **Electronic searching**

The emergence of the internet and e-commerce technologies have been exploited to ease the task of searching by putting the information a few key strokes away from people connected to the internet. The world wide web has emerged as a vast sea of information. It contains personal pages, business

pages, and general information on almost each and every topic and subject. For example google.com has successfully deployed the power of information retrieval systems and text search engines along with the internet as a delivery vehicle, through the frame work of world wide web.

4- Education and learning

The internet has lately been used as delivery vehicle for training and learning as well. The web technology provides a uniform delivery mechanism for textual, multimedia, and animated contents. The market research group IDC defines e-learning as the concept of delivering training over the internet to the desktop. E-learning has already taken powerful roots and is emerging most predominantly in the information technology universe, presumably, because IT professionals are more comfortable working with the new technology and access to high speed internet connections for the fast transmission required for media rich lessons.

5- Marketing

Internet enabled marketing is not a substitute for traditional marketing, but has emerged as a good augmented mechanism. With the interactivity offered by the internet, the marketing communication need not to be a one-way mode anymore. The internet can be used as a media itself for delivering communication including advertisements. Electronic marketing offers additional mechanisms and supplements traditional marketing by providing it a faster access to the global market space, in accost efficient manner. In the long term, with an increasing number of people connected on the internet the electronic market space itself may grow beyond the traditional market space and will supplement the traditional marketing strategy making space for the emerging new market space.

6- **Supply chain management**

The inter-organizational business process that chains the manufacturer, logistic companies, distributers, suppliers, retailers and customers together to facilitate order generation, execution, and fulfillment, has evolved over the past quarter of a century. In addition to product quality, costumers deal with businesses depending upon their ability to execute the handling and delivery reliably and promptly. Supply chain management deals with three issues:

a- Coordinating all the order processing activities that originate at the costumer level.

b- Material related activities.

c- Financial activities

7- Electronic trading

Electronic trading, in short, is a mechanism that utilizes the power of electronic and communication media, such as the internet, to bring together geographically dispersed buyers and sellers on a virtual common trading platform. The common platform offers aggregated information to all participants in a fair manner. The platform facilitates access to aggregate information, order booking, and fulfillment.

E-commerce benefits

The significance of e-commerce enhances the potential to create business value by knowledge of its participants of the potential benefits (Salnoske, 1997). A major reason for most companies, to participate in any business is to extract some benefit from it. E-commerce is no different (Kuzic, Fisher and Scollary, 2002).

Awad [2004] stated more than ten benefits that can be gained from using e-commerce

1- Lower cost:

Doing business on the internet is cost effective; it reduces logistical problems.

2- Economy:

E-commerce is economical unlike brick and mortar environment. In e-commerce no rental of physical store space, insurance, or infrastructure investment are needed.

3- Higher margin:

E-commerce means higher margin for example the cost of processing a conventional airline ticket is 8$. According to one travel agency processing the same ticket (called an e-ticket) over the web cost 1$.

4- Better Customer Service:

E-commerce means better and quicker customer service. Web-based customer service would make our customers and clients happier. With contact via telephones there is always the prospect that customers will be put on hold for a length of time whilst they wait on a clerk to tap into our account, or them getting a busy tone every time they call due to the influx of calls.

5- Quick Comparison:

E-commerce helps prospective clients and customers an effective way of comparing companies and online shops. Automated online shopping assistants scour net stores to find the best deals appropriate for client/customer needs.

6- Productivity gain:

E-commerce means productivity gains. Weaving the web throughout an organization means improved productivity. Take IBM as an example which

incorporated the web into every corner of the firm. IBM figured it would save 750 million dollars by letting customer find answers to technical questions via its website.

7- **Teamwork:**

E-commerce helps people to work together. E-mail is one example of how people collaborate to exchange information and work on solutions. It will transform the way our organization interacts with suppliers, vendors, business partners, and customers.

8- **Knowledge markets:**

E-commerce helps create knowledge markets. Small groups inside big firms can be funded with seed money to develop new ideas.

9- **Information sharing, Convenience, and Control:**

Convenience for the customer/consumer/client is a major driver for us to implement change. Customers and merchants save money: as they are online 24 hours a day 7 days a week; experiencing no traffic jams, no crowds; and do not have to carry heavy shopping bags. Control is another major driving factor of our company. For example in the banking world it used to be the case of banks controlling the relationship with the customer, however the customers today can have more control of their banking needs via the internet web sites.

10- **Swapping goods and services:**

Swapping is trading something you have with something you want more.

11- **Customization:**

A customer being able to customize a product to suit their individual needs gives ultimate customer satisfaction. It would also inform us of current trends and preferences.

Electronic Payment

The internet economy has been growing at a furious pace. It is becoming imperative for organizations to prepare themselves to conduct business in this dynamic environment where traditional transactions are migrating towards the electronic transactions. (Bhaskar, 2004)

Schneider [2006] mentioned the following methods for online payment:

Payment cards

Business people often use the term payment card as a general term to describe all types of plastic cards that consumer (and some businesses) use to make purchases. The main categories of payment cards are credit cards, debit cards, and charged cards.

A **credit card** such as visa has a spending limit based on the user's credit history; a user can pay off the entire credit card balance or pay a minimum amount each billing period. Credit card issuers charge interest on any un paid balance.

A **debit card** such as master card looks like credit card but it works quite differently. Instead of charging purchases against a credit line, a debit card removes the amount of the sale from the cardholder's bank account and transfers it to the seller's bank account.

A **charge card** such as American express carries no spending limit. And the entire amount charged to the card is due at the end of the billing period

Electronic cash

It is also called digital cash which is a general term that describe any value storage and exchange system created by a private (nongovernmental) entity that does not use paper documents or coins and that can serve as a substitute for government-issued physical currency.

Electronic wallets

Many electronic commerce sites include a feature that allows a costumer to store name, address, and credit card information on the site. However, consumers must enter their information at each site with which they want to do business. An e-wallet serving a function similar to a physical wallet, holds credit card numbers, electronic cash, owner identification, and owner contact information and provides that information at an e-commerce site's checkout counter. E-wallets give consumers the benefit of entering their information just once, instead of having to enter their information at every site with which they want to do business.

Stored-value cards

Today most people carry a number of plastic cards like credit cards driver's license health insurance employee or student identifications cards. One solution can reduce all these cards to a single plastic card called a stored value card.

A stored value card can be an elaborate smart card with a microchip or plastic card with magnetic strip that records the currency balance. The main difference is that a smart card can store larger amount of information and includes a processor chip on the card. The card readers needed for smart cards are different, too. Common stored-value cards include prepaid phone, copy, subway, and bus cards.

(2-3)What is supply chain management?

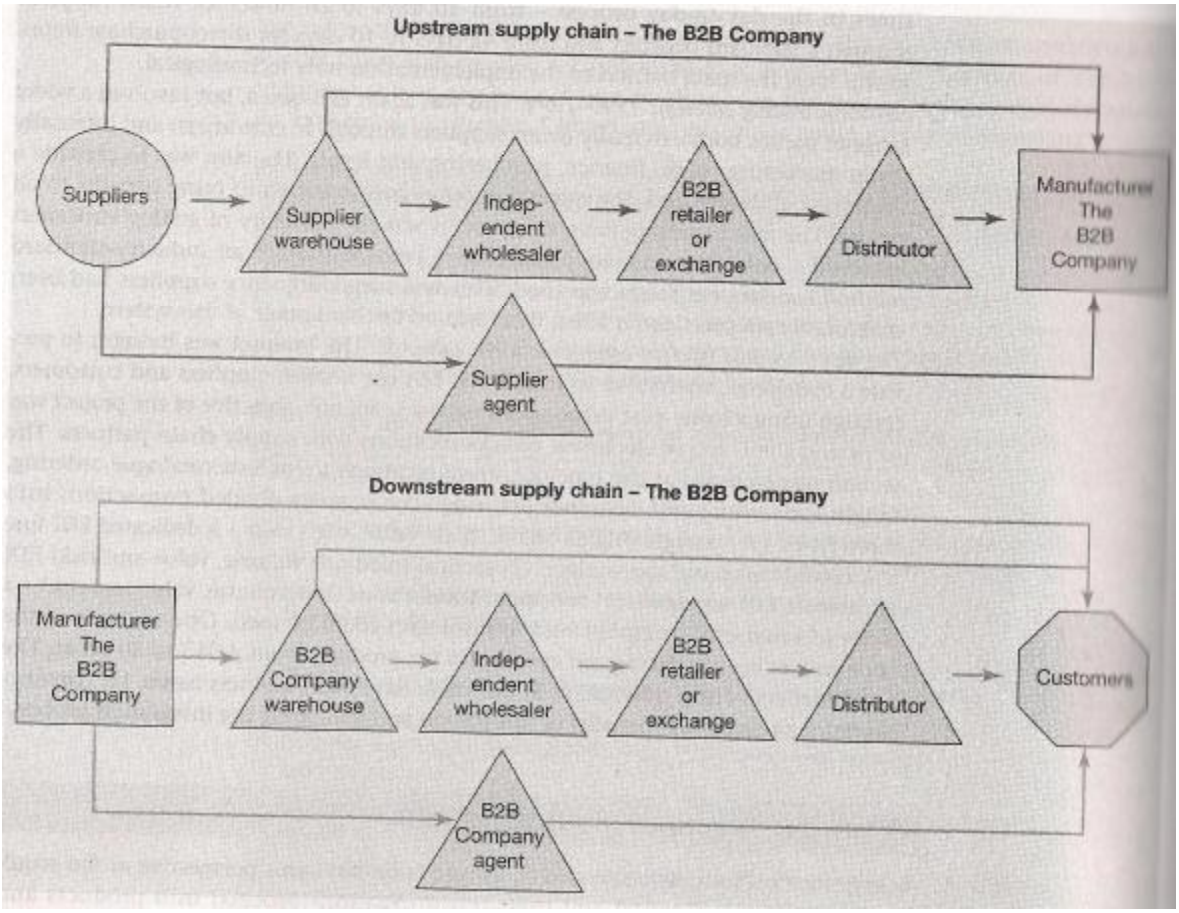
Turban and his colleagues [2010] defined it as a complex process that requires the coordination of many activities so that the shipment of goods and services from supplier right through to customer is done efficiently and effectively. Whereas

Chaffey [2009] defined supply chain management as the coordination of all supply activities of an organization from its suppliers and partners to its customers. He also classified supply chain management to:

- Upstream supply chain: transactions between an organization and its suppliers and intermediaries, equivalent to buy-side e-commerce.
- Downstream supply chain: transactions between an organization and its customers and intermediaries, equivalent to sell-side e-commerce. See figure (2-3)

Figure (2-3)

Chaffy's SCM classification



Source: Chaffey 2009

Supply chain management was originally developed as a way to reduce costs. It focused on very specific elements in the supply chain and tried to identify opportunities for process efficiency. Today, supply chain management is used to add value in the form of benefits to the ultimate consumer at the end of the supply chain. This required more view of the entire supply chain than had been common in the early days of supply chain management. (Schneider, 2006)

B2B supply chain collaboration involves a group of manufacturers, retailers, and suppliers using the internet to exchange business information and work jointly at forecasting demand for their products, developing production schedules, and controlling inventory flow. The main challenge is to establish trust among partners to share sensitive business information and upgrading business applications that will advance collaboration. The ultimate goal of supply chain management is to achieve a higher-quality or lower-cost product at the end of the chain. (Awad, 2004; Schneider, 2006)

Internet capabilities are having a profound impact on organization's supply chains. Increasingly, companies are recognizing that the efficient flow of information and material along their supply chain is a source of competitive advantage and differentiation. Electronic supply chain management (E-SCM) is the collaborative use of technology to enhance B2B processes and improve speed, agility, real time control, and customer satisfaction. It involves the use of information technologies to improve the operations of supply chain activities, as well as the management of supply chains .E-SCM is not about technology change alone; it involves changes in management

policies, organizational culture, performance metrics, business processes, and organizational structure across the supply chains. (Turban et al, 2010)

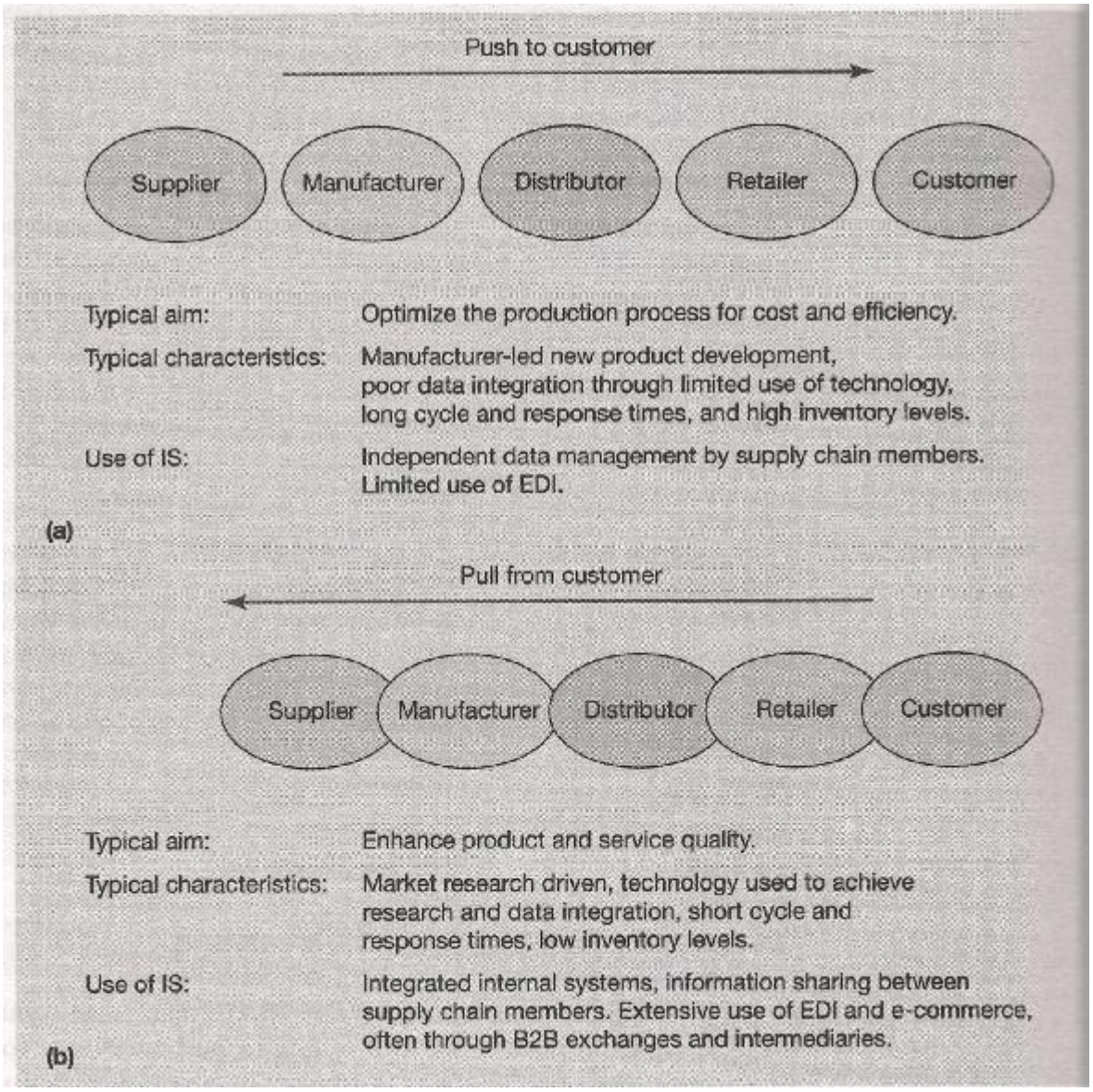
Supply chain models

Chaffey [2009] mentioned two supply chain models

1- Push supply chain: a supply chain that emphasizes distribution of a product to passive customers.
2- Pull supply chain: an emphasis of using the supply chain to deliver value to customers who are actively involved in product and service specifications. See figure (2-4)

Figure (2-4)

Chaffy's SCM models



Source: Chaffey 2009

Activities of supply chain management

Supply chain management processes and activities include the following: (Turban et al, 2010)

- Supply chain replenishment
- E-procurement
- Supply chain monitoring and control
- Inventory management using wireless devices
- Collaborative planning
- Collaborative design and product development
- E-logistics

Infrastructure of supply chain management

The activities mentioned above use a variety of infrastructure and tools. The following are the major infrastructure elements and tools: (Turban et al, 2010)

- Electronic data interchange (EDI)
- Extranets
- Intranets
- Corporate portals
- Workflow systems and tools

- Groupware and other collaboration tools
- Identification and tracking tools

Supply chain management benefits

From Awad [2004], Schneider [2006] & Chaffey [2009] we can conclude these benefits that organization can gain from supply chain management:

- higher sales
- reduce order-to-delivery time
- reduce costs of manufacturing
- manage inventory more efficiently
- improve demand forecasting
- reduce time to introduce new products
- improve aftermarket/post-sales operational
- share information about costumer demand fluctuations
- receive rapid notification of product design changes and adjustments
- provide specifications and drawings more efficiently
- increase the speed of processing transactions
- reduce the cost of handling transactions
- reduce errors in entering transaction data
- share information about defect rates and types

(2-4)What is e-marketplace?

Dou & Chou [2002] defined e-marketplace as an online business transaction platform for buyers and sellers. While Turban and his colleagues [2010] defined it as an online market, usually B2B, in which all buyers and sellers exchange goods or services.

Turban and his colleagues [2010] stated main three functions for e-marketplaces:

1- Matching buyers and sellers
2- Facilitating the exchange of information, goods, services, and payments associated with market transactions
3- Providing an institutional infrastructure, such as legal and regulatory framework, that enables the efficient functioning of the market.

E-marketplace categories:

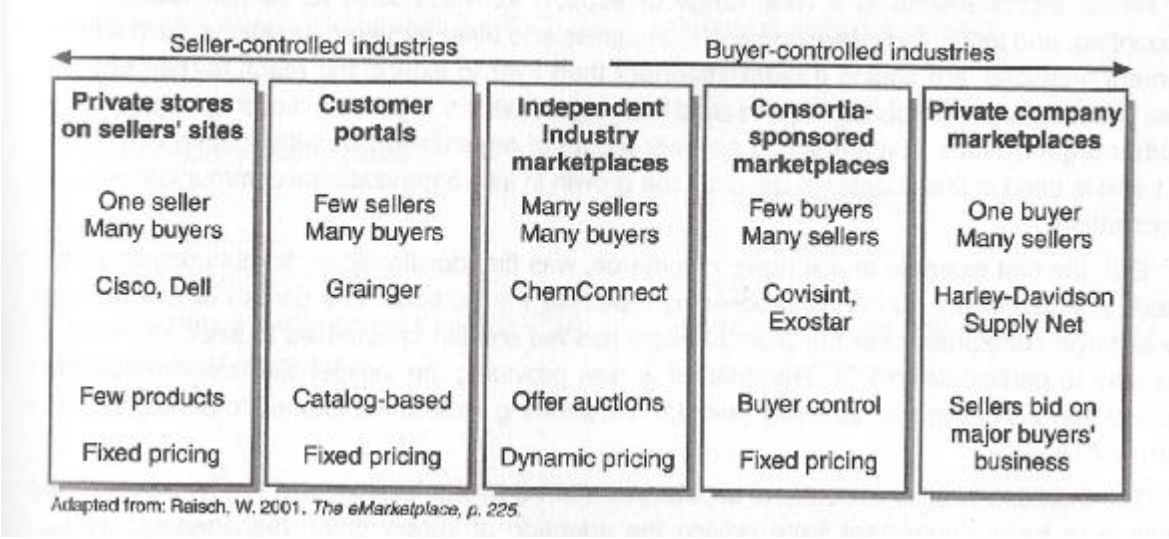
Raisch [2001] mentioned five kinds of e-market places:

1- Private stores on seller's site
2- Customer portals
3- Independent industry marketplaces
4- Consortia-sponsored marketplaces
5- Private company marketplaces

Figure (2-5) explains briefly each kind of e-marketplaces and its characteristic

Figure (2-5)

E-marketplaces kinds and characteristic



Adapted from: Raisch, W. 2001. *The eMarketplace, p. 225.*

Mcdonald & Wilson [2002] defined five categories of e-marketplaces which can be seen in table (2-1)

Table (2-1)

Categories of e-marketplaces

Place of purchase	*Examples of sites*
A. Seller-controlled	• Vendor sites, i.e. home site of organization selling products, e.g. www.dell.com
B. Seller-oriented	• Intermediaries controlled by third parties to the seller such as distributors and agents, e.g. Opodo (www.opodo.com) represents the main air carriers
C. Neutral	• Intermediaries not controlled by buyer's industry, e.g. EC21 (www.ec21.com) • Product-specific search engines, e.g. CNET (www.computer.com) • Comparison sites, e.g. MoneySupermarket (www.moneysupermarket.com) • Auction space, e.g. eBay (www.ebay.com)
D. Buyer-oriented	• Intermediaries controlled by buyers, e.g. Covisint used to represent the major motor manufacturers (www.covisint.com) although they now don't use a single marketplace, but each manufacturer uses the technology to access its suppliers direct • Purchasing agents and aggregators
E. Buyer-controlled	• Web-site procurement posting on company's own site, e.g. GE • Trading Process Network (www.gxs.com)

Source: Adapted from McDonald and Wilson (2002)

Table (2-2) classify e-marketplaces according to mechanisms and online transactions

Table (2-2)

Classifications of e-marketplaces

Commercial (trading) mechanism	*Online transaction mechanism of Nunes et al. (2000)*
1 **Negotiated deal** *Example*: can use similar mechanism to auction as on Commerce One (www.commerceone.net)	Negotiation – bargaining between single seller and buyer. Continuous replenishment – ongoing fulfilment of orders under pre-set terms
2 **Brokered deal** *Example*: intermediaries such as screentrade (www.screentrade.co.uk)	Achieved through online intermediaries offering auction and pure markets online
3 **Auction** *Example*: C2C: eBay (www.ebay.com) B2B: Industry to Industry (http://business.ebay.co.uk/)	Seller auction – buyers' bids determine final price of sellers' offerings. Buyer auction – buyers request prices from multiple sellers. Reverse – buyers post desired price for seller acceptance
4 **Fixed-price sale** *Example*: all e-tailers	Static call – online catalogue with fixed prices. Dynamic call – online catalogue with continuously updated prices and features
5 **Pure markets** *Example*: electronic share dealing	Spot – buyers' and sellers' bids clear instantly
6 **Barter** *Example*: www.intagio.com and www.bartercard.co.uk	Barter – buyers and sellers exchange goods. According to the International Reciprocal Trade Association (www.irta.com) barter trade was over $9 billion in 2002

Source: Adapted and reprinted by permission of *Harvard Business Review* from table on pp. 2–3 from 'The all-in-one-market', by Nunes, P., Kambil, A. and Wilson, D., in *Harvard Business Review*, May–June, 2000. Copyright © 2000 by the Harvard Business School Publishing Corporation, all rights reserved

(2-5)Previous studies

(Essig & Arnold, 2001) under title **"Electronic procurement in supply chain management: An information economics-based analysis of electronic markets".**

This article analyzes the possibilities of electronic marketplaces for buyers, primarily from a theoretical perspective. The article develops an analytical framework that is based on information economics theory, which may be the most important theory to analyze market problems in general. It is combined with a systematic approach for procurement transactions based on Williamson's (1985a) transaction theory. An e-procurement matrix is developed that could help to systematize different e-procurement instruments. Various data types available from electronic marketplaces are analyzed with a business model for electronic marketplaces. These business models show the real value added by e-procurement.

(Brunn, Jensen and Skovgaard, 2002) under title **"E-marketplaces: crafting a winning strategy".**

This paper explains how e-marketplaces, in order to achieve success, must create a powerful setup (thus creating a strong strategic position) and meet the challenge of building liquidity and capturing value. It also suggests ways to meet this challenge as well as it explains the considerations that must go into designing each element of the setup. The Temple Framework has been extensively tested during the roll out of gatetrade.net, an ambitious e-marketplace founded by influential Danish companies with a European and international presence. In this article, gatetrade.net

provides valuable insights on some of the lessons learned while working with the Temple Framework.

(Dai and Kauffman, 2002) under title "**Business models for internet-based B2B electronic markets**".

This paper develops an extended framework for studying business models of B2B electronic markets in terms of their roles and functions. Synthesizing prior research on electronic markets, inter-organizational information systems, and adoption of network technologies, we reveal that B2B electronic markets offer basic market functions, as some researchers have indicated, and that the current functionality base for electronic markets is beginning to emphasize other capabilities that aim to satisfy management information and risk-management needs and enable technological adaptation and systems integration. The analytic framework is applied to a systematic study and classification of representative electronic markets to make sense of the landscape of the emerging on-line B2B marketplaces. Several potential impacts and characteristic development trends are identified, along with a variety of opportunities that B2B e-markets can exploit to create competitive advantage. The extension of prior evaluative frameworks builds a strong foundation that managers can rely upon to enhance their understanding of future developments in this arena.

(Delfmann, Albers and Gehring, 2002) under title **"The impact of electronic commerce on logistics service providers".**

In this paper the researchers try to depict the underlying logistically relevant aspects of e-commerce and their impacts on logistics service providers. This seems to be of considerable importance, as logistics is seen as the back-bone of e-commerce operations. However, the firms specializing in this field are commonly neglected. The researchers argue that the logistical implications of e-commerce can be differentiated into two main categories: the rise of e-marketplaces; and the elimination of supply chain elements (disintermediation). By analyzing these two categories and their major logistical implications in detail The researchers deduct strategic consequences for logistics service providers.

(Rudberg, Klingenberg and Kronhamn, 2002) under title **"Collaborative supply chain planning using electronic marketplaces".**

The purpose of this paper is to show how the functionality of electronic marketplaces can facilitate collaborative supply chain planning. Supply chain planning processes are identified and analyzed using a supply chain management focus. The paper also gives a brief introduction to a framework for supply chain management and to the typical structure of electronic marketplaces. Furthermore, three collaborative supply chain planning scenarios are defined, and it is shown how collaborative supply chain planning typically could be implemented on an electronic marketplace by the means of a Web-based demonstration. As such, the paper shows how electronic marketplaces can be used to enable supply chain integration.

(Grieger, 2003) under title **"Electronic marketplaces: A literature review and a call for supply chain management research".**

This Paper examines, based on a critical literature review, the actual EM discussion and calls for more supply chain management research within this field. The paper provides a survey of the EM discussion and presents an EM definition Next, the paper exposes the importance of supply chain management within EMs. Also the relevancy of supply chain management for an EM is analyzed by examining the type of relationship within different EM categories. A standard literature review was conducted along with a key word search of the World Wide Web. The investigation included international journals as well as reports from smaller journals, conference papers and the ‘‘grey’’ literature (i.e., popular articles, unpublished reports and other documents, and some Internet (non-journal) materials). First, relevant keywords, such as ‘‘electronic marketplace’’, ‘‘electronic SCM’’, ‘‘electronic exchange’’, and ‘‘electronic auction’’ were defined. Then, a search in electronic scientific databases, internet portals and websites of relevant consultant and research firms was conducted; various search engines were used.

(Koch, 2003) under title "**Business-to-business electronic marketplace: membership and use drivers ".**

This three-year study identifies and investigates two major B2B e-marketplace stumbling blocks: attracting a sufficient number of members, and then influencing these members to use the e-marketplace.

This investigation uses a variety of qualitative techniques to solicit information from nearly fifty executives representing four B2B e-marketplaces with

contrasting membership and use levels. Within each e-marketplace, the study solicited information from high and low use organizations, buying and selling organizations, and a nonparticipant organization. The interview data was analyzed using line-by-line analysis from grounded theory. The analysis involved assimilating the unique stories of each manager into drivers that affect e-marketplace membership or use. These drivers were then compared to membership levels and/or use levels.

The analysis resulted in three research models. Each research model is a data-driven representation of factors driving B2B e-marketplace membership, B2B e-marketplace use, and a particular organization's B2B e-marketplace use. Each model contains several unique drivers and offers a comprehensive picture of what is happening in e-marketplaces.

(Larsen, Kotzab and Grieger, 2003) under title **"Electronic marketplaces and supply chain relationships".**

In this paper, the researchers presented a critical summary of the discussion of Internet-driven electronic marketplaces (IEMPs) based on an extensive literature review. Then, the researchers discussed the interrelation between IEMP and SCM from a procurement portfolio perspective. The researchers proposition is that different types of buyer–supplier relationships require different types of IEMPs. The researchers proposed a relationship/IEMP-grid that should help to identify the right selection strategy for IEMP in various procurement situations. Finally, the researchers presented proposals for future research within this area.

(Choi, Li and Yan, 2004) under title **"Optimal returns policy for supply chain with e-marketplace".**

This paper studies a supply chain which is integrated by a returns policy. In the past, owing to a lack of sales channels, the returned products would worth very little. Now, with the advance of the e-commerce, the returned products can be sold with a higher price on the e-marketplace. In light of this, the researchers first investigate the optimal returns policy under the existence of the e-marketplace. Through a mean–variance analysis, the researcher further study the risk issue associated with the optimal policy. Extensive simulations are then carried out and the managerial insights are discussed.

(Eng, 2004) under title **"The role of e-marketplaces in supply chain management".**

This study investigates the extent to which e-business tools of the e-marketplace are used by channel members in the retail sector for business-to-business Supply Chain Management (SCM) based on a survey involving food service companies, retailers, and wholesalers in the UK. It is shown that the e-marketplace supply chain applications enable the majority of companies to automate transaction based activities and procurement-related processes rather than strategic supply chain activities. The results also indicate that full participation in e-marketplaces requires companies to integrate their internal and external supply chain activities and share strategic information.

(Joo and Kim, 2004) under title **"Determinants of corporate adoption of e-Marketplace: an innovation theory perspective".**

This study identifies the factors influencing e-Marketplace adoption from an IT innovation perspective. Innovation, environment, and organization characteristics were tested as determinants of the adoption of an e-Marketplace based on a survey of 39 manufacturing firms. The findings indicate that external pressure and organizational size have positive relationships with organizational adoption of e-Marketplaces. Contrary to the prior innovation research, however, relative advantages did not have a significant impact on the organizational adoption of an e-Marketplace.

(Laseter and Bodily, 2004) under title **"Strategic indicators of B2B e-marketplace financial performance".**

This paper reports a study of a sample of B2B e-marketplace survivors to identify the attributes linked to financial performance. The paper presents a conceptual framework for B2B e-marketplace success drawing upon the strategic management literature of Industrial Organization Economics, the Resource-Based View and Competitive Heterogeneity. The conceptual model is tested through regression analyses of revenue and profitability drivers captured in a survey of 273 surviving e-marketplaces. While by no means resolving the varying viewpoints regarding the strategic indicators of financial success, the results do provide insights into successful strategies for B2B e-marketplaces. In this study the variables with special significance relate to ownership, funding levels, speed, continuity, and to some extent the scope of service offering.

(Murtaza, Gupta, and Carroll, 2004) under title **"E-marketplaces and the future of supply chain management: opportunities and challenges".**

This paper discusses the opportunities and challenges facing e-marketplaces today, and also the concerns facing potential participants in these e-marketplaces who are trying to weigh the risks presented by such participation and the possible benefits that can be reaped by streamlining supply chain processes. Some of the major concerns facing existing and potential buyers and suppliers that are discussed in this paper include integration issues, security issues and antitrust issues.

(Stockdale and Standing, 2004) under title **"Benefits and barriers of electronic marketplace participation: an SME perspective".**

This paper examines the barriers and benefits of e-marketplace participation by SMEs. The nature of e-marketplaces is addressed and the benefits of participation are examined. Drawing on the literature, the barriers facing smaller firms in this environment are discussed. Identification of these barriers, such as lack of standards, supply chain integration and global trading, enables a greater understanding of how SMEs can plan effective strategies to gain from e-marketplace participation.

(Gengatharen and Standing, 2005) under title **"A framework to assess the factors affecting success or failure of the implementation of government-supported regional e-marketplaces for SMEs".**

The objective of this paper is to construct such a framework that can be used to examine these factors. The literature on e-marketplaces and IT/IS/e-commerce adoption by SMEs is examined to determine the appropriateness of existing theoretical frameworks, the key constructs of which are synthesized to form an integrated theoretical framework. The value of the framework is confirmed by content analysis of published case studies and empirical results from in-depth case studies of two SME-REMs. The most significant factors affecting success or failure of government-supported SME-REMs are as follows: SME-owner innovativeness; REM ownership structure and governance that engender trust and build critical mass by including SMEs in REM development and management; matching REM focus and structure with regional profile by leveraging community ties and existing business relationships; adopting a staged approach to REM development; and ensuring REM benefits are understood by SMEs.

(Grey, Olavson and Shi, 2005) under title **"The role of e-marketplaces in relationship-based supply chains: A survey".**

In this survey the researchers explore the difficulties faced by e-marketplaces and discuss potential sources of value that will encourage their adoption by preserving and complementing long-term B2B relationships. The researchers focus on the role of e-marketplaces in B2B transactions, where long-term relationships between buyers and sellers are important, as is the case in many supply chains. The researchers

objective is to present an industry perspective that will help a business-oriented reader to develop an understanding of the opportunities and issues associated with e-marketplaces. In addition, we use real-world examples to motivate future research and applications in this area.

(Puschmann and Alt, 2005) under title **"Successful use of e-procurement in supply chains".**

This research aims to explore the introduction of e-procurement systems and their contribution to the management of indirect goods supply chain. The researchers choose a two-part qualitative approach. First, summarizes the results of a benchmarking study that was conducted by a consortium of 12 multinational companies. During the benchmarking process 120 questionnaires were distributed, ten phone-based interviews were conducted, and finally five successful practice companies were selected and analyzed in detail. Second, draws together the success factors identified in the benchmarking study and maps them against the successful practice companies. Many companies operate multiple e-procurement solutions. For integrated procurement solutions, the paper recognizes the need of an overall procurement strategy and organization, an alignment of various e-procurement solutions along the procurement process and the need for integrated system architectures. Companies also have to realize that a no standardized e-procurement solutions exists and that important success factors are "non-technical" in nature. This paper presents a first step towards a systematic analysis of factors that may guide companies in the implementation of e-procurement solutions. Besides providing a

direct contribution to the project work in companies it may stimulate further research in e-procurement success factors.

(Ariguzo, Mallach and White, 2006) under title **"The first decade of e-commerce".**

This paper provides a historical review of the first decade of e-commerce and its business models. The authors provide a historical foundation so that future research will not duplicate what has already been done by documenting the evolution of e-commerce models developed by researchers during the initial decade of e-commerce. In addition, strategic challenges facing executives who seek to use the internet as part of their global business strategy are offered.

(Lin, Huang and burn 2007) under title **"Realising B2B e-commerce benefits: the link with IT maturity, evaluation practices, and B2BEC adoption readiness".**

A survey research was conducted to examine the relationships between B2B e-commerce benefits, IT investment evaluation methodologies (IEM), IT benefit realization processes (BRP), B2B e-commerce adoption readiness, and IT maturity in large Australian organizations. An IT investment management model was developed to test these relationships. The results had empirically validated the model and indicate that a higher level of BRP adoption and increased level of B2B e-commerce adoption readiness had a significant direct relationship with B2B e-commerce benefits. In addition, the level of B2B e-commerce adoption readiness, and the level

of IEM and BRP adoption were significantly influenced by the level of IT maturity. However, the use of IEM alone had only an indirect positive influence on B2B e-commerce benefits through the higher level of BRP adoption and increased level of B2B e-commerce adoption readiness.

(Naidoo, 2007) under title **"Perceived usefulness, service quality and loyalty incentives: Effects on electronic service continuance".**

The main reason of the research was to examine the interrelationships between perceived usefulness, service quality and loyalty incentives on e-service continuance. The Technology Acceptance Model (TAM) was adapted from the information systems (IS) literature and integrated with theoretical and empirical findings from prior marketing research to theorize a model of e-service continuance.

Results from a survey of a financial healthcare's e-service users indicate a positive relationship between perceived usefulness, service quality and loyalty incentives on continuance. Further analysis strongly suggest that continuance is determined solely by the higher perceived usefulness of the e-service while service quality is more effective at lower levels of perceived usefulness. Loyalty incentives did not moderate the relationship between perceived usefulness and continuance. Implications of these findings for firms contemplating e-service initiatives are discussed.

(Rabinovich, 2007) under title **"Linking e-service quality and markups: The role of imperfect information in the supply chain".**

This research examined the impact of the operation interface design on supply chain management during the provision of e-services through e-commerce websites. These circumstances have important implications for the design and management of customer relationships. These circumstances also permeate relationships across retail and wholesale echelons in music supply chains. In particular, an empirical analysis shows that online consumer access to information on CD retail markups compels retailers to market a level of service quality that is consistent with that markup information. However, limitations in consumer access to markup data, available only to wholesalers and to Internet retailers, allow retailers to inversely link their markups to the fulfillment service quality offered to consumers with wholesaler support.

(Rao, Truong, Senecal and Le 2007) under title **"How buyers' expected benefits, perceived risks, and e-business readiness influence their e-marketplace usage ".**

The main objective of this study was to investigate how buyers' usage of electronic marketplaces was influenced by their perceived risks and expected benefits associated with such markets. A large scale survey involving 359 professional buyers was performed. Results indicated that buyers' perceived risks and expected benefits had an influence on their usage extent of electronic marketplaces. In addition, buyers' e-business readiness moderated the relationship between expected benefits and usage of electronic marketplaces. Managerial and theoretical implications of these results are discussed.

(Wang & Archer, 2007) under title **"Business-to-business collaboration through electronic marketplaces: An exploratory study".**

This paper is a preliminary effort to explore and categorize the different types of collaboration functionalities that may be offered by EMs. By surveying websites, we identified five types of horizontal collaboration (buying groups) and four kinds of vertical supply chain collaboration in EMs. Our findings suggest that supply chain collaboration tends to be supported more than buying groups by existing EMs, and a high percentage of EMs now offers supply chain coordination and integration. Among online buying groups, the exchange-catalogue model is the most popular, possibly since it puts fewer burdens on members and coordinators.

(Wang and Archer, 2007) under title "**Electronic marketplace definition and classification: literature review and clarifications**".

The purpose of this paper is to perform a review of the EM literature, and to clarify and explain published information about electronic marketplaces. For EM definitions, the researchers emphasize (1) the difference between EMs as governance structures and as business models, and (2) EMs at different levels of centralization. For EM classifications, we summarize nine of the most commonly mentioned classifications, and examine the differences and correlations among them. By doing so, potential confusion and common misunderstanding about the different EM definitions and classifications are clarified.

(Xue, Wang, Shen and Yu, 2007) under title **"Coordination mechanisms for construction supply chain management in the internet environment".**

In this paper, the concepts of construction supply chain (CSC) and CSC management are defined. Furthermore, the inter-organization problems that effect CSC coordination are identified. Considering the Internet fosters the integration of construction processes and provides an efficient platform for CSC coordination, this paper presents two types of Internet-enabled coordination mechanisms: market mechanism, such as auction and contracting, and coordination flow, including information hub and electronic marketplace, for improving construction performance and to accelerate the innovations in the construction industry.

(Samiee, 2008) under title **"Global marketing effectiveness via alliances and electronic commerce in business-to-business markets".**

This study explores the influence of three overarching developments that stand out as having a dominating role in the shifting international competitive landscape: (1) the rapid growth of global business activities by existing firms and new entrants, for example, through increased international outsourcing (i.e., the intensification of importing activities); (2) the transition to managing supply chain systems through greater coordination of entire distribution channels, alliances, and relational exchanges; and (3) the emergence and increased strategic deployment of electronic forms of exchange, particularly with respect to information access, storage, and retrieval, as means of more efficient management of domestic and global network of operations and market intelligence. Managerial and research implications of these trends are discussed.

(Chen, 2010) under title "**Factors affecting business-to-business electronic commerce success: An empirical investigation".**

This research investigated and examined the impact of several factors, which are either internal or external to the firm on B2B performance improvement and B2B ecommerce success. It is suggested that the various factors affect B2B success through business performance improvement.

A research model was developed to test and evaluate these factors. A survey instrument was developed to examine the relationships between these factors and business performance. Survey data was collected online from 143 companies in the U.S.A. and Taiwan where their B2B e-commerce systems were operational for more than 1 year.

Structural Equation Modeling (SEM) technique was used to assess the measurement and the structural model. Analyses and results of the pooled survey data suggest that the following factors are significant in the B2B e-commerce environments: (a) alignment of business and ecommerce strategy has a positive impact on business performance, (b) strong relationships between the trading partners have a positive influence on business performance, and (c) B2B e-commerce success is significantly influenced by business performance improvements. Thus, firms that seek to implement successful B2B systems should focus on business performance improvements.

(Liu, Ke, Wei, Gu and Chen 2010) under title **"The role of institutional pressures and organizational culture in the firm's intention to adopt internet-enabled supply chain management systems".**

Drawing upon organizational culture and institutional theory, this study investigates how institutional pressures motivate the firm to adopt Internet-enabled Supply Chain Management systems (eSCM) and how such effects are moderated by

organizational culture. The results of a survey of 131 firms suggest that the dimensions of institutional pressures (i.e., normative, mimetic, and coercive pressures) have differential effects on eSCM adoption intention. While mimetic pressures are not related to eSCM adoption intention, normative and coercive pressures are positively associated with eSCM adoption intention. In addition, organizational culture (i.e., flexibility orientation and control orientation) plays different roles in the relationships between these three dimensions of institutional pressures and eSCM adoption intention. While flexibility orientation negatively moderates the effects of coercive pressures and positively moderates the effects of mimetic pressures, control orientation positively moderates the effects of coercive and normative pressures and negatively moderates the effects of mimetic pressures. Implications and suggestions for future research are provided.

(2-6): Difference between Current Study & Previous Studies

The current study examined the effect of e-commerce benefits on supply chain management and e-marketplace usage. None of the previous studies had examined it. Besides that, all previous studies were implemented either in the American or the European context. This study deals with the Jordanian context.

CHAPTER THREE

METHODS AND PROCEDURES

(3-1): Introduction

(3-2): Study Methodology

(3-3): Study Population and Sample

(3-4): Study Tools and Data Collection

(3-5): Statistical Treatment

(3-6): Reliability and Validity

(3-1): Introduction

This chapter is divided into the following six sections: Study Methodology, Study Population and Sample, Study Tools and Data Collection, Statistical Treatment, and Reliability and Validity

(3-2): Study Methodology

Descriptive Studies involve collecting data in order to test hypotheses and answer questions concerning the current status of the subject(s) of a study. Typical descriptive studies are concerned with the assessment of attitudes, opinions, demographic information, conditions, and procedures. In this Study the researcher chose the Analytical descriptive method using a survey questionnaire to collect data.

(3-3): Study Population and Sample

The study involved all companies that use B2B e-commerce in Amman city which are (66) companies according to Amman chamber of commerce (see appendix (3)) and which represent the study population. (47) companies of them responded. Whereas the sampling unit involved the executive and purchasing managers as well as other employees related to the purchasing function and E-business. (130) questionnaires were distributed on the companies but the returned usable questionnaires were only (82) ,this mean that approximately (63 %) are analyzed.

(3-4): Study Tools and Data Collection

The current study consists of two dimensions, theoretical and practical. In the theoretical dimension the researcher depends on the scientific studies/thoughts that are related to the current study. Whereas, in the practical side the researcher depend on descriptive and analytical methods using the practical manner to collect, analyze data and test hypotheses.

The data collection, statistical analysis and programs used in the current study are based on two sources:

1. Secondary sources: books, journals, articles theses to write the theoretical framework of the study.

2. Primary source: the questionnaire that was designed to reflect the study objectives and questions.

In this study, both primary and secondary data were used, data for the model collected via questionnaire .After conducting a thorough review of the literature pertaining to e-commerce benefits, supply chain management, and e-marketplace usage, the researcher formulated the questionnaire instrument for this study depending on e-commerce benefits variables suggested from (Lin, Huang and Burn, 2007) and (Chen, 2010). While in supply chain management the researcher depended on (Eng, 2004) and (Rao, Truong, Senecal and Le, 2007). In e-marketplace usage, the researcher depended on (Naidoo, 2007) and (Rao, Truong, Senecal and Le, 2007).

The questionnaire instrument sections are as follows:

Demographic variables: The demographic information was collected with closed-ended questions, through (7) items.

Cause & Effect Factors: This section measured the Cause and effect factors of three main variables which are : E-commerce benefits thorough (8) items suggested from (Lin, Huang and Burn, 2007) and (Chen, 2010), E-marketplace usage thorough (15) items suggested from (Naidoo, 2007) and (Rao, Truong, Senecal and Le, 2007), and Supply chain management thorough (21) items suggested from (Eng, 2004) and (Rao, Truong, Senecal and Le, 2007) respectively to measure on a five degree Likert-type scale.

(3-5): Statistical Treatment

Data from the returned responses collected for the analysis and conclusions of the study questions. The researchers used the Statistical Package for the Social Sciences SPSS computer program to analyze the data. Finally, the researchers used the suitable Statistical methods that consist of:

- Cronbach's Alpha (α) to test Reliability.
- Percentage and Frequency.
- Arithmetic Mean and Standard Deviation to answer the study questions.
- Simple Liner Regression analysis to test first three hypotheses , with (F) test statistic from ANOVA table and t test statistic to inference the significance to both estimated regression and it's coefficient which refers to the impact of cause and effect factors on Supply chain management.

- Multiple regression as well as:
- Path analysis to identify direct and indirect effect between study variables.
- Relative importance, assigned due to:

$$\text{Level of Importance} = \frac{\text{Upper limit of response} - \text{Lower limit of response}}{\text{Number of Levels}}$$

$$= \frac{5-1}{3} = \frac{4}{3} = 1.33$$

Number of levels are (3) as ; High , Mid and Low.

The following table (3 – 1) show how the range of number of levels computed

Table (3 – 1)

Range of Level of Importance Scale

Mean Range	Level
Up to 2.33	Low
2.34 – 3.66	Mid
Greater than 3.66	High

(3-6): Reliability and Validity

(A) Validation

To test the questionnaire for clarity and to provide a coherent research questionnaire, a macro review covers all the research constructs was accurately performed by academic

reviewers-from Jordanian universities - specialized in e-business, management information systems, marketing, and Statistical science. Some items were added based on their valuable recommendations .Some others were reformulated to become more accurate which is expected therefore to enhance the research instrument. The academic reviewer's amount (5), (see appendix (4)).

B) Study Tool Reliability

The reliability analysis applied the level of Cronbach's Alpha (α) as the criteria of internal consistency. Which were at a minimum acceptable level (Alpha ≥ 0.65) suggested by (Sekaran, 2003). The results were shown in Table (3 - 2).

Table (3 - 2)

Cronbach's Alpha Coefficient for Main Dimensions and Total

No.	Dimension	Items Number	Coefficient
1	E-commerce benefits	15	0.972
2	E-market place usage	8	0.945
3	Supply chain management	21	0.983
All Dimensions		44	0.989

Researcher found the Cronbach's Alpha coefficient of main dimensions " E-commerce benefits " including (15) statements as a scale to it was (97.2%), " E-marketplace (EM) usage " including (8) statements as a scale to it was (95.5%)," Supply chain management " including (21) statements as a scale to it was (98.3%), while for overall equal to (98.9%).

Whereas the highest level of Cronbach's Alpha (α) belongs to Supply chain management, the lowest level of Cronbach's Alpha (α) belongs to E-market place usage. These results are acceptable levels suggested by (Sekaran, 2003).

CHAPTER FOUR

ANALYSIS RESULTS &

HYPOTHESIS TEST

(4-1): Introduction

(4-2): Study Questions Answers

(4-3): Study Hypothesis Testing

(4-1): Introduction

According to the research purpose and research framework presented in the previous chapter, this chapter describes the results of the statistical analysis of the data collection for research question and research hypothesis.

The data analysis includes a description of the means and standard deviations for study questions. Finally, the Path Analysis is applied to identify direct and indirect effect between cause and effect factors.

(4-2): Study Questions Answers

A . Sample Characteristics

Seven demographic variables included in this study (gender , job title , what the organization Provides , the organization sells Annually , the amount that the organization assigns for procurement budget annually , the extent that the organization use e-marketplaces to purchase commodities it needs , and the number of e-marketplaces that the organization deals with).

The following table (4 – 1) shows these sample characteristics according to sample response.

Table (4 -1)

Distribution of Sample individuals according to sample characteristics

No.	Variable	Class	Frequency	Percentage
1	Gender	Male	61	74.4
		Female	21	25.6
Total			82	100.0
2	Job Title	CEO	17	20.7
		Purchasing manager	26	31.7
		Purchasing employee	29	35.4
		Other	10	12.2
Total			82	100.0
3	What the organization Provides	Industrial material	4	4.9
		Consumer product	15	18.3
		Services	62	75.6
		Other	1	1.2
Total			82	100.0
4	The organization Sells Annually	Less than 5 million JD	28	34.1
		5–10 million JD	33	40.2
		11–25 million JD	14	17.1
		More than 25 million JD	7	8.5
Total			82	100.0
5	The amount that the organization assigns for procurement budget annually	Less than 1 million JD	57	69.5
		1–10 million JD	19	23.2
		11–25 million JD	2	2.4

		More than 25 million JD	4	4.8
Total			82	100.0
6	The that extent the organization use e-marketplaces to purchase commodities it needs	Low extent	20	24.4
		Medium extent	23	28.0
		Above median extent	10	12.2
		Great extent	29	35.4
Total			82	100.0
7	The number of e-marketplaces that your organization deals with	Less than 10	47	57.3
		10-20	17	20.7
		More than 20	18	21.9
Total			82	100

Results in table (4 - 1) indicated that (74.4 %) of sample were "Male" while the reminders were " Female ". There were (29) Purchasing employee construct (35.4 %) as a percentage of sample job title , this made the largest class in here , While the second largest class in job title was " Purchasing manager " with percentage (31.7 %) .

The largest percentage of the type commodities that Organization Provides was (75.6 %) to services which includes (e-services, telecommunications, hotels, restaurants, transportations … etc) the consumer products percentage was (18.3%)while the smallest one is (4 %) to Industrial materials.

Also (33%) of these companies had sold " (11 – 25) million JD" annually , In this section (7) companies had chosen " More than 25 million JD " which made the smallest percentage equal to (8.5 %) in this section.

Within classes " the amount that the organization assigns for procurement budget annually " section , one can note the largest one is " Less than 1 million JD " gives (69.5 %)

percentage , while the class "1–10 million JD " has smaller percentage than above class (23.2 %) , the class " 11–25 million JD " had ranked the last one since it's percentage was (2.4 %) .

The section " the extent that your organization use e-marketplaces to purchase commodities it needs" has four classes, (35.4 %) of the sample said that their organization uses e-marketplaces to " Great extent " ,While the smallest percentage (12.2%) of sample said " Above median extent ".

The last section was " the number of e-marketplaces that your organization deals with " , had three classes as shown in the table , more than half of the sample said that they deal with " Less than 10 ", the exactly percentage here is (57.3%). While (21.9%) said they deal with " More than 20 " , and (20.7 %) deals with " 10 – 20 ".

B . Descriptive Variables

This section shows the descriptive statistics for each of the main dimensions as Mean, standard deviation and also the same measures of the statements to each of them and the rank besides the level of importance according to the following scale:

1. E-commerce benefits :

Table (4 - 2) shows the descriptive statistics of main dimension E-commerce benefits and it's statements.

Table (4 - 2)

Descriptive Statistics of E-commerce benefit Dimension

Rank	Item	Statement	Mean	Standard Deviation	Level of Importance
1	6	E-commerce has reduced our business process costs	3.6585	1.19897	Mid

2	7	E-commerce has improved our business processes	3.6220	1.16153	Mid
3	12	E-commerce has increased our company's market shares and/or growth	3.6098	1.21468	Mid
4	13	E-commerce has enhanced our business competitiveness	3.5976	1.29443	Mid
4	15	E-commerce has improved our company's overall Business performance	3.5976	1.25570	Mid
5	14	E-commerce has improved the relationships with our trading partners	3.5366	1.30710	Mid
6	3	Our e-commerce projects have helped us meet our corporate business objectives	3.5244	1.30739	Mid
7	10	E-commerce has increased our return on investment	3.5122	1.25947	Mid
7	11	E-commerce has increased our company's annual sales	3.5122	1.22971	Mid
8	4	Our e-commerce strategy is consistent and is aligned with our company's business strategy	3.5000	1.09149	Mid
9	9	E-commerce has increased our company's profitability	3.4878	1.35395	Mid
10	2	The design and development of an e-commerce system has helped us achieve our business objectives	3.4390	1.45803	Mid
10	8	E-commerce has increased our employees' productivity	3.4390	1.21815	Mid
11	1	E-commerce has enhanced the corporate image of your organization	3.3659	1.48667	Mid
12	5	Our e-commerce plans are integrated with our corporate business plan	3.2805	1.12518	Mid
Grand Mean & Standard Deviation of E-commerce benefits Scale			3.5122	1.07588	Mid

As appears in the above table, the E-commerce benefits Scale had mid level with mean (3.512) and standard deviation (1.076), the highest mean of it's statements was (3.659) with standard deviation (1.199) approximately which belongs to the statement " E-commerce has reduced our business process costs ", this put it in the first rank as compared with other statements in the table , the second highest mean belongs to the statement " E-

commerce has improved our business processes " which is equal to (3.622) with standard deviation (1.162) , these results put it in the second rank, the smallest mean (3.281) belongs to the statement " Our e-commerce plans are integrated with our corporate business plan" with standard deviation (1.125) and in the (12^{th}) rank.

On the other side all the statements in the E-commerce benefits Scale found in "Mid" level

2. E-marketplace (EM) usage

Table (4 - 3) shows the descriptive statistics of main dimension E-marketplace (EM) usage and it's statements.

Table (4 - 3)

Descriptive Statistics of E-marketplace (EM) usage Dimension

Rank	Item	Statement	Mean	Standard Deviation	Level of Importance
1	19	Overall, the organization finds the EM very useful	3.5976	1.27521	Mid
2	17	Using EM saves the organization's time and effort over other means of performing the same task	3.5854	1.30480	Mid
3	23	Our organization uses EM for sharing design information with our suppliers	3.5488	1.11280	Mid
4	18	Using EM is a more effective way of servicing the organization's needs	3.5366	1.35351	Mid
5	16	Using e-marketplace (EM) gives the organization greater control in carrying out the tasks	3.5244	1.32614	Mid
6	21	Our organization uses EM for placing orders on supplier's website	3.5000	1.18894	Mid
7	20	Our organization uses EM for announcing purchasing requirements	3.4512	1.19827	Mid
8	22	Our organization uses EM for tracking	3.2927	1.15990	Mid

		payment information			
Grand Mean & Standard Deviation of E-marketplace (EM) usage Scale			3.5046	1.05600	Mid

The above table shows the E-marketplace usage Scale had mid level with mean (3.505) and standard deviation (1.056) , the statement " Overall, the organization finds the EM very useful" became in the first rank with highest mean (3.597) and standard deviation (1.275) , the second highest mean to " Using EM saves the organization's time and effort over other means of performing the same task " which equals (3.585) with standard deviation (1.305) , these results put it in the second rank with "Mid" level , the smallest mean (3.293) belongs to the statement "Our organization uses EM for tracking payment information" with standard deviation (1.156) and in the (8^{th}) , which is the last rank of the statements in this main dimension.

Under the column "Level of Importance" we can see that all statements here have "Mid" level.

3. Supply chain management

Table (4 - 4) shows the descriptive statistics of Supply chain management and it's statements.

Table (4 - 4)

Descriptive Statistics of Supply chain management Dimension

Rank	Item	Statement	Mean	Standard Deviation	Level of Importance
1	44	Improved relationship with trading partners	3.8780	1.20072	High
2	33	Improving service levels	3.7805	1.25732	High
3	43	Efficient promotion	3.7439	1.26502	High

4	42	Improved replenishment	3.7195	1.15763	High
5	40	Increased profitability	3.6951	1.22413	High
5	41	Improved store assortment	3.6951	1.17262	High
6	28	Efficient exchange of information	3.6585	1.27869	Mid
7	35	Improved internal and external communications	3.6463	1.17979	Mid
8	38	Increased customer satisfaction	3.6341	1.28151	Mid
9	29	Improved order accuracy	3.5976	1.32273	Mid
9	31	Faster time to market	3.5976	1.24583	Mid
10	34	Improving consumer information	3.5854	1.27610	Mid
11	30	Unloading excess inventory	3.5732	1.26716	Mid
12	26	Dynamic and global sourcing	3.5244	1.37190	Mid
13	37	Streamlined electronic processes	3.5122	1.29809	Mid
14	36	Efficient product introduction	3.4756	1.35378	Mid
15	32	Reducing stock outs	3.4512	1.22879	Mid
16	25	Lower procurement costs	3.4390	1.30618	Mid
17	27	Reduced time between billing and payment	3.4024	1.29443	Mid
18	24	Improved logistics management	3.3780	1.37563	Mid
19	39	Forecast accuracy	3.2439	1.21270	Mid
Grand Mean & Standard Deviation of Supply chain management Scale			3.5825	1.09183	Mid
Grand Mean & Standard Deviation of All Dimensions			3.5443	1.04382	Mid

The results indicates that (21) statements used as measurement scale for main dimension " Supply chain management" which failed in mid as a level of importance with mean equal (3.583) and standard deviation (1.092), in spite of (6) statements failed in " High " level .The statement " Improved relationship with trading partners " became the first

rank with highest mean equal to (3.878) and standard deviation (1.201) , the second highest mean belongs to " Improving service levels " which equal to (3.781) with standard deviation (1.257) , these results made it in the second rank with "Mid" level of importance , the smallest mean (3.243) belongs to the statement " Forecast accuracy " with standard deviation (1.092) and in the last rank of the statements in this main dimension with " Mid " level of importance.

(4-3): Study Hypothesis Testing

Four hypotheses were tested in this study; The researcher used SPSS version 19 software to test the first three hypotheses and Amos version 7 software to test the last one. Many statistical criteria have been taken for analysis as simple and multiple regression , F – test for estimated equations significance , t – test for direct effect significance of independent variable (ID) on dependent variable (DV) and coefficient of determination (R^2) to know how the ID explain the variation in DV.

Path analysis was used to test the indirect effect of the fourth hypothesis.

First Hypothesis

H1: E-commerce benefits have a positive direct effect on supply chain management.

As mentioned above, simple regression used to test this hypothesis. The analysis results for this hypothesis appear in the following table (4 – 5) .

Table (4 - 5)

Simple Regression Analysis Shows the direct effect

of the E-commerce benefits on Supply chain management

DV	R^2	F	D.F	Sig**	Regression Coefficient				
					ID	β	SE	t	Sig**
Supply chain management	.818	359.338	1 80 81	.000	E-commerce benefits	.904	.048	18.956	.000

According to the results in the above table (4 – 5) , the simple regression is good for fitting the relation between E-commerce benefits and Supply chain management variables , the (F – test = 359.338) which is greater than F tabulated and the (sig = 0.000) is less than 0.05 the level of significance. The coefficient of determination (R^2 = 0.818) which means that ID (E-commerce benefits) explains approximately (82 %) of the variation in DV (Supply chain management) , while the effect of ID variable (**β** = 0.904) on DV which mean that increasing one unit in E-commerce benefits variable will increase (0.904) unit in Supply chain management , so it is a positive effect , and its standard error (SE = 0.048) , this direct effect is significant (t = 18.956) with opposite (sig = 0.000). All these results confirm first hypothesis , so we accept it , then ;

"E-commerce benefits have a positive direct effect on supply chain management"

Second Hypothesis

H2: E-commerce benefits have a positive direct effect on e-marketplace usage.

Simple regression was used to test this hypothesis, The analysis results for this hypothesis appear in the following table (4 – 6).

Table (4 – 6)

Simple Regression Analysis Shows the direct effect

Of the E-commerce benefits on E-marketplace usage

DV	R^2	F	D.F	Sig**	Regression Coefficient				
					ID	**β**	SE	t	Sig**
E-marketplace usage	.775	275.347	1 80 81	.000	E-commerce benefits	.880	.052	16.594	.000

According to the result in table (4 – 6) , The ID (E-commerce benefits) explain approximately (R^2 = 78 %) of the variation in DV (E-marketplace usage) , simple regression is good for fitting the relation between E-commerce benefits and E-marketplace usage variables since (F – test = 275.347) which is greater than F tabulated and (sig = 0.000) is less than 0.05 the level of significance, while the effect of ID variable (β = 0.880) on DV which means that increasing one unit in E-commerce benefits variable will increase (0.880) unit in E-marketplace, so it is a positive effect , and its standard error (SE = 0.052) , this direct effect is significant (t = 16.594) with opposite (sig = 0.000). So these evidences make a conclusion that the second hypothesis is acceptable with the level of significance (0.05). Then;

"E-commerce benefits have a positive direct effect on e-marketplace usage"

Third Hypothesis

H3: E-marketplace usage has a positive direct effect on supply chain management.

Simple regression used to test this hypothesis; the analysis results for this hypothesis appear in the following table (4 – 7).

Table (4 – 7)

Simple Regression Analysis Shows the direct effect

Of E-marketplace usage on supply chain management

DV	R^2	F	D.F	Sig**	Regression Coefficient				
					ID	β	SE	t	Sig**
supply chain management	.782	286.939	1 80 81	.000	E-marketplace usage	.884	.054	16.939	.000

According to the results in the above table, the simple regression is good for fitting the relation between E-marketplace usage and Supply chain management variables , the (F – test = 286.939) which is greater than F tabulated and the (sig = 0.000) is less than (0.05) the level of significance. The coefficient of determination (R^2 = 0.782) which means that ID (E-marketplace usage) explains approximately (78 %) of the variation in DV (Supply chain management) , while the effect of ID variable (**β** = 0.884) on DV which means that increasing one unit in E-commerce benefits variable will increase (0. 884) unit in Supply chain management , so it is a positive effect , and its standard error (SE = 0.054) , this direct effect is significant (t = 16.939) with opposite (sig = 0.000). So, from all these results , we accept the third hypothesis at (0.05) level of significance, in other words :

"E-marketplace usage has a positive direct effect on supply chain management"

H4: E-commerce benefits have a positive indirect effect on supply chain management with E-marketplace usage as a mediator.

The first step to test this hypothesis is to verify if the assumption of " no Multicollinearity " , Which means no higher correlation between independent variables, before using path analysis as a tool to test it.

It is clear that " E-commerce benefits " and " E-marketplace usage " are two independent variables while " supply chain management " is a dependent variable .

The researcher used the stepwise regression , Analysis results put in the following table (4 – 8) .

Table (4 - 8)
Stepwise Regression Analysis Shows the effects
of E-commerce benefits and E-marketplace usage on supply chain management

Model	R^2	F	D.F	Sig**	Regression Coefficient				
					ID	**β**	SE	t	Sig**
1	.818	359.338	1 80 81	0.000	E-commerce benefits	0.904	0.18	18.956	0.000
2	.852	228.226	2 79 81	0.000	E-commerce benefits	.560	.092	6.143	0.000
					E-marketplace (EM) usage	.392	.094	4.301	0.000

The SPSS software output shows that " E-commerce benefits " more explains the differences in " supply chain management " than " E-marketplace usage " , for this reason it became the first variable included in the first stepwise regression , the raw under model (1) has the same results in first hypothesis analysis . In model (2) the independent variables explain about (85.2 %) of the differences with dependent variable , and the multiple regression is significant since (F = 228.226) ,Which is more than (F tabulated), but here we compare (sig = 0.000) with the level of significance (0.05).

The effects of both " E-commerce benefits " and " E-marketplace usage "on "supply chain management" is (0.560) and (0.392) respectively , each of these effects is significantly as seen under columns (t) and (sig).

For the multicollinearity , the stepwise multiple regression , indicate that there is no change in sign of " E-commerce benefits" variable from model (1) to (2) , this mean may be no problem ,in spite of the value of variance inflection factor was found equal to 4.442 which is less than (10) as an indicator that no multicollinearity between independent Variables.

After satisfying the assumptions of path analysis , Researcher used Amos 7 soft ware to test the fourth hypothesis . The following table shows the estimated standardized coefficient according to path analysis.

Table (4 - 9)

Estimated standardized coefficient according to model paths

Path	From Variable	To Variable	Direct Standardized
1	E-commerce benefits	supply chain management	0.560
2	E-commerce benefits	E-marketplace usage	0.880
3	E-marketplace usage	supply chain management	0.392

It seems that E-commerce benefits have a standardized direct effect on supply chain management in path (1) about (0.56). Also they have (0.880) as a standardized direct effect on E-marketplace usage in path (2) , While E-marketplace usage has a standardized direct effect on supply chain management in path (3) equal to (0.392).

The following table(4 – 10) gives the interpretation of each path in the dependent variable "supply chain management".

Table (4 – 10)

Coefficient of Determination of model paths

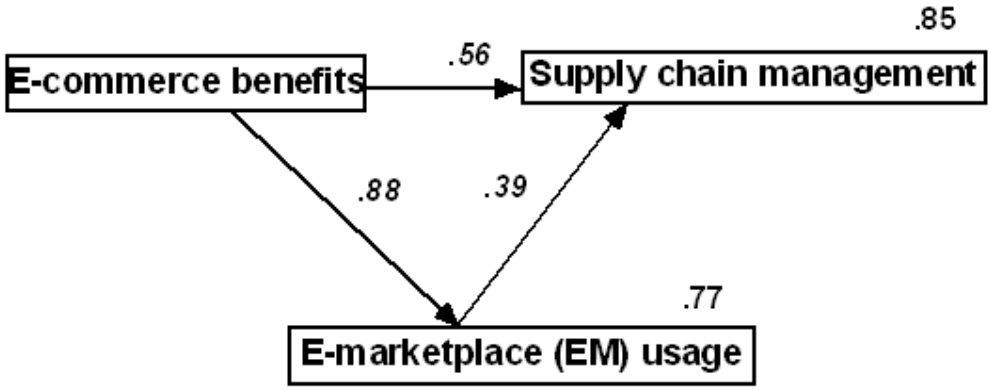
Independent Variable	Dependent Variable	Coefficient of Determination
E-commerce benefits	E-marketplace usage	0.77
E-commerce benefits	supply chain management	0.85
E-marketplace usage		

According to these results, (77 %) of the differences in E-marketplace usage explained by E-commerce benefits, in the same time theses two variables illustrate about (85 %) of the differences in supply chain management variable.

Diagram (1) presents Amos output , some results occur above path which shows the direct effects on each independent variable on dependent variable with paths coefficients of determination on the dependent variable's name.

Diagram (4 - 1)

Study Path Model



The numbers on path arrows are the direct effects that are found in testing the first three hypotheses . The research found the indirect effect of independent variable (E-commerce benefits) on dependent variable (supply chain management) through mediate variable (E-marketplace usage) and shown in table (4 - 11).

Table (4 - 11)

Direct , indirect , total effects in path analysis

	Direct Effect		Indirect Effect		Total Effect	
From / To	E-commerce benefits	E-marketplace usage	E-commerce benefits	E-marketplace usage	E-commerce benefits	E-marketplace usage
E-marketplace usage	0.880	0.000	0.000	0.000	0.880	0.000
supply chain management	0.560	0.392	*0.345*	0.000	0.904	0.392

Only one indirect effect appears in table (4 - 11) , this indirect effect (0.345) belongs to "E-commerce benefits" on "supply chain management" through "E-marketplace usage" while the direct effect of "E-commerce benefits" on "supply chain management" (0.560) , then the total effect here is equal to (0.904).

Table (4 - 12)

Path analysis test results for goodness of fit of study model

Detail	Chi C^2 Square	Sig	NFI	GFI	RAMSA
	91.928	0.000	0.98	0.99	0.06

GFI : Goodness of fit index must Proximity to one

NFI : The Bentler-Bonett normed fit index

RMSEA: Root Mean Square Error of Approximation must Proximity to zero

From table (4 - 12) we observe that there is a significant impact of optimizing the "E-commerce benefits" on "supply chain management" through "E-marketplace usage" . The Chi2 was (91.928) at level ($\alpha \leq 0.05$). Whereas the GFI was (0.99) approaching to one. On the same side the NFI was (0.98) approaching to one. Also RAMSA was (0.06) which is close to (0) as an indicator for goodness of model fit.

Therefore the results of the path analysis have support H4, i.e:

" E-commerce benefits have a positive indirect effect on supply chain management with E-marketplace usage as a mediator ".

CHAPTER FIVE

CONCLUSION, DISSCUSSION, &

RECOMMENDATIONS

(5-1): Conclusion & Discussion

(5-2): Recommendations

(5-1): Conclusion & Discussion

The current study put a set of questions, formulated hypotheses related to the nature of the impact between study variables. The study arrived to many results that contribute to solve the study problem, answer the study questions and hypotheses. The main conclusions are:

1. The moderate level of E-commerce benefit in companies that use B2B e-commerce in Amman. Which means that the extent of agreement with the posed questions on the respondents about e-commerce benefits in their company was medium.

2. The moderate level of E-marketplace usage in companies that use B2B e-commerce in Amman. Which means that the extent of agreement with the posed questions on the respondents about e-marketplace usage in their company was medium.

3. The moderate level of Supply chain management in companies that use B2B e-commerce in Amman. Which means that the extent of agreement with the posed questions on the respondents about Supply chain management in their company was medium.

4. The importance level of E-commerce benefit; E-marketplace (EM) usage and Supply chain management in companies that use B2B e-commerce in Amman was much close to each other. That means the respondents find that the importance of each variable is not less than the others.

5. There a is significant positive impact of E-commerce benefit on Supply chain management in companies that use B2B e-commerce in Amman at level ($\alpha \leq 0.05$). which means that implementing E-commerce benefit will enhance the performance of Supply chain management. Which is compatible with the study of (Rao, Truong, Senecal and Le, 2007).

6. There is a significant positive impact of E-marketplace usage on Supply chain management in companies that use B2B e-commerce in Amman at level ($\alpha \leq 0.05$). which means that enhancing the usage of e-marketplaces will enhance the performance of Supply chain management. which is compatible with the study of (Eng, 2004).

7. The direct effect of E-commerce benefit on Supply chain management was higher than the direct effect of E-marketplace (EM) usage on Supply chain management.

8. There is a significant positive impact of E-commerce benefit on E-marketplace usage in companies that use B2B e-commerce in Amman at level ($\alpha \leq 0.05$). Which means that implementing E-commerce benefit will enable the company to gain more benefits from using e-marketplaces. which is compatible with the studies of (Lin, Huang and Burn, 2007) and (Chen, 2010).

9. E-commerce benefit had higher explanation than E-marketplace (EM) usage in the differences of Supply chain management values separately.

10. There is a significant indirect effect of E-commerce benefit on Supply chain management through E-marketplace usage in companies that use B2B e-commerce in Amman at level ($\alpha \leq 0.05$). which means that implementing E-commerce benefit and using e-marketplaces will enhance the performance of Supply chain management.

(5-2): Recommendations

Due to the results, the researcher suggests some recommendations such as:

- Implement e-commerce in Jordanian companies that do not use it. This will increase its overall performance.

- Enhance the use of e-commerce in the companies that use it and determine to obtain the benefits that can be gained from using it.
- Enhance the use of supply chains and improve its performance.
- Facilitate the use of e-marketplaces for the organization's procurements.
- Implementing e-commerce, supply chain management, and e-marketplace usage will improve the overall performance of the company.
- For future researches, the researcher recommends to try to add more variables to investigate their impact on the current variables

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APPENDIX

Appendix (1)

Questionnaire of the study

English form

Research questionnaire

Dear participant

Thank you for taking time to participate in this survey which is an academic research project for acquiring master degree conducted by the E-business department in Middle East University. The purpose of the survey is to investigate the impact of e-commerce and e-marketplace usage on supply chain management. The results of this study will provide valuable insights to B2B Jordanian companies that use e-commerce in order to help them develop successful strategies for their organizations. Your participation and opinion will be of great value to the researcher and B2B Jordanian companies and all information you provide will be kept confidential. Your completed survey will only be accessed by the researcher of this study.

The researcher — Yasir Al-bayati

Supervisor — Dr. Laith Al-rubaiee

Research questions

Part one: Demographic questions

What is your gender?

☐ Female ☐ Male

What is your job title?

☐ Purchasing manager ☐ CEO

☐ Other ☐ Purchasing employee

What does your organization provides?

☐ Consumer product ☐ Industrial material

☐ Other ☐ Services

How much do your organization sells annually?

☐ 5–10 million JD ☐ Less than 5 million JD

☐ More than 25 ☐ 11–25 million JD

How much do your organization assign for procurement budget annually?

☐ 1–10 million JD ☐ Less than 1 million JD

☐ More than 25 ☐ 11–25 million JD

To what extent your organization use e-marketplaces to purchase commodities it needs?

☐ Not at all

☐ Low extent

☐ Medium extent

☐ Above medium extent

☐ Great extent

How many e-marketplaces that your organization deals with?

☐ 10-20 ☐ Less than 10

☐ More than 20

Part two:

Please indicate the extent to which you agree or disagree with each statement below:

#	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
E-commerce benefits						
1	E-commerce has enhanced the corporate image of your organization					
2	The design and development of an e-commerce system has helped us achieve our business objectives					
3	Our e-commerce projects have helped us meet our corporate business objectives					
4	Our e-commerce strategy is consistent and is aligned with our company's business strategy					
5	Our e-commerce plans are integrated with our corporate business plan					
6	E-commerce has reduced our business process costs					

7	E-commerce has improved our business processes					
8	E-commerce has increased our employees' productivity					
9	E-commerce has increased our company's profitability					
10	E-commerce has increased our return on investment					
11	E-commerce has increased our company's annual sales					
12	E-commerce has increased our company's market shares and/or growth					
13	E-commerce has enhanced our business competitiveness					
14	E-commerce has improved the relationships with our trading partners					
15	E-commerce has improved our company's overall Business performance					
	E-marketplace (EM) usage					
16	Using e-marketplace (EM) gives the organization greater control in carrying out the tasks					
17	Using EM saves the organization's time and effort over other means of performing the same task					
18	Using EM is a more effective way of servicing the organization's needs					
19	Overall, the organization finds the EM very useful					
20	Our organization uses EM for announcing purchasing requirements					
21	Our organization uses EM for placing orders on supplier's website					
22	Our organization uses EM for tracking payment information					
23	Our organization uses EM for sharing design information with our suppliers					

	Supply chain management					
	Using E-SCM helped our organization to achieve the following benefits:					
#	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
24	Improved logistics management					
25	Lower procurement costs					
26	Dynamic and global sourcing					
27	Reduced time between billing and payment					
28	Efficient exchange of information					
29	Improved order accuracy					
30	Unloading excess inventory					
31	Faster time to market					
32	outs Reducing stock					
33	Improving service levels					
34	Improving consumer information					
35	Improved internal and external communications					
36	Efficient product introduction					
37	Streamlined electronic processes					
38	Increased customer satisfaction					
39	Forecast accuracy					
40	Increased profitability					
41	Improved store assortment					
42	Improved replenishment					
43	Efficient promotion					
44	Improved relationship with trading partners					

Appendix (2)

Questionnaire of the study

Arabic form

استبانة بحث علمي

السيد المحترم

السيدة المحترمة

تحية طيبة

شكرا لاستقطاع جزء من وقتكم للمشاركة في هذا المسح والذي هو جزء من بحث اكاديمي مخصص لنيل درجة الماجستير في الاعمال الالكترونية من جامعة الشرق الاوسط.الغرض من هذا البحث هو اكتشاف اثر التجارة الالكترونية واستخدام الاسواق الالكترونية على ادارة سلسلة التوريد. نتائج هذا البحث ستوفر معلومات مهمة للشركات الاردنية العاملة في مجال التجارة الالكترونية لتساعدها على تطوير استراتيجياتها وتحسين ادائها. مشاركتكم في هذا البحث سيوفر معلومات ذات اهمية عالية سواء للباحث او الشركات المستفيدة من البحث وسيتم التعامل مع هذه المعلومات بسرية تامة ولن تستخدم لاغراض غير هذا البحث.

الباحث

ياسر البياتي

المشرف

د. ليث الربيعي

اسئلة البحث

الجزء الاول: الاسئلة الديموغرافية

الجنس

□ ذكر □ انثى

ما هو عنوانك الوظيفي؟

□ مدير عام □ مدير مشتريات

□ موظف مشتريات □ اخر

ما هي نوع السلع التي تقدمها الشركة؟

□ سلع تستخدم في صناعات اخرى (مواد اولية) □ سلع استهلاكية

□ خدمات □ اخرى

ما هو حجم مبيعات الشركة سنويا؟

□ اقل من 5 مليون دينار □ 5-10 مليون دينار

□ 11-25 مليون دينار □ اكثر من 25 مليون دينار

ما هو حجم الميزانية السنوية المخصصة للمشتريات؟

□ اقل من 1مليون دينار □ 1-10 مليون دينار

□ 11-25 مليون دينار □ اكثر من 25 مليون دينار

الى اي مدى تستخدم شركتكم الاسواق الالكترونية في عملية شراء السلع التي تحتاجها؟

□ لا تستخدم

□ استخدام قليل

□ استخدام متوسط

□ استخدام فوق المتوسط

□ استخدام كبير

ما هو عدد الاسواق الالكترونية التي تتعامل معها شركتكم؟

□ اقل من 10 □ 10-20

□ اكثر من 20

الجزء الثاني:

الرجاء الاشارة الى اي مدى توافق او لاتوافق على كل من الفقرات التالية:

ت	السؤال	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
	منافع التجارة الالكترونية E-commerce benefits					
1	التجارة الالكترونية حسنت من صورة شركتكم					
2	تصميم وتطوير نظام التجارة الالكترونية ساعد على تحقيق اهداف الشركة					
3	مشاريع تجارتنا الالكترونية ساعدت على تحقيق اهداف الشركة					
4	استراتيجية التجارة الالكترونية المعتمدة لدينا تتوافق مع استراتيجية الاعمال الخاصة بشركتنا					

ت	السؤال	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
5	تتكامل لدينا خطط التجارة الالكترونية مع خطط عمل شركتنا					
6	التجارة الالكترونية قللت من كلف العمليات التجارية					
7	التجارة الالكترونية حسنت من العمليات التجارية للشركة					
8	التجارة الالكترونية زادت من انتاجية العاملين في الشركة					
9	التجارة الالكترونية زادت من ارباح الشركة					
10	التجارة الالكترونية زادت من العائد على الاستثمار المتحقق للشركة					
11	التجارة الالكترونية زادت من المبيعات السنوية للشركة					
12	التجارة الالكترونية زادت من الحصة السوقية والنمو للشركة					
13	التجارية الالكترونية حسنت من المركز التنافسي للشركة					
14	التجارة الالكترونية حسنت من العلاقة بين شركتنا وشركائنا التجاريين					
15	التجارة الالكترونية حسنت الاداء الكلي للشركة بشكل عام					
	استخدام الاسواق الالكترونية E-marketplace usage					
16	استخدام الاسواق الالكترونية اعطى شركتنا تحكم اكبر في تنفيذ مهامها					
17	استخدام الاسواق الالكترونية يوفر للشركة الوقت والجهد اكثر من الاسواق التقليدية لاداء نفس المهمة					
18	استخدام الاسواق الالكترونية هي وسيلة اكثر فعالية لتلبية احتياجات الشركة					
19	بشكل عام ترى شركتنا ان استخدام الاسواق الالكترونية مفيد جدا					
20	تستخدم شركتنا الاسواق الالكترونية للاعلان عن السلع المطلوب شراؤها					
21	تستخدم شركتنا الاسواق الالكترونية لتقديم طلبيات على الموقع الالكتروني للمجهز					
22	تستخدم شركتنا الاسواق الالكترونية لتتبع العمليات المالية					
23	تستخدم شركتنا الاسواق الالكترونية لمشاركة المعلومات مع المجهزين					

ت	السؤال	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
ادارة سلسلة التوريد Supply chain management						
ان استعمال نظام ادارة سلسلة التوريد الالكتروني ساعد شركتنا على تحقيق المنافع التالية:						
24	تحسين ادارة الخدمات اللوجستية (نقل,خزن)					
25	تقليل كلف الشراء					
26	توفير مصادر عالمية تتمتع بالمرونة					
27	تقليل الوقت بين اصدار الفواتير والدفع					
28	كفاءة تبادل المعلومات					
29	زيادة الدقة في الطلبيات					
30	تقليل المخزون الفائض					
31	اختصار وقت الشراء					
32	تقليل نسبة نفاذ المخزون					
33	تحسين مستوى الخدمة					
34	تحسين نوعية المعلومات عن المستهلك					
35	تحسين الاتصالات الداخلية والخارجية					
36	تقديم المنتج الى السوق بكفاءة					
37	تبسيط العمليات الالكترونية					
38	زيادة رضا الزبون					
39	دقة التنبؤ					
40	زيادة الربحية					
41	تحسين عملية تنظيم المخزون					
42	تحسين عملية سد النقص لاحتياجات الشركة					
43	الترويج بكفاءة					
44	تحسين العلاقة مع الشركاء التجاريين					

Appendix (3)

List of companies that use B2B e-commerce in Amman

List of companies that use B2B e-commerce

Central e-commerce
Access to Arabia
Apmc
CMCS Jordan
Primus
Crystelcall
EDATA Technology and Consulting
Beecell
CCS
Delta informatics
Orange
E-point
Dot.jo
E-tech systems
E-sense
Umniah
Akhtaboot

Aramex
Zain
Jabbar internet group
Maktoob
Rawda for IT & e-trading
Wi-tribe
Kulacom
Mada
Dhl
Tnt
Fedex
UPS
Carfrour
C-town
Miles
Safe way
Cozmo
Smart buy

Smartlinkcomm
Mcdonalds
Popyes
KFC
Hardees
Pizza hut
Papa johns
Burger king
Royal hotel
Hayat hotel
Four seasons hotel
Regency hotel
Landmark hotel
Marriott hotel
Meridian hotel
Intercontinental hotel
Jordanian cable services JCS
Pentatelecom
Viacloud

Talal Abu-Ghazaleh Organization (TAG-Org)
Tedata
Novartis pharmaceutical company
The United Pharmaceutical Manufacturing Co. Ltd.
Jordanian Pharmaceutical Manufacturing Co. Ltd.
Pharma International Co.
The Arab Pharmaceutical Manufacturing Co. LTD (APM)
Hikma Pharmaceuticals
Al-Razi Pharmaceutical Industries Co. (PLC)
Ram Pharmaceutical Industries Co. Ltd.
Amman Pharmaceutical Industries Co. (API)
Philadelphia Pharmaceutical Co.

Appendix (4)

List of the academic reviewer

List of academic reviewers

Dr. mohammed al-neiamee
Dr. sabah al-agha
Dr. ali abbas
Dr. haithaim al-zu'bee
Dr. hamza khraim

Appendix (5)

Task facilitate

جـامـعـة الـشـرق الأوسـط للدراسـات العـليا
MEU MIDDLE EAST UNIVERSITY FOR GRADUATE STUDIES

Date: كلية الأعمال – مكتب العميد التاريخ:2011/03/14
Number: Deans Office - Faculty of Business الرقم:

لمن يهمه الأمر

السادة غرفة تجارة عمان المحترمين

أرجو التكرم بالتلطف لتسهيل مهمة الطالب / الطالبة :

ياسر سعد عبدالله

الرقم : 400910287 التخصص: الأعمال الإلكترونية

في الحصول على المعلومات الخاصة حول موضوع :

"أثر إستخدام التجارة الإلكترونية على إدارة سلسلة التوريد وإستخدام الأسواق الإلكترونية"

وذلك استكمالاً للحصول على درجة الماجستير، علماً بأن المعلومات ستكون سرية ولغايات البحث العلمي.

مع فائق الاحترام، ،،

عميد كلية الأعمال

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