



Impact of the E-Commerce on Business Pressures in Jordanian SMEs



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ABSTRACT: Organizations today are faced with massive globalization, demanding customers with rapidly changing desires, shrinking response time, shrinking product lifecycles and demanding employees. This requires organizations to become fast, flexible, and participative and focused on customers, competition, teams, time and process. To respond to these forces, it is important to adopt a e-commerce in SMEs. In most developed countries SMEs constitute a highly dynamic and important sector of the economic activity that, nevertheless, has to deal with high competitive pressures and scarcity of resources. Information and communication technologies (ICT) offer SMEs significant opportunities to grow and to compete in the current business environment. This study aims to determine the current level of e-commerce adoption by SMEs in Jordan and clarifies the major business pressures facing organizations. Moreover, it gives a clarification of how e-commerce responses to these pressures. This was achieved by circulating a questionnaire to test the perception of e-commerce benefits and e-commerce adoption levels among SMEs from various sectors in Jordan and applying Turban model on SMEs in Jordanian environment. As such, it is required to help SMEs in raising electronic commerce and benefiting increasingly from e-commerce. It goes further to provide SMEs with business services that could make their trading activities. This study also elucidates these expected benefits from e-commerce and compares them with traditional SMEs to encourage all organizations to adopt and use of e-commerce in their businesses to remain competitive in rapidly changing environment. The results of this study indicate that even though a majority of respondents use e-commerce in the business activities and have their own Web site. Many respondents believed that a reduction in business pressures was a result of e-commerce adoption. In addition, external factors, such as customers and competitors had influence on the decision to adopt e-commerce.

Key words: E-commerce, Business pressures, Jordanian SME's, Information technology

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1. Introduction

SME's are considered as key feature in the economies of every country. This crucial sector plays an important role in the development of economy's infrastructure by providing employment generation, innovation and wealth creation. The implementation of new technologies, use of ICT (information and communication technologies) and electronic commerce in SME's

with their operational environment has provided numerous organizational opportunities. Akkeren and Cavaye [1] state that e-commerce improves an SME's ability to compete with larger organizations and operate on an international scale. They also see e-commerce as a tool for providing cost effective ways for SME's to market their business, launch new products, improve communications, gather information and identify potential business partners. The Internet allows small businesses to enter the domain of larger business and compete with them. Moreover, the use of e-commerce enables small businesses to achieve the same efficiencies as large businesses. In spite of this, previous studies suggest that the adoption of web-enabled transaction processing by small business has not been as widespread as would have been expected [2].

Organizations today are faced with massive globalization, demanding customers with rapidly changing desires, shrinking response time, shrinking product lifecycles and demanding employees. This requires organizations to become fast, flexible, and participative and focused on customers, competition, teams, time and process [3]. To respond to these forces, it is important to adopt a e-commerce in SMEs. To remain competitive, SMEs must globalize. SMEs' globalization processes include a range of cross border activities, such as trade, international investment, and participation in strategic alliances, partnerships and networking arrangements affecting a variety of business functions ranging from research and product development to distribution [4]. Turban has suggested a model that clarifies the major business pressures facing organizations and the role of e-commerce in reducing these pressures. In this research, we will apply this model on SMEs in Jordanian environment to help it to start electronic business and benefit increasingly from it and to provide them with business services that could make their trading activities easier.

2. Problem statement

Small businesses differ from large businesses due to their lack of experience with information systems, dependence on external resources for technical support, and relatively less investment in information systems. Some factors attributing to slow adoption of ICT and e-business by small businesses may include lack of management support for e-business projects, and external problems, for example customer service representatives who are accustomed to doing their jobs the old way and not wanting to change[5]. It is therefore imperative for SMEs to have a clear understanding of the opportunities that e-commerce is offering, as well as understanding the related requirements for the implementation of e-commerce.

In most developed countries SMEs constitute a highly dynamic and important sector of the economic activity that, nevertheless, has to deal with high competitive pressures and scarcity of resources. Information and communication technologies (ICT) offer SMEs significant opportunities to grow and to compete in the current business environment.

Turban [6] suggested Major Business Pressure's model and the role of e-commerce in reducing these pressures. He divided these pressures into Market and Economic pressures, Technological Pressures, and Societal and environmental pressures. Each one of them has sub pressures as shown in figure (1). Therefore, it has become necessary to a clear understanding of the opportunities that e-commerce is offering, as well as understanding how e-commerce can reduce the business pressures in SMEs . So in this research we will apply this model on SMEs in Jordanian environment to help them to raise electronic business and benefit increasingly from them. Moreover, e-commerce provides them with business services that could make their trading activities and compare these expected benefits from e-commerce with traditional SMEs.

3. The objectives of the study

This study aims to determine the current level of e-commerce adoption by SMEs in Jordan and clarifies the major business pressures facing organizations. Moreover, it gives a clarification of how e-commerce responses to these pressures. This was achieved by circulating a questionnaire to test the perception of e-commerce benefits and e-commerce adoption levels among SMEs from various sectors in Jordan and applying Turban model on SMEs in Jordanian environment. As such, it is required to help SMEs in raising electronic commerce and benefiting increasingly from e-commerce. It goes further to provide SMEs with business services that could make their trading activities. This study also elucidates these expected benefits from e-commerce and compares them with traditional SMEs to encourage all organizations to adopt and use of e-commerce in their businesses to remain competitive in rapidly changing environment.

4. Literature Review

Scupola [7] in his study The Adoption of Internet Commerce by SMEs in the South of Italy: An Environmental, Technological and Organizational Perspective found that competitive pressure, customer and supplier pressure, role of government, quality

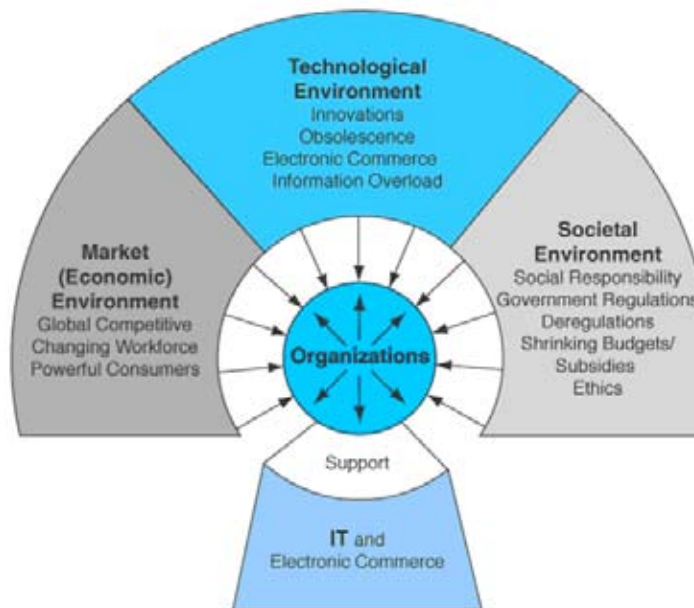


Figure 1. Major business pressures and the role of EC

of access to e-commerce related services were important factors influencing e-commerce adoption. Innovation champion, financial resources and employees' IS knowledge were among the most important organizational characteristics. Regarding the technological context he found three groups of factors influencing e-commerce adoption: e-commerce barriers, e-commerce benefits and e-commerce related technologies.

Iacovou [8] identified three major factors responsible for EDI adoption. They are organizational readiness, operationalized as financial and technological resources of the firm; external pressures divided into competitive pressure and imposition by trading partners and perceived benefits of the technology. By investigating seven case studies of small businesses, Iacovou concluded that "a large number of small organizations tend to lack the needed high organizational readiness and perceived benefits that are required for integrated, high impact systems" and that a major reason for small companies to adopt EDI is the external pressure by trading partners.

Three major drivers behind the adoption of e-commerce technologies were identified: perceived benefits, organizational readiness, and external pressure. Several studies have looked at limited segments of the business environment in an attempt to identify the benefits of e-commerce to SMEs. These efforts have generally been restricted to qualitative evaluations of specific e-commerce endeavors [9][10][11].

Marguerite and Marie[12] argues that local and global business pressures generate the need for continual product and process innovation. Their paper discussed the challenges of transferring academic knowledge and research into SMEs, and demonstrates the appropriateness of the TCS model for transferring knowledge into SMEs. They concluded that the model works principally because of the collaborative design of TCS. This makes it particularly effective in the SME context because tapping into university resources allows SMEs to access otherwise unobtainable knowledge that can be applied in the industrial environment. Technology transfer through the TCS Scheme or through the MSc by Learning Contract is driven by SME business need. This encourages the uptake of academic knowledge by SMEs and gives a practical focus to the academic's research.

Bui et al [13] argue that technology and societal changes are moving the global market rapidly towards a new economic order rooted in e-Commerce. They investigate some factors including macro economy, ability to invest, access to skilled workforce, cost of living and pricing. The authors also state that many organisations face a chronic shortage of resources (including funding). Management should be aware that e-Business is part of the complex and general economic structure and the success of organisations depend on that structure as well as the optimum allocation of resources.

The 2004 OCED [4] Report suggested that increased levels of globalisation can impact on SMEs in two main ways. On the one hand they open up opportunities. For example, SMEs that can grow quickly, that are niche exporters, or are able to tie in with global supply chains are all able to take advantage of opportunities created by globalisation. On the other hand,

globalisation poses an increased threat for SMEs that are unable or unwilling to compete. Given that labour is still less “globalised” than other factors, this poses political and social challenges for governments.

5. Methodology

The study has adapted the descriptive, field and analytic methods. A comprehensive survey and analyzing data that collected from questionnaires by using statistical ways were conducted to implement the field analytic research. The study based on a developed questionnaire that organized depending on the previous questionnaires; this questionnaire has adjusted to fit the Jordanian environment.

6. Population of the study

The study population contains from all SMEs in Jordan which are listed in ASE up to the end of 2008 that work in main sectors and classified as the following: banks, insurance, brokerage firms, industrial, services firms, and firms in other sectors. Which represent the individuals, managers, assistants’ managers, brokerage managers, and top managers in the listed firms in ASE.

6.1 Sample

The sample contains of (50) firms which are banks, insurance, financial, industrial, and services firms, continuously listed in ASE, as shown in the table (4.1) below. The simple random sample was selected from managers of banks, insurance, industrial, trading, services, and financial firms. The questions were responded by the responsible chairmen, managers, assistant managers, and employee in the mentioned companies.

Institution/sector	Number of firms
Banks sectors	12
Services sector	11
Insurance sector	10
Manufacturing sector	8
Other sectors	9
Total	50

Table 1. Sample of the study

It has chosen a convenient sample from the study population, the sample included total (400) observations, which were distributed to the respondents as the following: banks financial company (110), insurance (70), industrial (65), services firms (75), and other sectors (85), the returned questionnaires were (289); (27) questionnaires were excluded because they weren’t valid for statistical analysis, so the valid questionnaires were 262 (65%).

Majority of questionnaires distributed on banks and financial firms, this return for several reasons:

- The rapid developments of technology in banking and financing sector.
- The growing role of banking sector in economy.
- The both sector has a good quality of employees and managers.

7. Results and discussion

7.1 Demographic characteristics of Respondents

This section presents an analysis of the responses to business pressures in SMEs in Jordan. Descriptive information regarding firm size, number of years the respondents has been with the firm and in the current position, gender, age, educational level, and other demographic data were collected in the survey instrument. Demographic variables were modeled as nominal scales and open-ended ratio scales (only for number of years respondents have been with the firm and in the current position). The variables designed by ratio scales were recoded into nominal scales and analyzed.

The summary of demographic variables is reported in previous section. The following discussion compares the major demographic variables collected in the study.

Most of the respondents were male (69, 5 %) with ages ranging from 36 to 50 years (40.5%). Education levels revealed that (54.6%) of the respondents had a 4-year college degree and (22.9%) had a master degree. After recoding the number of years a respondent had been with the firm, results showed that a high percentage of the respondents experience between 7-10years.

Accordingly, results showed that (47.3%) of the respondents worked in higher current Position; these results gave us a high motivation to implement this study. Firm's characteristics revealed that (25.9%) of the companies had between 10 and 100 Employees and (48.4%) had between 101 and 249. The number of employees of the collected samples is all less than 250. This indicates that the collected data is suitable for the study of SMEs. Concerning the sectors variable, the results showed that the different variables were close in ratio to each other.

7.2 Analysis of Hypothesis

In addition to the descriptive analysis applied in order to understand better the characteristics of the sample, statistical tests were used to examine the relation between the independent variable (e-commerce adoption by SMEs in Jordan) and dependent variables, such as Market and economic pressures, Societal and environmental pressures and Technological pressures. Following is a review of each hypothesis:

Hypothesis (1): stated that e-commerce positively effect on reducing major business pressures in SMEs in Jordan.

A single population proportion test was performed to determine the statistical significance of the extent of effect e-commerce on reducing business pressures. The results of the testing of the first hypothesis are presented. The test was significant at the 0.01 level. The researcher, therefore, rejected the null hypothesis and accepted the alternative hypothesis. The research findings are statistically significant in the explanation of the extent of e-commerce by SMEs for business solutions and support the hypothesis that a majority use the e-commerce for reducing business pressures. Feedback was provided pointing out that all the factors are important and suggested that managers perceived external pressure from people and other firms forcing them to adopt ecommerce in their companies. In other words, social and environmental pressures, market and economic pressures and technology pressures influenced the decision to adopt or not to adopt e-commerce.

Either, when comparisons are made between the reasons that may have motivated the organization to implement e-commerce and those of benefits that respondents experienced since implementing e-commerce similarities are observed. For example, a majority of respondents indicated that e-commerce improved the firm's performance, improved competitiveness and reducing the pressures that SMEs suffering from.

Hypothesis (2): stated that E-commerce positively effect on reducing Market and economic pressures in SMEs in Jordan.

A single population proportion test was performed to determine the statistical significance of the extent of effect e-commerce on reducing Market and economic pressures in SMEs in Jordan. Market and economic pressures are divided into six dimensions: Strong competition, Global economy, extremely low labor cost in some countries, frequent and significant changes in markets, increased power of consumers, and regional trade agreements (e.g. NAFTA). The results of the testing of second

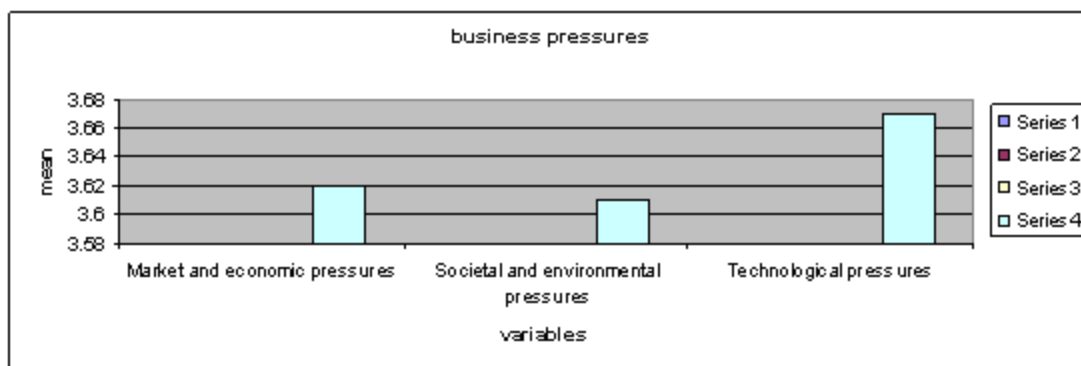


Figure 2. business pressures

hypothesis are presented. The test was significant at the 0.01 level. The researcher, therefore, rejected the null hypothesis and accepted the alternative hypothesis. The research findings support the second hypothesis. It has been noted that the variable increases power consumer's came in the first rank, therefore we conclude that using e-commerce in SMEs positively effect on reducing market and economic pressures especially increases consumer's power.

When comparisons are made between the reasons that may have motivated the SMEs to implement e-commerce and those of benefits that respondents experienced since implementing e-commerce, similarities are observed. For example, a majority of respondents indicated that our competitors had implemented it was both a driver as well as a benefit; a majority agreed that demand pressures by the supplier was both a motivator for implementing e-commerce as well as a benefit, and a majority strongly agree that increased revenue was both a motivator as well as an experienced benefit. Similar comparisons occurred with issues of reaching new customers, improved marketing, and improved customer service. Conversely, a majority of respondents agreed with the statement that improved distribution channels was a motivator, but a majority also agreed that it was a benefit. Similar comparisons were evident in addressing the issue of a higher degree of increased the electronic contracts, allowed our firm to perform more like a large company control in managing the business improved inventory management a majority agreed that it was a motivator or a benefit.

Respondents to survey questions (1-28) reported having experienced benefits of improved customer service, marketing, an increased customer base, increased revenue, an increase in improved competitiveness, improvement in lead time from order to delivery. Benefits such as reductions in administrative, personnel, distribution, personnel, and inventory costs were reported by a majority of respondents as a benefit since implementing e-commerce by their respective organizations.

Hypothesis (3): stated that e-commerce positively effect on reducing Societal and environmental pressures in SMEs in Jordan

From sample of 262 employees, we examined the effect of e-commerce on societal and environmental pressures, measured by six factors: Change the nature of the workforce, shrinking government subsidies, increased importance of ethical and legal issues, increased social responsibility of organizations, rapid political changes, and government deregulation of banking and other services, to understand to what degree e-commerce reduce the business pressures.

The results of the (One Sample Test) to test the third hypothesis were presented in figure(3). Because the value is calculated at the level of ($\alpha \geq 0.01$), the researcher rejected the null hypothesis and accepted the alternative hypothesis. The results of this hypothesis indicate that even though a majority of respondents agreed with the statement that (growing importance of ethical and legal issues) is a possible reason which might have motivated the organization to implement e-commerce. For example, using the website can gain new contracts with suppliers and costumers; this racing the market share for these companies, furthermore, the reliability of credit card, and Legal structures are the main reasons that motivate the SMEs to move towards electronic business to maintain their own competitive position.

It has also been noted that factors change the nature of the workforce play a major role in motivating respondents to embrace the e-commerce. The respondent appeared to be an aware of how the internet can be used to enhance the operations, improve

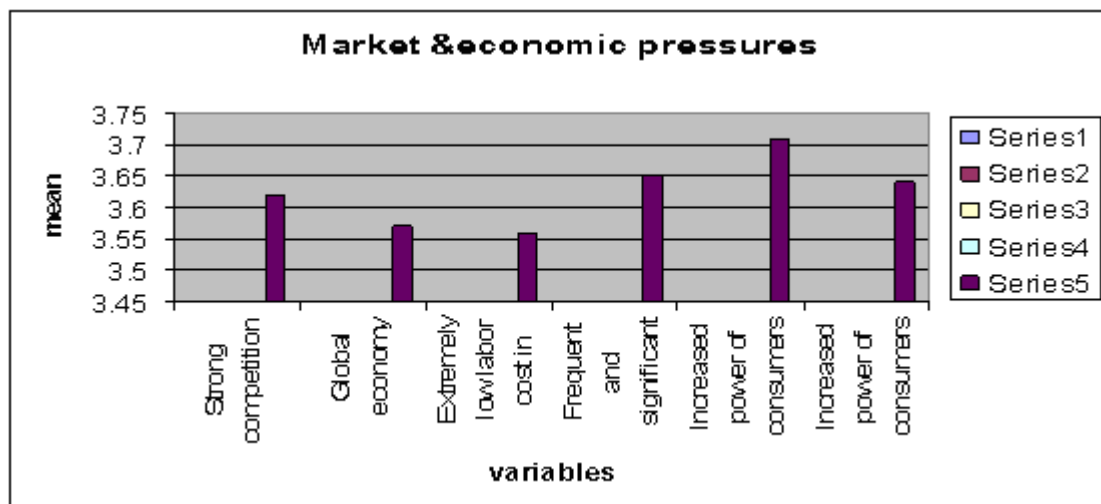


Figure 3. Impact of EC on market and economic pressures

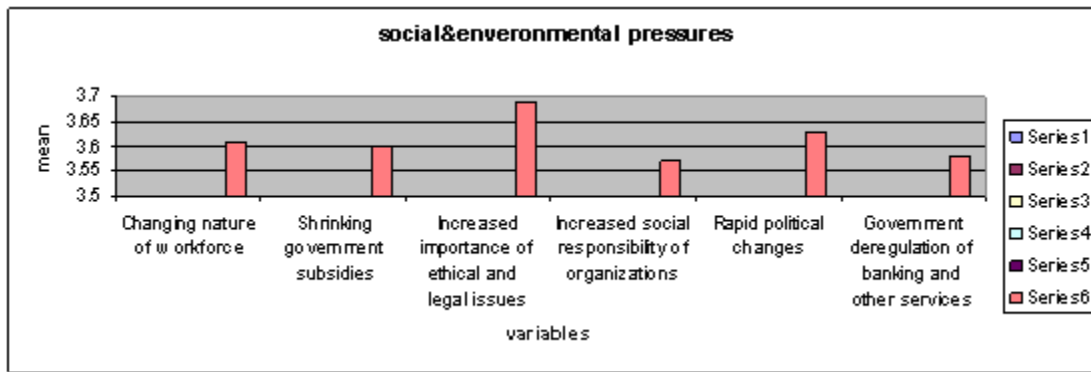


Figure 4. Societal and environmental pressures

supply chain management, improve lead times, improve business processes, improve the relations with business partners, enhance our distribution process, and gave them higher degree of control in managing their organizations.

Based on the findings above, the business environment is the combination of social, legal, and political factors that affect business activities. Significant changes in any of these factors are likely to create business pressure on the organization. To reduce these pressures the researcher found that implementing e-commerce is suitable way for SMEs to compete the large firms and maintain their own competitive position.

Hypothesis (4): stated that e-commerce positively effect on reducing Technological pressures in SMEs in Jordan.

A single population proportion test was performed to determine the statistical significance of the extent of effect e-commerce on reducing Technological pressures in SMEs in Jordan. Similarly, Technological pressures are divided into four dimensions: Rapid technological obsolescence, Increase innovations and new technologies, information overload, and rapid decline in technology cost vs. performance ratio.

The results of the (One Sample Test) to test the fourth hypothesis were presented in figure(4). Because the value is calculated at the level of ($\alpha \geq 0.01$), the researcher rejects the null hypothesis and accepts the alternative hypothesis. The research findings support the hypothesis4. Results from the structural analysis indicate that majority of the respondents have agreed with rapid decline in technology in terms of cost versus performance ratio. For example, technology acquiring improves the productivity, reduces the product cost, and improves product quality. It appears from the above results that IT investment have a stronger positive impact on company performance.

Regarding, the factor Increase innovation and new technology the resulted showed that a majority of respondents perceive the benefits of e-commerce to SMEs, the internet created a new way to sell products and services. For example, amazon.com differentiates itself from other book retailer by providing costumers with information that is not available in bookstore. Also the internet creates new channels, increase the IT knowledge, and improves quality and accuracy of products and services, therefore we found these reason is the most important determinants of the companies that paid to the adoption of e-commerce.

As well as the increase innovation and new technology, the majority of respondents agreed with paragraph the information overload. Therefore e-commerce provided us with distributed database system to facilities dealing with data and information.

Based on the findings above, it is clear that SMEs adopt e-commerce to reduce costs, increase revenue, increase range of products and services, establish better control over their customer and supplier relationships, and gain strategic advantage over their competitors.

8. Conclusions

This section is organized into two sections. The first presents an overview of the important findings based on the research questions and hypothesis established at the beginning of the study. The second section presents the recommendation of the study.

8.1 Summary of Important Findings

The results of this study indicate that even though a majority of respondents use e-commerce in the business activities and have their own Web site. A majority of respondents were male with ages ranging from 36 to 50 years, had a 4-year college

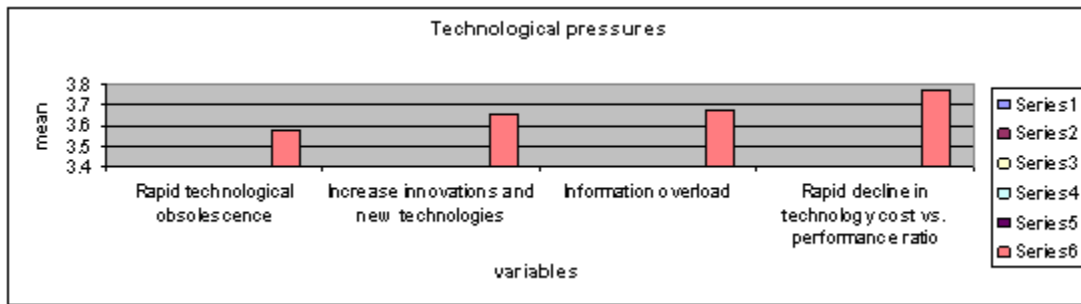


Figure 4. Technological pressures

and a master degree. Concerning the number of years a respondent had been with the firm. The results showed that a high percentage of the respondents have been in experience from 7-10years.

Many respondents were of high rank in positions and believed that a reduction in business pressures was a result of e-commerce adoption. In addition, external factors, such as customers and competitors had influence on the decision to adopt e-commerce. Other reasons for adoption cited by a majority of respondents included the suitability with how the company did business, improving customer service and marketing, reaching new customers, increasing revenues, improving competitiveness, improving operational efficiency, improvement in inventory management or gaining a higher degree of control in managing the organization.

Paralleling positive responses to reasons given for implementation of e-commerce, such as improved customer service and marketing increased in revenue and customer base, and improved competitiveness were responses to questions asked about benefits experienced since implementation.

Mixed results were obtained when respondents were asked about a reduction of lead time from order to delivery and about achieving a higher degree of control in managing the business. Furthermore, when asked about the effect of e-commerce on technical pressures, the researcher has noted that the majority of respondents showed a high ratio to rapid decline in technology in terms of cost versus performance. Most respondents believed that (increase innovation and new technology) was important factor to motivate respondents to embrace e-commerce. Generally, the majority of the respondents indicated that implementing e-commerce in their firms gave them opportunity to improve an SME's ability to compete with larger organizations and operate on an international scale. They realized that e-commerce is used as a tool for providing cost effective ways for SME's to market their business, launch new products, improve communications, gather information and identify potential business partners.

Significance testing was used in the analysis of each of the hypotheses. The purpose of the first hypothesis was to identify the effect e-commerce on reducing business pressures. The researcher found significant statistical support for the hypothesis that a majority of respondents embrace e-commerce to reduce the external pressures, for example The respondent appeared to be an aware of how e-commerce can be used to enhance the operations, improve supply chain management, improve lead times, improve business processes, improve the relations with business partners, enhance our distribution process, and gave them higher degree of control in managing their organizations.

The purpose of the second hypothesis was to identify the effect of e-commerce on reducing Market and economic pressures in SMEs in Jordan. The researcher found significant statistical support for the second hypothesis. Therefore we concluded that using e-commerce in SMEs affects positively on reducing market and economic pressures especially increases consumer's power. For example, a majority of respondents indicated that our competitors had implemented it was both a driver as well as a benefit; a majority agreed that demand pressures by the supplier and costumer were both a motivator for implementing e-commerce as well as a benefit, and a majority strongly agreed that increased revenue was both a motivator as well as an experienced benefit

The purpose of the third hypothesis was to examine the effect of e-commerce on reducing Societal and environmental pressures in SMEs in Jordan. The researcher found statistical support for the hypothesis that there were a hierarchy of factors, such as change the nature of the workforce, increased importance of ethical and legal issues, increased social responsibility of organizations, rapid political changes, government deregulation of banking and other services, and shrinking government subsidies, that influence on SMEs in their adoption of e-commerce for business solutions.

The purpose of the forth hypothesis was to examine the effect of e-commerce on reducing Technological pressures in SMEs in Jordan. The researcher found statistical support for the hypothesis that SMEs have strong reasons to embrace e-commerce, such as increase innovations and new technologies, rapid decline in technology cost vs. performance ratio, and information overload. Technology acquiring improves the productivity, reduces the product cost, and improves product quality. This strongly impact on company performance.

8.2 Recommendations

This study supported the hypotheses that in spite of the perceptions that SMEs are advanced in the use of e-commerce in some sectors, most SMEs have limited their use of e-commerce in other sectors. The following two sections present the practical implications of these findings and suggestions for future research.

8.3 Practical Implications

The findings of this study may be of practical importance to those academic, governmental, business, and community-based organizations whose purpose is to help and improve the productivity and competitiveness of SMEs. Managers and presidents of SMEs, who increasingly find themselves beleaguered by global competition, would be well served by becoming informed and educated about the powerful cost-effective capabilities of using e-commerce for transactions and for managing back-office operations, including supply chain management through implementation of a comprehensive e-business strategy.

Technology costs, including hardware and software, are declining and becoming affordable and available for the small business. However, for an effective e-business strategy to be forged, current business processes must be examined before the technology tools are put in place, or ineffective processes simply become mechanized. The vision for this transformation must come from the presidents, managers, or owners.

8.3 Suggestions for Future Research

It is recommended that future research be expanded to include more sectors of the Jordan economy, including retail, and agriculture. The study of all sectors may contribute to a more complete picture of the current status of the adoption progress of e-commerce by SMEs.

It is recommended that future research be conducted in other regions of Jordan and in other parts of the world. It is recommended that future research be conducted into the current level of understanding by SME presidents and managers about the use of e-commerce beyond the establishment of Web sites, including their level of understanding about terms such as e-business, e-marketing, and e-procurement.

It is recommended that future research be conducted to determine what the most effective means are to educate, inform, and motivate the Presidents, Owners, and managers of SMEs to take a proactive stance with regard to use e-commerce for business solutions.

It is recommended that future research be conducted to promoting the e-commerce successes of local businesses in moving their businesses online and in the benefits gained for their businesses. This would require businesses that have been early adopters of e-commerce in their regions, industries or business-type to act as e-commerce 'champions'.

Finally, it is recommended that future research investigate the level of influence and pressure that is being applied by large companies on their small business suppliers to become more involved with use of e-commerce.

References

- [1] Akkeren, Cavaye (1999). Technology Adoption by Small Business in Australia: An Empirical Study, *In: Proceedings of the 10th Australasian Conference on Information Systems*. Wellington, New Zealand, 1-3 December.
- [2] Stockdale, R., Standing, C. (2006). A classification model to support SME e-commerce adoption initiatives. *Journal of Small Business and Enterprise Development*, 13 (3) 381.
- [3] Sussan, A. P., Johnson, W.C. (2003). Strategic capabilities of business process: looking for competitive advantages. *CR*, V. 13, No 2.
- [4] OECD (2004). 2nd Conference of ministers responsible for small and medium sized enterprises(SMEs), promoting

enterpreneurship and innovative SMEs in global economy , Istanbul, Turkey 3-5 June .

- [5] Seewald, N. (2003). Industry Slower than Ever to Move Online Transactions. *In: Chemical week*, Feb. 12,2003.
- [6] Turban, E., King, D., Lee, J., Viehland, D. (2004). *Electronic commerce. A managerial perspective*. NJ: Pearson, Prentice Hall.
- [7] Scupola, A. (2003). The Adoption of Internet Commerce by SMEs in the South of Italy: An Environmental, Technological and Organizational Perspective, *Journal of Global Information Technology Management*, 6 (1) 51-71.
- [8] Iacovou, C.L., Benbasat, I., Dexter, A.S. (1995). Electronic Data Interchange and Small Organizations: Adoption and Impact of Technology, *MIS Quarterly*, 19 (4) 465-485.
- [9] Hasan, H., Tibbits, H. (2000) Strategic management of electronic commerce: An adaptation of the balanced scorecard. *Internet Research*, 10 (5) 439-450.
- [10] Kuan, K.K. Y., Chau, P.Y. (2001). A perception-based model for EDI adoption in small businesses using a technology organization-environment framework. *Information & Management*, 38 (8) 507.
- [11] Straub, D.W., Hoffman, D.L., Weber, B.W., Steinfield, C. (2002). Measuring e-commerce in Net-enabled organizations: An introduction to the special issue. *Information Systems Research*, 13 (2) 115-124.
- [12] Lipscomb, Marguerite., McEwan, Anne Marie (2001). Technology Transfer in SMEs: The TCS Model at Kingston University. *Manufacturing information systems*, *In: Proceedings of the Fourth SMESME International Conference*
- [13] Bui T.X., Sankaran S., Sebastian I.M. (2003). A framework for measuring national e-readiness, *Int. J. Electronic Business*, 1 (1) 3-22