



WWJMRD 2018; 4(6): 20-27
www.wwjmr.com
International Journal
Peer Reviewed Journal
Refereed Journal
Indexed Journal
Impact Factor MJIF: 4.25
E-ISSN: 2454-6615

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Role of Information Technology (IT) in Economic Growth & Development in Jordan

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Abstract

Information Technology is the world's fastest growing industry that has applications in all sectors of economy. It is the biggest technological achievement in the evolution of mankind. It has made significant contribution towards the development of economies in terms of its impact on gross domestic product, its capacity to absorb human resources and its ability to provide greater accessibility of innovative technology in the world. Taking this into cognizance, the present research has been conducted to examine the role played by information technology in the economic growth & development of Jordan. The study investigated the impact of IT on strategic sectors like business, banking, insurance, education, and healthcare in Jordan. The findings revealed that there is a significant impact of information technology in the economic growth & development in the country.

Keywords: Information Technology, banking, education, business, development, Jordan

1. Introduction

Information is a basic resource like materials, money and manpower. It is the organized facts and data that are describing a certain position or a particular problem. It is a dynamic and unending resource that affects all walks of life. It aids business, banking, insurance, education, and overall development in the country. Technology in its broader sense is the main factor determining the development of information (Prasad and Prasad, 2011). Information technology is technique for data capturing, data storing, data processing, data transmission, information retrieval and information display and communicated the results either in the form of model through computers. It has affected every walk of the human life at local, national and global level. If an organization attempts to achieve certain objectives, it cannot remain aloof from the development of information technology. However, the role of information technology varies from place to place, person to person and organization to organization. Its nature, function and effect depend either on the individual or the organizational need of information (Balsawarkar, Information Technology (IT) is the biggest technological achievement in the evolution of mankind. It is a general term that stresses the role of unified communications and the integration of telecommunications, computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information (Al-Rashid, 2015). IT sector has become one of the most significant growth catalysts for Jordan economy. It is positively influencing the lives of its people through employment, standard of living and diversity among others. The adoption of IT requires a business environment that encourages open competition, trust and security, interoperability and standardization, and financial resources for IT (Muhammad and Muhammad, 2010). The goal of IT in an economy is to establish an environment that encourages networking of services and applications, promoting e-commerce and internet, establishing e-government, promoting e-education and online services, building and developing e-society and IT human resources (Naidu, Reddy, and Pannersalvam, 2016).

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2. Information Technology in Business

The success of a business depends on certain factors like accurate analysis, choosing the right technology and the future vision. It has been proved that those organisations that invest in technology increase their market share, financial figures and overall competitiveness. Information technology is the only technology which provides the opportunity to analyze specific data and tools which can solve complex problems and plan the future growth of the business. IT fosters innovation in business which brings in smarter apps, improved data storage, faster processing, and wider information distribution. Innovation makes businesses run more efficiently and increases value, enhances quality, and boosts productivity (Zahid, Khan, Sami, and Badruddin, 2016).

2.1 Information Technology (IT) in Retail

The internet has been a huge factor in changing the retail business. The greatest impact is the direct line of communication that the internet provides between retailers and consumers. The future of retail business requires retailers to accept the latest changes in IT. Besides, IT allows retailers to be available day or night interacting with customers how, when, and where they are ready to shop (Hussain, 2015). Retailers depend on IT to manage inventory, track customer-purchasing habits, predict trends, and deliver goods and services. Many retailers understand the potential that mobile communications offer to engage their customers outside the physical retail location by offering real-time discounts, promotional updates, and enhancing options to purchase online or in store. Wireless communication, QR codes, and augmented reality are some examples of the changes brought in the retail industry due to the implementation of IT (Gupta and Srivastava, 2010).

2.2 Information Technology in Marketing

Marketing includes public relation, advertising, promotion and sales which subsequently impact on business growth. Digital Marketing is the offshoot of IT. It is a broad term which includes many concepts like search engine optimisation (SEO), pay per click (PPC), blogging, discussion forum, email shot, SMS, MMS, social media marketing and Smartphone app advertisement etc. Currently web market is booming at a very fast pace because most of the entrepreneurs have understood that the long term success in business is not possible without digital presence on the internet. Millions of new websites are being added on the internet every year. Besides, It is proved that digital marketing is a great tool which let you promote your products or services to the global market while sitting office or home (Al-Basheer and Shtanawi, 2015).

2.3 Information Technology in customer satisfaction

Higher level of customer satisfaction is the key to success which cannot be achieved without a real time customer support process. Business success depends on knowing its customers' needs, trends, behaviours and satisfaction level. Effective communication is the best tool to understand the customer demands, problems and their solutions. IT has enabled the business to communicate with millions of potential or existing customers (Tanzeem, 2011). IT provides many channels to communicate with the customer without going out in snow or rain. Some of these channels are email, webinar, social media, member portals, online

newsletters and text or multimedia messaging through the smart phone.

3. Information Technology (IT) in Education

IT has changed the way we learn and the process of teaching. Teachers and students are using new educational technologies to achieve academic goals. IT speeds the transfer and distribution of information. A student can access information at any time of the day. Information technology has facilitated online education by which a student in Switzerland can study the same course as a student in USA, Jordan or Saudi Arabia. Students can easily access academic data by using computers, laptops, or mobile phone application (Husain, Khan, and Qureshi, 2015). IT experts have coded educational applications which can be used by students to access information very fast. Presently, students use some applications to download books in the form of e-books at any time which saves their time and helps them read at anytime and anywhere. Nonetheless, IT enables students across the globe to study from anywhere through online education. This has been possible due to the wide spread of cheap broadband internet in the world (Omar, 2014).

IT has helped students to learn in the groups and it has also helped teachers to teach students in groups. Schools have created academic forums, where students can discuss about a specific topic with no fear of expression. They can also engage in video and text chatting. Students from various schools around the world can be in the same academic group and share academic information (Ahmad, Muhammad, and Qureshi, 2012). Nevertheless, the use of audio-visual education helps students learn faster and easily. The introduction of audio-visual technology in education makes students enjoy what they're learning. Visual illustration using images on projectors helps a student understand the concept, because some of these images are interesting and they look familiar to a student. Our brains tend to remember visual illustrations easily more than text. This explains why people easily remember someone's face but fail to remember his name (Al-Kasasbeh, 2018).

4. Information Technology (IT) in Health Care

Information Technology in healthcare sector is used to record, analyze, and share patient health data. The purpose of health IT is to provide better care for patients and to achieve health equity. It supports recording of patient data to improve healthcare delivery and improves the quality of healthcare delivery, increases patient safety, decreases medical errors, and strengthens the interaction between patients and healthcare providers (Al-Nathari, 2017). In middle-income countries like Jordan, the need for reliable and affordable medical record software is paramount. The use of IT in medical clinics improves the quality of healthcare that is delivered by providing accurate patient records and allows doctors to better understand the patient's medical history. Having a comprehensive patient history empowers doctors to more accurately treat ailments and prevent over-prescribing medications which can be fatal. Without medical records, physician's would need to depend on the patient's memory, which can lead to inaccurate medical history due to forgetfulness, complex drug names, and ailments affecting the patient's recollection. Patients that suffer from disease and ailments directly benefit from Health IT because of the improved level of care (Javed and Bourney, 2014).

5. Information Technology in Banking

Banking industry is the largest beneficiary from information technology since IT has changed the operating environment of banks drastically. Banking environment has become highly competitive today. To be able to survive and grow in the changing market environment, banks are going for the latest technologies, which is being perceived as an 'enabling resource' that can help in developing learner and more flexible structure that can respond quickly to the dynamics of a fast changing market scenario. It is also viewed as an instrument of cost reduction and effective communication with people and institutions associated with the banking business (Agbolade, 2011). IT has enabled banks to introduce innovative products to their customers in the form of ATM facility, mobile banking, online banking etc. There had been an increase in penetration, productivity and efficiency with the application of technology. It has not only increased the cost effectiveness but also helped in making small value transactions viable. New products, more sophisticated customers, high-end services, changing cost structures, and enhanced competitive pressures are the changes brought about by IT in the banking industry (Akram and Hamdan, 2010). Information Technology enables sophisticated product development, better market infrastructure, implementation of reliable techniques for control of risks and helps the financial intermediaries to reach geographically distant and diversified markets. Internet has significantly influenced delivery channels of the banks. Internet has emerged as an important medium for delivery of banking products and services (Rajwanshi, 2013). The branches are running on the concept of 24 X 7 working, made possible by the use of Tele banking, ATMs, internet banking, mobile banking and E-banking. This technology driven delivery channels are being used to reach out to maximum number of customers at lower cost and in most efficient manner (Ibrahim and Muhammad, 2013).

6. Information Technology in FMCG Industry

Fast moving consumer goods is the most wide spread industry in Jordan. It deals with the production, packaging, distribution, and marketing of consumer goods like stationery, glassware, paper products, household products, plastic goods, food and dairy products including packaged food products, consumer electronics, hardware and sanitary products, and many more. With consumers inclining towards the technology day by day, it has become necessary for the FMCGs to adopt information technology to reach their targeted audience (Gilliard and Powell, 2014). FMCG companies realize that IT can play a game changing role that can stimulate revenue growth by sparking innovation and thus have started investing in the same. FMCG companies uses ERP system that helps manage inventory system, keep track of stock records, manage multiple orders, accounting transactions, control multiple distribution channel, supply chain management, workflow management, logistics management, and MIS reporting (Vinitha, Kanthimathi, and Thararani Devi, 2013).

7. Information Technology in insurance industry

There is a significant impact of IT on insurance industry in the world as well as in Jordan. Nowadays, there are many software that help agents to search new customers. Some

insurance agents create website that contain helpful blogs, tips and advice for the people when they search on the web for the answers. This method serves more helpful for the agents when people arrive at an agents sites. The site can answer their queries and display contact information about the agent (Raghav and Jain, 2012). Furthermore, modern insurance professionals work with different companies that provide different policies. For agents, it was leading to confusion with the different policies and procedure, at the end they fail to impress the clients. Now with the advanced technology, there are many software tools to search the multiple companies and to find the best deal for the clients based on age, vehicle model and other information. Nonetheless, if a person has to purchase any new policy, he has to do a paper work. But the implementation of IT, computers help adviser to get information from clients, provide estimates and finally to store clients details in a database. It helps whenever any client claims for the insurance amount; the agent can easily access a client's file instantly from the database and update the new information in the database (Yasir, Qamruddin, Qayyum, and Yusuf, 2012).

8. Objectives of the Study

1. To explicate the concept of IT in brief.
2. To examine the impact of IT on economic growth and development in Jordan.

9. Hypotheses Development

H₀₁: There is no significant impact of IT on business in Jordan.

H_{a1}: There is a significant impact of IT on business in Jordan.

H₀₂: There is no significant impact of IT on banking sector in Jordan.

H_{a2}: There is a significant impact of IT on banking sector in Jordan.

H₀₃: There is no significant impact of IT on insurance sector in Jordan.

H_{a3}: There is a significant impact of IT on insurance sector in Jordan.

H₀₄: There is no significant impact of IT on education in Jordan.

H_{a4}: There is a significant impact of IT on education in Jordan.

H₀₅: There is no significant impact of IT on healthcare industry in Jordan.

H_{a5}: There is a significant impact of IT on healthcare industry in Jordan.

10. Research Methodology

The study is undertaken in four cities of Jordan namely Amman, Aqaba, Zarqa, and Irbid. Both primary and secondary data are used. However, major emphasis is laid on primary data which was collected by way of questionnaires in the study region. Secondary data was collected from websites, journals, magazines, and reports. Convenient sampling was followed and the respondents which were easily accessible were chosen for the study. The period of data collection was six months i.e. from July, 2017 to December, 2017. A well-structured questionnaire designed on a five point Likert Scale was prepared by the researcher and used for collecting data. A total of 300 questionnaires were distributed wherein 72 questionnaires

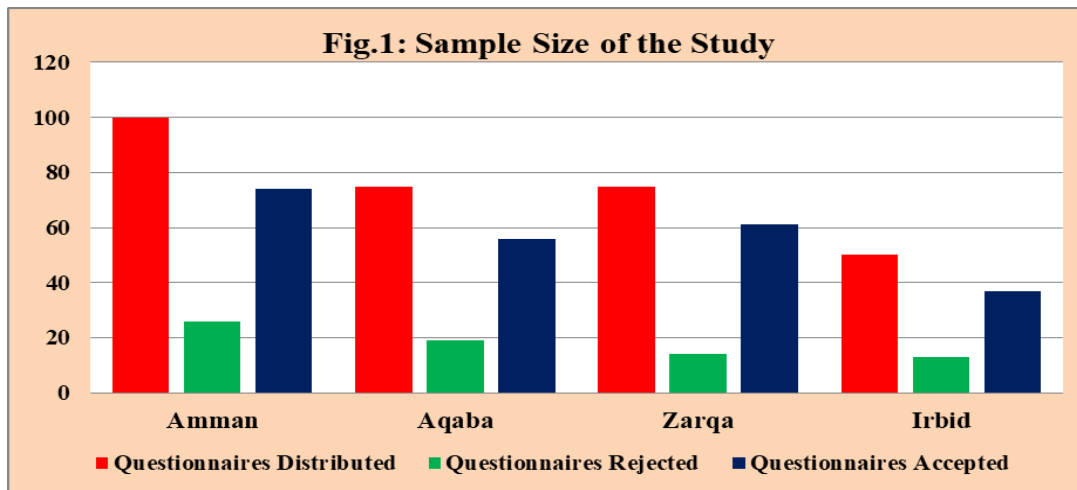
were rejected due to several mistakes and 228 respondents have been finally selected. Hence, the sample size of the

study as shown in the table 1 is 228. Linear regression has been used to test the hypotheses.

Table 1: Sample Size

Selected Cities	Questionnaires		
	Distributed	Rejected	Accepted
Amman	100	26	74
Aqaba	75	19	56
Zarqa	75	14	61
Irbid	50	13	37
Total	300	72	228

Source: Field Survey, 2017



Source: Table 1

11. Hypotheses Testing

H₀₁: There is no significant impact of IT on the business in Jordan.

H_{a1}: There is a significant impact of IT on the business in Jordan.

The impact of IT on the business has been measured by

applying linear regression. The independent variable is IT and the dependent variable is business. The null hypothesis states that there is no significant impact of IT on the business and the alternate hypothesis states that there is a significant impact of IT on the business.

Table 2: Regression Analysis-Business

Model	R	R Square	Adjusted R ²	Std. Error	Durbin Watson
1	0.904	0.817	0.816	1.0047	1.5698

Source: Output of SPSS_18

Table 2 shows the values of Pearson coefficient of correlation, R square, adjusted R square, standard error, and Durbin Watson. Adjusted R square shows the amount of variation in one variable (retail business) that is accounted by IT. The value of R square is 0.817 which shows that

81.7% variation in business is explained by IT and the rest of the variation (1-R²) is an unexplained variation due to other variables. Durbin Watson shows the auto correlation between the variables.

Table 2.1: Regression Coefficients- Business

Model-1	Beta	SE	t Value	P Value
(Constant)	1.937	1.0403	-4.741	0.257
IT	0.711	1.0738	65.505	0.000

Beta: Unstandardized Coefficient, SE: Standard Error

Dependent Variable: Retail Business Source: Output of SPSS_18

Table 2.1 shows the values of adjusted R Square, unstandardized beta coefficient, standard error, t value and P value. The value of unstandardized beta coefficient is 0.711 which means that if IT changes by one unit, then

business will change by 0.711 units. Besides, this impact is strong and statistically significant as the P value is 0.000 which is less than 0.05 at 95 percent confidence interval. Therefore, the null hypothesis is rejected and it can be said

that there is a significant impact of IT on the business in Jordan.

H₀₂: There is no significant impact of IT on banking sector in Jordan.

H_{a2}: There is a significant impact of IT on banking sector in Jordan.

The impact of IT on banking sector has been measured by applying linear regression. The independent variable is IT and the dependent variable is banking sector. The null hypothesis states that there is no significant impact of IT on banking sector and the alternate hypothesis states that there is a significant impact of IT on banking sector.

Table 3: Regression - Banking Sector

Model	R	R Square	Adjusted R ²	Std. Error	Durbin Watson
2	0.955	0.912	0.911	1.1214	1.3316

Source: Output of SPSS_18

Table 3 shows the values of Pearson coefficient of correlation, R square, adjusted R square, standard error, and Durbin Watson. Adjusted R square shows the amount of variation in one variable (banking sector) that is accounted by IT. The value of R square is 0.911 which shows that

91.1% variation in banking sector is explained by IT and the rest of the variation (1-R²) is an unexplained variation due to other variables. Durbin Watson shows the auto correlation between the variables.

Table 4: Regression Coefficients- Banking Sector

Model-2	Beta	SE	t Value	P Value
(Constant)	2.045	0.9554	25.505	0.309
IT	0.826	0.9877	-2.054	0.001

Beta: Unstandardized Coefficient, SE: Standard Error

Dependent Variable: Banking Sector Source: Output of SPSS_18

Table 4 shows the values of adjusted R Square, unstandardized beta coefficient, standard error, t value and P value. The value of unstandardized beta coefficient is 0.711 which means that if IT changes by one unit, then banking sector will change by 0.826 units. Besides, this impact is strong and statistically significant as the P value is 0.001 which is less than 0.05 at 95 percent confidence interval. Therefore, the null hypothesis is rejected and it can be said that there is a significant impact of IT on banking sector in Jordan.

H₀₃: There is no significant impact of IT on insurance sector in Jordan.

H_{a3}: There is a significant impact of IT on insurance sector in Jordan.

The impact of IT on insurance sector has been measured by applying linear regression. The independent variable is IT and the dependent variable is insurance sector. The null hypothesis states that there is no significant impact of IT on insurance sector and the alternate hypothesis states that there is a significant impact of IT on insurance sector.

Table 5: Regression - Insurance Sector

Model	R	R Square	Adjusted R ²	Std. Error	Durbin Watson
3	0.855	0.732	0.731	1.1959	1.7804

Source: Output of SPSS_18

Table 5 shows the values of Pearson coefficient of correlation, R square, adjusted R square, standard error, and Durbin Watson. Adjusted R square shows the amount of variation in one variable (insurance sector) that is accounted by IT. The value of R square is 0.731 which

shows that 73.1% variation in insurance sector is explained by IT and the rest of the variation (1-R²) is an unexplained variation due to other variables. Durbin Watson shows the auto correlation between the variables.

Table 6: Regression Coefficients- Insurance Sector

Model-3	Beta	SE	t Value	P Value
(Constant)	1.5982	1.0692	52.259	0.546
IT	0.667	1.1147	-9.907	0.000

Beta: Unstandardized Coefficient, SE: Standard Error

Dependent Variable: Insurance Sector Source: Output of SPSS_18

Table 6 shows the values of adjusted R Square, unstandardized beta coefficient, standard error, t value and P value. The value of unstandardized beta coefficient is 0.667 which means that if IT changes by one unit, then insurance sector will change by 0.667 units. Besides, this impact is strong and statistically significant as the P value is 0.000 which is less than 0.05 at 95 percent confidence

interval. Therefore, the null hypothesis is rejected and it can be said that there is a significant impact of IT on insurance sector in Jordan.

H₀₄: There is no significant impact of IT on education in Jordan.

H_{a4}: There is a significant impact of IT on education in Jordan.

The impact of IT on education has been measured by applying linear regression. The independent variable is IT and the dependent variable is education. The null

hypothesis states that there is no significant impact of IT on education and the alternate hypothesis states that there is a significant impact of IT on education.

Table 7: Regression – Education

Model	R	R Square	Adjusted R ²	Std. Error	Durbin Watson
4	0.820	0.672	0.671	1.1149	1.8608

Source: Output of SPSS_18

Table 7 shows the values of Pearson coefficient of correlation, R square, adjusted R square, standard error, and Durbin Watson. Adjusted R square shows the amount of variation in one variable (education) that is accounted by IT. The value of R square is 0.671 which shows that 67.1%

variation in education is explained by IT and the rest of the variation (1-R²) is an unexplained variation due to other variables. Durbin Watson shows the auto correlation between the variables.

Table 8: Regression Coefficients- Education

Model-4	Beta	SE	t Value	P Value
(Constant)	1.937	1.2396	78.551	0.647
IT	0.509	1.1532	11.559	0.008

Beta: Unstandardized Coefficient, SE: Standard Error

Dependent Variable: Education Source: Output of SPSS_18

Table 8 shows the values of adjusted R Square, unstandardized beta coefficient, standard error, t value and P value. The value of unstandardized beta coefficient is 0.647 which means that if IT changes by one unit, then education will change by 0.647 units. Besides, this impact is strong and statistically significant as the P value is 0.008 which is less than 0.05 at 95 percent confidence interval. Therefore, the null hypothesis is rejected and it can be said that there is a significant impact of IT on education in Jordan.

H₀₅: There is no significant impact of IT on healthcare industry in Jordan.

H_{a5}: There is a significant impact of IT on healthcare industry in Jordan.

The impact of IT on healthcare industry has been measured by applying linear regression. The independent variable is IT and the dependent variable is healthcare industry. The null hypothesis states that there is no significant impact of IT on healthcare industry and the alternate hypothesis states that there is a significant impact of IT on healthcare industry.

Table 9: Regression - Healthcare industry

Model	R	R Square	Adjusted R ²	Std. Error	Durbin Watson
6	0.445	0.198	0.196	1.2341	1.8799

Source: Output of SPSS_18

Table 9 shows the values of Pearson coefficient of correlation, R square, adjusted R square, standard error, and Durbin Watson. Adjusted R square shows the amount of variation in one variable (healthcare industry) that is accounted by IT. The value of R square is 0.755 which

shows that 75.5% variation in healthcare industry is explained by IT and the rest of the variation (1-R²) is an unexplained variation due to other variables. Durbin Watson shows the auto correlation between the variables.

Table 10: Regression Coefficients- Healthcare industry

Model-6	Beta	SE	t Value	P Value
(Constant)	1.5407	1.2492	39.889	0.546
IT	0.112	1.1556	-6.455	0.447

Beta: Unstandardized Coefficient, SE: Standard Error

Dependent Variable: Healthcare industry Source: Output of SPSS_18

Table 10 shows the values of adjusted R Square, unstandardized beta coefficient, standard error, t value and P value. The value of unstandardized beta coefficient is 0.112 which means that if IT changes by one unit, then healthcare industry will change by 0.112 units. Besides, this impact is strong and statistically significant as the P value is 0.447 which is more than 0.05 at 95 percent confidence interval. Therefore, the null hypothesis is accepted and it can be said that there is no significant impact of IT on healthcare industry in Jordan.

12. Concluding Remarks

Information technology is a technique used for data capturing, data storing, data processing, data transmission, information retrieval and information display and communicated the results either in the form of model through computers. It is the biggest technological achievement in the evolution of mankind. IT sector has become one of the most significant growth catalysts for Jordan economy. It is positively influencing the lives of its people through an active contribution to the various socio-

economic parameters such as employment, standard of living and diversity among others. The increase in IT jobs across every sector of industry is also increasing employment opportunities in the country. The goal of IT in an economy is to establish an environment that encourages networking of services and applications, promoting e-commerce and trade promotion programmes for goods and services, promoting internet access to exchange and access digital content, establishing e-government, promoting e-education and online services, strengthening network security, building and developing e-society and IT human resources. In this research, impact of IT on economic growth and development in Jordan has been examined with the help of a well-structured questionnaire designed on a five point Likert Scale. Linear regression has been used to test the hypotheses. The findings revealed that there is a significant impact of information technology in the economic growth & development in the country.

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