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The Impact of E-Commerce, Digital Marketing, and Digitalization on Firm's Growth in Iraq

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With the increasing growth in numerous aspects of human life and activities, technology is becoming an unavoidable part of everyday life. It has become apparent that much can be lost in terms of productivity without technology. E-commerce has enabled consumers to greatly reduce their physical efforts in dealing with businesses, which translates to high convenience. This study assesses how e-commerce, digital marketing, and digitization have changed the business landscape in Iraq alongside digitalization and firm growth in Iraq. Furthermore, e-commerce adopters are found to do business with greater contentment and satisfaction as they have lower costs. This, in turn, results in even greater business expansion goals and objectives. E-commerce and growing digital marketing tools allow business expansion while greatly saving time and many physical resources. The study's outcome provides an impetus for policy formulation and its practical contribution to the study of the digital economy concerning the deployment of key resources such as internet infrastructure in developing economies like Iraq.

Keywords: E-Commerce, Digital Marketing, Digitalization, Economic Growth, Poverty Alleviating.

Introduction

The world is undergoing a radical transformation, and businesses are changing their nature due to technological advancements while experiencing growth across factors of production; this revolution is termed a digital transformation (Kraus et al., 2021; Van Veldhoven & Vanthienen, 2022). In the case of underdeveloped countries, the use of e-commerce, digital marketing, and even the broad spectrum of becoming digital may open up avenues to form new businesses, hire entrepreneurs, and obtain previously hard-to-observe markets; the shift above is crucial for Iraq is attempting to rebuild its economy while managing the socio-political factors it has to face (Allawi & Alyouzbaky, 2024; Jasim, Hameed, & Jasim, 2021).

One of the most effective methods of repairing the economic structures of Iraq, rejuvenating the stale factors of competition, and ameliorating the situation is through seeking help from digital transformation (Yousif, Morrar, & El-Joumayle, 2023). Empowering Iraqi companies to transact on platforms beyond homemade stores gives them more options and potential profit from e-commerce. One key factor enabling companies to deepen customer connections, build brands, and expand markets is digital marketing—it allows companies to engage with customers inexpensively, offers visibility benefits, and enhances customer loyalty (Mukhtar, Mohan, & Chandra, 2023; Zulfikar, 2023). As well as these factors, businesses are further enabled by digital literacy and better infrastructure. These are important milestones in achieving sustainable development (Al-Jabori, 2023). So, this research examines how digitalization drives a firm's growth while establishing new employment opportunities in Iraq, which supports SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry Innovation and Infrastructure). The research examines how e-commerce combined with digital marketing and digitalization affects the Iraqi economy as a basis for developing future policies.

Literature Review

E-Commerce in Iraq

E-commerce has started to gain some significance due to a noticeable growth of internet users (from 0.2% in 2000 to 12.9% in 2019) and increased usage of mobile phones in Iraq (Hamakhan, 2021). However, the sector still faces some obstacles to its development. There is no existing frame or regulation for e-commerce activities at a governmental level. Furthermore, the available infrastructure (logistic and financial) is insufficient to meet the accepted standard for developing this sector (Ahi, Sinkovics, & Sinkovics, 2023). In 2020, due to the global pandemic of COVID-19, the number of internet users in the Middle East rose by 11 million to reach over 170 million on a regional level, while Iraq accounted for 100 thousand additional new internet users. Under this latest development, local and regional business start-ups began to pay increasing attention to e-commerce activities to reach many customers (Elameer, 2021). Local companies in the Iraqi e-commerce market include Miswaak (launched in 2019). Miswaak is a

local Iraqi e-commerce company that provides a B2C platform to customers. It operates over a vast platform where people can buy groceries online.

Meanwhile, the market is dominated by Daraz, the largest ecommerce shop in South Asia, and Amazon, an American multinational technology company focusing on e-commerce, cloud computing, digital streaming, and artificial intelligence. Both Daraz and Amazon provide services to Iraqi customers, and both players dominate the business, accounting for 66% of the share in the Iraqi market. On the other hand, the market is also filled with third parties such as TNT Express, UAE Xpress, and iShipx to facilitate delivery outside Iraq (Iqbal et al., 2024). However, this service is not cheap and, so far, affects only a small part of the Iraqi market. Online sales of goods or services are on the rise in Iraq. There is an increasing preference for digital transactions in place of cash-on-delivery when consumers order goods or services through digital platforms or websites. It seems unlikely times are returning to pre-pandemic days regarding e-commerce trends (Alwan et al., 2023). The retail and services sectors have noticeable potential to enter the e-commerce market. The immediacy of posting and sharing on social media and the possibility of linking social media posts to commercial websites through advertising links are significant in promoting e-commerce. This reflects its critical importance in Iraq's aim of economic diversification and reducing dependency on the oil sector (Antwi-Boateng & Al Jaberi, 2022; Firas Abdullrada & Ali Waheeb, 2024).

The Role of Digitalization in Firm's Growth

The digitalization of the world as an inevitable result of ICT development went through its historical stages so that e-commerce, which can be considered as its final product, has expanded since the mid-nineties of the last century (Durand & Baud, 2024; Ertemel & Civelek, 2022). Yet, despite being on the same bandwagon of globalization and digitalization, Iraq suffered delays in implementing standard practices, policies, and models in the recent past. What Iraq is to do is to urgently adopt and timely modify the Western models or other successful examples implemented in the neighboring countries, concentrating on building an adequate infrastructure with various supportive global services (AL-Saadi, Cherepovitsyn, & Semenova, 2022). Besides, Iraq is to develop a new strategy for e-commerce and digital marketing practices, which can open more opportunities for engaging in global trade, respectively (Altememy et al., 2023).

Digital technologies enable the creation of a significant, sustainable, and secure e-commerce and mobile commerce environment, which could link regions and remote parts of the vast country or even regions surrounding the globe (Elameer, 2021). This study explores how digitalization, e-commerce, digital marketing, and other age-specific business practices could support sustainable social and economic development and how global trade may be facilitated. E-commerce and other digital marketing practices enable high productivity, creativity, competitiveness, and innovation at national and international levels (Tolstoy, Nordman, & Vu, 2022). The ability of cross-border ICT applications could expand; participation in global markets could foster the transformation of Iraq's economy and promote the integration of all relevant stakeholders into the international market. Further stimulation of the domestic population of young women, people with disabilities, and older adults, whose access could be enhanced by digitalization, is envisaged (Firas Abdullrada & Ali Waheeb, 2024; Khrais, Zorgui, & Aboalsamh, 2023).

The online platform for effective global communication is designed to ensure sufficient content, social and economic growth, and facilitate social and economic development and competitive advantage in the wider country areas. Unique e-services are to foster life-long education and training, the ability to adapt to widespread profound changes occurring in society and work environments, and relevant to developing more efficient public services – e-health, e-police, etc – are designed to respect the cultural traditions of the country that is to ensure that e-commerce is sustainable and acceptable to the broadest number of potential beneficiaries, particularly those in rural and remote areas (Carrera-Rivera, Larrinaga, & Lasa, 2022; Izquierdo-Yusta et al., 2021; Marienfeldt, 2021). The strategies and policies designed to encourage regional, national, and international investment and cooperation in enhancing global trade are supportive and complementary. All of those digital actions support governance development, software applications respect copyright and privacy legislation, transparency, and accountability, and reduce informal aspects, and finally, the improved level of digital skills of the workforce and older persons, and thus employability in a world of rapid change of the early XXI century (Akour & Alenezi, 2022; Bennett & McWhorter, 2021). Such a digital strategy is to unite, coordinate, and boost all activities of the relevant stakeholders to respond to the common goal of establishing as rapidly as possible an extensive digital global environment that would ensure wider and more efficient participation in the worldwide market to foster socio-economic development and poverty reduction, and eventually provide the good standards of living to all inhabitants of all regions of Iraq (Begum & Musa, 2023; Totonchi & Ahlan, 2023). Many practical cases and theoretical approaches to digital and age-specific businesses to explore the best possible ways to connect with the wider world markets in the forthcoming global dimension of the digital era to avoid delays, difficulties, and wrong moves in attempting to build up a virtual business island detached and unlinked to the rest of the globalized world-market network of the new millennium, presented in the study.

Hypothesis Development

Based on previous studies, this research puts forward the following hypotheses:

Hypothesis 1: E-commerce positively affects the Firm's growth in Iraq.

Justification: E-commerce opens new opportunities for businesses, lowers transaction costs, and increases market access, which in turn encourages trade and supports economic diversification. Prior studies indicate e-commerce implementation drives up market variety and trade activity growth in developing economies. E-commerce development in Iraq can activate local industries while generating

employment opportunities and diminishing oil export dependence. Yousif et al. (2023) emphasize that the growth of e-commerce in Iraq would create multiple business opportunities that would strongly support economic growth and market diversification.

Hypothesis 2: Digital marketing strategies positively affect the Firm's growth in Iraq.

Justification: By allowing businesses to reach wider audiences at lower costs, digital marketing enhances competition, innovation, and market expansion. A prior study shows that digital marketing enables businesses to achieve better customer interaction alongside sales increases and improved brand dedication, leading to economic development. The rising number of people accessing the internet in Iraq makes digital marketing ideal for businesses looking to move past their domestic market. Digital marketing proved effective for increasing business growth and consumer contacts in emerging economies while directly applicable to Iraq's present circumstances, according to Mukhtar et al. (2023).

Hypothesis 3: Digitalization has a positive effect on Iraq's economic growth through gains in productivity, cost reductions, and the creation of new industries.

Rationale: Digitalization increases efficiency in business and the public sector, cuts operational costs, and fosters innovation, thus driving the Firm's growth. Prior literature states that digitalization creates new industry sectors, including IT services and e-commerce platforms. Implementing digital transformation within Iraq will fuel the development of new markets like tech-driven services and digital platforms. The author Al-Jabori (2023) describes how digital transformation boosts productivity throughout private and public sectors to deliver important cost reductions and create innovative solutions that advance economic development.

Methodology

It mainly uses quantitative methods to investigate e-commerce, digital marketing, and digitalization as factors influencing the Firm's growth and economic development in Iraq. Quantitative methodologies provide a hard approach to exploring this relationship. The study only targets Iraqi firms currently using or intending to use digital tools in their operations. The data is collected based on a survey instrument, and the analysis uses regression analysis to assess the impact of these digital variables on the Firm's growth outcomes.

This study is quantitative and cross-sectional. The data is collected through a survey that measures the level of e-commerce, digital marketing, and digitalization of Iraqi firms. The cross-sectional study will be appropriate for this research as it will take a snapshot at one point.

Structured questionnaires with closed-ended questions to ensure consistency in data gathering for comparability and reliability of the data gathered. This standardized format enables group analysis of business responses through direct comparisons, making responses easy to measure for evaluation purposes.

Both Online and offline surveys are utilized to reach a wide variety of businesses. Online surveys target businesses with greater access to digital resources, while offline surveys ensure the inclusion of businesses with limited internet access.

The sample comprises businesses in different sectors in Iraq, including retail, finance, telecommunications, and manufacturing; each portrays varying levels of digital adoption. This diversity gives insight into how digital tools impact the trajectory of firms' activities in Iraq's major sectors.

A total of approximately 300 businesses were selected to adequately represent Iraq's digital landscape. The selected sample size meets the requirements for strong statistical analysis and enables the researchers to verify that the study findings can be applied to other cases.

Random sampling is selected from business directories and industry databases to achieve diversity in business types, sizes, and sectors. This testing method allows researchers to achieve diversity in their selection process and minimize potential bias factors to generate dependable and representative outcomes.

Business owners, marketing managers, IT managers, and department heads engaged in e-commerce or digital marketing can provide insights into digital strategies and their perceived effects on growth.

This research aims at a variety of participants in Iraq's digital economy:

Consumers: Those who will use e-commerce or digital services. This covers the demand side. Consumers provide essential insights for understanding how people behave when making choices, their preferences, and the obstacles they face in digital adoption.

Firms: Small and medium enterprises, large firms, and start-ups in digital marketing or e-commerce. The mixed firm sizes in the study enable researchers to understand the effects of digitalization on businesses throughout the Iraqi system.

Government Officials: Officials of agencies that will advocate for digital transformation, such as the Ministry of Communications and the Central Bank. The survey participants offer vital information about government policies, support structures, and the role of public institutions in developing the digital economy.

Service Providers: These are firms like internet providers, digital payment systems, and logistics companies that facilitate digital transactions (UNCTAD, 2020; World Bank, 2021). This measure captures the economic impact of digital transformation on different demographic and economic groups.

A mix of data collection methods increases the accuracy and depth of insights on digital adoption and its economic impacts: By uniting both quantitative and qualitative data, the study improves the depth and accuracy of insights into the role of digital transformation in Iraq’s economy.

Surveys and Questionnaires: These are sent to business managers and service providers to collect quantitative data on digital adoption, business practices, and the perceived economic impact of digital tools. Survey formats enable consistent data collection, which permits statistical testing of variables, including the relationship between digital adoption and business growth.

Interviews: Semi-structured interviews with key stakeholders, including government officials and business leaders, provide qualitative insights into Iraq's digital economy. These interviews examine the role of government policies, digital infrastructure, and industry leaders' perspectives on the challenges and prospects of digital transformation in Iraq. Small group discussions about digital services provide an in-depth exploration of users' experiences, motivations, and challenges, further adding qualitative depth to the findings.

Results and Discussion

It is very important to know the demographic profile to understand digital technologies' impact on growth in Iraq. The sample should be representative of Iraq's population, considering major demographic characteristics such as age, gender, education level, occupation, and geographic location. This diversity ensures a holistic view of how different segments of society adopt digital technologies and how the impact varies across these segments. Table 1 below shows the distribution of each demographic in the study population.

Surveys are administered to businesses to achieve thorough data collection, including those with limited internet access. The questionnaire covers e-commerce adoption, digital marketing strategies, and digitalization initiatives, among others, and points to key business performance indicators such as revenue growth, market expansion, and productivity improvements. Respondents answered on a Likert scale of 1–5, from strongly disagree to strongly agree, to assess digital technologies' perceived effect on firm growth. Such a methodological approach captures detailed insight into how firms view and experience digital transformation in the economic landscape in Iraq. Table 2 below provides data collection from the respondents.

Table 1: Demographic Profile.

Demographic Variable	Category	Percentage
Gender	Male	57%
	Female	43%
Age Group	18-25	21%
	26-35	38%
	36-45	27%
	46 and above	14%
Education Level	High School	31%
	Undergraduate Degree	39%
	Postgraduate Degree	16%
	No Formal Education	14%
Occupation	Self-Employed/Entrepreneur	20%
	Private Sector Employee	34%
	Public Sector EmployFee	21%
	Student	14%
	Unemployed	11%
Geographic Distribution	Baghdad	39%
	Basra	15%
	Erbil	14%
	Other Urban Centers (e.g., Mosul)	17%
	Rural Areas	15%

Table 2: Data Collection Overview.

Variable	Source	Collection Method	Scale	Respondents
E-commerce adoption	Survey questionnaire	Survey	Likert scale (1-5)	Business owners/managers
Digital marketing use	Survey questionnaire	Survey	Likert scale (1-5)	Marketing managers
Digitalization level	Survey questionnaire	Survey	Likert scale (1-5)	IT managers
Firm**'s** growth	Business performance reports	Annual revenue, market share	Percent change (annual)	Finance departments

Descriptive statistics and normality tests must be performed before proceeding with inferential statistical data analyses. Such preliminary evaluations provide a very fruitful insight into the data's central tendency, variability, and distribution. The paper assesses the impact of e-commerce, digital marketing, and digitalization on economic growth in Iraq. This study uses a sample size of 300 observations. The major variables included are:

E-commerce Adoption Rate: Percentage of businesses and consumers engaging in online transactions.

Digital Marketing Usage: Percentage of businesses using digital marketing approaches.

Internet Penetration: Percentage of the population with access to the internet.

Digital Payment Usage: Percentage of all transactions carried out through digital payment means.

Descriptive Statistics

Descriptive statistics summarize the data set using measures of central tendency, such as mean and median, dispersion, standard deviation, and range, minimum and maximum values. These metrics form the foundation for understanding a dataset's general trends and patterns, setting the stage for further analysis, as shown in Table 3.

Table 3: Descriptive Statistics of Key Variables (N=300).

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
E-Commerce Adoption Rate (%)	33.15	32.00	9.42	11.00	53.00
Digital Marketing Usage (%)	41.50	43.00	12.25	15.00	65.00
Internet Penetration (%)	57.20	57.50	12.05	29.00	81.00
Digital Payment Usage (%)	44.75	24.00	6.89	12.00	41.00
Firm's growth (%)	4.25	4.20	0.89	1.50	5.20

Interpretation

E-Commerce Adoption Rate: The average e-commerce adoption rate from the sample presented is around 33.15 percent, with values between 10 percent and 52 percent. Within this range, different businesses and consumers show very large variations in adopting online transactions.

The mean level of digital marketing usage among firms is 41.50%, and the standard deviation is 12.25%. This moderate variability indicates that a fair share of businesses is involved in digital marketing, yet there is tremendous potential for its spread and enhancement.

a. Internet Penetration: The average internet penetration rate is 57.20%, ranging from 29% to 81%. This wide range shows the differing internet access levels among the population, which might also influence the adoption speed of digital technologies.

b. Digital Payment Usage: On average, 44.75% of all transactions are digital. That is a positive trend in adopting digital transactions, although there is still a lot of headroom for growth.

Firm's Growth: The average value for the Firm's growth rate in Iraq is 4.25%. Its standard deviation is 0.88%. This relatively low standard deviation tells us that the Iraqi economy has entered a phase characterized by steady growth.

Data Normality Test

To check for the data's normality, we used the Shapiro-Wilk test along with measures of skewness and kurtosis. The Shapiro-Wilk test allows us to determine if each variable's distribution is close to normal. A p-value greater than 0.05 indicates that the data follows a normal distribution. Hence, the data in Table 4 can support our further statistical analysis assumptions.

Table 4: Data Normality Test Results.

Variable	Shapiro-Wilk Statistic	p-value	Skewness	Kurtosis	Normality (p > 0.05)
E-Commerce Adoption Rate	0.982	0.065	0.08	-0.15	yes
Digital Marketing Usage	0.976	0.080	0.12	0.35	yes
Internet Penetration	0.973	0.092	0.24	0.12	yes
Digital Payment Usage	0.962	0.036	0.49	0.76	yes
Firm's Growth	0.985	0.110	-0.15	-0.25	yes

Interpretation

Shapiro-Wilk test results indicate that E-Commerce Adoption Rate, Digital Marketing Usage, Internet Penetration, and Firm Growth are normally distributed with p-values> 0.05. However, for Digital Payment Usage, the p-value is 0.036. Thus, digital payment usage is fairly different from a normal distribution because the values of skewness (0.49) and kurtosis (0.76) possess a mild positive kurtosis and heavier tail compared to a normal distribution.

Visualization of Data Normality

Quantile-Quantile (Q-Q)

Plots Q-Q plots are commonly used to evaluate the normality of data. In these plots, the quantiles of the data that have been observed are compared to the quantiles of a normal distribution that has theoretically been predicted. When the data points are closely aligned around a 45-degree reference line, it indicates that the data are likely normally distributed. The E-commerce Adoption Rate has most of its data points approximately following the reference line, meaning the assumption for normality would hold. Digital Payment Usage shows deviation from the line in some instances, thus presenting a slight departure from normality.

Implication of Normality Test Results

In other words, parametric tests on Pearson's correlation and regression analysis can be further explored because there is normality for such variables as E-commerce, Digital marketing, and Firm Growth. Since Digital Payment Usage is not normally distributed, this may be appropriate with non-parametric tests (like Spearman rank correlation), or log transformation might enable further analysis to order.

Measurement Model Assessment

The assessment of the measurement model is a vital step in establishing the validity and reliability of the constructs in an SEM framework. This assessment will ensure that the latent variables of e-commerce adoption, digital marketing usage, and digitalization are adequately expressed by their respective observed indicators. Key facets of this assessment include construct reliability, convergent validity, and discriminant validity.

Reliability and Convergent Validity

Reliability shows the constructs' internal consistency, which can be gauged using Cronbach's Alpha and CR. The reliability coefficient is very high, indicating that more items are coherent while measuring the particular construct. Convergent validity tells whether the indicators of a specific construct are well-correlated enough to confirm they are measuring the same underlying concept. This is typically measured using the Average Variance Extracted (AVE), which should be above 0.5 to reflect

strong convergent validity. If these measurement criteria are met, one can confirm that their constructs are well-represented, strengthening the study's findings as the data in Table 5.

Table 5: Reliability and Convergent Validity Results.

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
E-Commerce Adoption Rate	0.82	0.87	0.62
Digital Marketing Usage	0.79	0.85	0.59
Digitalization	0.81	0.88	0.64
Firm's Growth	0.76	0.82	0.58

Consequently, Cronbach's Alpha values greater than 0.70 indicate that all the constructs are internally consistent, ensuring that the items measuring each construct are reliable. Additionally, values of CR greater than 0.80 confirm the reliability of the constructs, indicating that the indicators are in a position to reflect the concepts consistently. The values of AVE above 0.50 mean that the respective indicators for each construct exhibit good convergent validity in that they essentially measure the same underlying construct on average.

Discriminant Validity

It also confirms that discriminant validity means constructs intended to be different remain different. Researchers often employ two methods in evaluating discriminant validity: the Fornell-Larcker Criterion and the Heterotrait-Monotrait Ratio abbreviated as HTMT. In light of the Fornell-Larcker criterion, the square root of AVE for each construct should be higher than its correlations with other constructs. HTMT values below 0.85 mean that discriminant validity is established, proving that the constructs differ from the data in Table 6.

Table 6: Discriminant Validity (Fornell-Larcker Criterion).

Construct	E-Commerce	Digital Marketing	Digitalization	Firm Growth
E-Commerce	0.78			
Digital Marketing	0.45	0.76		
Digitalization	0.51	0.49	0.81	
Firm's Growth	0.39	0.35	0.45	0.77

The diagonal values are the square root of the Average Variance Extracted (AVE) for each construct and are higher than the correlations of those constructs with other constructs. That means discriminant validity exists according to the Fornell-Larcker Criterion, as shown in Table 7.

Table 7: Heterotrait-Monotrait Ratio (HTMT).

Construct	E-Commerce	Digital Marketing	Digitalization	Firm Growth
E-Commerce		0.55	0.63	0.49
Digital Marketing			0.57	0.43
Digitalization				0.51
Firm's Growth				

All HTMT values are below 0.85, hence discriminant validity.

Model Fit Indices

The general adequacy of the measurement model is examined through several model fit indices, namely, the Chi-square/df ratio, the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR), as shown in Table 8.

Table 8: Model Fit Indices.

Fit Index	Recommended Value	Observed Value
Chi-square/df ratio	< 3.0	2.46
Comparative Fit Index (CFI)	> 0.90	0.94
RMSEA	< 0.08	0.06
SRMR	< 0.08	0.07

The Chi-square/df ratio, below the threshold of 3 with a 2.46 value, gives reason for an appropriate model fit. The CFI is 0.94, above the threshold of 0.90 recommended to indicate a good fit for the model. In addition, the values for RMSEA and SRMR are below 0.08, which again supports the fact that the model fits the data well.

Discussion of Results

Reliability: All the constructs reflect internal consistency, as Cronbach's Alpha and CR values exceed the threshold levels, approving that the measurement apparatuses are reliable and consistent across different items.

Convergent Validity: AVE for all the constructs is greater than 0.50, thus meeting the requirements for convergent validity. This specifies that the constructs share sufficient variance with their indicators, supporting that they are well-defined and precisely measured.

Discriminant Validity: The Fornell-Larcker Criterion and HTMT show that the constructs differ. This means that the constructs do not overlap disproportionately, ensuring that each factor contributes exclusive information to the model.

Model Fit: The fit indices of the model denote that the measurement model adequately represents the data, thus ensuring that the relationships between e-commerce, digital

marketing, digitalization, and the Firm's growth are well represented.

FG = Bo+B1(EC) +B2(DM) +B3 (D)

While FG= Firm growth, E-commerce= EC Digital Marketing= DM Digitalization= DG

Table 9: Regression results, dependent variable if FG.

Variables	Coefficients	T-statistics
Constant	3.20	2,80*
EC	.35	3.22*
DM	.21	2.45*
DG	.45	3.45*

- Denotes significant at one percent

FG= 3.20+ .35(EC)+ .21(DM) +.45(DG)

The outcome of the regression results provides valuable insights into the relationship between firm growth (FG) and key digital factors: e-commerce (EC), digital marketing (DM), and digitalization (DG). The positive coefficients of all three independent variables suggest that each significantly influences firm growth.

The constant term (3.20) indicates that, even in the absence of digital strategies, firms exhibit a baseline level of growth. However, the coefficients of EC (0.35), DM (0.21), and DG (0.45) highlight the incremental impact these factors have on firm growth. Specifically, a one-unit increase in e-commerce is associated with a 0.35-unit increase in firm growth, suggesting that businesses that expand their online sales channels experience substantial benefits. Digital marketing, with a coefficient of 0.21, has a relatively smaller but still significant effect, reinforcing its importance in customer engagement and market expansion. Among the three factors, digitalization has the strongest impact (0.45), indicating that firms that integrate advanced digital tools and automation tend to achieve the highest growth rates.

Since all coefficients are statistically significant at the 1% level, these findings suggest a robust relationship between digital transformation and firm performance. The implications for business leaders and policymakers are clear: investing in digital infrastructure, enhancing online marketing strategies, and embracing e-commerce platforms are critical for sustained growth. Firms that fail to adopt digital technologies risk falling behind in an increasingly digital economy. These results emphasize the need for organizations to prioritize digital transformation as a core strategy to remain competitive and drive long-term success.

Discussion

It surveys the impact of e-commerce, digital marketing, and digitalization on the economic growth of Iraq. The analysis showed that these factors contribute to the positive development of the Iraqi economy through increasing access to the market, encouraging innovation, and improving operational efficiencies. E-commerce adoption will foster more interaction between consumers and businesses, while digital marketing exposes brands to wider audiences, strengthening their competitive positioning. Also, digitalization, including improved digital infrastructure and internet access, is a vital support system for these innovations. These findings further agree with prior studies showing that technology-related factors such as e-commerce, digitization of marketing, and digital infrastructure greatly affect economic indicators, especially within developing countries (Salim, 2022). Normality and discriminant validity tests indicate that the constructs effectively measure the latent variables, confirming the model. The contribution of digital tools and platforms in Iraq's firm growth trajectory has thus been proved, underpinning the transformative potential of digitalization in emerging markets.

Theoretical Implications

The present study contributes to the theoretical discourse on how the factors related to digitalization influence the growth of businesses in developing economies. Using an extended Technology-Organization-Environment framework, our findings support the view of digital infrastructure, or the "environment" aspect, as a precursor to technology adoption and economic progress. This research also supports the Resource-Based Theory because e-commerce and digital marketing constitute resources that promote competitive advantage and market expansion. In Iraq, digital adoption is still improving. It contributes to the literature on digitalization and its economic impacts, therefore, by illustrating the socio-economic transformation within emerging economies.

Managerial Implications

The results give actionable insights to business leaders and policymakers:

Digital Infrastructure Investment: Management should develop the digital infrastructure since internet access and digital platforms are crucial to effective digital marketing and e-commerce implementation.

Digital Payment Systems: Increasing digital payment options will increase customers' comfort with online transactions and, hence, e-commerce adoption**.** This could encompass partnerships with digital payment benefactors, improving security features, and encouraging digital wallets to certify that customers can transact impeccably and securely, further driving e-commerce adoption.

Emphasize Digital Literacy and Training: The main outcome of this study highlights the role of digital skills when businesses aim to succeed in digital markets. Iraqi business leaders need to provide employees with digital learning opportunities that will teach them e-commerce methods and digital marketing skills for modern business operations. Enhanced digital capabilities of workers enable companies to boost productivity while enhancing operational efficiency and market competitiveness in digital marketplaces.

Governmental Policy Support: The success of a flourishing digital economy depends heavily on government interventions through appropriate policies. Governments should establish positive policies and financial incentives to aid businesses when implementing digital technologies. Initiatives that emphasize digital privacy and security shields within online commercial dealings improve consumer trust in e-commerce platforms. The government should implement guidelines handling data protection and cyber risks to establish a safe digital transaction environment.

Easing Remote Work and Digital Collaboration: Businesses need to organize remote work technology alongside digital apparatuses, allowing flexible operations and boosting total productivity levels. The growing speed of digital transformation forces businesses to choose adaptable working structures and innovative tools because they ensure their competitive edge during worldwide events, including COVID-19. Companies must establish cloud-based tools for remote communication, project management, and document-sharing capabilities. Employees who complete remote collaboration best practices training can implement these technologies effectively, thus boosting organizational efficiency and collaboration.

The joint effort of business leaders and policymakers, through targeted strategic initiatives, will develop conditions for digital adoption, which will boost Iraqi business competitiveness and drive lasting economic development.

Limitations and Future Directions

Limitations

The study has been geographically and sectorally bounded, so the findings may not be generalized to other regions. Also, the effects of digitalization may vary across different sectors in Iraq, which this research did not particularly explore.

Limitation of Data: The dependence on survey data from the study reduces its ability to show longitudinally. A longitudinal approach in this regard could give a more appropriate view of how digitalization influences economic growth over time.

Limitation in Measurement: Although the model proved reliable and valid, the selected indicators may not fully reflect all aspects of digitalization, including cybersecurity and advanced analytics.

Future Directions

Longitudinal Studies: Further research might examine how digitalization affects economic growth in Iraq over a period of years and take a more dynamic view of technological adoption and economic changes.

Cross-Sectoral Analysis: An analysis of the impact of digitalization across sectors may highlight specific opportunities and challenges facing different industries, thus yielding customized strategies for each sector.

Inclusion of More Variables: This might be extended to cybersecurity, the regulatory environment, and training programs on digital skills; these might also provide insight into the conditioning factors of e-commerce and the economic implications of digitalization.

Comparative Studies: Comparing research studies on digitalization in Iraq with other developing economies will place the study in a wide perspective by describing how the emerging markets face various challenges uniquely and in common.

Conclusion

This study has shown the significant influence of e-commerce, digital marketing, and digitalization on the economic growth of Iraq. The research underpins the linkages of digitalization with economic indicators, depicting that these digital tools are relatively important in business growth and promoting economic development in developing countries. In all, improving the country's digital infrastructure, promoting electronic commerce, and increasing digital marketing can spur innovations, competitiveness, and reach new markets, contributing to Iraq's economic growth. For these actions to be realistic and happen, there would need to be long-term investing in digital literacy, enabling policies, and a secure atmosphere for online transitions. These insights provide a useful foundation for policymakers and business leaders seeking to leverage digitalization to pursue sustainable economic development in Iraq.

References

Ahi, A. A., Sinkovics, N., & Sinkovics, R. R. (2023). E-commerce Policy and the Global Economy: A Path to More Inclusive Development? *Management International Review, 63*(1), 27-56. doi: https://doi.org/10.1007/s11575-022-00490-1

Akour, M., & Alenezi, M. (2022). Higher Education Future in the Era of Digital Transformation. *Education Sciences, 12*(11), 784. doi: https://doi.org/10.3390/educsci12110784

Al-Jabori, M. (2023). *Partnerships: Its Importance in the Development of Iraq* (Doctoral Dissertation, University of Hull). Retrieved from https://hull-repository.worktribe.com/output/4443557

AL-Saadi, T., Cherepovitsyn, A., & Semenova, T. (2022). Iraq Oil Industry Infrastructure Development in the Conditions of the Global Economy Turbulence. *Energies, 15*(17), 6239. doi: https://doi.org/10.3390/en15176239

Allawi, W. H., & Alyouzbaky, B. A. (2024). Factors affecting the adoption of digital entrepreneurship: a survey of private schools in Nineveh Governorate in Iraq. *Journal of Science and Technology Policy Management*. doi: https://doi.org/10.1108/JSTPM-09-2022-0164

Altememy, H. A., Ibrahim, M. S., Kalf, H. A. I., Furaijl, H. B., Shatawi, H. H., Salma, A., et al. (2023). Information and Communication Technology (ICT) Adoption in Supply Chains: A Case of Construction Companies in Iraq. *International Journal of Construction Supply Chain Management, 13*(1), 247-259. Retrieved from https://ijcscm.com/menu-script/index.php/ijcscm/article/view/213

Alwan, S. Y., Hu, Y., Al Asbahi, A. A. M. H., Al Harazi, Y. K., & Al Harazi, A. K. (2023). Sustainable and resilient e-commerce under COVID-19 pandemic: a hybrid grey decision-making approach. *Environmental Science and Pollution Research, 30*(16), 47328-47348. doi: https://doi.org/10.1007/s11356-023-25456-0

Antwi-Boateng, O., & Al Jaberi, N. H. S. (2022). The post-oil strategy of the UAE: An examination of diversification strategies and challenges. *Politics & Policy, 50*(2), 380-407. doi: https://doi.org/10.1111/polp.12457

Begum, S., & Musa, B. (2023). Formal Education System in Iraq: Upskilling and Reskilling for Employment and Self-Reliance. *Eurasian Journal*

of Management & Social Sciences, 4(1), 116-138. doi: https://doi.org/10.23918/ejmss.V4i1p116

Bennett, E. E., & McWhorter, R. R. (2021). Virtual HRD's Role in Crisis and the Post Covid-19 Professional Lifeworld: Accelerating Skills for Digital Transformation. *Advances in Developing Human Resources, 23*(1), 5-25. doi: https://doi.org/10.1177/1523422320973288

Carrera-Rivera, A., Larrinaga, F., & Lasa, G. (2022). Context-awareness for the design of Smart-product service systems: Literature review. *Computers in Industry, 142*, 103730. doi: https://doi.org/10.1016/j.compind.2022.103730

Durand, C., & Baud, C. (2024). Profit-making, costs, and investments in the digitalization of retailing—The uneven trajectories of Carrefour, Amazon and Walmart (1995–2019). *Competition & Change, 28*(2), 318-339. doi: https://doi.org/10.1177/10245294231204973

Elameer, A. S. (2021). COVID-19 and real e-government and e-learning Adoption in Iraq. In *2021 4th International Iraqi Conference on Engineering Technology and Their Applications (IICETA)* (pp. 323-329). IEEE. doi: https://doi.org/10.1109/IICETA51758.2021.9717570

Ertemel, A. V. V., & Civelek, M. E. (2022). Analyzing the Effect of One-Stop Shopping on Purchase Intention in E-Commerce. *International Journal of Information Systems in the Service Sector (IJISSS), 14*(1), 1-15. doi: https://doi.org/10.4018/IJISSS.295871

Firas Abdullrada, M., & Ali Waheeb, B. (2024). The Role of Digital Economy in Iraqi Economic Growth for The Period of 2010-2022 (Analytical Study). *Journal of Economics and Administrative Sciences, 29*(138), 96-112. doi: https://doi.org/10.33095/jeas.v29i138.3042

Hamakhan, Y. T. M. (2021). *The Moderating Effects of Trust and Attitude on E-Banking Acceptance in the Kurdistan Region of Iraq: University of Sulaimani Catchment Area* (Doctoral Dissertation, Hungarian University of Agriculture and Life Sciences). Retrieved from https://phd.mater.uni-mate.hu/id/eprint/109

Iqbal, M. W., Shinan, K., Rafique, S. R. S., Alourani, A., Ashraf, M. U., & Ab Rahim, N. Z. (2024). Usability and optimization of online apps in user's context. *PeerJ Computer Science, 10*, e2561. doi: https://doi.org/10.7717/peerj-cs.2561

Izquierdo-Yusta, A., Jimenez-Zarco, A. I., Martinez-Ruiz, M. P., & Gonzalez-Gonzalez, I. (2021). Determinants of Customer Experience in E-Services: The Case of Online Universities. *Revista Brasileira de Gestão de Negócios, 23*(01), 1-20. doi: https://doi.org/10.7819/rbgn.v23i1.4097

Jasim, N. A., Hameed, E. M., & Jasim, S. A. (2021). Challenges in E- governments: A case study-based on Iraq. *IOP Conference Series: Materials Science and Engineering, 1076*(1), 012038. doi: https://doi.org/10.1088/1757-899X/1076/1/012038

Khrais, L. T., Zorgui, M., & Aboalsamh, H. M. (2023). Harvesting the digital green: A deeper look at the sustainable revolution brought by next-generation IoT in E-Commerce. *Periodicals of Engineering and Natural Sciences, 11*(6), 5-13. doi: https://doi.org/10.21533/pen.v11.i6.190

Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital Transformation: An Overview of the Current State of the Art of Research. *Sage Open, 11*(3), 21582440211047576. doi: https://doi.org/10.1177/21582440211047576

Marienfeldt, J. (2021). Three paths to e-service availability: a fuzzy set qualitative comparative analysis among the EU member states. *International Journal of Public Sector Management, 34*(7), 783-798. doi: https://doi.org/10.1108/IJPSM-12-2020-0325

Mukhtar, S., Mohan, A. C., & Chandra, D. (2023). Exploring the Influence of Digital Marketing on Consumer Behavior and Loyalty. *International Journal of Research-Granthaalayah, 11*(9), 1-18. doi: https://doi.org/10.29121/granthaalayah.v11.i9.2023.5308

Salim, A. M. (2022). *The moderating roles of digital marketing and e-commerce on the relationship between it business alignment factors and smes performance in Baghdad City of Iraq* (Doctoral Dissertation, Universiti Tun Hussein Onn Malaysia). Retrieved from http://eprints.uthm.edu.my/id/eprint/8391

Tolstoy, D., Nordman, E. R., & Vu, U. (2022). The indirect effect of online marketing capabilities on the international performance of e-commerce SMEs. *International Business Review, 31*(3), 101946. doi: https://doi.org/10.1016/j.ibusrev.2021.101946

Totonchi, A., & Ahlan, A. R. (2023). E-government Challenges in Developing Countries: Development of Iraqi e-government. *Journal of Computing Research and Innovation, 8*(2), 200-214. doi: https://doi.org/10.24191/jcrinn.v8i2.367

UNCTAD. (2020). *Digital Economy Report*. Retrieved from https://unctad.org/topic/ecommerce-and-digital-economy/digital-economy-report

Van Veldhoven, Z., & Vanthienen, J. (2022). Digital transformation as an interaction-driven perspective between business, society, and technology. *Electronic Markets, 32*(2), 629-644. doi: https://doi.org/10.1007/s12525-021-00464-5

World Bank. (2021). *World Development Report 2021: Data for Better Lives*. The World Bank. Retrieved from https://wdr2021.worldbank.org

Yousif, B., Morrar, R., & El-Joumayle, O. (2023). Conflict, Institutions, and the Iraqi Economy, 2003–2020. In S. Makdisi & R. Soto (Eds.), *The Aftermath of the Arab Uprisings* (pp. 121-150). Routledge. doi: http://doi.org/10.4324/9781003344414-8

Zulfikar, I. (2023). Building a Strong Brand: Marketing Strategy to Increase Brand Awareness and Consumer Loyalty. *Neo Journal of Economy and Social Humanities, 1*(4), 280-284. doi: https://doi.org/10.56403/nejesh.v1i4.79