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Organizational practices and E-Commerce innovations: The moderation role of E-commerce barriers

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Abstract

The transformative advancements witnessed within e-commerce have irrevocably redefined the manner in which individuals engage in purchasing, vending, and interacting with products and services. This paradigm shift has exerted a far-reaching impact, not only altering established business frameworks but also influencing consumer behavior. The primary objective of this research was to elucidate the impact of organizational practices on the progress of innovations within the domain of electronic commerce. Additionally, the research aimed to ascertain the moderating role of e-commerce barriers within this intricate relationship. The research's population consisted of employees occupying diverse managerial tiers within 21 commercial entities engaged in electronic buying and selling activities within Jordan. Utilizing a random sampling strategy, the research amassed a total of 526 responses, exhibiting a commendable validity rate of 87.5%. The research model was subsequently estimated, and its fundamental parameters were extracted employing the multilevel hierarchical regression (MHR). The findings of the research decisively demonstrated the discernible impact of dimensions inherent to organizational practices on e-commerce innovations. Of notable significance was the impact stemming from the interaction between e-commerce barriers and pertinent factors such as decision-making, people development, and process management. Contrary to initial expectations, the findings failed to confirm a significant interaction between electronic commerce barriers and either management style or performance management. In light of these findings, the research advances recommendations in this realm.

Keywords: Organizational Practices, E-Commerce Innovations, E-Commerce Barriers, Commercial Companies, Jordan.

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1. Introduction

Electronic commerce (e-commerce) has witnessed a remarkable range of advances that have fundamentally transformed market dynamics, including customer transactions, vending, and engagement with products and services. From its inception as an online store to the present situation, e-commerce has thrived with the support of individual experiences and cutting-edge technologies [1, 2]. The combination of AI-powered suggestions, voice-driven commerce, and engagement-based models has created a retail environment that is acutely aware of individual preferences and needs [3, 4]. Furthermore, the advent of social commerce has transformed social media platforms into virtual marketplaces, while the integration of blockchain technology guarantees the security of transactions and the authenticity of products through the Internet (Lahkani, et al. [5] and Mohammad, et al. [6]). Bhattacharyya and Bose [7] articulated that the synergies between social proof and e-commerce have significantly enhanced customer confidence and facilitated more seamless and assured communication. Since these innovations continue to burgeon, e-commerce transcends its traditional role as a mere transactional platform. It evolves into an immersive, perpetually evolving expedition that establishes unprecedented connections between enterprises and consumers, thereby fundamentally shaping the trajectory of retail's future.

Organizational practices are a sophisticated combination of strategies, procedures, and processes that define a firm's operational structure, manage its operations, and ultimately direct it towards its goals [8, 9]. They form the basic structure through which firms deal with the complexities of both ordinary operations and long-term strategy. These practices, which range from overall managerial philosophy to the details of workflow norms, serve as a guidepost for job execution, decision-making processes, and resource allocation [10, 11]. Furthermore, they are firmly ingrained in an organization's culture, serving as a mirror that reflects its beliefs, objectives, and top priorities [12, 13]. In this context, Burnes and Hughes [14] emphasized the importance of effective organizational methods in supporting simplified procedures, ensuring consistency, and developing coherence across all levels of the workforce. These practices provide firms with the ability to tackle obstacles and capitalize on opportunities in an ever-changing business environment by building a climate favorable to collaborative efforts, creativity, and adaptation [15, 16].

In the dynamic world of e-commerce, where the digital marketplace has opened up new channels for firms' growth and consumer access, there are a number of difficulties that might impede the smooth flow of transactions and interactions [17, 18]. These hurdles, often known as e-commerce barriers, include a variety of factors that might prevent firms and consumers from fully capitalizing on the benefits of online commerce, ranging from technological limitations to regulatory complications and consumer trust issues [19, 20]. By examining these hurdles, we may unearth insights that could drive continual refinement of e-commerce processes and maintain a vibrant digital economy for all stakeholders.

In developing countries, particularly in Jordan, the interaction between organizational practices, e-commerce developments, and the obstacles posed by e-commerce hurdles plays a major role in the future and competitiveness of commercial firms. As digital transformation gains momentum, organizations are striving to align their practices with the evolving demands of e-commerce while navigating the intricate web of barriers inherent to this domain. The purpose of this research is to examine the impact of e-commerce obstacles in the complex interaction between organizational practices and the adoption of e-commerce innovations among commercial companies in Jordan. Exploring how organizational practices influence e-commerce innovation and how e-commerce barriers potentially moderate this relationship can provide valuable insights into the strategies required for businesses to successfully adapt to the dynamics of the digital marketplace in the Jordanian context. Furthermore, the research seeks to enhance theoretical knowledge as well as practical solutions for fostering long-term e-commerce growth in the face of the specific constraints posed by the Jordanian market's terrain.

2. Literary Review and Hypotheses

2.1. Organizational practices

The systematic and structured procedures, routines, tactics, and behaviors that a corporation or institution utilizes to achieve its goals, manage its operations, and influence its general functioning are referred to as organizational practices Redelinguys, et al. [21] and Ekanayake, et al. [22]. Springs [12] believed that these practices emerge through time based on collected experience, industry norms, and management philosophies. They give a framework for working collaboratively, adhering to specified processes, and contributing to the success of the firm [14]. company practices can range from explicit regulations and protocols to informal methods that get embedded in company culture [23, 24]. Furthermore, Kelly and Cordeiro [25] stated that these principles might apply to a variety of organizational areas, including human resource management, financial policies, marketing tactics, customer service approaches, and technology integration.

Ali, et al. [26] defined organizational practices in five dimensions to express the company's diverse operations. Management style pertains to the specific approach adopted by a manager or leader in the execution of their responsibilities and engagement with their team, personnel, and duties within the organizational framework. Decision-making is the process of picking a course of action or selecting from numerous alternatives based on careful consideration, appraisal, and analysis of available information, options, and prospective outcomes. People development, often known as human or employee development, is the deliberate and methodical process of improving an organization's employees' knowledge, skills, talents, and overall potential. Process management is the systematic method of developing, optimizing, and regulating the numerous activities and procedures that assist in the achievement of specific organizational objectives. Performance management involves a structured manner of planning, monitoring, measuring, and enhancing the performance of individuals, teams, and the company as a whole.

2.2. E-Commerce Innovations

E-commerce innovations refer to novel and creative advancements, technologies, strategies, and practices that bring about significant improvements and changes to the way electronic business is conducted [27, 28]. These innovations aim to enhance the online shopping experience, streamline business operations, and revolutionize the way goods and services are bought and sold in the digital marketplace [29]. Innovation in technology has immensely contributed to the positive changes in the way goods and services are delivered via online platforms Kurniawati, et al. [30]. Xi and Ming [31] considered that the rise of social media platforms has made it easier to shop and discover products, allowing consumers to purchase products directly through their social media feeds. On the other hand, the integration of mobile devices, such as smartphones and tablets, into e-commerce platforms has led to the rise of mobile shopping apps and optimized mobile websites for convenient on-the-go shopping [32].

Moreover, augmented reality (AR) and virtual reality (VR) enable consumers to virtually visualize and interact with products before making a purchase, enhancing the e-commerce experience [33]. To achieve e-commerce goals, investment in blockchain technology is required to enhance security, transparency, and traceability in online transactions, particularly in areas like supply chain management and digital payments [34]. These developments are constantly reshaping the Internet commerce environment, opening up new options for businesses, and changing how consumers purchase and connect with brands.

2.3. E-Commerce Barriers

E-commerce barriers, also known as impediments or restraints in the e-commerce arena, include a variety of issues that might impede or hinder the progress, acceptability, and success of electronic commerce companies [35]. These barriers have the ability to impact both digital merchants and consumers, altering the overall operation of e-commerce systems [36]. Mitigation of these impediments is a critical requirement for unlocking the entire possibilities of e-commerce and facilitating its widespread integration Eduardsen, et al. [17]. Kam and Tham [37] indicated that e-commerce barriers could appear at any stage during the e-commerce process, influencing customer engagement including online transactions, digital security, customer confidence, cross-border trade, and regulatory compliance.

E-commerce barriers include a range of factors, ranging from organizational and technological to financial and external constraints [38]. Organizational barriers are internal constraints, restrictions, or circumstances that impede an organization's capacity to achieve its objectives, aims, or desired outcomes. Technological barriers may arise from factors such as outdated hardware or software, compatibility issues, insufficient technical expertise, resource limitations, or the complexity of integrating new technologies into existing systems. Financial barriers refer to obstacles or limitations arising from inadequate financial resources that hinder businesses or organizations from engaging in e-commerce activities. External barriers could arise from various factors, such as economic conditions, regulatory changes, market dynamics, technological advancements, cultural differences, and competitive pressures.

2.4. Organizational Practices and E-Commerce Innovations

Organizational practices wield a significant role in the configuration and impact of e-commerce innovations. The manner in which a company structures its internal operations, formulates decisions, and engages with its workforce, collaborators, and clientele holds substantial sway over its capacity to foster advancements within the e-commerce realm. Cordova-Buiza, et al. [39] conducted a systematic review of the literature on the impact of strategic management of e-commerce in Latin American trading firms between 2016 and 2020. The study used four primary databases, such as Scopus, Redalyc, and ProQuest. The study concluded through the results of 24 articles that strategic management has an impact on adopting modern e-commerce patterns. Adiguzel [40] concluded through a proposed framework for contemporary e-commerce that it is important to study and analyze companies that have commercial activities in e-commerce environments in terms of strategic management style, where the administrative approach should be based on increasing their activities related to customer management in the e-commerce environment. Moreover, Shi [41] sought to link the innovative management style of enterprises with the work environment based on electronic commerce. The results of the study indicated the importance of creating an administrative model for the organization in light of the background of e-commerce development based on the method of merging and increasing the participation of employees. Accordingly, the first research hypothesis could be formulated as follows:

H₁: Management style positively impacts e-commerce innovations.

Jiang [42] focused on discovering the optimal decision-making strategy in the field of e-commerce through an analysis of the case of Amazon, along with the analysis of Porter's competitive theory. The study demonstrated how Amazon

management made successful decisions based on low marginal material cost, product diversity, and the results of technical innovation. Agrawal, et al. [43] defended the role played by multi-criteria approaches of decision-making in enhancing customer satisfaction and investment in e-commerce in India. By applying three decision-making approaches, including Analytical Fuzzy Hierarchy Process, Fuzzy TOPSIS, and PROMETHEE II to select the top-rated online shopping platform, the study found that new e-commerce patterns could be created that contribute to Indian customer satisfaction. Grounded in the tenets of the resource-based view (RBV), determinations pertaining to resource allocation, encompassing financial, personnel, and technological dimensions, exert influence on an organization's capacity for fostering innovation. Within the domain of e-commerce, judicious decisions regarding research and development (R&D) investments hold paramount importance in facilitating the integration of innovative e-commerce technologies. Thus, the second research hypothesis is articulated as follows:

H₂: Decision-making positively impacts e-commerce innovations.

Al Harizi and Al Marhoon [44] implemented a transnational inquiry aimed at elucidating the determinants impacting the embracement of pioneering e-commerce methods within developing countries, they uncovered the notable influence of personality facets linked to perceived interest and social presence on the inclination to engage in and allocate resources toward e-commerce ventures. Furthermore, the study's findings substantiated the assertion that heightening individuals' comprehension of e-commerce plays a pivotal role in mitigating the uncertainties inherent to e-commerce innovations. Within the context of burgeoning industrial education integration, collaborative partnerships between industrial entities and universities, and cooperative education mechanisms, Xi and Ming [31] advanced a tri-tiered progressive framework for cultivating aptitudes in cross-border e-commerce innovation and entrepreneurship. The investigation discerned a substantial impact on the state of application-driven university talent development, innovation, and entrepreneurial endeavors within the digital age, prompting the necessity for transformative reforms to align with the evolving trajectory and exigencies of contemporary society. The emphasis on nurturing personnel by imparting appropriate competencies, attitudes, and proficiencies assumes a pivotal role in catalyzing advancements within e-commerce. By fostering a workforce adept at actively contributing to inventive e-commerce resolutions, organizations secure a competitive edge in the market, while adeptly adapting to the fluid dynamics characteristic of the e-commerce arena. In light of this, the third research hypothesis could be posited:

H₃: People development positively impacts e-commerce innovations.

Karazhiya and Skliar [45] sought to identify the essential characteristics and identify the main trends in the transformation of business process management in e-commerce innovations within the context of dynamic business trends. The results indicated that improving the management of business processes in the field of e-commerce is required and must become a way for modern companies to build and maintain a competitive advantage, especially at organizational and administrative levels. On the other hand, Farooq, et al. [46] linked the effectiveness and efficiency of management processes in China and the results of applying e-commerce tools, including the quality-of-service delivery, employment and customer retention, through the development of a model based on a literature review. The results of the study demonstrated that progress in infrastructure enhances the relationship between management processes and customer retention in the context of e-commerce innovations. Moreover, the study emphasized the mediation of automation in supply chain management in the proposed model. The role of process management is pivotal in steering the trajectory of prosperous e-commerce innovations. It imparts the necessary framework, guidance, and methodologies essential for the systematic conception, execution, and assessment of inventive solutions within the e-commerce domain. A proficient orchestration of process management guarantees that endeavors toward innovation are judiciously administered, characterized by efficiency, and harmoniously aligned with the overarching strategic vision of the organization. Hence, the introduction of the fourth research hypothesis was warranted, encompassing:

H₄: Process management positively impacts e-commerce innovations.

Widyarto, et al. [47] applied a literature review to assess the implications of key performance indicators (KPIs) for supply chain performance in e-commerce. The results suggested that KPIs that could be used to measure supply chain performance should be included in e-commerce innovation strategies. Moreover, Zheng and Khan [48] attempted to highlight the operating efficiency and total factor productivity (TFP) in improving the innovation of listed e-commerce companies in China from 2015 to 2019. Through Data Envelope Analysis (DEA), the Malmquist TFP Index, and Stochastic Boundary Analysis, the results showed that the benefits of e-commerce companies from technological progress and economies of scale resulting from improving total factor productivity contribute to increasing their ability to innovate in the electronic space of commerce. Performance management exercises a direct influence over e-commerce innovations through its function in steering employees, teams, and the broader organizational entity toward the attainment of inventive objectives. By establishing a methodical framework that facilitates the identification, endorsement, and quantification of innovation endeavors, performance management substantively contributes to an organization's capacity for enhancing competitiveness and fostering expansion within the realm of e-commerce. In consonance with this perspective, the formulation of the fifth research hypothesis ensued as follows:

H₅: Performance management positively impacts e-commerce innovations.

2.5. The Moderation Role of E-Commerce Barriers

E-commerce barriers denote impediments or complexities that hinder the seamless functionality and progression of e-commerce endeavors. These obstacles have the potential to influence the manner in which regulatory practices impact an organization's capacity to innovate within the e-commerce domain. In an exploratory study carried out by Yadav, et al. [19] to examine the barriers to e-commerce platforms in developing countries using the fuzzy DEMATEL approach, it was found

that high turnover and poor planning were the most significant barriers to e-commerce adoption. Amornkitvikai, et al. [49] used the Decision Makers, Technology, Regulatory, and Environmental (DTOE) framework to examine the main barriers and determinants of e-commerce in Thai small and medium enterprises based on a survey of retail, food, and beverage (F&B) service establishments in the capital, Bangkok. The results indicated that regulatory barriers significantly prevent the use of e-commerce. In contrast, estimates show that exports, e-commerce tools, government support, and internal and external e-commerce platforms can enhance the use of e-commerce. Although organizational practices hold significance in propelling e-commerce innovations, the existence of e-commerce barriers could attenuate the influence exerted by these practices. An all-encompassing perspective towards e-commerce innovation considers not only the internal organizational practices but also encompasses external influences that shape the innovation milieu. These influences include technological, organizational, market, and socio-cultural barriers. Overcoming these impediments assumes a pivotal role in optimizing the capacity of regulatory practices to catalyze substantive e-commerce innovations. Thus, propositions for moderation hypotheses have been posited, incorporating:

H₆: E-commerce barriers moderate the effect of (a) management style, (b) decision making, (c) people development, (d) process management, and (e) performance management on e-commerce innovations, such that these effects are stronger when e-commerce barriers are low.

The research framework in Figure 1 depicts the relationship between the dimensions of organizational practices and e-commerce innovations, as well as the moderating role of e-commerce barriers.

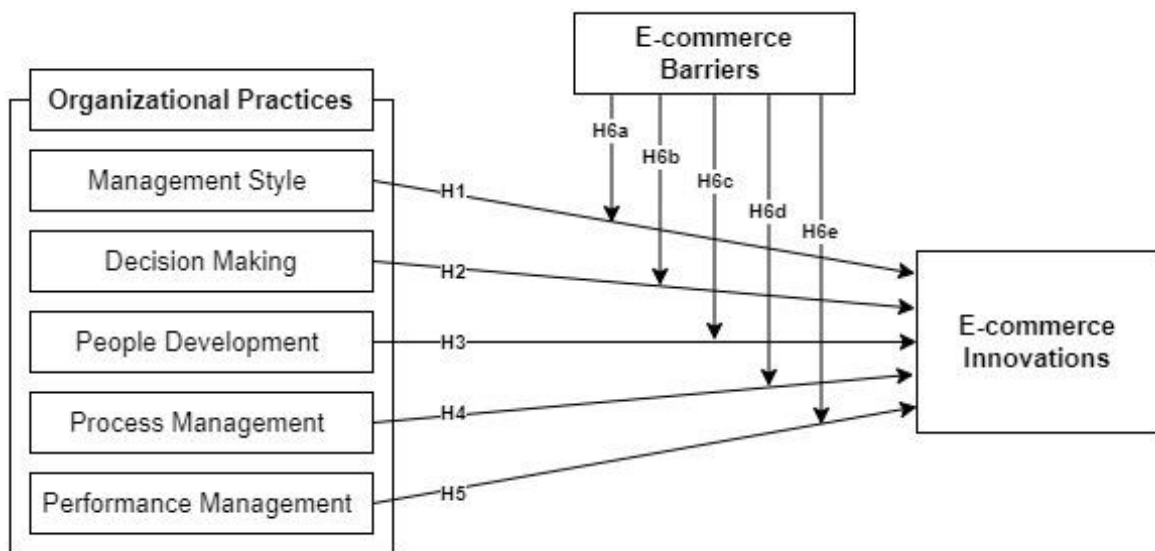


Figure 1.
Research framework.

3. Methodology

3.1. Participants and Procedures

The present research's sampling framework encompassed Jordanian enterprises actively engaging in e-commerce endeavors. The selection process hinged upon the criterion of cumulative temporal engagement, as it includes commercial companies that have a minimum of five years of practical experience in e-commerce transactions, encompassing both purchase and sale activities. This criterion was strategically adopted to secure pertinent and dependable data, thus augmenting the overall quality of research findings. Consequently, the research enrolled a total of 21 commercial companies that embraced the e-commerce paradigm across diverse sectors within Jordan. Furthermore, the research targeted personnel occupying various hierarchical positions within these companies. This deliberate approach is appropriate to maximize response rates and facilitate the isolation of variances stemming from specific job roles.

As a result of temporal, geographical, and financial constraints inherent in the research, the implementation of a comprehensive survey method was unfeasible. Consequently, a random sampling approach was employed to amass primary data for the research, requiring a minimum of 385 valid responses to fulfill the criteria outlined in the Cochran formula designed for unlimited populations (Nanjundeswaraswamy and Divakar [50]). Eichhorn [51] articulated that random sampling serves to mitigate biases originating from shared preferences and inclinations. The collated responses were 601, including 75 responses with repetition and partial completion, prompting the exclusion of these responses from the research dataset. Therefore, the definitive research sample comprised 526 responses, yielding a commendable validity rate of 87.5%, surpassing the prescribed threshold of 60% [52]. A detailed presentation of the demographic and functional distribution of the research's participants can be found in Table 1.

Table 1.
Participants' profile (n = 526).

Variables	Categories	Frequency	Percentage
Gender	Male	354	67.3%
	Female	172	32.7%
Age group	<30	105	19.9%
	30-40	227	43.3%
	40-50	173	32.9%
	> 50	21	3.9%
Educational level	Less than a bachelor's	108	20.5%
	Bachelor's	373	71.0%
	Postgraduate	45	8.5%
Management level	Senior management	60	11.4%
	Middle management	188	35.7%
	First-level management	278	52.9%

3.2. Measures

The substantiation of the moderation role of e-commerce barriers in the relationship between organizational practices and e-commerce innovations necessitated a substantial volume of data. In this context, a quantitative approach that relied upon an electronic survey design was used. The survey link was disseminated to participants via email and spanned the interval from June 10, 2023, to August 6, 2023. Of note, an obligatory inquiry was introduced to confirm voluntary participation in this survey. On the other hand, the survey, in alignment with the research's design, was divided into an introductory segment and four subsequent sections. The introduction expounded upon the research's aims and underscored the researchers' commitment to research ethics, which encompassed the assurance of data confidentiality, response anonymity, and the non-disclosure of information to external parties. The foremost section of the survey encompassed demographic and occupational particulars, featuring categorical variables such as gender, age group, educational level, and management level. The succeeding sections were dedicated to items crafted to quantify the research's variables. These items were appraised employing a five-point Likert scale, with the range spanning from a minimum of 1 signifying "strongly disagree" to a maximum of 5 connoting "strongly agree."

The independent variable recognized as organizational practices encompassed 25 items that were sourced from the work of Ali, et al. [26]. These items coalesced into five factors, each tailored to gauge specific dimensions within organizational practices. The dimension denoting management style comprised a set of five items, e.g., open communication and feedback. The dimension of decision-making was encapsulated through five items, e.g., managers delegate decision-making power to the organization's teams. The facets associated with people development encompassed an array of six items, e.g., employees are supported by training and development programs. The process management dimension was represented by a compilation of four items, e.g., all the processes are continuously reviewed for enhancement. The performance management was gauged via a composite of five items, e.g., key performance indicators (KPIs) are used to continuously improve the business.

The moderating variable which was e-commerce barriers encompassed eight items that were extracted from the scholarly contributions of Al-Tit [38]. These items were amalgamated into a singular factor with the aim of comprehensively assessing multifaceted barriers. This factor included aspects related to organizational barriers, e.g., lack of top management support, technological barriers, e.g., lack of e-commerce infrastructure, financial barriers, e.g., high cost of investment, and external barriers, e.g., government regulations.

The dependent variable for this research was e-commerce innovations encompassing six items that were borrowed from Rahman, et al. [27]. These items were amalgamated into a singular factor with the aim of comprehensively assessing multifaceted innovations, e.g., management's extensive investment in new technology/product development.

4. Findings

4.1. Assessment of Measurement Model

The moderated role measurement model for e-commerce barriers in the relationship between organizational practices dimensions and e-commerce innovations was evaluated through compound reliability, discriminatory validity, and convergent validity. This method through confirmatory factor analysis (CFA) is widely used in such research to measure the instrument's validity and reliability [53]. Moreover, the positive results achieved through this method are evidence that the results could be more generalizable [54]. Table 2 reveals an exhaustive analysis of the validity and reliability of the research instrument across various factors, providing insights into the overall quality of the measurement model employed in the present research. The table presented results indicating satisfactory outcomes regarding the loadings of items onto the research factors. These loadings ranged from 0.661 to 0.813. Notably, AlTaweel and Al-Hawary [55] posit that loadings surpassing 0.50 signify a robust association with latent constructs, thus advocating for item retention. For verifying the convergent validity, the average variance extracted (AVE) was employed. Achieved AVE values for each research factor exceeded the established threshold of 0.50 [56] affirming the instrument's convergent validity.

The evaluation of discriminant validity involved two methodologies corresponding with Hadziahmetovic and Dinc [57]: a comparison between maximum shared variance (MSV) and average variance extracted (AVE) values, and a comparison between correlation coefficients and the square root of AVE. The results demonstrated superior AVE values compared to

MSV, and the square root of AVE exceeded all correlation coefficients among research factors, underscoring the presence of discriminant validity.

Table 2.
Validity and reliability of the research instrument.

Factors	Items	Loadings	AVE	MSV	$\sqrt{\text{AVE}}$	CR
Management style	MS1	0.715	0.553	0.427	0.744	0.861
	MS2	0.792				
	MS3	0.681				
	MS4	0.772				
	MS5	0.754				
Decision making	DM1	0.733	0.548	0.405	0.740	0.858
	DM2	0.761				
	DM3	0.786				
	DM4	0.702				
	DM5	0.717				
People development	PD1	0.735	0.551	0.439	0.742	0.880
	PD2	0.722				
	PD3	0.657				
	PD4	0.795				
	PD5	0.773				
	PD6	0.764				
Process management	PRM1	0.802	0.596	0.450	0.772	0.855
	PRM2	0.737				
	PRM3	0.751				
	PRM4	0.796				
Performance management	PEM1	0.682	0.531	0.448	0.729	0.850
	PEM2	0.743				
	PEM3	0.726				
	PEM4	0.708				
	PEM5	0.782				
E-commerce barriers	ECB1	0.788	0.535	0.382	0.732	0.902
	ECB2	0.661				
	ECB3	0.738				
	ECB4	0.715				
	ECB5	0.672				
	ECB6	0.779				
	ECB7	0.731				
	ECB8	0.759				
E-commerce innovations	ECI1	0.813	0.570	0.473	0.755	0.888
	ECI2	0.726				
	ECI3	0.711				
	ECI4	0.790				
	ECI5	0.728				
	ECI6	0.755				

Reliability assessment employed composite reliability (CR), gauged by McDonald's Omega coefficients, with a prescribed minimum threshold of 0.70 [58]. The findings revealed estimated coefficients for the research instrument ranging from 0.850 to 0.902, confirming a favorable level of composite reliability for the instrument.

4.2. Descriptive Statistics

In the evaluation of the moderated role of e-commerce barriers in the interplay between dimensions of organizational practices and e-commerce innovations within Jordan, descriptive statistics assume a crucial function. These statistics serve to present the fundamental attributes inherent to the assembled dataset. Hence, they offer a concise depiction of the relative significance attributed to each variable across the intended population, as perceived by the study participants [59]. To this end, the determination of central tendencies was achieved through the computation of means. Meanwhile, the assessment of variability was accomplished through the calculation of standard deviations. Furthermore, scrutiny of the interrelationship among independent variables was conducted through the examination of correlation coefficients, a diagnostic measure aimed at identifying multicollinearity within the framework. The outcomes of the descriptive analyses were presented in Table 3, specifically pertaining to the dimensions of organizational practices, e-commerce barriers, and e-commerce innovations.

Table 3.

Mean, standard deviation, and correlation.

Factors	Mean	SD	1	2	3	4	5	6	7
1. Management style	3.60	0.893	1						
2. Decision making	3.76	0.725	0.412**	1					
3. People development	3.69	0.671	0.506**	0.482**	1				
4. Process management	3.64	0.824	0.498**	0.552**	0.539**	1			
5. Performance management	3.71	0.662	0.466**	0.517**	0.544**	0.517**	1		
6. E-commerce barriers	3.62	0.764	-0.315	-0.406*	-0.421*	-0.398*	-0.258	1	
7. E-commerce innovations	3.41	0.845	0.612**	0.597**	0.603**	0.514**	0.582**	-0.412**	1

Note: * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table 3 delves into a detailed examination of the means and standard deviations among the dimensions of organizational practices explored in the research. The results revealed that these dimensions were distributed on two levels of relative importance, which were moderate and high. In descending order, decision-making ($M = 3.76$, $SD = 0.725$), performance management ($M = 3.71$, $SD = 0.662$), and people development ($M = 3.69$, $SD = 0.671$) were of high level, while process management ($M = 3.64$, $SD = 0.824$) and management style ($M = 3.60$, $SD = 0.893$) were of moderate level. Both the moderation variable, i.e., e-commerce barriers ($M = 3.62$, $SD = 0.764$), and the dependent variable, i.e., e-commerce innovations ($M = 3.41$, $SD = 0.845$), were of moderate level. On the other hand, the results demonstrated a positive moderated correlation between the organizational practices dimensions and e-commerce innovations, whose values ranged between $r = 0.514$ and $r = 0.612$. Otherwise, the correlation between e-commerce barriers and both organizational practices dimensions and e-commerce innovations was negative, as their coefficient values were statistically significant between -0.398 and $r = -0.421$. The results of the correlation between organizational practices dimensions indicated that the multicollinearity was not achieved as a result of the correlation values between those variables far from the upper permissible threshold of 0.80 [60].

4.3. Hypotheses Testing

Utilizing the variables' Z scores, a multilevel hierarchical regression (MHR) analysis was implemented to examine the research hypotheses. This method, as elucidated by Teoh, et al. [61], permits the identification of the variable's moderating influence and its differential contributions across classifications to enhance the explanatory capabilities of models. The findings of this analytical approach are presented in Table 4. This endeavor sought to probe the effects of diverse factors on e-commerce innovations, systematically integrating supplementary variables at each progressive step to assess their interaction impacts.

Table 4.

Multilevel hierarchical regression for testing the research hypotheses.

Factors	Dependent variable (E-commerce innovations)					
	Step 1		Step 2		Step 3	
	β	T	β	T	β	T
Independent						
MS	0.415	9.10**	0.402	7.84*	0.387	7.68*
DM	0.522	14.11***	0.510	13.27***	0.488	12.07**
PD	0.380	8.04**	0.377	6.73*	0.362	6.39*
PRM	0.466	12.04***	0.451	10.17***	0.447	9.34**
PEM	0.425	9.62**	0.409	8.64**	0.399	8.20*
Moderator						
ECB			-0.223	-6.21*	-0.219	-5.92*
Interaction						
MS \times ECB					-0.152	-2.79
DM \times ECB					-0.312	-7.63**
PD \times ECB					-0.218	-4.71*
PEM \times ECB					-0.192	-4.52*
PEM \times ECB					-0.144	-2.56
R ²	0.529		0.575		0.627	
ΔR^2	---		0.046		0.052	

Note: MS: management style; DM: decision making; PD: people development; PRM: process management; PEM: performance management, ECB: e-commerce barriers. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Table 4 is structured with a sequence of three consecutive stages, each representing a progressive incorporation of variables to gauge their individual contributions. In the first step, hypotheses H1 to H5 were subjected to statistical examination. Evaluation of the impact coefficients revealed that the variable of management style ($\beta = 0.415$, $t = 9.10$, $p < 0.01$) exhibited a significant impact on e-commerce innovations, thereby affirming the first hypothesis (H1). The effect coefficients pertaining to the scrutiny of the decision-making effect on e-commerce innovations ($\beta = 0.522$, $t = 14.11$, $p < 0.001$) substantiated the endorsement of the second hypothesis (H2). Furthermore, the findings notably indicated a favorable

impact of people development ($\beta= 0.380, t= 8.04, p< 0.01$) on e-commerce innovations, hence affirming the validity of the third hypothesis (H3). Similarly, the analytical outcomes demonstrated that process management ($\beta= 0.466, t= 12.04, p< 0.001$) exerted a significant impact on e-commerce innovations, thereby leading to support the fourth hypothesis (H4). Parallely, the results unveiled that performance management ($\beta= 0.425, t= 9.62, p< 0.01$) had a significant impact on e-commerce innovations, thus underpinning the validation of the fifth hypothesis (H5). In totality, this stage engendered an interpretation coefficient (R^2) amounting to 0.529. This value signifies that approximately 53% of the e-commerce innovations variance could be expounded by the dimensions' changes of organizational practices.

The second step of the analysis entailed the introduction of the moderating variable, i.e., e-commerce barriers, with the intention of probing whether their existence exerts a discernible impact on the relationship between the dimensions of organizational practices and e-commerce innovations. Evaluation of the impact coefficients ($\beta = -0.223, t = -6.21, p < 0.05$) unveiled that heightened e-commerce barriers yielded an adverse impact, resulting in a constriction of the impacts wielded by organizational practice dimensions on e-commerce innovations. This effect was manifest in the discernibly diminished impact coefficients. In spite of the negative implications associated with e-commerce barriers, it is noteworthy that their presence in the model prompted a notable enhancement in the interpretation coefficient (R^2) to 0.575 with an incremental surge of 0.046.

Advancing to the third step, the analysis incorporated interaction variables involving the dimensions of organizational practices and e-commerce barriers. These interactions were included to investigate whether the associations between the organizational practices dimensions and e-commerce innovations were contingent upon varying degrees of e-commerce barriers. The results of the analysis reveal that hypotheses relating to the interaction between management style and e-commerce barriers (H6a) and the interaction between performance management and e-commerce barriers (H6e) were not substantiated by the findings. In contrast, the hypothesis relating to the interaction between decision-making and e-commerce barriers (H6b) received support, given the observed negative impact on e-commerce innovations ($\beta= -0.312, t= -7.63, p< 0.01$). Figure 2 illustrates a depiction of this interaction, elucidating that the low-level e-commerce barriers had a higher slope. This figure unveils that within the low levels of decision-making, the high levels of e-commerce barriers exhibited a pronounced impact on e-commerce innovations. This pattern significantly diverged when contrasted with the high levels of decision-making, as the interaction with the low levels of e-commerce barriers yielded more impact on e-commerce innovations.

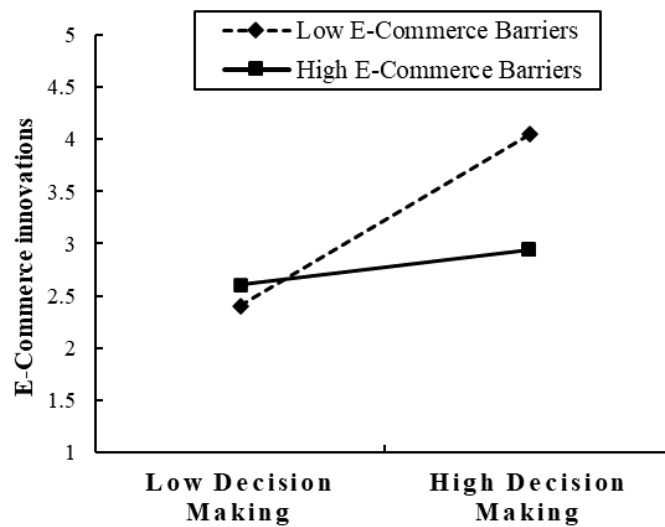


Figure 2.
The moderating effect of ECB between DM and ECI.

The interaction between people development and e-commerce barriers (H6c) was found to negatively impact e-commerce innovations ($\beta= -0.218, t= -4.71, p< 0.05$), thus confirming the validity of this hypothesis. A depiction of this interaction is demonstrated in Figure 3, confirming that low-level e-commerce barriers had a greater slope than high-level ones. This figure also reveals that at lower levels of people development, the interaction with both levels of e-commerce barriers had the same impact on e-commerce innovations. In contrast, at higher levels of people development, interaction with lower levels of e-commerce barriers played a pivotal role in enhancing e-commerce innovations.

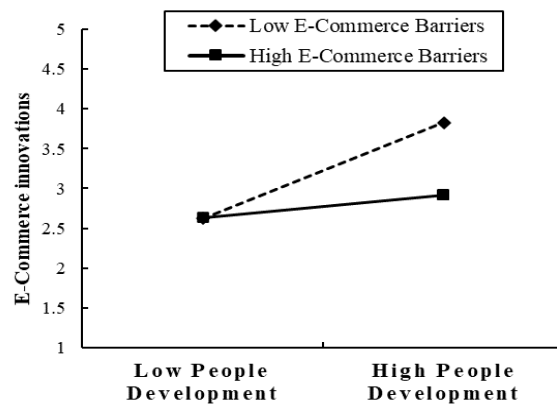


Figure 3.
The moderating effect of ECB between PD and ECI.

Similarly, the interaction between process management and e-commerce barriers (H6d) was found to negatively impact e-commerce innovations ($\beta = -0.192, t = -4.52, p < 0.05$), thereby aligning with this hypothesis. A depiction of this interaction is demonstrated in Figure 4, confirming that low-level e-commerce barriers had a greater slope than high-level ones. This figure reveals that at lower levels of process management, the interaction with both levels of e-commerce barriers had the same impact on e-commerce innovations. In contrast, at higher levels of process management, the interaction with lower levels of e-commerce barriers played a pivotal role in enhancing e-commerce innovations.

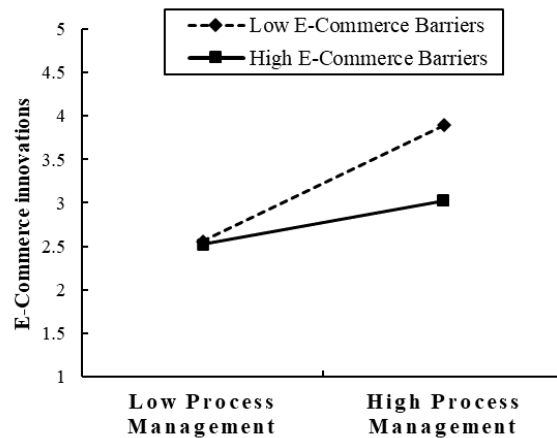


Figure 4.
The moderating effect of ECB between PRM and ECI.

Despite the adverse implications stemming from these interaction effects, it was pivotal to highlight that their integration within the model yielded a significant enhancement in the interpretation coefficient (R^2), reaching a value of 0.627, accompanied by an augmentation of 0.052.

5. Discussion and Conclusion

The main objective of this research was to explore the moderating role of e-commerce barriers within the relationship between organizational practices and e-commerce innovations, concerning commercial companies in Jordan. Initially, the investigation deduced that organizational practices demonstrated a substantial affirmative influence in fostering the progression of e-commerce innovations. This alignment with Adiguzel's [40] viewpoint underscores that organizations reaping the rewards of prioritizing innovative strategies in their e-commerce operations encounter manifold advantages, amplifying their growth trajectory, competitive prowess, and adaptability to evolving market dynamics. Concomitantly, harnessing data analytics to glean insights into customer behaviors, preferences, and trends empowers organizations to undertake well-informed decisions that steer their e-commerce innovation endeavors. Furthermore, equipping employees with opportunities for continuous learning and skill refinement, particularly within the purview of e-commerce technology and trends, empowers them to contribute to innovation by leveraging current knowledge and competencies. Analogously, organizational leaders who champion e-commerce innovation while endowing the requisite resources, guidance, and endorsement construct an environment wherein innovation is endowed with strategic prominence.

Organizational practices that prioritize innovation, including the cultivation of an environment that fosters creative expression, substantial allocations for research and development efforts, and the promotion of collaborative initiatives, are likely to generate heightened levels of e-commerce innovation. These practices collectively create an ecosystem in which employees are encouraged to conceive novel ideas, engage in experimental exploration of inventive solutions, and enhance the broader e-commerce experience. E-commerce barriers include elements that hinder the expansion and integration of e-

commerce initiatives, as cited by Yadav, et al. [19]. The presence of these barriers within an organization's e-commerce framework could exert a negatively moderating influence on the relationship between favorable organizational practices and the advancement of e-commerce innovations.

Organizations grappling with substantial e-commerce barriers might necessitate the allocation of resources, encompassing financial and human capital, to confront and surmount these impediments. However, this allocation of resources could potentially curtail the availability of resources earmarked for innovative e-commerce undertakings, thereby impeding the favorable influence of organizational practices on the realm of innovation. Apprehensions concerning security and compliance-related matters may propel organizations toward adopting a risk-averse position. This circumspection has the potential to curtail the inclination to delve into and trial pioneering e-commerce solutions, even in the presence of organizational practices that advocate for innovation. Furthermore, e-commerce barriers frequently introduce complexities and delays in the integration of novel technologies and methodologies. This gradual pace of integration can impede the translation of inventive practices into palpable manifestations of e-commerce innovations.

In conclusion, e-commerce barriers possess the capacity to function as unfavorable moderators, exerting hindrance upon the constructive linkage between organizational practices conducive to e-commerce innovation and the tangible enactment of inventive solutions. Effectively surmounting these barriers assumes paramount significance to fully harness the potential of organizational practices in propelling e-commerce innovation and consequently reaping the attendant advantages. Organizations must judiciously address these barriers to establish an ecosystem wherein endeavors directed toward nurturing innovation can prosper within the sphere of e-commerce.

6. Recommendations

According to the research results, a set of recommendations was formulated. To begin with, formulating a meticulously delineated e-commerce strategy that harmonizes with the overarching business objectives is essential. This strategic blueprint should encompass a comprehensive consideration of prospective impediments, including security concerns and regulatory complexities while delineating the manner in which innovation shall be seamlessly interwoven into the fabric of your e-commerce endeavors. Second, forming strategic partnerships with technology providers, logistics companies, and payment processors is crucial to leveraging their expertise in addressing specific e-commerce barriers. Lastly, providing training and skill development opportunities for your employees to stay updated on emerging technologies and industry trends empowers them to contribute to e-commerce innovation.

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