systems

MDPI

Article

Knowledge Sharing Key Issue for Digital Technology and Artificial Intelligence Adoption

Rima H. Binsaeed [1], Zahid Yousaf [2], Adriana Grigorescu [3,4,*], Alina Samoila [3], Razvan Ion Chitescu [3] and Abdelmohsen A. Nassani [1]

[1] Department of Management, College of Business Administration, King Saud University, P.O. Box 71115, Riyadh 11587, Saudi Arabia; rbinsaeed@ksu.edu.sa (R.H.B.); nassani@ksu.edu.sa (A.A.N.)
[2] Higher Education Department, Government College of Management Sciences, Mansehra 21300, Pakistan; muhammadzahid.yusuf@gmail.com
[3] Department of Public Management, Faculty of Public Administration, National University of Political Studies and Public Administration, Expozitiei Boulevard, 30A, 012104 Bucharest, Romania; alina.samoila@administratiepublica.eu (A.S.); razvan.chitescu@administratiepublica.eu (R.I.C.)
[4] Academy of Romanian Scientists, Ilfov Street 3, 050094 Bucharest, Romania
* Correspondence: adriana.grigorescu@snspa.ro; Tel.: +40-724253666

Abstract: In the current digital era, digital technologies develop and emerge rapidly, businesses, especially the electronic sector more connected to information technology, facing challenges in the terms of its technology infrastructure and tactical directions. That's why most of them adopt the latest digital technology (DT) and design novel business strategies and models. The growing significance of AI in the transformation of manufacturing operations and the demand for a thorough knowledge of the variables affecting its adoption serve as the driving forces behind the study. Several researchers have presented that digital technology can lead toward AI adoption. Though, previous studies lack an efficient transformation pathway. Therefore, this study establishes an inventive approach and aims to investigate the direct link between digital technology and AI adoption, the mediating function of knowledge sharing (KS) between them, and explore the moderating impact of privacy and security that assist in the acceleration of AI adoption in electronics manufacturing enterprises through the antecedent of digital technology. This study is quantitative in nature, random sampling method and questionnaire is used as a survey tool. Depending on 298 questionnaire data from electronic firms of Saudi Arabia, this study performs multi-level correlation and regression analysis to evaluate study hypotheses. Findings confirm that digital technology has a positive influence on AI adoption. In addition, outcomes corroborate that knowledge sharing mediates in the linkage between digital technology and AI adoption. The results also proved that privacy and security have a positive moderation impact on the association between digital technology and AI adoption. This study enlighten that the adoption of this framework enables electronic manufacturing companies to strategically integrate digital-technologies to promote effective AI adoption, increase its operational efficiency, and sustain a competitive advantage in the constantly evolving manufacturing landscape. The outcomes as well supplement the previous study on the linkage between digital technology and AI adoption, expand application space and theoretical boundary from the perspective of knowledge sharing, privacy and security at the managerial level, and give reference for AI adoption in, as electronics manufacturing firms.

Keywords: digital technology; AI adoption; knowledge sharing; privacy and security

Citation: Binsaeed, R.H.; Yousaf, Z.; Grigorescu, A.; Samoila, A.; Chitescu, R.I.; Nassani, A.A. Knowledge Sharing Key Issue for Digital Technology and Artificial Intelligence Adoption. *Systems* **2023**, *11*, 316. https://doi.org/10.3390/systems11070316

Academic Editor: William T. Scherer

Received: 7 May 2023
Revised: 26 May 2023
Accepted: 5 June 2023
Published: 21 June 2023

1. Introduction

Over the last few decades, the emergence of the latest digital technologies has been corresponded with a wave of strategic transformation initiatives taken by the firm and adds to the perceived stress with extensive technological changes [1]. While artificial intelligence (AI) has been considered as significant next resource of the business value by many, is

seeing as strategic digital technology leading new round of the scientific revolution and the industrial transformation [2]. This rapid advancement brings a lot of challenges and opportunities for firms in the adoption of AI technologies. Digital technologies can improve entrepreneur's decision making and judgment ability; it is the development trend of the times and a powerful tool to encourage social development or progress [3]. Accordingly, AI adoption is becoming increasingly imperative. Although, these trends might basically coexist, but it seems probably that are at-least to several extents interdependent since digital technologies support in certain forms of strategy change by the adoption of the latest technologies [4].

Digital technologies are shaping social, political, and economic spheres, and support employees in overcoming complex conditions through showing unique and different solutions and then giving prescriptive inputs in the decision-making practices [5]. Now in current digital era, information and data are fuel and AI is the new electricity that creates value and requires in the various elements of the business operations such as supply chain, manufacturing, and services [6]. Digital technologies lead to digital transformation for enhancing businesses through optimizing operations, improving customer experience and services, developing new business models and various more [7]. These digital transformation technologies include IoT, cloud, AI and smart technologies, these technologies use is determined through firm's attitude toward technology, its perceived ease and usefulness [8]. Artificial intelligence is system's capability to learn and also interpret from digital traces and can increase employee's intelligence [9].

Knowledge sharing is significant for organizations to accomplish strategic goals as it could help businesses in generating novel sources of the knowledge by collaboration and conception, considerably update organizations problem solving skills and amplify understanding of sharer's decision making [10]. Presently, practitioners have used digital technologies into practices and create wonderful movies trailer that in general need assistance of the human creativity, supporting livelihood of the AI to boost personal expertise, proficiency, and creativeness [11]. Previous studies stated that businesses with highly trained employees and creativity expect that digital technology and AI will have encouraging influence on businesses [12]. Workers must focus on the creative work and should share knowledge and expertise with each other to efficiently use machines for the mundane tasks [13].

Privacy and security is the basic feature of the digital technology and as well inevitable challenge in the adoption of AI [14]. Digital technologies help in various activities for instance process designing, production of the goods, products designing, personalized targeting, planning, and scheduling etc. [15]. Digital technology use establish boundaries to restrict who has control, regulate and access our personal information, places and things, and also protect system that have data, personal information and communications through AI adoption to protect from getting in wrong hands, with breach, leak and cyber-attack [16]. Several prior studies exclusively suggested the framework and concept of the digital technologies, proposed its scale, and studied its impact on different factors like digital entrepreneurship [17] and organizational performance [18]. But, previous studies don't elucidate how digital technology contributes to the adoption of the AI. Additionally, prior researches mostly focused on knowledge sharing at personal level and reveal the knowledge sharing role in promoting performance. Furthermore, existing studies lack more explorations on the impact of privacy and security to promote digital technology, in turn to adopt AI.

To meet shortcomings of the existing studies, we present the unique empirical model based upon on digital technology, knowledge sharing, privacy and security and AI adoption links. This study present follows unique work:

- Firstly, the primary objective of this study is to investigate how digital technology is positively linked with AI adoption?
- Secondly, we intend to examine the knowledge sharing mediating role in the relationship between digital technology and AI adoption.

- Lastly, we inspect how privacy and security strengthen the association between DT and AI adoption.

From the best of our information, no prior research has been conducted with all these variables such as digital technology, knowledge sharing and privacy and security to adopt AI in electronics firms of Saudi Arabia.

This study contributes at practical level through providing valuable suggestions. First, to enable the integration of AI technologies into their manufacturing processes, electronic manufacturing companies should give priority to investments in cutting-edge digital infrastructure, such as advanced equipment, data analytics tools, and automation systems. This will assist them to keep their standing at the leading edge of technological advancements. Second, the notion that knowledge sharing can act as a mediator demonstrates how important it is to promote a collaborative and focused on learning culture within the corporation. To enable the transfer of knowledge, standards of conduct, and creative ideas linked to the deployment of AI, electronic manufacturing firms can promote knowledge exchange among staff, departments, and even external partners. Cross-functional teams, internal knowledge-sharing platforms, and training initiatives are all capable of assisting AI adoption. Finally, this study focuses how important strong data protection measures are for AI adoption. Electronic manufacturing companies should prioritise privacy and security concerns through putting robust data handling procedures, encryption mechanisms, and compliance with applicable regulations in workplace to protect sensitive information and foster confidence with clients and partners.

This paper reminder is set as follows. Section 2 described literature review, theoretical background, and research questions. Section 3 explains research methodology adopted for study. Section 4 shows finding from academic literature and analysis of the study variables. After that, last section includes discussion, implications, and limitations along with future directions.

2. Literature Review

In the context of technology adoption and acceptance, two theories that are commonly used are the TAM (Technology Acceptance Model) and UTAUT (Unified Theory of Acceptance and Use of Technology). They offer conceptual frameworks for analyzing and interpreting people's attitudes concerning and usage patterns of new technology.

2.1. Technology Acceptance Model (TAM)

Fred Davis developed the Technology Acceptance Model (TAM) in the 1980s, and it has since been extensively used in both academic and practical environments. TAM focuses on the factors that influence attitude of people's adoption and use of information technologies [19]. According to this concept, perception of usefulness (PU) alongside perceived easiness of usage (PEOU), are the two main elements that affect people's willingness to adopt new technology. The extent to which a person thinks about applying of a certain technology could boost their productivity and efficiency in the workplace is recognised as perceived usefulness [20]. An individual's perception of how simple and difficult it will be to take advantage of a technology is known as perceived ease of use. According to TAM, these two variables have a direct impact on people's attitudes about utilising technology, which in turn affects how they actually use it [19,20]. This framework incorporates additional components and relationships beyond the TAM theory. It emphasises the importance of technology for determining adoption behaviour through establishing digital technology as the independent variable directly associated to AI adoption. Furthermore, it suggests that information exchange acts as a bridge, facilitating the relationship between the use of digital technology and AI adoption. Additionally, it identifies security and privacy as moderators that affect how digital technology and AI adoption are related. Besides the conventional TAM concepts, this expanded paradigm takes into consideration additional factors and aspects that contribute to the acceptance and implementation of AI technologies.

2.2. The Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT), a development of TAM, was developed by Venkatesh, Morris, Davis and Davis in 2003. UTAUT creates a cohesive framework by integrating numerous theories and models of technology acceptance. The model describes four significant factors that affect how people recognised and operate technology [21,22]:

Performance Expectancy: The extent to which a person expects that implementing technology will enable them perform their duties more successfully.

Effort Expectancy: The degree to which a person expects employing a technology to be easy and effortless.

Social Influence: A person's perception of how strongly important others (such as coworkers and superiors) they should use a particular technology.

The extent to which somebody considers that the resources and assistance needed to use the technology are easily accessible.

UTAUT further takes into consideration moderating factors like gender, age, experience, and commitment of use, which can affect the links between key variables and the adoption of technology. The UTAUT theory is broadened by this framework through the inclusion of new elements and connections. This framework offers a more thorough understanding of the adoption and acceptance of AI technologies within the UTAUT model by taking this study variables into account.

TAM and UTAUT both offer important insights for comprehending and forecasting people's acceptance of and application of technology. These theories have been widely applied in user experience design, industry, and research to guide the creation and application of technological solutions.

Operational descriptions of all the variables are given as under:

2.3. Digital Technology

Digital technology refers to the systems, resources, electronic tools, and digital devices that creates, store up and process data. It includes multimedia, social media and mobile phones [23]. Various studies enlighten the rapid rise of digital technology, including the Internet of Things, big data analytics, cloud computing, augmented and virtual reality and block chain technology, which demonstrate transformative potential in a number of areas [12,24]. Digital technology impacted the employees in terms of job stress [25] the relation between businesses, technology and society suffer profound changes [26]. The digital technology implementation in business brings a lot of advantages and opportunities but is not lacking of traps [27]. Digitalization manifests in various forms in business and social life, the main issue is to take advantage of the positive induced effects and to minimize the negative one and keep the sustainability enforced [28].

2.4. Knowledge Sharing

Knowledge sharing is process of the exchanging knowledge, expertise, skills and information between people, teams, peers, communities, and organizations. It makes sure that knowledge in an organization is accessible for all employees at every time they need and benefits from it [24,29]. Overall, the need of aligning digital initiatives with KM principles supporting knowledge sharing procedures and offers a thorough understanding of how organizations can leverage digital tools to enhance their knowledge management processes and promote effective knowledge sharing in the digital age [30,31]. Akram et al. [32] analyzed the mediating role of knowledge sharing and find out the importance role for the employees innovative behavior and the organizational justice, this research opens a research field of the knowledge sharing effects on other organizational issues. At the same time the importance of knowledge sharing practice toward the innovation and performance were explored. Never the less before sharing the knowledge is subject of capture and utilization [33,34]. The first that should develop skills of sharing knowledge are the researchers and the academics responsible with knowledge production and transfer from

theory to practice [35]. The organizational culture plays an important role in developing a climate for knowledge sharing [36,37]. The leaders are acting as facilitators of the knowledge sharing [38], they are stimulating the individual and organizational performance and the synergy of team working. Also the roles of knowledge sharing are important in building long term relations with the customers and better understand their needs and expectations [39,40].

2.5. Privacy and Security

Privacy is user's capability and right to access, control and regulate how its personal information is viewed and used. In digital world, security refers to protection against confidentiality, integrity and cyber criminals and unauthorized access to data [41]. Prior studies have examined at how technological developments have changed the privacy and security scenario and have identified the opportunities and challenges these technologies bring in terms of securing personal data and putting against online threats [14].

2.6. AI Adoption

AI adoption is the activity of incorporation of the novel and different knowledge through formation of the new technologies, capabilities, and training [42]. It is ability of the machine or software that act upon cognitive functions linked with human-minds for instance perceiving, problem solving, synthesizing and the inferring information that guide toward goal attainment [43]. Prior researches explore factors such as resource availability, perceived usefulness, compatibility, organisational preparation and top management backing etc. who influencing an organization's choice to embrace and incorporate AI technologies [2,15]. It is important to understand the implications of AI adoption [44,45] and to determine the benefits, barriers and most important the implication on the social aspects inside or outside the organization [46]. Jöhnk et al. [47] analyzed the readiness of the organizations to adopt AI and identify five factors: Strategic alignment, Resources, Knowledge, Culture and Data. Since knowledge is one of them we consider that the sharing of knowledge is part of the DT and AI adoption.

2.7. Digital Technology and AI Adoption

Digital technology is tools, electronic boards, machines, software, sensors and hardware or combination of them and changes in them to be considered in different context [48]. AI adoption is considered as change of the paradigm from computer aided technologies toward smart systems [49]. Digital technology in an enterprise is required for modeling, integrating, decision making, analyzing, and visualizing purposes, whereas AI adoption could leverage firm analytics and intelligence through integrating diverse software and tools [50]. Digital technology has been developed latest marketing concepts and increase customer experience that enhances audit quality and firm governance [51]. Digital technology can modify pattern of the information processing in diverse fields for instance financial management, marketing, and recruitment etc., and lead toward enhanced AI adoption practices in firm [52]. AI is the system's competence to learn from outside information appropriately and apply learnt knowledge and expertise for accomplishing specific tasks and objectives [53]. Digital technology is the tool of endless options and data that may be constricted to personalized, whereas AI adoption includes set of the techniques, algorithms and tools used within firm for the benefit of the firm and its stakeholders [54]. Digital technology leads toward incredible advancements in the globe, which increase productivity, innovation and profitability of firm and act as primary factor in the adoption of AI in firm [55]. Digital technologies modify various business models with advance technology applications that help in designing new product and services in a firm [56]. However, AI adoption offers novel prototypes for processing of the data that aids to bring in innovation and support in storage and the sharing of the information through self-referencing and programmability [57]. Based on these arguments, H1 is formulated as:

Hypothesis 1 (H1): *Digital technology is positively associated with AI adoption.*

2.8. Knowledge Sharing as Mediator

With rapid advancement of the technology, digital technology has gained access to all corners of the life. Therefore, digital technology concept is put forward, that enhance firm ability to orchestrate and select resources that lead toward AI adoption [58]. Digital technology can support in creativity and amplified productive performance of firm [59]. For any business, knowledge perform very imperative role in its growth and can promote firm development in context of long run sustainable benefits through latest AI adoption applications [60]. Several studies on digital technology argues that firm should promote culture of the team-work, shared resources, and collective goals in turn to provide full play to value of knowledge sharing [61]. Knowledge sharing in a firm, if appropriately managed, can enable firms to achieve long-term benefits with latest AI applications [62]. Digital technology can enable firms to make use of the specific resources and masters in technology with realization of benefits through adoption of latest AI applications and software [63]. Knowledge sharing is act of exchanging expertise, task information and feedback about practices to generate new ideas to deal with specific problems and attain common goals [64]. Digital technologies facilitate firms to invest in the flexible data-storage, applications that manage data and run tricky algorithms and software that support in knowledge sharing [65]. Additionally, knowledge sharing among individual can make working environment that promote innovation and support firm in adoption of the AI which has potential too to influence technological resources of firm and lead toward development [66]. Thus H2 is formulated as:

Hypothesis 2 (H2): *Knowledge sharing plays mediation in the association between digital technology and AI adoption.*

2.9. Privacy and Security Moderates

Digital technology functions as a resource that permits data monetization and enable data and information sharing strategies [67]. Using AI technologies for instance IoT and big data in firm for converting data and information into values increase profitability and customer satisfaction [68]. Security is the individual's belief regarding protection of its personal information will not be available to unauthorized parties [69]. AI adoption allows organizations to access huge amount of the data/information, which they can leverage to boost their profitability and business performance [70]. Privacy is individual's belief relating to risks and potentials occur as a result of sharing of the personal information on website [71]. Digital technology enables firms to exploits data for insights to design novel products and better services for consumers whom create value added features through implementation of latest AI applications [72]. However, privacy issues and security concerns have been specified as significant barrier to extensive customers' satisfaction that alternatively linked with AI adoption [73]. Even though digital technology successfully facilitates in collection, use, access, and exchange of the patient/individual's information and data, they could also amplify likelihood of the privacy and security invasion as personal and responsive information might be employed for additional purposes for instance marketing and advertising [74]. Hence, data security concerns are function of the controlling private information, privacy of the data exchange and degree to which patient who gathers information and collect data behaves legal and appropriate with implementation of latest AI applications [75].

Hypothesis 3 (H3): *The digital technology and AI adoption association is positively moderated through privacy and security.*

Current research will test following model (Figure 1):

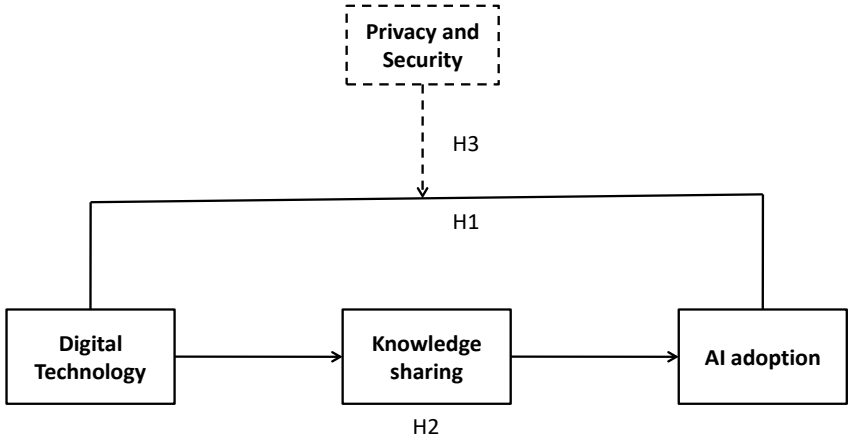

Figure 1. Theoretical Framework.

3. Methodology

This research is quantitative in nature and cross-sectional design is used for data collection. For testing study hypotheses, questionnaire survey and random sampling technique is used. The electronics companies was chosen as research context of this study for a number of reasons. First off, since the electronics manufacturing sector is heavily reliant on technology, it is the perfect area to look into how AI adoption is directly related to digital technology. Second, knowledge exchange is essential in this sector since businesses must keep up with the most recent technical developments. Thirdly, due to the sensitive nature of data and intellectual property, privacy and security are of utmost importance in the electronics industry. Lastly, researching AI adoption in electronics companies can offer helpful insights for raising efficiency, improving production processes, and maintaining competitiveness in the continually changing technological landscape.

3.1. Data Collection

Firstly, we obtain information of the electronic firms from different government bodies and websites in Saudi Arabia, with firm name, address and management persons contact. Afterward, we used media software, e-mail applications and other resources to contact with selected electronic firms and invite participants to fulfill the questionnaires. We select participants such as senior manager, CEO, owners, and staff for collection of the data. After that, we described them that questionnaire is just for the scientific research and data will not be shared with anyone else. After getting consent of the firms, we with the help of three research associates officially sent link of questionnaire to be filled. After three months' efforts of the data collection, 385 questionnaires were received back. Only 298 questionnaires were found complete in all respects and were considered for further research. Remaining questionnaires were incomplete so discarded. The reasons to exclude them were: filling of questionnaire time is too short (less than 5 min), unfilled and the invalid information. Before distribution of questionnaires, pilot study was conducted with sample size of three experts and academia's to ensure high quality, reliability, and the validity of questionnaires. Through discussion, experts settle down the all discrepancies in questionnaire, and allow to use it for data collection.

Questionnaire was divided into two sections. Section 1 includes demographic detail of the respondents. Around 69.23% of the participants were male that are in between average age of 30 to 40 years, and other 30.77% of respondents were females which is below age of 45 years.

3.2. Measurement

In this research, in line to ensure measurement scale reliability and validity, pre-test was conducted and appropriate modifications were done in the lite of recommen-

dations. Five point Likert-scales were used, that ranged between 1 = strongly agree to 5 = strongly disagree.

3.2.1. Digital Technology

For the measurement of digital technology 4 items scale was used which is adapted from Mannheim et al. [76]. This construct measures how electronic tools, devices and systems improve efficiency of the electronics firms processes. The example item is "Our firm seeks out new digital opportunities".

3.2.2. Knowledge Sharing

To measure knowledge sharing 4 item scales was adapted from Żywiołek et al. [77]. This variable measured knowledge management and knowledge sharing performance in the electronics firm. The question item is "We encourage knowledge sharing among staff teams, individuals and groups and consider it valuable for all".

3.2.3. Privacy and Security

The privacy and security was measured through 4 items scales which is adapted from Udo [78]. This construct measures how different policies and laws let electronics firm to administer, maintain, implement and audit their firm privacy and security. The question item is "Privacy and security issues act as barriers for solving problems faced by our firm".

3.2.4. AI Adoption

For the measurement of AI adoption 5 items scale was used which is adapted from Alsheibani, Cheung & Messom [43]. This construct measures how AI improves quality of the life, making life safer, more efficient, and simpler than humans. The sample item is "At our firm, the adoption of AI saves time and cost, provides relative benefits regarding other terminologies".

4. Results and Analysis

This study used correlation, regression analysis, and descriptive statistics for testing study hypotheses. To examine knowledge sharing's mediation role, Preacher and Hayes [79] developed process was used.

The CR was proved and ranges from 0.70 to 0.91, validating that construct used in current research is reliable (Table 1). The discriminant-validity and variables validity were verified through CFA and factor loading is higher than 0.70. We have as well applied Fornell-Larcker [80] approach to analyze AVE and outcomes illustrate values of the average variance extracted is high than 0.50, while Cronbach's alpha values is larger than 0.70.

Table 1. Discriminant validity of the constructs.

	Items	Cronbach's Alpha	Factor Loading	Composite Reliability	AVE
Digital Technology	4	0.82	0.73–0.91	0.87	0.68
Knowledge Sharing	4	0.79	0.70–0.88	0.92	0.71
Privacy and Security	4	0.86	0.76–0.90	0.94	0.73
AI adoption	5	0.81	0.71–0.93	0.90	0.69

Harman test was conducted to examine the CMB. Common method variance (CMV) is identified using this approach. In order to identify the factors that are significant and responsible for variance in this study, all items of the variables were put into an exploratory factor analysis (EFA) and their rotation was controlled at a zero level. The findings indicate that there are actually 18 distinct variables having eigen values larger than one, not just one. Approximately 48 percent of the variance was contributed by these 18 factors, while the first component accounted for 17 percent of the variance. So, CMV wasn't a problem, and the data didn't contain any big CMB. For accessing model fitness four different models

ware tested. The outcomes are shown in the Table 2. This presents that outcomes of this four factor model was fit to data. For example (RMSEA = 0.05, χ^2 = 1010.11, df = 390; χ^2/df = 2.590; CFI = 0.91; GFI = 0.90).

Table 2. CFA Results.

Model Detail	χ^2	Df	χ^2/df	RMESA	GFI	CFI
Hypothesized four-factor model	1010.11	390	2.590026	0.05	0.90	0.91
Three-factor model	1234.15	290	4.25569	0.15	0.88	0.89
Two-factor model	1154.43	360	3.20675	0.22	0.71	0.72
Single-factor model	1189.54	320	3.717313	0.26	0.64	0.65

4.1. Correlation Results

Table 3 presents outcomes of association and descriptive statistics. The outcomes have confirmed our hypothesis and all constructs are positively associated with dependent variable. The DT are positively linked with KS (r = 0.30 **, $p < 0.001$) and AI adoption (r = 0.25 **, $p < 0.001$). KS is positively associated with AI adoption (r = 0.29 **, $p < 0.001$) and privacy and security (r = 0.27 **, $p < 0.001$). Similarly, the privacy and security is positively associated with the AI adoption (r = 0.15 **, $p < 0.001$).

Table 3. Correlation and descriptive statistics.

Constructs	Mean	SD	1	2	3	4	5	6	7	8
Gender	0.7	0.81	1							
Age	31	2	0.09	1						
Work experience	20.4	0.84	0.08	0.03	1					
Education level	20.4	0.91	0.06	0.05	0.04	1				
Digital Technology	30.8	0.93	0.09	0.12 *	0.08	0.07	1			
Knowledge Sharing	30.5	0.91	0.05	0.09	0.04	0.05	0.30 **	1		
AI adoption	30.9	0.95	0.03	0.07	0.06	0.09	0.25 *	0.29 **	1	
Privacy and Security	30.6	0.90	0.08	0.03	0.04	0.09	0.25 **	0.27 *	0.15 *	1

Note: SD (Standard Deviation). * $p < 0.5$, ** $p < 0.1$.

4.2. Hypothesis Testing

SEM was employed for testing study hypotheses. The findings confirm that all paths were considerable and positively linked with each other (See Table 4), thus, H1 is accepted.

Table 4. Hypothesis Testing.

H1 and Condition of H2 Detail	Effects	Coefficient	Remarks
DT → AI adoption	+	0.22 **	Accepted
DT → KS	+	0.33 **	Accepted
KS → AI adoption	+	0.32 **	Accepted

** $p < 0.1$.

4.3. Mediating Role of KS between DT and AI Adoption

After verifying the three conditions of mediating, the mediating role of the KS between the DT and AI adoption was tested and results are presented in Table 5. According to their approach [80], mediation is proved with significant values of indirect effect. The outcomes present that KS mediates between DT and AI adoption links. The outcomes show Beta = 0.1321, lower value = 0.1632, upper value = 0.1435. We also applied Soble-test analysis 'Z score' and findings corroborate that Z score = 5.51 ** value was significant. Hence, H2 was accepted.

Table 5. Results of Indirect Effect of Digital Technology.

Model Detail	Beta	Boot	Bias	SE	Lower	Upper
NC → SF → IP	0.1321	0.1457	−0.0006	0.293	0.1632	0.1435
Soble Test Z Score = 5.51 **						

Note: DT (Digital Technology), KS (Knowledge sharing), AI adoption (Artificial intelligence). ** $p < 0.1$.

4.4. Moderating Role of P&S on DT and AI Adoption Link

Hierarchical regression-analysis was carried out in turn to examine mediating role of the privacy and security on relationship between DT and AI adoption. Base-model data is described in the Steps 1 and 2 in Table 6. Moreover, Step 3 shows coefficients of privacy and security moderation in the linkage between DT and AI adoption. Table 6 also shows coefficient of interaction term, i.e., DT_x_privacy and security, which indicates that privacy and security positively affect the connection between DT and AI adoption ($\beta = 0.24$, $p < 0.01$). Thus, H3 is also supported by the data collected from electronic firms.

Table 6. Outcomes of hierarchical regressions Analysis.

	Step 1	Step 2	Step 3
Moderating role of Privacy and Security			
Gender	0.028	0.010	0.009
Age	0.023	0.020	0.017
Work Experience	0.007	0.005	0.006
Educational Level	0.033	0.034	0.043
Digital Technology		0.30 **	0.33 **
Privacy and security		0.22 **	0.26 **
DTx P&S			0.24 **
R^2	0.007	0.182	0.168
Adjusted R^2	0.010	0.139	0.173
ΔR^2	0.009	0.112	0.029
ΔF	4.172	79.63	17.13

** significant.

5. Discussion

Based on concept of the digital technology, current study develops empirical model of the digital technology on AI adoption, which is mediates through knowledge sharing and moderated with privacy and security for electronic firms. This research model deepens understanding on digital technology and enhances research on the AI adoption from perspective of the knowledge sharing and privacy and security for electronic firms in Saudi Arabia. According to data, current study well explains impact of the digital technology on AI adoption under mediating role of the knowledge sharing. This study finding can be reviewed into following three aspects. Firstly, this research proposes the digital technology concept, investigates influence of the digital technology on AI adoption, and seeks that digital technology adds to the adoption of AI for electronic firms. Several studies have indicated that digital technology is the tool of endless options and data that may be constricted to personalized, whereas AI adoption includes set of the techniques, algorithms and tools used within firm for the benefit of the firm and its stakeholders [54]. Digital technology leads toward incredible advancements in the globe, which increase productivity, innovation and profitability of firm and act as primary factor in the adoption of AI in firm [55,81]. Digital technologies modify various business models with advance technology applications that help in designing new product and services in a firm [56]. Through

practical findings, this study confirms that there is considerable relationship between digital technology and AI adoption. This conclusion performs significant role in increasing AI adoption from perspective of the digital technology and promote perception of digital technology implementation in electronics firms that can lead toward upgrading and boost up firm performance.

Secondly, current research explores mediation of the knowledge sharing between digital technology and AI adoption. The findings of this paper are consistent with prior studies that digital technology can support in creativity and amplified productive performance of firm [59]. For any business, knowledge perform very imperative role in its growth and can promote firm development in context of long run sustainable benefits through latest AI adoption applications [60]. Several studies on digital technology argues that firm should promote culture of the team-work, shared resources, and collective goals in turn to provide full play to value of knowledge sharing [61]. Knowledge sharing in a firm, if appropriately managed, can enable firms to achieve long-term benefits with latest AI applications [62]. Digital technology can enable firms to make use of the specific resources and masters in technology with realization of benefits through adoption of latest AI applications and software [63]. Knowledge sharing is act of exchanging expertise, task information and feedback about practices to generate new ideas to deal with specific problems and attain common goals [64]. Digital technologies facilitate firms to invest in the flexible data-storage, applications that manage data and run tricky algorithms and software that support in knowledge sharing [65]. From theoretical view, digital technology can promote electronic firms to employ knowledge based resources in the adoption of AI such as data processing applications. Electronic firms with latest digital technology can enhance effectiveness of the knowledge exploitation through increasing degree of the knowledge sharing, thus leading toward AI adoption. Through current research, we explore that advance digital technology should promote effectiveness and competence of the knowledge sharing in electronics firms, and guiding toward AI adoption.

Lastly, current study corroborates the positive moderation of privacy and security on digital technology and AI adoption links. From managerial level, high privacy and security will encourage impacts of the digital technology on AI adoption, which is of huge importance for encouraging AI adoption from organizational viewpoint. We thus put emphasize on influence mechanism that promotes AI adoption under embedding of the digital technology, which refers to the privacy and security. Our paper findings are congruent with prior though that AI adoption allows organizations to access huge amount of the data/information, which they can leverage to boost their profitability and business performance [70]. Privacy is individual's belief relating to risks and potentials occur as a result of sharing of the personal information on website [71]. Digital technology enables firms to exploits data for insights to design novel products and better services for consumers whom create value added features through implementation of latest AI applications [72]. However, privacy issues and security concerns have been specified as significant barrier to extensive customers' satisfaction that alternatively linked with AI adoption [73]. Even though digital technology successfully facilitates in collection, use, access, and exchange of the patient/individual's information and data, they could also amplify likelihood of the privacy and security invasion as personal and responsive information might be employed for additional purposes for instance marketing and advertising [74].

5.1. Theoretical and Practical Implications

Current research has following theoretical contributions; firstly, the H1 argues that developments in digital technology have a direct impact on the implementation of AI. This finding suggests that organisations and people who use and embrace modern technology are more likely to use AI technologies, potentially improving productivity, automating processes, and enhancing decision-making. Secondly, this paper proposes that by communicating knowledge, standards, and expertise on AI technology, knowledge sharing plays a critical role in enabling the adoption of AI. As a result, businesses that strongly encourage

knowledge exchange are likely to speed up their efforts to implement AI. Thirdly, this study shows that concerns about privacy and security could have an impact on how much an organisation uses AI technology. Through eliminating associated risks, addressing such concerns through establishing in place appropriate privacy and security measures could make AI adoption easier. Overall, these conceptual implications highlight the significance of digital technology, knowledge sharing, and privacy and security factors in the effective adoption and execution of AI technologies, providing helpful data to organisations seeking to take advantage of AI's possible benefits.

This study contributes at practical level through providing valuable suggestions. First, to enable the integration of AI technologies into their manufacturing processes, electronic manufacturing companies should give priority to investments in cutting-edge digital infrastructure, such as advanced equipment, data analytics tools, and automation systems. This will assist them to keep their standing at the leading edge of technological advancements. Second, the notion that knowledge sharing can act as a mediator demonstrates how important it is to promote a collaborative and focused on learning culture within the corporation. To enable the transfer of knowledge, standards of conduct, and creative ideas linked to the deployment of AI, electronic manufacturing firms can promote knowledge exchange among staff, departments, and even external partners. Cross-functional teams, internal knowledge-sharing platforms, and training initiatives are all capable of assisting AI adoption. Finally, this study focuses how important strong data protection measures are for AI adoption. Electronic manufacturing companies should prioritise privacy and security concerns through putting robust data handling procedures, encryption mechanisms, and compliance with applicable regulations in workplace to protect sensitive information and foster confidence with clients and partners. In conclusion, adopting this framework enables electronic manufacturing companies to strategically integrate digital-technology, sharing of information, privacy, and security considerations to promote effective AI adoption, increase operational efficiency, and sustain a competitive advantage in the constantly evolving manufacturing landscape.

5.2. Limitations and Future Directions

Current study has several boundaries that might be considered as future directions for upcoming studies. First of all, this paper focuses on electronics firms where for data collection quantitative research design was employed. In future studies should use cross-sectional and longitudinal method to achieve study purpose. Secondly, it was very tricky to collect data from electronic firms in Saudi Arabia as study sample quantity is also small. Accordingly, we proposed that future studies must be conducted in different other sectors and nations such as SMEs, technical firms and industries of underdeveloped and developed nations. Lastly, we used knowledge sharing and privacy and security as inter playing and influencing mechanism in this paper. We suggest that other studies in future could use other constructs as inter playing mechanism in the same empirical model to explore the extent that how much digital technology implementation influence AI adoption.

Author Contributions: Conceptualization, R.H.B. and A.G.; methodology, A.A.N. and A.S.; software, Z.Y.; validation, A.G. and A.A.N.; formal analysis, Z.Y. and R.I.C.; investigation, R.H.B. and A.S.; resources, R.I.C. and Z.Y.; data curation, A.S.; writing—original draft preparation, R.H.B. and A.A.N.; writing—review and editing, A.G. and Z.Y.; visualization, R.I.C.; supervision, A.G. and R.H.B.; project administration, Z.Y.; funding acquisition, A.A.N. All authors have read and agreed to the published version of the manuscript.

Funding: Researchers Supporting Project number (RSP2023R203), King Saud University, Riyadh, Saudi Arabia.

Institutional Review Board Statement: Study was conducted following the guidelines of Declaration-of-Helsinki. It is approved by Ethics Committee of HU. Ref: HUD No. 547-098.

Informed Consent Statement: Informed consent was obtained from participants involved in this research.

Data Availability Statement: Data will be provided on request.

Acknowledgments: Researchers Supporting Project number (RSP2023R203), King Saud University, Riyadh, Saudi Arabia.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Li, J.-P.O.; Liu, H.; Ting, D.S.J.; Jeon, S.; Chan, R.V.P.; Kim, J.E.; Sim, D.A.; Thomas, P.B.M.; Lin, H.; Chen, Y.; et al. Digital technology, tele-medicine and artificial intelligence in ophthalmology: A global perspective. *Prog. Retin. Eye Res.* **2021**, *82*, 100900. [CrossRef] [PubMed]
2. Holzinger, A.; Langs, G.; Denk, H.; Zatloukal, K.; Müller, H. Causability and explainability of artificial intelligence in medicine. *WIREs Data Min. Knowl. Discov.* **2019**, *9*, e1312. [CrossRef] [PubMed]
3. Sadreddin, A.; Chan, Y.E. Pathways to developing information technology-enabled capabilities in born-digital new ventures. *Int. J. Inf. Manag.* **2023**, *68*, 102572. [CrossRef]
4. Berzin, S.C.; Singer, J.; Chan, C. Practice innovation through technology in the digital age: A grand challenge for social work. *Am. Acad. Soc. Work. Soc. Welf.* **2015**, *12*, 3–21.
5. Corridon, P.R.; Wang, X.; Shakeel, A.; Chan, V. Digital Technologies: Advancing Individualized Treatments through Gene and Cell Therapies, Pharmacogenetics, and Disease Detection and Diagnostics. *Biomedicines* **2022**, *10*, 2445. [CrossRef]
6. Chan, T.W.; Roschelle, J.; Hsi, S.; Kinshuk Sharples, M.; Brown, T.; Patton, C.; Cherniavsky, J.; Pea, R.; Norris, C.; Soloway, E. One-to-one technology-enhanced learning: An opportunity for global research collaboration. *Res. Pract. Technol. Enhanc. Learn.* **2006**, *1*, 3–29. [CrossRef]
7. Fitzgerald, M.; Kruschwitz, N.; Bonnet, D.; Welch, M. Embracing digital technology: A new strategic imperative. *MIT Sloan Manag. Rev.* **2014**, *55*, 1.
8. Henderson, M.; Selwyn, N.; Aston, R. What works and why? Student perceptions of 'useful' digital technology in university teaching and learning. *Stud. High. Educ.* **2017**, *42*, 1567–1579. [CrossRef]
9. Berente, N.; Gu, B.; Recker, J.; Santhanam, R. Managing artificial intelligence. *MIS Q.* **2021**, *45*, 1433–1450. [CrossRef]
10. Zheng, T. A Literature Review on Knowledge Sharing. *Open J. Soc. Sci.* **2017**, *5*, 51–58. [CrossRef]
11. Tan, S.C.; Chan, C.; Bielaczyc, K.; Ma, L.; Scardamalia, M.; Bereiter, C. Knowledge building: Aligning education with needs for knowledge creation in the digital age. *Educ. Technol. Res. Dev.* **2021**, *69*, 2243–2266. [CrossRef]
12. Ebbeck, M.; Yim, H.Y.B.; Chan, Y.; Goh, M. Singaporean Parents' Views of Their Young Children's Access and Use of Technological Devices. *Early Child. Educ. J.* **2016**, *44*, 127–134. [CrossRef]
13. Tohidinia, Z.; Mosakhani, M. Knowledge sharing behaviour and its predictors. *Ind. Manag. Data Syst.* **2010**, *110*, 611–631. [CrossRef]
14. Dilmaghani, S.; Brust, M.R.; Danoy, G.; Cassagnes, N.; Pecero, J.; Bouvry, P. Privacy and Security of Big Data in AI Systems: A Research and Standards Perspective. In Proceedings of the 2019 IEEE International Conference on Big Data (Big Data), Los Angeles, CA, USA, 9–12 December 2019; pp. 5737–5743. [CrossRef]
15. Stahl, B.C. *Artificial Intelligence for a Better Future: An Ecosystem Perspective on the Ethics of AI and Emerging Digital Technologies*; Springer Nature: Berlin/Heidelberg, Germany, 2021; p. 124.
16. Chan, C. Digital technologies and evolving narrative practice: An autoethnographic study. *China J. Soc. Work.* **2022**, *16*, 83–99. [CrossRef]
17. Nambisan, S. Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship. *Entrep. Theory Pract.* **2017**, *41*, 1029–1055. [CrossRef]
18. Khin, S.; Ho, T.C. Digital technology, digital capability and organizational performance: A mediating role of digital innovation. *Int. J. Innov. Sci.* **2018**, *11*, 177–195. [CrossRef]
19. Marangunić, N.; Granić, A. Technology acceptance model: A literature review from 1986 to 2013. *Univers. Access Inf. Soc.* **2015**, *14*, 81–95. [CrossRef]
20. Holden, R.J.; Karsh, B.-T. The Technology Acceptance Model: Its past and its future in health care. *J. Biomed. Inform.* **2010**, *43*, 159–172. [CrossRef]
21. Williams, M.D.; Rana, N.P.; Dwivedi, Y.K. The unified theory of acceptance and use of technology (UTAUT): A literature review. *J. Enterp. Inf. Manag.* **2015**, *28*, 443–488. [CrossRef]
22. Kelly, S.; Kaye, S.-A.; Oviedo-Trespalacios, O. What factors contribute to the acceptance of artificial intelligence? A systematic review. *Telemat. Inform.* **2022**, *77*, 101925. [CrossRef]
23. Giones, F.; Brem, A. Digital technology entrepreneurship: A definition and research agenda. *Technol. Innov. Manag. Rev.* **2017**, *7*, 44–51. [CrossRef]
24. Spiteri, M.; Chang Rundgren, S.N. Literature review on the factors affecting primary teachers' use of digital tech-nology. *Technol. Knowl. Learn.* **2020**, *25*, 115–128. [CrossRef]

25. Harahap, M.A.K.; Sutrisno, S.; Fauzi, F.; Jusman, I.A.; Ausat, A.M.A. The Impact of Digital Technology on Employee Job Stress: A Business Psychology Review. *J. Pendidik. Tambusai* **2023**, *7*, 3635–3638.
26. Van Veldhoven, Z.; Vanthienen, J. Digital transformation as an interaction-driven perspective between business, society, and technology. *Electron. Mark.* **2022**, *32*, 629–644. [CrossRef] [PubMed]
27. Linde, L.; Sjödin, D.; Parida, V.; Gebauer, H. Evaluation of digital business model opportunities: A framework for avoiding digitalization traps. *Res. Technol. Manag.* **2020**, *64*, 43–53. [CrossRef]
28. Bican, P.M.; Brem, A. Digital Business Model, Digital Transformation, Digital Entrepreneurship: Is There A Sustainable "Digital"? *Sustainability* **2020**, *12*, 5239. [CrossRef]
29. Obeso, M.; Hernandez-Linares, R.; López-Fernandez, M.C.; Serrano-Bedia, A.M. Knowledge management processes and organizational performance: The mediating role of organizational learning. *J. Knowl. Manag.* **2020**, *24*, 1859–1880. [CrossRef]
30. Zaim, H.; Muhammed, S.; Tarim, M. Relationship between knowledge management processes and performance: Critical role of knowledge utilization in organizations. *Knowl. Manag. Res. Pract.* **2018**, *17*, 24–38. [CrossRef]
31. Shujahat, M.; Hussain, S.; Javed, S.; Malik, M.I.; Thurasamy, R.; Ali, J. Strategic management model with lens of knowledge management and competitive intelligence: A review approach. *VINE J. Inf. Knowl. Manag. Syst.* **2017**, *47*, 55–93. [CrossRef]
32. Akram, T.; Lei, S.; Haider, M.J.; Hussain, S.T. The impact of organizational justice on employee innovative work behavior: Mediating role of knowledge sharing. *J. Innov. Knowl.* **2020**, *5*, 117–129. [CrossRef]
33. Singh, S.K.; Gupta, S.; Busso, D.; Kamboj, S. Top management knowledge value, knowledge sharing practices, open innovation and organizational performance. *J. Bus. Res.* **2021**, *128*, 788–798. [CrossRef]
34. Yoshikuni, A.C.; Lucas, E.C. Knowledge Management Processes and Performance: Key Role of IS Strategies in Knowledge Capture and Utilisation. *J. Inf. Knowl. Manag.* **2021**, *20*, 2150047. [CrossRef]
35. Grigorescu, A.; Zamfir, A.-M.; Sigurdarson, H.T.; Carlson, E.L. Skill Needs among European Workers in Knowledge Production and Transfer Occupations. *Electronics* **2022**, *11*, 2927. [CrossRef]
36. Abbasi, S.G.; Shabbir, M.S.; Abbas, M.; Tahir, M.S. HPWS and knowledge sharing behavior: The role of psychological empowerment and organizational identification in public sector banks. *J. Public Aff.* **2021**, *21*, e2512. [CrossRef]
37. Saffar, N.; Obeidat, A. The effect of total quality management practices on employee performance: The moderating role of knowledge sharing. *Manag. Sci. Lett.* **2020**, *10*, 77–90. [CrossRef]
38. Swanson, E.; Kim, S.; Lee, S.-M.; Yang, J.-J.; Lee, Y.-K. The effect of leader competencies on knowledge sharing and job performance: Social capital theory. *J. Hosp. Tour. Manag.* **2020**, *42*, 88–96. [CrossRef]
39. Ghahtarani, A.; Sheikhmohammady, M.; Rostami, M. The impact of social capital and social interaction on customers' purchase intention, considering knowledge sharing in social commerce context. *J. Innov. Knowl.* **2020**, *5*, 191–199. [CrossRef]
40. Wang, C.; Hu, Q. Knowledge sharing in supply chain networks: Effects of collaborative innovation activities and capability on innovation performance. *Technovation* **2020**, *94–95*, 102010. [CrossRef]
41. Emami-Naeini, P.; Dixon, H.; Agarwal, Y.; Cranor, L.F. Exploring how privacy and security factor into IoT device purchase behavior. In Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems, Scotland, UK, 4–9 May 2019; pp. 1–12.
42. Mirzaie, M.; Javanmard, H.A.; Reza Hasankhani, M. Impact of knowledge management process on human capital improvement in Islamic Consultative Assembly. *Knowl. Manag. Res. Pract.* **2019**, *17*, 316–327. [CrossRef]
43. Alsheibani, S.; Cheung, Y.; Messom, C. Artificial Intelligence Adoption: AI-readiness at Firm-Level. *PACIS* **2018**, *4*, 231–245.
44. Chatterjee, S.; Rana, N.P.; Dwivedi, Y.K.; Baabdullah, A.M. Understanding AI adoption in manufacturing and production firms using an integrated TAM-TOE model. *Technol. Forecast. Soc. Chang.* **2021**, *170*, 120880. [CrossRef]
45. Grover, P.; Kar, A.K.; Dwivedi, Y.K. Understanding artificial intelligence adoption in operations management: Insights from the review of academic literature and social media discussions. *Ann. Oper. Res.* **2022**, *308*, 177–213. [CrossRef]
46. Cubric, M. Drivers, barriers and social considerations for AI adoption in business and management: A tertiary study. *Technol. Soc.* **2020**, *62*, 101257. [CrossRef]
47. Jöhnk, J.; Weißert, M.; Wyrtki, K. Ready or not, AI comes—An interview study of organizational AI readiness factors. *Bus. Inf. Syst. Eng.* **2021**, *63*, 5–20. [CrossRef]
48. Tuffaha, M.; Rosario Perello-Marin, M. Artificial intelligence definition, applications and adoption in Human Resource Management: A systematic literature review. *Int. J. Bus. Innov. Res.* **2021**, *1*, 1–33. [CrossRef]
49. Pagani, M.; Pardo, C. The impact of digital technology on relationships in a business network. *Ind. Mark. Manag.* **2017**, *67*, 185–192. [CrossRef]
50. Cheung, M.L.; Leung, K.S.W.; Chan, H.S. Driving healthcare wearable technology adoption for Generation Z consumers in Hong Kong. *Young Consum.* **2020**, *22*, 10–27. [CrossRef]
51. Lai, K.-W. Digital technology and the culture of teaching and learning in higher education. *Australas. J. Educ. Technol.* **2011**, *27*, 1263–1275. [CrossRef]
52. Sapienza, M.; Nurchis, M.C.; Riccardi, M.T.; Bouland, C.; Jevtić, M.; Damiani, G. The Adoption of Digital Tech-nologies and Artificial Intelligence in Urban Health: A Scoping Review. *Sustainability* **2022**, *14*, 7480. [CrossRef]
53. Ardolino, M.; Rapaccini, M.; Saccani, N.; Gaiardelli, P.; Crespi, G.; Ruggeri, C. The role of digital technologies for the service transformation of industrial companies. *Int. J. Prod. Res.* **2018**, *56*, 2116–2132. [CrossRef]

54. Secundo, G.; Shams, S.R.; Nucci, F. Digital technologies and collective intelligence for healthcare ecosystem: Optimizing Internet of Things adoption for pandemic management. *J. Bus. Res.* **2021**, *131*, 563–572. [CrossRef] [PubMed]
55. Usai, A.; Fiano, F.; Petruzzelli, A.M.; Paoloni, P.; Briamonte, M.F.; Orlando, B. Unveiling the impact of the adoption of digital technologies on firms' innovation performance. *J. Bus. Res.* **2021**, *133*, 327–336. [CrossRef]
56. Miller, E.A.; West, D.M. Where's the revolution? Digital technology and health care in the internet age. *J. Health Politics Policy Law* **2009**, *34*, 261–284. [CrossRef] [PubMed]
57. Neumann, O.; Guirguis, K.; Steiner, R. Exploring artificial intelligence adoption in public organizations: A comparative case study. *Public Manag. Rev.* **2022**, 1–27. [CrossRef]
58. Agarwal, P.; Swami, S.; Malhotra, S.K. Artificial Intelligence Adoption in the Post COVID-19 New-Normal and Role of Smart Technologies in Transforming Business: A Review. *J. Sci. Technol. Policy Manag.* 2022; *ahead-of-print*. [CrossRef]
59. Ilomäki, L.; Lakkala, M. Digital technology and practices for school improvement: Innovative digital school model. *Res. Pract. Technol. Enhanc. Learn.* **2018**, *13*, 25. [CrossRef]
60. Malik, A.; De Silva, M.T.; Budhwar, P.; Srikanth, N. Elevating talents' experience through innovative artificial intelligence-mediated knowledge sharing: Evidence from an IT-multinational enterprise. *J. Int. Manag.* **2021**, *27*, 100871. [CrossRef]
61. Herath, H.; Mittal, M. Adoption of artificial intelligence in smart cities: A comprehensive review. *Int. J. Inf. Manag. Data Insights* **2022**, *2*, 100076. [CrossRef]
62. Widodo, A.; Putra, F.; Nadeak, M.; Novitasari, D.; Asbari, M. Information technology adoption and knowledge sharing intention: The mediating role of leadership style. *Int. J. Soc. Manag. Stud.* **2022**, *3*, 258–268.
63. Dora, M.; Kumar, A.; Mangla, S.K.; Pant, A.; Kamal, M.M. Critical success factors influencing artificial intelligence adoption in food supply chains. *Int. J. Prod. Res.* **2022**, *60*, 4621–4640. [CrossRef]
64. Qammach, N.I.J. The Mediating Role of Knowledge Sharing on Relationship between IT Capability and IT Support as Predictors of Innovation Performance: An Empirical Study on Mobile Companies in Iraq. *Procedia Econ. Financ.* **2016**, *39*, 562–570. [CrossRef]
65. Al Mansoori, S.; Salloum, S.A.; Shaalan, K. The Impact of Artificial Intelligence and Information Technologies on the Efficiency of Knowledge Management at Modern Organizations: A Systematic Review. In *Recent Advances in Intelligent Systems and Smart Applications*; Springer Nature: Basel, Switzerland, 2020; pp. 163–182. [CrossRef]
66. Rosales, M.A.; Magsumbol, J.-A.V.; Palconit, M.G.B.; Culaba, A.B.; Dadios, E.P. Artificial Intelligence: The Technology Adoption and Impact in the Philippines. In Proceedings of the 2020 IEEE 12th International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment, and Management (HNICEM), Manila, Philippines, 3–7 December 2020; pp. 1–6. [CrossRef]
67. Orben, A.; Przybylski, A.K. The association between adolescent well-being and digital technology use. *Nat. Hum. Behav.* **2019**, *3*, 173–182. [CrossRef] [PubMed]
68. Vincent-Lancrin, S.; Van der Vlies, R. *Trustworthy Artificial Intelligence (AI) in Education: Promises and Challenges*; OECD iLibrary: Berlin, Germany, 2020.
69. Brooks, D.J. What is security: Definition through knowledge categorization. *Secur. J.* **2010**, *23*, 225–239. [CrossRef]
70. Stahl, B.C.; Wright, D. Ethics and Privacy in AI and Big Data: Implementing Responsible Research and Innovation. *IEEE Secur. Priv.* **2018**, *16*, 26–33. [CrossRef]
71. Gehrke, J.; Lui, E.; Pass, R. Towards Privacy for Social Networks: A Zero-Knowledge Based Definition of Privacy. In Proceedings of the Theory of Cryptography: 8th Theory of Cryptography Conference, TCC 2011, Providence, RI, USA, 28–30 March 2011; pp. 432–449. [CrossRef]
72. Saura, J.R.; Ribeiro-Soriano, D.; Palacios-Marqués, D. Assessing behavioral data science privacy issues in government artificial intelligence deployment. *Gov. Inf. Q.* **2022**, *39*, 101679. [CrossRef]
73. Sachdev, R. Towards Security and Privacy for Edge AI in IoT/IoE based Digital Marketing Environments. In Proceedings of the 2020 Fifth International Conference on Fog and Mobile Edge Computing (FMEC), Paris, France, 20–23 April 2020; pp. 341–346. [CrossRef]
74. Genderen, R.V.D.H.V. Privacy and Data Protection in the Age of Pervasive Technologies in AI and Robotics. *Eur. Data Prot. Law Rev.* **2017**, *3*, 338–352. [CrossRef]
75. Murdoch, B. Privacy and artificial intelligence: Challenges for protecting health information in a new era. *BMC Med. Ethic* **2021**, *22*, 122. [CrossRef]
76. Mannheim, I.; Wouters, E.J.; van Boekel, L.C.; van Zaalen, Y. Attitudes of health care professionals toward older adults' abilities to use digital technology: Questionnaire study. *J. Med. Internet Res.* **2021**, *23*, e26232. [CrossRef]
77. Żywiołek, J.; Tucmeanu, E.R.; Tucmeanu, A.I.; Isac, N.; Yousaf, Z. Nexus of Transformational Leadership, Employee Adaptiveness, Knowledge Sharing, and Employee Creativity. *Sustainability* **2022**, *14*, 11607. [CrossRef]
78. Udo, G.J. Privacy and security concerns as major barriers for e-commerce: A survey study. *Inf. Manag. Comput. Secur.* **2001**, *9*, 165–174. [CrossRef]
79. Preacher, K.J.; Hayes, A.F. Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models. *Behav. Res. Methods* **2008**, *40*, 879–891. [CrossRef] [PubMed]

80. Fornell, C.; Lacker, D.F. Structural equation models with unobservable variables and measurement error: Algebra and Statistics. *J. Mark. Res.* **1981**, *18*, 382–388. [CrossRef]
81. Aivaz, K.A.; Tofan, I. The Synergy Between Digitalization and The Level of Research and Business Development Allocations at Eu Level. *Stud. Business Econ.* **2022**, *17*, 5–17. [CrossRef]