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Research Paper

# Factors Affecting the Adoption of Digital Supply Chain From A Cloud Computing Perspective

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***Abstract***
*Organizations' orientation towards the digital supply chain is one of the contemporary trends that require studies that address the challenges they face. To address this, the current study aimed to identify the challenges facing the acceptance of the use of the digital supply chain by the logistics units at the University of Mosul.*
*In this study, a quantitative approach based on data collection was used through a questionnaire prepared based on a set of studies, distributed to a sample of 224 participants in administrative units related to logistical activities. The technology acceptance model was used to identify the intentions of the participants in the use of the digital supply chain, and structural equation modeling was used by AMOS software for data analysis. The current study was limited to identifying the impact of three factors on the adoption of the digital supply chain, represented by technological factors, organizational factors, and environmental factors, and did not address the variables of infrastructure, organizational culture, and cooperation, which we propose to study in future studies.*

**Key words:**
**Digital supply chain, Cloud computing, Technology acceptance model**

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ورقة بحثية

# العوامل المؤثرة في تبني سلسلة التوريد الرقمية من منظور الحوسبة السحابية

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**المستخلص**

*يعد توجه المنظمات نحو سلسلة التوريد الرقمية أحد الاتجاهات المعاصرة التي تتطلب دراسات تتناول التحديات التي تواجهها، ولمعالجة ذلك هدفت الدراسة الحالية إلى تحديد التحديات التي تواجه قبول استخدام سلسلة التوريد الرقمية من قبل الوحدات اللوجستية في جامعة الموصل.*

*في هذه الدراسة ، تم استخدام المنهج الكمي القائم على جمع البيانات من خلال استبيان تم إعداده بناءً على مجموعة من الدراسات ، وزعت على عينة من ٢٢٤ مشاركًا في الوحدات الإدارية ذات الصلة بالأنشطة اللوجستية، تم استخدام نموذج قبول التكنولوجيا لتحديد نوايا المشاركين في استخدام سلسلة التوريد الرقمية ، وتم استخدام نمذجة المعادلة الهيكلية بواسطة برنامج AMOS لغرض تحليل البيانات. اقتصرت الدراسة الحالية على تحديد أثر ثلاثة عوامل على اعتماد سلسلة التوريد الرقمية تتمثل في العوامل التكنولوجية والعوامل التنظيمية والعوامل البيئية ، ولم تتناول متغيرات البنية التحتية والثقافة التنظيمية والتعاون التي تقترحها الدراسة في الدراسات المستقبلية.*

**الكلمات الرئيسة**

**سلسلة التوريد الرقمية ، الحوسبة السحابية، نموذج القبول التكنولوجي.**

**مجلة**

# تنمية الرافدين

***(TANRA):*** **مجلة علمية، فصلية، دولية، مفتوحة الوصول، محكمة.**

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## 1. Introduction

In recent years, there have been tremendous transformations in supply chain management and logistics (Pan et al., 2017), competitive pressure has led organizations to focus on supply chain management and logistics and make it a part of their strategies and operations (Tatham et al., 2009). Teller, Kotzab, & Grant (2012) have argued that organizations should establish relationships of cooperation and coordination with their partners within the supply chain to gain a competitive advantage. Despite the importance of this trend, there are many problems that organizations face when dealing with the traditional supply chain. First, the process of tracking products is difficult, especially when counterfeit and low-quality products appear (Zhang & Guin, 2020), Second, the ambiguity of information in the supply chain reduces trust among participants in the chain (Jia et al., 2020). In view of the contemporary technical developments in the business environment, many business organizations have resorted to adopting various capabilities to improve the current methods in order to obtain competitive advantages by relying on advanced and intelligent technological capabilities to make supply chains more connected, cooperative and effective (Büyüközkan & Göçer, 2018). Today, there is a global trend emerging from supply chain management, which is the shift from a traditional supply chain to a digital supply chain that uses an agile and customer-oriented approach by making use of effective methods with digital technologies to obtain additional revenue and commercial value for companies (Büyüközkan & Göçer, 2018).

The digital supply chain (DSC) is defined as an intelligent process that takes advantage of innovative solutions with emerging technologies to generate new value or commercial returns and commercial value for organizations (Tjahjono et al., 2017). Büyüközkan & Göçer (2018) define the digital supply chain as a smart, valuable and efficient process to generate new forms of revenue for the organization using new technological and analytical methods. In DSC, it is not about services or goods, whether digital or physical, but the way that supply chain operations are managed using a variety of technologies such as cloud computing. Cloud computing CC technologies can be of benefit because they provide a dynamic environment in which companies can reach the best decisions in terms of supply chain management (Wu et al., 2013), it became a popular choice for companies as they not only change the basic approach to information technology, but also provide significant advantages including accessibility and innovative, low-cost services (Marston et al., 2011). Cloud computing is an essential resource for any organization because all processes and products must be intelligent in a digital supply chain environment that requires integration with cloud computing services including data exchange across the supply network and for this reason, cloud computing offers high levels of integration throughout the entire product life cycle and from production systems perspective cloud computing enables production on demand in the supply chain (Li et al., 2018; Yu et al., 2015). However, there are some major barriers represented by the difficulty of visualizing digital and physical flows and determining the appropriate level of interdependence between the physical world and the digital world (Garay-Rondero et al., 2020). The capabilities of human resources in any organization can negatively

affect the digital supply chain project in terms of making it more expensive and thus not achieving the expected performance. In order to avoid this, it is suggested to the organizations before starting the digital supply chain project that they should develop a deeper understanding of the role of employees and their required capabilities (Hecklau et al., 2016). Security and privacy are also common issues with the use of cloud computing (Botta et al., 2016).

In this study, the Technology Acceptance Model TAM was used to identify the acceptance of the use of cloud computing to enhance the digital supply chain, as it is one of the widely used models in the information systems and technology related literature (Autry et al., 2010; Ilie et al., 2009). TAM suggests that there are two factors that influence the decision of individuals and organizations to adopt information technology. The first is the perceived usefulness related to the organization's belief that the technology will enhance productivity, while the second is the perceived ease of use, which means that the organization's management believes that the use of supply chain technology will not require additional effort or time (Autry et al., 2010).

## 2. Literature review and hypotheses development

Information systems have provided organizations with effective means of managing and collecting data at low cost (Misra & Mondal, 2011). Information technology is essential for information visibility and flexibility along the supply chain (Cegielski et al., 2012). Previously, supply chain operations only focused on internal operations. Supply chain operations have been improved through various information-sharing technologies such as the Internet, wireless communications, and global positioning satellites GPS (Nugraha & Hakimah, 2019).

In this direction, cloud computing has been widely adopted due to its service-oriented architecture and virtualization in addition to the economic benefits that reduce the expenses of current applications (Subashini & Kavitha, 2011). Cloud computing has reshaped information technology within organizations and between organizations, changing the way business is conducted (Alenezi et al., 2019), it is gaining a place in a new arrangement for information technology in organizations, as it offers many benefits such as lower cost and high flexibility that help in dealing with high elasticity of demand (Alashhab et al., 2021). The cloud computing allows relying on the Internet to share data and store information in servers, and it is provided as a service upon customer request, which has a very positive impact on customers and organizations, as customers will be able to access their data and documents from any device (Hassan et al., 2018). The main advantage of cloud-based systems is to provide easy connectivity and simplify work on every part of the supply chain. That is, it allows supply chain information to collaborate between partners in the supply chain system, and supply chain members can enter and add to the cloud collaborative environment. It also allows the customer network to have a transparent view of the entire system. Cloud-based systems are able to provide instant visibility of inventory and shipments and improve tracking of logistics services (Animesh Tiwari, 2013). The digital supply chain concept is directly related to the general concept of Industry 4.0, and the Industry 4.0 concept refers to the transformation of business into digital and online production through the adoption of technological applications that lead to

revolutionary improvements in the design and manufacturing processes (Tjahjono et al., 2017) . Digital supply chains enjoy an accelerated life cycle and are constantly evolving and this development is due to the changes taking place in markets and the emerging needs in the era of the Industrial Revolution 4.0 (Garay-Rondero et al., 2020) Cloud computing is a technology that paves the way for transforming the traditional supply chain into a digital supply chain and enables the creation of connected, intelligent and scalable digital supply networks (Hermansson, 2016).

This paper provides an academic study to determine the various factors that organizations take into consideration in the decision to adopt cloud computing. Technology is adopted through various theories and models such as the Technology Acceptance Model (TAM) (Musawa & Wahab, 2012). That the theoretical model of cloud adoption needs to consider the factors that influence the intent to adopt and use cloud computing, which is an integral part of an organization's technological, organizational and environmental contexts (Khayer et al., 2020).

This study takes into account two technology adoption models, the TAM model and the TOE framework that have been widely adopted for studies in an organizational context. The TOE framework contains three main dimensions that affect the technology adoption process, including the technological dimension, the organizational dimension, and the environmental dimension. This framework has been used to facilitate understanding of the impact of these dimensions in adopting cloud computing technologies for the digital supply chain (Chong & Chan, 2012; Gangwar et al., 2015a; Jianwen & Wakil, 2019; Khayer et al., 2020; Lian et al., 2014; Modisane & Jokonya, 2021).

Figure 1 illustrates the study model and shows the relationships between the factors.

**2.1 Technological Factor**

***Compatibility and TAM***

The technological factor is the main factor in adopting cloud computing (Chen & Zhao, 2012)**.** It is essential to understand whether the technology is compatible with the existing technology architecture of the organization (Gangwar et al., 2015a). The level of system compatibility is a major factor in the technical dimension. If the cloud computing technology is compatible with the current systems, it will be more useful and also more feasible for adopting the cloud computing technology (Lin & Chen, 2012; Liu, 2011). So, following hypotheses are proposed:

H1a: Compatibility has a positive significant effect on PEOU.

H1b: Compatibility has a positive significant effect on PU.

***Security and TAM***

Typically, security concerns relate to data loss or insecure interfaces, the security is assumed to be directly related to the credibility of the cloud computing and positively related to the decision to adopt the cloud. The reliable and secure platform for cloud computing is the reason organizations tend to adopt it (P. Gupta et al., 2013).

Security is enhanced by monitoring activities and tracking transactions, as well as reducing risks to a minimum through authentication and encryption, all of which are major competitive advantages (Mahesh et al., 2011). So, following hypotheses are proposed:

H2a: Security has positive significant effect on PEOU.

H2b: Security has positive significant effect on PU.

### 2.2 Organizational factor

***Top management and TAM***

Several researchers have indicated that organizational factors such as size, adequacy of resources, and top management effectively support the main choice of cloud computing (Bounfour et al., 2022). Top management support is critical to creating the conditions to support and provide adequate resources for new technology options (Wang et al., 2010). The contribution of top management is essential in the decision to adopt cloud computing and implementation procedures because it ensures that sufficient resources are allocated to support implementation so that a common idea will be formed within the company and the option of cloud computing is enabled, the integration of resources and the supporting environment are necessary for the adoption of cloud computing (Jianwen & Wakil, 2019). Top management plays an important role because implementing cloud computing may include resource integration and process reengineering, as a positive relationship is observed between top management and the adoption of new technologies (Naushad & Sulphey, 2020). So, following hypotheses are proposed:

H3a: Top management support has a positive significant effect on PEOU.

H3b: Top management support has a positive significant effect on PU.

***Organizational readiness and TAM***

Some literature indicated that there are indications of the importance of organizational readiness of customers in adopting technology (Vaittinen & Martinsuo, 2019).

Tan et al. (2007) argued that organizational readiness is the organization's management having the awareness, resources, and governance to adopt IT. Musawa & Wahab (2012) described the organizational readiness in two aspects, the first represented by the financial readiness, while the second represented by the technological readiness. Based on this, organizations that have an effective infrastructure, experienced workers, and financial support will achieve more usefulness from technology (Gangwar et al., 2015b). So, following hypotheses are proposed:

H4a: Organizational readiness has a positive significant effect on PEOU.

H4b: Organizational readiness has a positive significant effect on PU.

### 2.3 Environmental factor

***Competitive pressure and TAM***

The environmental factor is a critical factor in adopting cloud computing, and it refers to the organization affected by the competitors within the market (Zhu et al., 2003). Competitive pressure is one of the basic variables in the environmental context (Hossain & Quaddus, 2011). With the rapid advancement of industry changes, companies are feeling the pressure, so they must be aware of whether their competitors are adopting new technologies (Jianwen & Wakil, 2019). Competitive pressure is an important environmental factor as it motivates organizations to adopt new technological innovations (Sun et al., 2020).

Porter & Millar (1985) mentioned the relationship between competitive strength and technological innovation, and indicated that by adopting new technology, an organization may be able to change relative positions in competition, influence the structure of the industry, and take advantage of new ways to outrun competitors. By adopting cloud computing, companies gain many benefits, including improved market vision realization, higher operational efficiency, and more accurate data collection (Misra & Mondal, 2011). So, following hypotheses are proposed:

H5a: Competitive pressure a has positive significant effect on PEOU.

H5b: Competitive pressure a has positive significant effect on PU.

### 2.4 PEOU, PU and adoption

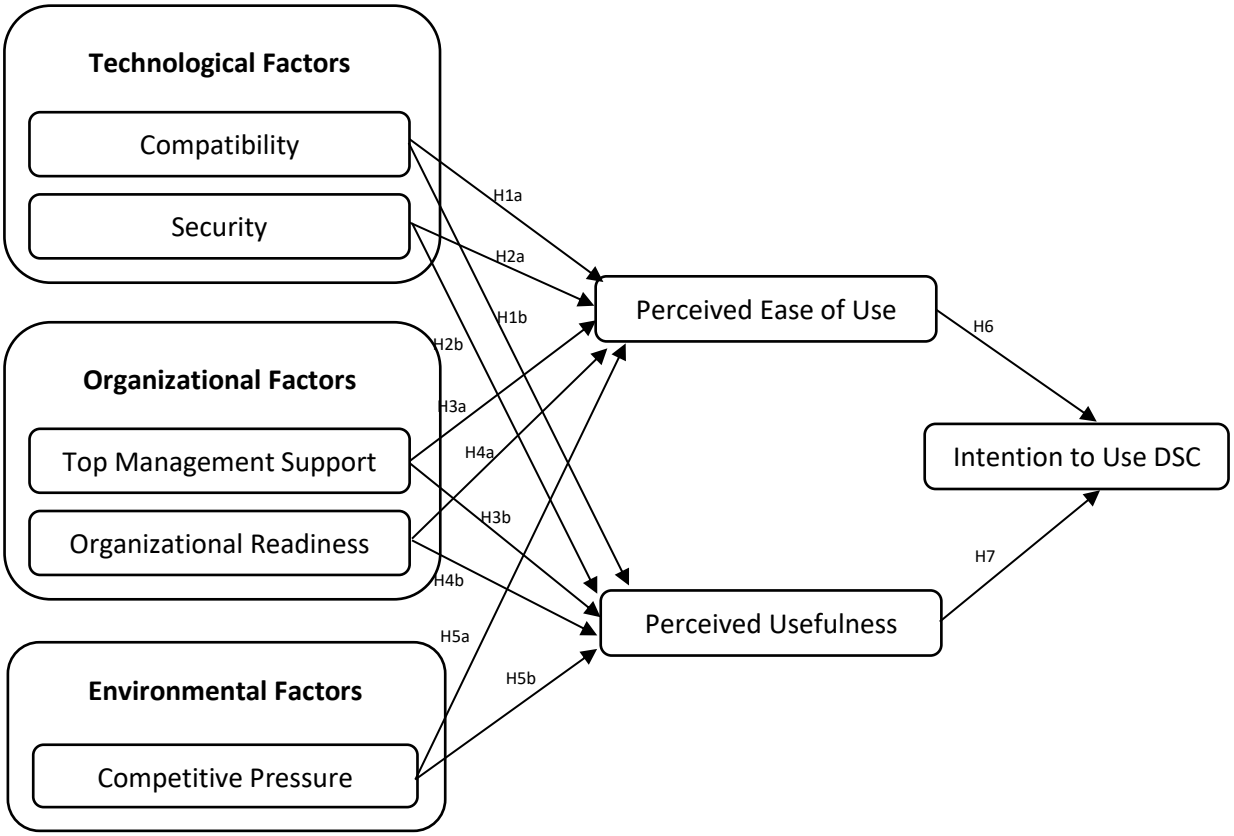
Perceived ease of use refers to the degree to which the user expects the target system to be effortless (Davis, 2013). When technology is easy to use, people will be more willing to learn about its features, adopt it and continue to use it (Hamid et al., 2016). So, following hypotheses are proposed:

H6: PEOU has positive effect on cloud computing adoption.

The perceived usefulness defines that it is likely that using a specific application system will increase its functionality within an organizational context. Therefore, the following hypothesis has been proposed:

H7: PU has positive effect on cloud computing adoption.

**Figure 1. Research model**




Prepared by researchers

## 3. Research methods

### 3.1 Research design

In the current research, the inductive approach was used because it is consistent with the technological acceptance model, and the research was carried out using the survey method, so the research is classified within the quantitative research. A number of scales adopted in previous studies have been used, with their translation into Arabic, so that participants can understand and answer them. Table 1 shows the sources of the Measurement.

**Table 1. Measurement sources**

| Constructs | Dimentions | Items | References |
|---|---|---|---|
| Technological factors | Compatibility | 5 | (Wang et al., 2010) |
| | Security | 4 | (Molla & Licker, 2005; Soliman & Janz, 2004) |
| Organizational factors | Top management support | 2 | (Tan et al., 2007; Wang et al., 2010) |
| | Organizational readiness | 3 | (Tan et al., 2007; Wang et al., 2010; Zhu & Kraemer, 2005) |
| Environmental factors | Competitive pressure | 3 | (Gangwar et al., 2015a; H. F. Lin & Lin, 2008) |
| TAM | Perceived ease of use | 3 | (Gangwar et al., 2015a; Venkatesh, Viswanath ; Davis, 2000) |
| | Perceived usefulness | 3 | (Gangwar et al., 2015a) |
| | Intention to use DSC | 3 | (Gangwar et al., 2015a; S. Gupta et al., 2020) |

### 3.2 Data collection

For the purpose of data collection, an electronic questionnaire was used that was distributed through the official social media to a sample of workers in the administrative units at the University of Mosul and specialized in working in the field of supplies and warehouses. The number of participants reached 224 employees. A five-point Likert scale was used, which begins with strongly agree = 5, and ends with strongly disagree = 1.

### 3.3 Participant Demographics

Based on the results of the survey conducted in this study, the results of the demographic characteristics of the research sample, which consisted of 224 participants, indicated that the percentage of males was 53.6%, while the percentage of females was 46.4%. As for the age groups, it is clear from Table 2 that the age group 26-36 obtained the highest percentage among the age groups of the research sample 41.6%. The results also showed that the married group scored the highest rate 70.5%. While the percentage of those with a bachelor's degree reached 41.1%, which is the highest percentage at the educational level.

Among the respondents, 62.1% used the Internet daily for between one and five hours.

**Table 2. Demographics of the research sample**

| Category | Item | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 120 | 53.6 |
| | Female | 104 | 46.4 |
| Age | 15-25 | 26 | 42.9 |
| | 26-36 | 96 | 41.6 |
| | 37-47 | 83 | 37.1 |
| | 48-58 | 11 | 4.9 |
| | 59-more | 8 | 3.6 |
| Marital status | Single | 62 | 27.7 |
| | Married | 158 | 70.5 |
| | Widower | 2 | 0.9 |
| | Divorced | 2 | 0.9 |
| Educational level | High school | 7 | 3.1 |
| | institute | 11 | 4.9 |
| | Bachelor | 92 | 41.1 |
| | Diploma | 7 | 3.1 |
| | Master | 84 | 37.5 |
| | PhD | 23 | 10.3 |
| hours of internet use | 1-5 | 133 | 62.1 |
| | 6-10 | 73 | 34.1 |
| | 11-more | 8 | 3.7 |

## 4. Data analysis and results

The data was analyzed using structural equation modeling using unweighted least squares by Amos 26 software because it is one of the analyzes directed towards testing causal relationships in theories and models. The analysis was conducted in two stages according to a proposal (Anderson & Gerbing, 1988), the first stage was the confirmatory factor analysis CFA, for the purpose of verifying the quality of the model, while the second stage was the structural model to test the hypotheses.

### 4.1 Measurement model

The measurement model was used to verify the quality of the model and its conformity with the field data, and after conducting the analysis, 13 items were excluded because it did not achieve the cut-off point related to loading the item to its latent factor. The results of the table showed that most of the saturations achieved the threshold recommended by the studies, which is 60%.

For the purpose of verifying the quality of the measurement model, the results of the analysis revealed that the values of the conformity quality indicators exceeded the thresholds agreed upon in the studies (CMIN/DF = 0.76, RMR = 0.05, GFI = 0.97, AGFI = 0.96, PGFI = 0.75, NFI = 0.94, RFI = 0.92, PRATIO = 0.84, PNFI = 0.78)

**Figure 2. Measurement model**

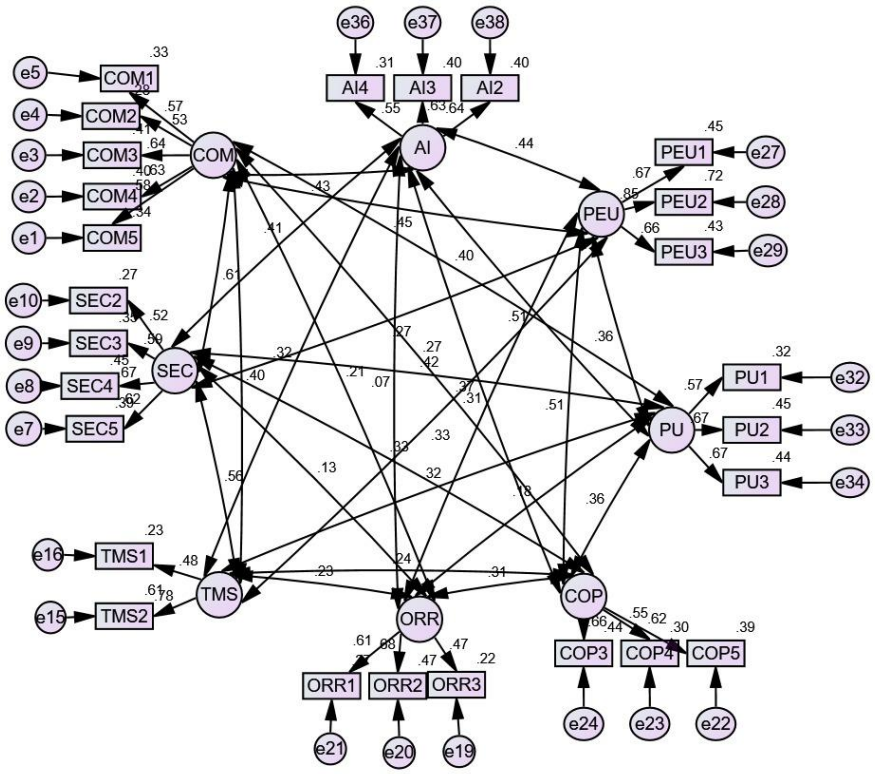



Table 3 shows indicators of good model matching, which indicate that the study model is identical in its indicators to the standard indicators. As for the results of the regression relationships between the latent dimensions and their observations, most of them were significant in terms of the probability value (P-Value), which appeared less than 0.05, and this indicates that the data are valid for statistical analysis.

Table 3. Standardized regression weights

| | Construct | Item | Loading | Lower | Upper | P-Value |
|---|---|---|---|---|---|---|
| Technological factor | Compatibility | COM1 | 0.575 | 0.383 | 0.701 | 0.025 |
| | | COM2 | 0.530 | 0.390 | 0.670 | 0.010 |
| | | COM3 | 0.638 | 0.483 | 0.753 | 0.018 |
| | | COM4 | 0.629 | 0.502 | 0.744 | 0.007 |
| | | COM5 | 0.584 | 0.474 | 0.720 | 0.002 |
| | Security | SEC2 | 0.519 | 0.345 | 0.657 | 0.012 |
| | | SEC3 | 0.592 | 0.412 | 0.700 | 0.020 |
| | | SEC4 | 0.668 | 0.547 | 0.766 | 0.011 |
| | | SEC5 | 0.623 | 0.493 | 0.756 | 0.005 |
| Organizational factor | Top management support | TMS1 | 0.475 | 0.198 | 0.629 | 0.025 |
| | | TMS2 | 0.778 | 0.573 | 1.176 | 0.007 |
| | Organizational readiness | ORR1 | 0.610 | 0.425 | 0.826 | 0.007 |
| | | ORR2 | 0.684 | 0.481 | 0.973 | 0.008 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | ORR3 | 0.470 | 0.251 | 0.720 | 0.009 |
| Environmental factor | Competitive pressure | COP3 | 0.663 | 0.481 | 0.797 | 0.018 |
| | | COP4 | 0.550 | 0.401 | 0.725 | 0.007 |
| | | COP5 | 0.622 | 0.419 | 0.787 | 0.008 |
| TAM factors | Perceived ease of use | PEU1 | 0.672 | 0.540 | 0.783 | 0.011 |
| | | PEU2 | 0.850 | 0.737 | 0.947 | 0.016 |
| | | PEU3 | 0.659 | 0.488 | 0.806 | 0.007 |
| | Perceived usefulness | PU1 | 0.567 | 0.385 | 0.784 | 0.005 |
| | | PU2 | 0.668 | 0.494 | 0.793 | 0.019 |
| | | PU3 | 0.666 | 0.525 | 0.806 | 0.011 |
| | Intention to use DSC | AI2 | 0.635 | 0.514 | 0.713 | 0.008 |
| | | AI3 | 0.629 | 0.516 | 0.746 | 0.004 |
| | | AI4 | 0.552 | 0.371 | 0.691 | 0.014 |

### 4.2 Structural model

After conducting the confirmatory factor analysis (CFA) and making sure that the current study model matches the data obtained from the field of study and the model reached the required quality standards of conformity, it became possible to test the hypotheses that were identified according to the current study model for the purpose of testing and verifying the validity of the study hypotheses. Building a structural equation model, as shown in Figure 3, as well as clarification of the values of the tests in this model.

**Figure 3. Hypothesis Test**

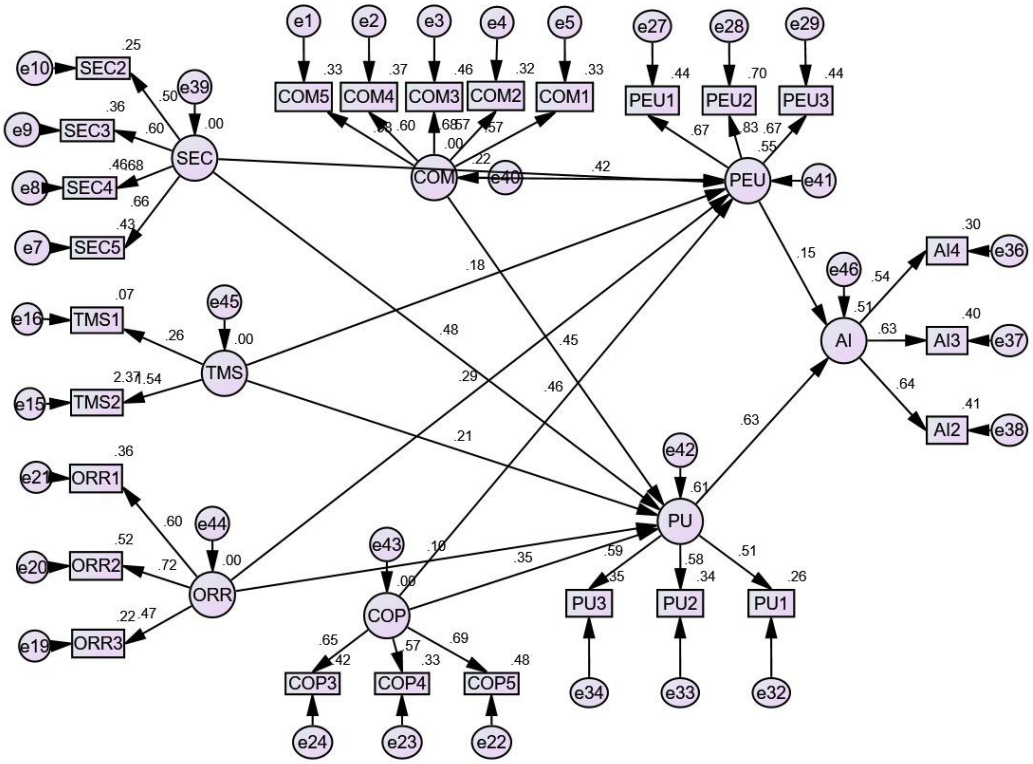



Table 4 shows that the concordance variable has a significant effect on perceived ease of use ($\beta$ = 0.468, p = 0.012) with confidence limits ranging from (0.255 and 0.767), and perceived usefulness ($\beta$ = 0.359, p = 0.005) with confidence limits ranging (0.181and 0.566), and since this result does not include the value zero between its terms, the hypotheses H1a, H1b are accepted.

As for the effect of confidentiality, it is clear from the table 4 that confidentiality has a significant effect on the perceived ease of use ($\beta$ = 0.285, p = 0.034) with confidence limits ranging between (0.035 and 0.526), and perceived utility ($\beta$ = 0.435, p = 0.003) with confidence limits. It ranges from (0.260 and 0.770), and since the confidence intervals do not contain zero, the hypotheses H2a and H2b are supported.

For the purpose of verifying the significance of the effect of top management support, the results reveal that there is no effect of top management support on perceived ease of use ($\beta$ = 0.075, p = 0.258) and perceived utility ($\beta$ = 0.062, p = 0.375), so the hypothesis H3a and H3b are rejected.

It is clear from the results that organizational readiness has a significant effect on perceived ease of use (β = 0.286, p = 0.005) with confidence limits ranging (0.073-0.612), but its effect is not significant on perceived utility ($\beta$ = 0.069, p = 0.321) with confidence limits It ranges between (-0.102 and 0.277), so hypothesis H4a is acceptable while hypothesis H4b is not supported.

Competitive pressure has a statistically significant positive effect on perceived ease of use ($\beta$ = 0.439, p = 0.009) and perceived usefulness ($\beta$ = 0.235, p = 0.009), so

hypothesis H5a and H5b are supported.

The results showed that the intent to adopt the digital supply chain is not affected by the perceived ease of use ($\beta = 0.147$, p = 0.593), which confirms that the confidence limits range between (-0.567 and 0.692), while it is positively and statistically affected by the perceived usefulness ($\beta = 0.854$, p = 0.013), and accordingly, hypothesis H6 is rejected, and hypothesis H7 is accepted.

**Table 4. Hypothesis test**

| Hypo. | Parameter | | | Std. Beta | Lower | Upper | P-Value | Decision |
|---|---|---|---|---|---|---|---|---|
| H1a | COM | ➔ | PEU | 0.468 | 0.255 | 0.767 | 0.012 | Supported |
| H1b | COM | ➔ | PU | 0.359 | 0.181 | 0.566 | 0.005 | Supported |
| H2a | SEC | ➔ | PEU | 0.285 | 0.035 | 0.526 | 0.034 | Supported |
| H2b | SEC | ➔ | PU | 0.435 | 0.260 | 0.770 | 0.003 | Supported |
| H3a | TMS | ➔ | PEU | 0.075 | - | 0.161 | 0.258 | Unsupported |
| H3b | TMS | ➔ | PB | 0.062 | - | 0.142 | 0.375 | Unsupported |
| H4a | ORR | ➔ | PEU | 0.286 | 0.073 | 0.612 | 0.005 | Supported |
| H4b | ORR | ➔ | PU | 0.069 | -0.102 | 0.277 | 0.321 | Unsupported |
| H5a | COP | ➔ | PEU | 0.439 | 0.439 | 0.657 | 0.009 | Supported |
| H5b | COP | ➔ | PU | 0.235 | 0.061 | 0.398 | 0.009 | Supported |
| H6 | PEU | ➔ | AI | 0.147 | -0.567 | 0.692 | 0.593 | Unsupported |
| H7 | PB | ➔ | AI | 0.854 | 0.172 | 2.588 | 0.013 | Supported |

## 5. Discussion

The aim of this study is to expand our understanding of the adoption of cloud computing by identifying the factors that support the adoption of its adoption or not.

The results revealed that there is a significant effect of compatibility in both the perceived ease of use and the perceived usefulness. This means that an organization has an IT infrastructure that is compatible with the requirements of cloud computing on the one hand, and with the infrastructures of the rest of the organizations in the supply chain, this will lead to the acceptance of the digital supply chain due to The ease that is expected to be achieved, as well as the expected benefits of shortening time and reducing costs, this result is consistent with what was reached (Kanchanatanee et al., 2014).

From the perspective of information security, the results of the analysis of this variable showed a significant effect on the perceived ease of use and the perceived usefulness, meaning that whenever the organization is equipped with technologies that maintain information security, this will encourage workers to accept the use of cloud computing and the digital supply chain because of the expected ease, and benefits this result is consistent with study Kanchanatanee et al. (2014) in which it was found that perceived security affects usability and perceived usefulness.

The support of top management is one of the important variables in the success of adopting new technology, and the results of the analysis showed that the top management support has a positive and significant impact on both the perceived usefulness and the perceived ease of use, which means that the organization's top management orientation towards providing the required facilities will contribute to

encouraging employees towards adopting the digital supply chain due to the increase in the level of expected benefits, this result is consistent with the findings of Lin (2010) that the top management support affects the expected usefulness of the ERP system. Management support can be achieved by encouraging individuals to participate in the digital supply chain, and by providing training.

Organizational readiness is one of the important organizational factors in the adoption of information technologies, and the results revealed that organizational readiness has a statistically significant effect on the perceived ease of use, but it does not affect the perceived usefulness, and this indicates that the organization that has organizational readiness will work to provide the requirements that make workers feel the ease of using cloud computing and applying it in the digital supply chain, this result is consistent with the study of (Hamundu et al., 2021), and the reason why organizational readiness does not affect the perceived usefulness is that workers have the capabilities and desires that enable them to use the digital supply chain even if the organization does not have the required readiness, and these are located The result is on the same line with study (Gangwar et al., 2015b).

Many organizations behave in the direction of expanding the use of information technology when faced with competitive pressure. The results showed a significant positive effect of competitive pressure on both the perceived ease of use and the perceived usefulness. This indicates that facing competitive pressure encourages workers to create an expected benefit related to improving the organization's position in the market, and they also have positive perceptions of ease of use, consistent with this finding with a study (Bounfour et al., 2022).

The results showed that the perceived ease of use does not significantly affect the intention to use cloud computing in the digital supply chain, which means that the participating individuals are willing to adopt the digital supply chain even if it is not easy, which indicates the respondents' need for this system, this result is consistent with the study of Kanchanatanee et al. (2014) in the field of e-marketing. This is reinforced by the presence of a statistically significant positive effect of the perceived benefit on the intent to use cloud computing in the digital supply chain.

## 6. Recommendations:

In light of the conclusions reached by the researchers, we note the lack of participation of experiences over the age of 59 years and over, and thus we recommend the need for the participation of these age groups because of their experiences and skills that must be benefited from. Supporting senior management because it plays an important role because the implementation of cloud computing, as it was noted that there is a positive relationship between senior management and the adoption of new technologies, as the contribution of senior management is essential in the decision to adopt cloud computing. As for organizational readiness, the level of availability of technical and financial resources in the organization must be raised to what It is of great importance in adopting new technology.

## 7. Future studies

Future studies can expand this study based on its results, as the main limitations of this study are due to different requirements towards adopting cloud computing technology. Future research in this study should extend to other categories and industry environments may differ between different countries and therefore future research should make comparisons between countries to enhance the completion of this study.

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