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## Impacting Digital Competence on Entrepreneurial Alertness: An Analytical Research at the Central Bank of Iraq

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### Abstract:

In the era of the digital economy, public organizations need to consolidation the capabilities of entrepreneurial alertness to reduce the risks of sudden transformations and changes, and to find effective mechanisms to discover and invest in environmental opportunities proactively, as this concern has become a knowledge gap in public sector institutions, the current research aims to identify the role of digital competence in influencing on entrepreneurial alertness in the Central Bank of Iraq (CBI), the descriptive analytical approach was used as a research method to describe and analyze the main research variables. digital competence as an explanatory variable includes three dimensions: digital infrastructure, digital integration, and digital management, while entrepreneurial alertness as a responsive variable comprises three dimensions: scanning and search, association and connection, and evaluation as well as judgment. The research sample included the middle and senior administrative leaders of the CBI through using proportionate stratified random sampling to get a good representation of each class of society (n=125). The statistical package for social sciences (SPSS) and Structural Equation Modeling (SEM) by AMOS were used to analyze the research data. The results indicated that there is a statistically significant positive correlation and influence relationship between the two main research variables and their sub-dimensions. The most important dimensions of digital competence in influence and interest were digital infrastructure and digital management. However, the influence of digital integration on entrepreneurial alertness was insignificant in the CBI.

**Paper type:** Research paper.

**Keywords:** Digital Competence; Digital Infrastructure; Digital Integration; Digital Management; Entrepreneurial Alertness; The Central Bank of Iraq.

## 1. Introduction

Due to the tremendous technological advancement that has come to dominate all facets of modern organizations, particularly the development of artificial intelligence tools, today's business environments are characterized by extreme complexity and uncertainty. This has increased organizations' responsibility towards the difficulty of competition and the exploitation of opportunities that present themselves. To adapt to future developments and lower their risks, firms of the modern period must develop novel methods and procedures to improve the attentiveness element of commercial organizations (Scuotto and Morellato, 2013).

In twenty-first century, governmental banking organizations resort to employing digital competence mechanisms such as digital infrastructure, digital integration, and digital management to enhance their entrepreneurial alertness towards active scanning of the business environment and the continuous search for environmental signals (information). This may discover environmental opportunities, exploit them proactively, and connect between groups of interconnected information to generate coherent knowledge representations. In addition, environmental signals can find opportunities of value, communicate with social networks to generate appropriate knowledge momentum about a specific field, as well as conduct an assessment of potential opportunities among several options to distinguish the best one (Espinosa et al., 2021).

### 1.1 Literature Review

Several studies dealt with this topic such as a study by Valliere (2013) who developed a model of alertness through three planning precedents: schematic richness, schematic correlation, and schematic initialization, by investigating the Kerzner's concept of entrepreneurial alertness which includes mechanisms and roots based on decision theory and plan theory to enhance entrepreneurial alertness. Campos (2016) investigated creativity as an intermediate variable existing within the relationship between entrepreneurial passion and entrepreneurial alertness. Significant positive relations are obtained among entrepreneurial passion, entrepreneurial alertness, and creativity. However, Delač (2018) investigated the determinants of entrepreneurial alertness through the effect of demographic and metacognitive variables, the results demonstrate a strong positive relationship among entrepreneurial alertness, metacognitive knowledge, and experience. Furthermore, prior work experience, year of the study program, and an academic level play an important role in determining entrepreneurial alertness. Overall, the model explains 38.6% of the variance in the response variable. In contrast, Chavoushi et al. (2021) explored the origins of this concept in cognitive psychology to identify potential conceptual gaps, limitations, or extensions that may be compatible with current entrepreneurial research contexts. Fellnhofner (2021) showed how digital applications could drive entrepreneurial readiness across heterogeneous innovation systems. This work explored how digital technologies alert people to potential entrepreneurial opportunities. It thus contributes to research on digital economies by evaluating the potential of digital technologies to enhance the psychological initiation drivers of any entrepreneurial endeavour. Amanah et al (2023) studied the role of proactive behaviour in entrepreneurial alertness through a mediating role of dynamic capabilities. The results approved the mediating role of dynamic capabilities in enhancing the relationship between proactive behaviour and entrepreneurial alertness. Therefore, Iraqi governmental telecommunication enterprises are recommended to benefit from the dynamic capabilities of employees (e.g., sensing, learning, integrating, and coordinating capabilities) to maximize the positive influence of proactive behaviour on entrepreneurial alertness, and improve the prediction of production risks and threats.

The current research gains its importance from the importance of the study variables represented by digital competence and entrepreneurial alertness, as they are modern and important variables in the literature of administrative thought as they constitute a knowledge tributary to enhance theoretical knowledge of business, as well as the application of research in the government banking sector, which is represented in the CBI. It also opens the door for other

researchers to present future studies on digital competence, entrepreneurial alertness, and model development.

The power of perceiving and observing the current and future environmental changes depends on the proactive behaviour of organizations and organizational entities. Whereas, the great capabilities of organizations in the technological aspect and the reliance on advanced digital infrastructure, the greater the state of sensing towards opportunities (discovery and exploitation). This represents a research gap that deserves study, attention, and effective solutions.

The research problem lies in the speed of changes and transformations in business environments, especially in the new millennium, and the inability of business organizations to pay attention to these transformations and environmental opportunities proactively. The current research seeks to bridge that gap by answering the following question: Does digital competence play an influential role in entrepreneurial vigilance practices in the CBI? The following questions emerge from this question:

- What is the level of relative importance level of digital competence from the point of view of respondents in the CBI?

- What is the relative importance level of entrepreneurial alertness from the point of view of respondents in the CBI?

- What is the nature of research variables in terms of relationship and influence from the point of view of respondents in the CBI?

The objectives of this research include answering the research questions that emerged from the research problem, which are summarized:

- to identify the level of interest in digital competence in practice and application in the CBI according to the research sample,

- to identify the level of interest in entrepreneurial alertness in practice and application in the CBI according to the research sample, and

- to discover the nature of the effectual relationship between the research variables (digital competence and entrepreneurial alertness) in the CBI.

## 2. Material and Methods

The theoretical framing of the study variables is based on previous literature that dealt with the most prominent concepts, elements, characteristics, and the importance of these variables, which are considered basic foundations for any cognitive framing that can contribute to building a solid base for organizations.

### 2.1 Digital Competence

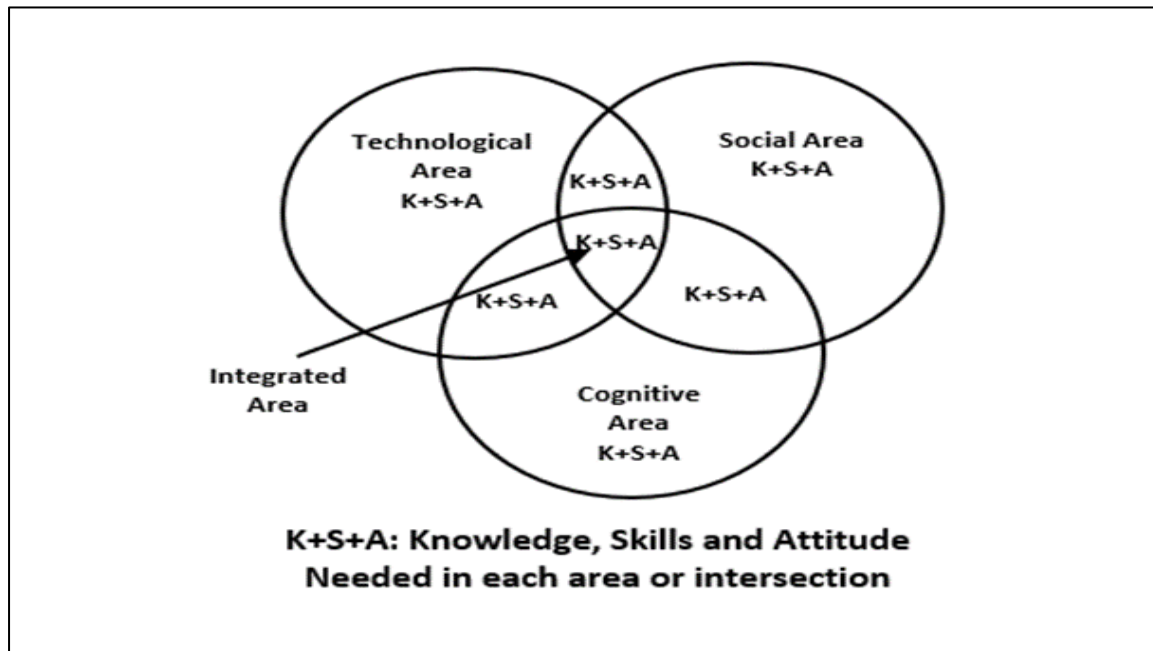
In recent years, the study of knowledge management has given substantial attention to the phenomena of digital transformation, taking into account the significant societal and industrial changes brought about by the use of digital technology (Casalino et al., 2020). To improve organizational performance, organizations are exploring a variety of organizational-level digital transformation strategies and moving in that direction (Yu and Moon, 2021). Any definition of digital competence requires a theoretical, semantic, and lexical stance, even the name that should be given to the idea is not without controversy. Although several pertinent authors from across the world use the term "Digital Literacy" Bawden (2001); Belshaw (2012); Eshet-Alkalai (2004), the term "Digital Competence" is favoured in the organizational and banking context (Barak, 2018). The term "Digital competence" was used in this paper for two main purposes. Digital competence is more frequently used as a broader and educationally oriented concept European Parliament and the Council (2006), whereas digital literacy is more frequently used in the context of European initiatives and policy when discussing inclusion dynamics (Ala-Mutka, 2011). Additionally, the term "competence" describes how a discipline is divided into several

interconnected information, abilities, and attitudes—the three learning domains proposed by Bloom (1956)—that make up a discipline. As a result, discussing competence rather than literacy emphasizes its broader educational conception on the one hand and its defining components on the other (Caena and Redecker, 2019). Due to the distinction achieved by competence in performance and the empowerment of the individual within the organization, the term competence has attracted a lot of attention from researchers, practitioners, and those interested in management in general and human resource management in particular in recent years (Bronin et al., 2021). The Latin word "Competere," which means appropriate, is the root of the English word "competence." According to Horton et al. (2002), it expresses the actions the organization will need to do in the future to reach its objectives through the individual's capacity to adjust to changes in the external environment (Al-Najjar and Shuaib,2020).

Othman (2021) defines competence as a set of knowledge, skills, and abilities in a particular field that a person possesses to qualify him/her to carry out a particular task or job as required. Chuku and Onuoha (2022) find it to be a system of talents, competencies, or individual and/or collective skills sufficient to accomplish a particular goal. Competence is the exact antithesis of every other system that includes aspects of prejudice, partiality, and discrimination when select individuals with managerial, technical, or specialized skills (Qali, 2020). Digital competence is one of the eight core competencies for lifelong learning that the European Parliament has identified. It is comprised of knowledge, skills, attitudes, behaviours, as well as the confident and the deliberate use of information technology for work, play, and communication (Oberlander et al., 2020). This is a significant trend, particularly because the digital industry has been at the top of the European Union's agenda since 2014, particularly in terms of electronic skills, with the Digital Single Market (DSM). This is one of its priorities that requires the right support and training, leading to the formation of the digital skills and jobs coalition. Then there is a program designed to help everyone, not just IT specialists, improve their digital literacy (Bartolome et al., 2022). Thus, digital competence can reformulate knowledge to produce information to express oneself creatively (Hassan and Hamed,2022).

### 1.1 Domains of Digital Competence

Competence in an organizational setting can either be an individual characteristic or an organizational attribute, which includes the individual talents and collective knowledge of the organization's members. According to the IS literature, an organization may adopt and use technological advancements the more information it has about them (Carretero et al.,2017). The researchers concentrated on particular ICT competencies of managers and professionals at the individual level. At the organizational level, ICT competence refers to "the extent to which an organization is knowledgeable about and effectively utilizes IT tools to manage information within the organization." (Çıdık et al.,2017). Digital competence is the ability to use and combine one's knowledge (i.e., know-what), skill (i.e., know-how), and attitude (i.e., know-why) associated with three related competence areas, technological, cognitive, and social, to use new or existing ICT to analyze, select, and critically evaluate information to investigate and solve work-related problems and develop a collaborative knowledge base while engaging in organizational practices within a context (Norveel,2020). Figure 1 depicts the multi-dimensional notion of digital competence. A critical awareness of three complementing and coexisting areas of application or competence, namely technological, cognitive, and social, is required for the suggested conception of digital competence (Vieru et al.,2015).



**Figure 1: Digital Competence: A Multi-area Conceptualization. Source: (Vieru et al.,2015).**

The technological domain is supported by the knowledge, abilities, and mind-set required to investigate new technological contexts and flexibly deal with technological issues, such as resolving issues when the ICT used is inoperable, choosing the best ICT solution, and recognizing and utilizing icons and interfaces of specific ICT (Carretero et al.,2017). Thus, an understanding of hardware, software, networks, social media, etc. could be an example of technological knowledge. Examples of technological abilities include the capacity to use standard software applications or customized tools supporting business tasks, the capacity to make use of ICT opportunities, particularly the Internet, or the capacity to carry out the technical operation parts of digital tools (Simon et al.,2017).

The ability to read, select, interpret, and evaluate data and information taking into account their pertinence and reliability underpins the cognitive domain (Al-Hamdani,2016). It includes dealing with language, organizing data, analysing information, and choosing as well as interpreting graphs. General literacy, such as reading and math, as well as critical thinking and problem-solving" are examples of cognitive talents (Vieru et al.,2015). The social domain is supported by the knowledge, abilities, and mind set required to collaborate with others using ICT under the work standards and values already in place inside the organization. Additionally, concerns in the social sphere include issues relating to the responsible, moral, a secure use of ICT, risk awareness, privacy, property rights, and social media exposure. Consequently, some examples of social skills are effectively expressing and communicating, understanding the potential and limitations of each type of media collaboration with potentially global reach, constructing and maintaining a system of personal communication links with relevant people and networks, extending social and professional networks outside the physical environment, participate in digital activities, etc. (Abidin,2023). The integrated domain is where the three major domains meet, and it is supported by the knowledge, abilities, and attitudes required to integrate ICT into organizational activities and cooperatively create new knowledge bases. This means that the three sectors must be integrated to do. Therefore doing necessitates that people comprehend the potential of the technologies that make it possible for people to share information and work together to create new knowledge (Ala-Mutka,2011).

## 2.2 Dimensions of Digital Competence

The current study uses the digital competence model, which consists of three basic dimensions manifested (digital infrastructure, digital integration, and digital management), to deal with the digital environment based on the competence of information technology. This model is based on the basic competence theory and the competence theory based on the investment of resources, according (Yu and Moon,2021).

### 2.2.1 Digital Infrastructure

Digital infrastructures are described as shared, unrestricted, heterogeneous, open, and evolving sociotechnical systems that comprise a variety of ICT capabilities, uses, processes, and design communities. These systems are frequently labor-intensive to construct, expensive to purchase, and require careful standard-setting to define interfaces. Additionally, the primary behaviors, which are dependent on particular paths such as innovation paths and numerous value paths, add to the resistance to change in the direction of the construction of infrastructures (Montealegre et al., 2019). According to Kornberger (2017), digital infrastructure is a relational term made up of a confluence of digital technologies, physical networks, institutional configurations, cultural norms, and social agreements that produce cognitive value for businesses (Traskman, 2022).

### 2.2.2 Digital Integration

Organizations must embrace digital integration in the age of big data, artificial intelligence, and the Internet of Things (IoT), especially in light of the availability and widespread use of digital data in our public institutions. The sensitive nature of this data raises several important issues, such as privacy, that must be addressed. Then, a requirement is for security, interoperability, and dependability to be handled, managed, and maintained in a cohesive system (Fatoum et al., 2021). According to Yaraş and Oztürk (2022), digital integration is the process of effectively integrating and connecting the various information and communication technology system components (both tangible and intangible) and human resources. This is done in response to the changing business processes.

### 2.3.3 Digital Management

One of the relatively new terms created by the variables of digital reality is "digital management." Since technology now plays a significant role in many operations and procedures in organizations operating in the new millennium, many digital concepts—including "digital management"—have emerged. Digital management is now referred to in the administrative literature as the use of information technology and the various available means of communication and work per the principles of digitization to improve and increase the production of management and its various sectors by relying on information systems and modern technologies for the development of institutions (Abuselidze et al., 2022). Due to the need for multidisciplinary work teams in the age of digital transformation, bridging, and synergy become more crucial because management's primary role in this transformation is to meet business needs and align aspirations and ambitions to create commercial value. Additionally, as a result of the need to alter how enterprises are managed due to the adoption of digital technologies, management's function develops to become more innovative and adaptable (Nizyev, 2022).

## 2.3 Entrepreneurial Alertness

Due to its importance as a fundamental tenet of entrepreneurship, the concept of alertness has recently occupied a prominent position on the study agenda for this field. Researchers from the domains of psychology, economics, strategy, and entrepreneurship have all contributed to this rich area of study. The dynamics of the process of identifying opportunities with business potential (Daniel et al., 2021). The Austrian economist Kerzner, whose writings serve as the foundation for the conceptualization of alertness, claimed that alertness reflects a passionate

tendency of man to formulate a picture of the future and represents a receptive attitude to available opportunities that have not yet been invested. He further claimed that the most prepared people carry an "antenna" that enables them to identify gaps with limited evidence (Montiel Campos, 2016). By presenting a clear and cohesive set of factors in the entrepreneurial context, which were manifested by three factors (environmental monitoring, resource interdependence, and idea evaluation), Tang et al. (2012) contributed through their research group to the development of ideas that establish the concept of alertness. By focusing on two fundamental traits—self-efficacy, which stands for psychological construction and represents personal readiness, and optimism, which stands for psychological development—cognitive psychologists have highlighted the significance of the role that psychological capital plays in promoting and developing entrepreneurial roles and tasks, particularly in the issue of alertness (Tang et al., 2021). A research includes self-efficacy for entrepreneurship and beliefs connected to the ability to fulfill entrepreneurial responsibilities and activities since self-efficacy relates to people's views that they can successfully accomplish a given task (Al-Mashaikhi, 2019). Optimism has a broader reach since it entails expectations of favourable outcomes in a variety of circumstances, particularly when there is no reliable information to back up these predictions. Both self-efficacy and optimism affect people's estimates of their potential, which increases their willingness to bear the costs associated with seeking out information, communicating with others, and evaluating opportunities. Highly optimistic people believe that they will experience positive outcomes in a variety of contexts (Luthans et al., 2008). While it is possible to distinguish between entrepreneurial alertness and related concepts in entrepreneurship literature, such as the entrepreneurial mind-set, which is a comprehensive conception of coming up with new ideas, evaluating risks, or starting and managing a new business. Entrepreneurial awareness is expressed by the person's ability to evaluate the chosen opportunity, in contrast to entrepreneurial alertness, which refers to how to start and run a new business (Asenge, 2018). Table 1 provides evidence of the researcher's review of a set of concepts and definitions for various researchers and writers in the field of entrepreneurship that represent the entirety of their intellectual and philosophical visions on the subject to provide more clarity regarding the concept of entrepreneurial alertness:

**Table 1: A collection of concepts for entrepreneurial alertness**

The researcher and year	The concepts
Uy et al.,2014	a remarkable capacity for spotting chances and being on the lookout for them to develop fresh approaches to meeting customer and market demands by using already-known information and conjuring up new goods and services.
George et al.,2016	The capacity to sense and recognize market ignorance, which is important for spotting business chances that firms overlook or ignore, only to be taken advantage of by other organizations to boost their entrepreneurial activity.
Delač et al.,2018	An important structure in the establishment of new projects or the development of existing pilot projects works to create a framework of knowledge and to get ready for the opportunities the environment presents.
Adomako,2020	The skill of processing information based on knowledge and the capacity to assess circumstances in light of environmental changes and determine their potential to yield returns of value to the organization.
Fellnhofer,2022	a specific collection of perceptual and inferential actions that rely on signals present in information through an educated and prudent evaluation of reality and provide flashes of insight.

**The source:** By researchers, according to the above sources.

It is evident from an examination of the prior literature on the idea of entrepreneurial alertness that the conceptual foundation of the phrase is founded on three fundamental perspectives that have their roots in the following three schools:

The behavioural perspective dates back to the school of organizational psychology based on the personal characteristics of individuals; the cognitive perspective, dates back to the empirical school based on cognitive models; and the economic perspective, which dates back to the Austrian economic school and Kerzner's arguments.

#### 2.4 The Importance of Entrepreneurial Alertness

Entrepreneurial alertness plays a significant role in the establishment, performance, growth, and prosperity of new organizations. In addition, it improves the agility of existing organizations. According to Berente (2005), the power of digital options combined with entrepreneurial alertness can support the organizational agility (Sharma, 2019). The ability to be entrepreneurially aware has been shown to directly influence decision-making because it increases one's level of independence, originality, and proactivity as well as their propensity to take risks. Moreover, it is well-recognized that entrepreneurship in both organizations and businesses is boosted by attentiveness. Entrepreneurial alertness, assists the strategic adaptability of the organization by improving its capacity to react swiftly to environmental changes through the adoption of competitive procedures (Cui et al., 2016). It opens opportunities and can unearth those that others overlook with great synergy, is found to be a significant driver of entrepreneurial intent (Wang and Huang, 2022). This mind-set is characterized by developing plans, continuously scanning the environment, and being fully prepared at any time. Combining analysis with experience may create a distinctive knowledge framework and turning knowledge into practical probabilities (Sharma, 2019).

#### 2.5 Dimensions of Entrepreneurial Alertness

One of the key components of investigating any topic in management and behavioural sciences is measurement. Among the first scholars to measure entrepreneurial alertness and examine its effects on organizational performance were Kish and Gilad (1991) and Busenitz (1996). A study on entrepreneurial alertness was envisioned using three complementary dimensions (scanning and search, association and collection, as well as evaluation and judgment). Therefore, scientific advancement in this area depends on the availability of a sufficiently valid measure for the scientific community to adopt, gather, and use knowledge, as shown in Figure 2. After evaluating earlier studies in the literature on entrepreneurial alertness, the researchers completely relied on the scale of Tang, (2012). This scale provides assessing the various facets of entrepreneurial alertness, uses in the breadth of experimental research, and correlates with some elements of the current study.

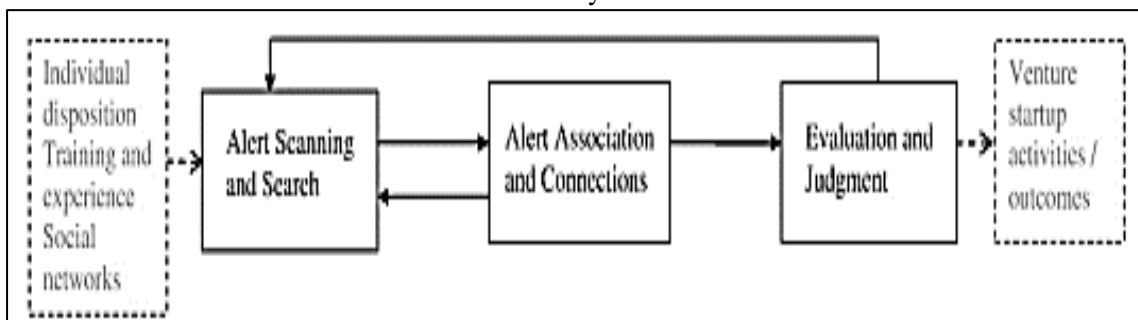


Figure 2: Model of entrepreneurial alertness. The source: (Tang,2012).



### 2.5.1 Alert Scanning and Search

According to Tang et al. (2012), the scanning and search dimension is an active and continuous process that involves people constantly looking for information relevant to finding new job opportunities. As a result of this continuous activity, potential opportunities may be partially or completely identified (Ali, 2019). Since the basic knowledge represented in explicit and implicit knowledge plays a major role at this stage by working, integrating, and adopting new knowledge in new situations, as the ability leads to an extensive use of scanning and search aimed at expanding the knowledge and information of senior management. The scanning and search process is useful in building information and finding new ideas, especially when individuals search for answers to specific questions (Pratomo et al., 2021).

### 2.5.2 Alert Association and Connection

The importance of the association and connection dimension is emphasized in gathering various pieces of information and assembling them into cogent alternatives. Pratomo et al. (2021) discover the integration of this role with later (Kirzner, 1973, 1979) arguments about preparedness and processing reactions to evidence or arguments that are provided by new information and methods of processing it, as this dimension enables the management of organizations, senior management is encouraged to notice and pay attention to information about changes, transformations, and behavioural patterns in the environment. Notably, if the event's informational nature exhibits novelty and change, or if it results in the development of new data and knowledge (Tang et al., 2012).

### 2.5.3 Evaluation and Judgment

As new information is refined for those opportunities that is discarded. This dimension entails assessing and judging whether opportunities can be found from the information received and providing appropriate justifications as to whether there is an agreement with the existing cognitive framework (Tang et al., 2012). Since the entrepreneurial context creates an appraisal and appreciation of opportunities, judgment is a crucial component of entrepreneurial alertness since it enables the management of firms to recognize opportunities (Dawood, 2021). At this step of the evaluation process, the focus is on assessing changes, developments, or new information to determine whether they represent a worthwhile business opportunity with the potential to produce economic and social benefits (Shiri et al., 2022).

## 2.6 The research hypothesis

There is one basic hypothesis in this axis:

**H.** There is a statistically significant effect of digital competence on entrepreneurial alertness. From this main hypothesis, three hypotheses emerge:

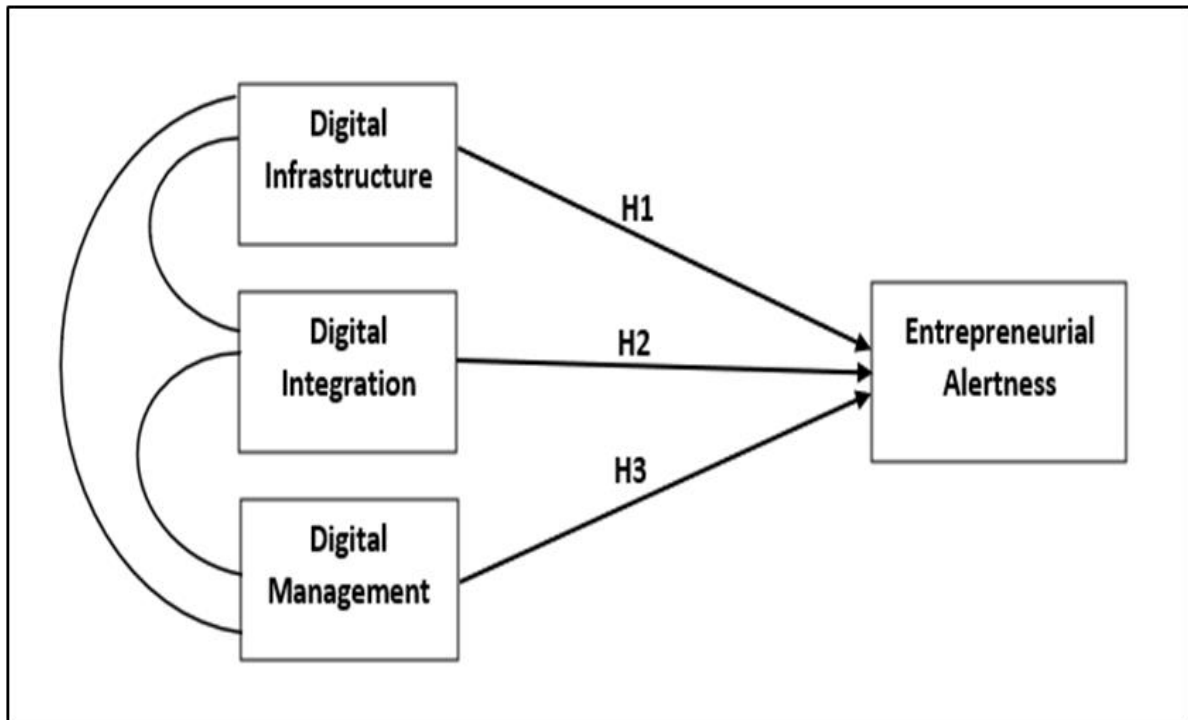
H1 There is a statistical effect of digital infrastructure on entrepreneurial alertness.

H2 There is a statistical effect of digital integration on entrepreneurial alertness.

H3 There is a statistical effect of digital management on entrepreneurial alertness.

### 2.6.1 The hypothetical research scheme:

A hypothetical research plan, shown in Figure 3, was developed by the study's goals and problem after a review of the literature on research variables and their dimensions.



**Figure 3: Hypothetical research scheme. The source: By researchers.**

### 2.6.2 Measurement tool

The independent variable (digital competence) was measured across 15 items, distributed on three sub-dimensions represented by digital infrastructure, digital integration, and digital management according to a scale of Yu and Moon, (2021). While the dependent variable, entrepreneurial alertness, was measured across 19 items, distributed on three sub-dimensions that were manifested in scanning and search, association, and evaluation as well as judgment, according to the scale (Tang et al., 2012).

### 2.6.3 Research community and sample

The CBI was selected as a community for the current study, as it is a sovereign institution concerned with the monetary policy of Iraq. It is associated with international institutions such as the International Monetary Fund and the World Bank, and adopts digital practices in carrying out its activities and tasks. The research community consisted of senior and middle administrations (N = 190) represented by (the general manager, assistant general manager, expert, and department manager). It was used Stephen Thompson's statistical equation (1), according to Aref and Alabadi (2020), a proportional random sample (n = 125), was adopted after neglecting two forms due to its invalidity. Table 2 shows the demographic distribution of the research sample.

$$n = \frac{N \times p(1-p)}{[N-1 \times (d^2 + z^2)] + p(1-p)} \quad (1)$$

**Table 2:** The demographic distribution of the research sample

Demographic Factors	Category	Frequency	Percentage
Gender	Male	62	49.6
	Female	63	50.4
Age	30 years and under	6	4.8
	31 – 40	28	22.4
	41- 50	53	42.4
	51 and over	38	30.4
Job position	general manager	11	8.8
	assistant general manager	19	14.4
	Expert	9	6.4
	department manager	86	68.8
academic qualification	Bachelor	86	68.8
	High Diploma	6	4.8
	Master's	22	17.6
	PhD	11	8.8
Experiences	5 years and less	5	4.0
	From 6 to 10 years	16	12.8
	From 11 to 15 years	14	11.2
	From 16 to 20 years	17	13.6
	From 21 to 25 years	33	26.4
	More than 25 years	40	32.0

**Source:** By researchers, according to the SPSS.

It is clear from the above table that the ratio of males to females is closed, and this indicates the importance of balance in assigning administrative positions in the CBI, according to competence and experience, regardless of gender. It was found through the age groups that the largest percentage are the intellectually mature, which was represented by the category (41-50) at a rate of 42.4, followed by the category (51 and over) at a rate of 30.4, and this indicates that the CBI relies on large age groups. Concerning the educational qualification It is clear that the largest percentage are those who hold a bachelor's degree, with a percentage of 68.8, followed by a master's degree, with a percentage of (17.6) This indicates that the CBI relied on the primary university certificate in large proportions in assigning administrative positions. In terms of job position, it is obvious that the category (department manager) is the most, followed by the category (assistant general manager) followed by the category (general manager) in ascending order This is a natural matter according to the organizational and administrative structure. Finally, according to years of experience, the category (more than 25 years) is the largest category with a percentage of 32.0, followed by the category (from 21 to 25 years) with a percentage of 26.4, and this indicates the reliance of the CBI on knowledge storage and years of experience in managing their duties.

### 3. Discussion of Results

The current section aims to present the findings of the descriptive and explanatory statistics of the research variables and their sub-dimensions by statistically analysing and interpreting them, diagnosing their flaws by looking at the research sample's responses for each paragraph in terms of interest in adoption and application, and presenting the findings.

### 3.1 Descriptive statistics

Table 3 presents the values of the mean, standard deviation, variance, and coefficient of difference for each paragraph. The answers of the sample were represented according to the search variables, as well as the relative weight average (dimension availability ratio), which is extracted by dividing the arithmetic mean by the highest value in the Likert scale multiplied by 100 and determining the size of the gap by subtracting the dimension availability percentage from 100 (Mahmoud, 2022).

**Table 3: Descriptive statistics**

Variable s	Descriptive Statistics						
	Dimensions	Items	M	S. D	C.V	V	Average relative weight
Digital Competence  (DigCompt)	Digital Infrastructure  (DINI)	DINI 1	4.06	0.69	16.92	0.47	81.2
		DINI 2	4.01	0.67	16.61	0.44	80.2
		DINI 3	3.91	0.73	18.67	0.53	78.2
		DINI 4	3.87	0.70	17.96	0.48	77.4
		DINI 5	3.77	0.70	18.49	0.49	75.4
		DINI	3.93	0.58	14.73	0.34	78.6
	Digital Integration  (DINTG)	DINTG1	3.72	0.66	17.61	0.43	74.4
		DINTG2	3.68	0.78	21.17	0.61	73.6
		DINTG3	3.62	0.75	20.69	0.56	72.4
		DINTG4	3.70	0.71	19.11	0.50	74.0
		DINTG5	3.30	0.76	23.09	0.58	66.0
		DINTG	3.60	0.53	14.69	0.28	72.0
	Digital Management  (DIMAG)	DIMAG1	3.81	0.65	16.90	0.41	76.2
		DIMAG2	3.77	0.69	18.20	0.47	75.4
		DIMAG3	3.58	0.72	20.14	0.52	71.6
		DIMAG4	3.65	0.72	19.75	0.52	73.0
		DIMAG5	3.93	0.74	18.88	0.55	78.6
		DINTG	3.75	0.52	13.97	0.27	75.0
		<b>DigCompt</b>	<b>3.76</b>	<b>0.46</b>	<b>12.13</b>	<b>0.21</b>	<b>75.2</b>
	Entrepreneurial Alertness  (EntrAlrtss)	Scanning and Search  (SCSE)	SCSE1	4.14	0.62	14.93	0.38
SCSE2			4.14	0.66	16.04	0.44	82.8
SCSE3			4.22	0.63	14.92	0.40	84.4
SCSE4			4.02	0.73	18.13	0.53	80.4
SCSE5			4.08	0.69	16.94	0.48	81.6
SCSE6			4.09	0.72	17.58	0.52	81.8
SCSE7			4.08	0.73	17.77	0.53	81.6
SCSE			4.10	0.54	13.17	0.29	82.0
Association and Connection  (ASCO)		ASCO1	3.90	0.57	14.49	0.32	78.0
		ASCO2	3.78	0.68	18.04	0.47	75.6
		ASCO3	3.95	0.72	18.15	0.51	79.0
		ASCO4	3.80	0.79	20.87	0.63	76.0
		ASCO5	3.87	0.70	17.96	0.48	77.4
		ASCO6	3.82	0.68	17.72	0.46	76.4
<b>ASCO</b>		<b>3.86</b>	<b>0.54</b>	<b>14.25</b>	<b>0.30</b>	<b>77.2</b>	
Evaluation and Judgment		EVJG1	4.08	0.71	17.5	0.51	81.6
		EVJG2	4.08	0.52	12.98	0.27	80.4
		EVJG3	3.99	0.74	18.42	0.54	79.8

	<b>nt (EVJG)</b>	EVJG4	3.99	0.75	18.70	0.56	79.8
		EVJG5	3.92	0.78	19.87	0.60	78.4
		EVJG6	3.99	0.62	15.44	0.38	79.8
		<b>EVJG</b>	4.00	0.58	14.48	0.34	80.0
	<b>EntrAlrtness</b>	<b>3.99</b>	<b>0.51</b>	<b>12.68</b>	<b>0.26</b>	<b>79.8</b>	

**The source:** By researchers, according to the SPSS.

Given that the coefficient of difference takes into account the values of each of the mean, standard deviation, and the variance of answers, the researchers relied on this value to arrange the dimensions of digital competence in the field at the level of the research sample under the priority of each dimension rather than the value of relative weight. The dimension (digital management) came in the first order among the dimensions of the variables of digital competence because it had the least value for the coefficient of difference, amounting to 13.97, and this represents the logic of justice in the arrangement of dimensions. followed by the dimensions of digital integration and infrastructure, which shows that most research sample responses concur on this dimension when compared to other dimensions. The percentage of availability of digital competence reached (75.2), with a mean of 3.76, with a good level of interest. While the dimensions of entrepreneurial alertness were arranged in the field at the level of research sample, (scanning and search) was placed last because it had the lowest coefficient of difference, amounting to 13.17, and was then followed by association and connection, as well as evaluation and judgment This shows that the majority of the sample's responses were in agreement. The availability rate of entrepreneurial alertness was 79.8, with a mean of 3.99, and with a good level of interest. This shows that management at the CBI is well aware of the issue and is interested in it. It also shows that management is using its work contexts and mechanisms to assess potential opportunities to determine whether or not they are profitable and to differentiate high-value opportunities from low-value ones. The variance in the responses of the participants in the research sample can be used to explain how some central bank departments are affected by fluctuations in the issue of filtering or withholding unimportant information that would affect strategic decisions related to job opportunities.

### 3.2 Correlation hypothesis analysis

The current section focuses on evaluating the correlation of research variables between digital competence and entrepreneurial alertness, and Table 4 shows this.

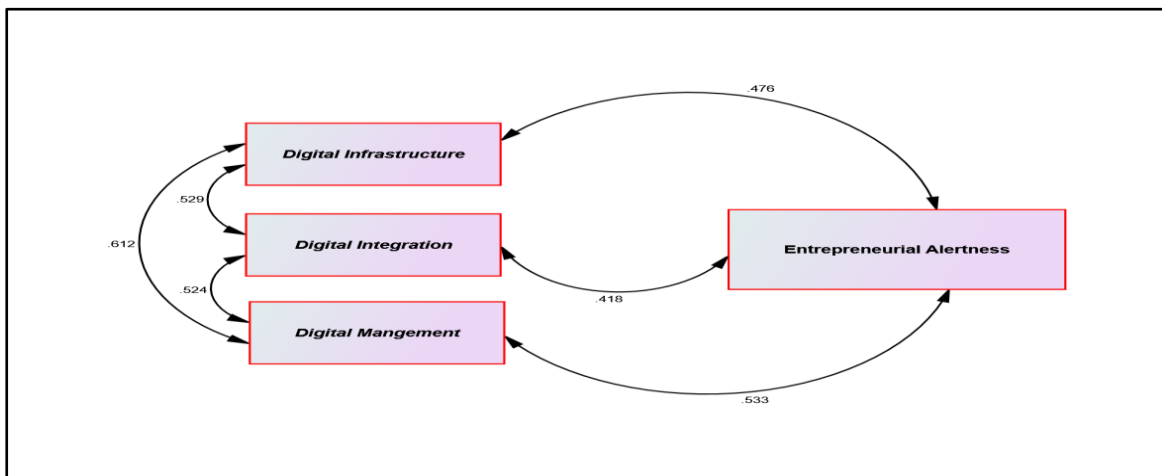
**Table 4: Correlations between digital competence and entrepreneurial alertness**

Variables	Digital Infrastructure	Digital Integration	Digital Management	Digital Competence	The Test
<b>Scanning and Search</b>	.448**	.418**	.533**	.555**	<b>R</b>
	.000	.000	.000	.000	<b>Sig. (2-tailed)</b>
<b>Association and Connection</b>	.426**	.402**	.470**	.515**	<b>R</b>
	.000	.000	.000	.000	<b>Sig. (2-tailed)</b>
<b>Evaluation and Judgment</b>	.425**	.321**	.449**	.476**	<b>R</b>
	.000	.000	.000	.000	<b>Sig. (2-tailed)</b>
<b>Entrepreneurial Alertness</b>	.476**	.418**	.533**	.567**	<b>R</b>
	.000	.000	.000	.000	<b>Sig. (2-tailed)</b>
<b>Relationships</b>	4	4	4	4	<b>n=125</b>
<b>Ratio</b>	100%	100%	100%	100%	
<b>Direction</b>	positive directive	positive directive	positive directive	positive directive	

**\*\* Correlation is Significant at the 0.01 Level (2-tailed)**

**The source:** By researchers, according to the SPSS.

It is noted from the results of the Table 4 that the variable of digital competence has achieved four direct positive correlations, with a rate of 100%, at the level of significance (0.01), with a degree of confidence (99%) for all these relationships, which is less than (0.05), as it achieved digital competence a positive direct correlation with the scanning and search dimension, with a value of (.555\*\*), with a moderate degree of correlation, while the value of its correlation coefficient with (association and connection) was (.515\*\*), with a moderate strength, and with the evaluation and judgment dimension, it reached (.476\*\*), with moderate strength, and in general, its correlation coefficient with entrepreneurial alertness was (.567\*\*), with a moderate degree of correlation, as shown in the Figure 5. As a result of these findings, the CBI should be more interested in developing its digital capabilities across all of its divisions to create an integrated digital infrastructure that is in line with the new digital reality of the new millennium and improve digital integration at the strategic, tactical, and operational levels between the Central Bank's divisions. An ambitious digital business with the capacity to come up with novel, innovative solutions may inevitably spark more departments' interest in entrepreneurial alertness and its three dimensions.

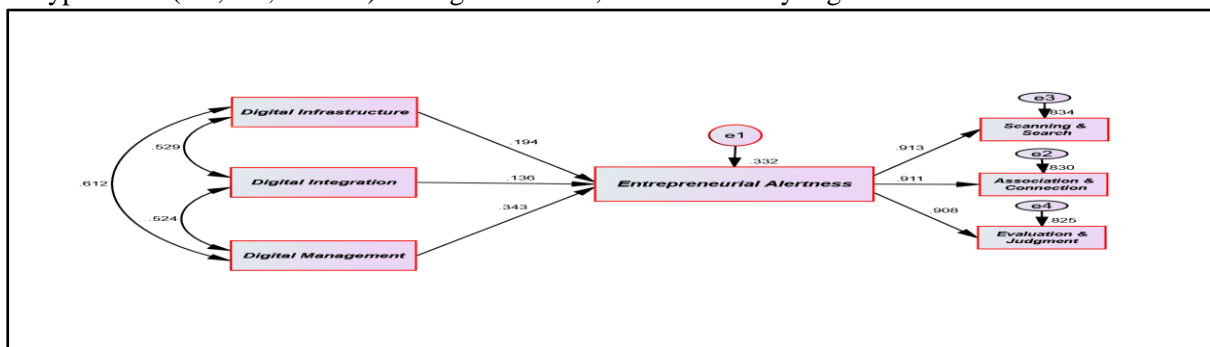


**Figure 5: The relationship between the dimensions of digital competence and entrepreneurial alertness.**

The source: By researchers, according to the AMOS.

**3.3 Impact hypothesis analysis**

The current part focuses on evaluating the primary impact hypothesis (H) for the research variables (digital competence and entrepreneurial alertness), as well as the sub-hypotheses (H1, H2, and H3) arising from them, as illustrated by Figure 6 and the Table 5.



**Figure 6: The regression paths of the dimensions of digital competence on entrepreneurial alertness.**

The source: By researchers, according to the AMOS.

Table 5: Standardized regression weights

<i>Regression paths</i>			<i>Estimate</i>	<i>S.E.</i>	<i>C.R.</i>	<i>P</i>	<i>Result</i>
<i>Digital Infrastructure</i>	--- >	Entrepreneurial Alertness	.194	.085	1.992	.046	Acceptance
<i>Digital Integration</i>	--- >		.136	.087	1.499	.134	Rejection
<i>Digital Management</i>	--- >		.343	.094	3.531	.000	Acceptance
<i>Digital Competence</i>	--- >		.567	.082	7.663	.000	Acceptance

The source: By researchers, according to the AMOS.

It is noted through Figure 6 the structural model that illustrates the effect of the dimensions of digital competence combined on entrepreneurial alertness, as the value of the interpretation coefficient (R<sup>2</sup>) for all dimensions and located at the top of the variable of entrepreneurial alertness was 0.33, and this indicates that the dimensions of digital competence combined can explain what It is (33%) of the changes that occur in entrepreneurial alertness in the CBI, according to the answers of the research sample, while the remaining percentage (67%) is due to the contributions of other variables not included in the research model. While the value of the standard effect ( $\beta$ ) of the digital infrastructure dimension was recorded (0.19). This indicates that the digital infrastructure dimension has a positive impact on the entrepreneurial alertness variable at a rate of 19%, which calls for saying that changing one unit of deviation from the digital infrastructure dimension in the CBI will lead to a positive change in entrepreneurial alertness by (19%), as this value is considered significant at a level of 0.05 with a confidence level of 95%, because the value of the critical ratio (C.R) (1.992) shown in Table (5) at a significant level (0.046) is greater than (1.96) at a significant level (0.05). While the value of the standard effect ( $\beta$ ) of the digital integration dimension was recorded (0.14), as this value is considered positive, but it is not significant at the level of (0.05), because the value of the critical ratio (C.R) (1.499) shown in Table (5) at a significant level (0.134) is smaller than (1.96) at the level of significance (0.05). While the value of the standard effect ( $\beta$ ) of the digital management dimension was recorded (0.34). This indicates that the digital management dimension has a positive impact on the entrepreneurial alertness variable at a rate of 34%, which calls for saying that changing one unit of deviation from the digital management dimension in the CBI will lead to a positive change in entrepreneurial alertness by (34%), as this value is considered significant at a level of 0.01 with a confidence level of (99%) because the value of the critical ratio (C.R) shown in Table (5) and amounting to 3.531 which is greater than 1.96 at the level of significance (0.05).

#### 4. Conclusion

According to the findings of the statistical portion of the study, various conclusions were drawn. Entrepreneurial alertness is impacted by digital competence both directly and through the degree of its dimensions, and there is a positive correlation between the two variables. The administration of the CBI frequently demonstrates more proficiency in digital management, which is one of the study's other key findings. A lack of investment in properly utilizing the digital infrastructure, as well as a deficiency in the CBI's support, particularly when it comes to digitally connecting the various departments. The researchers concluded that being entrepreneurial alertness, with all of its practices—including monitoring and seeking out environmental information and signals, gathering and connecting information from different sources and creating cogent knowledge representations. In addition, assessing potential options and making strategic decisions regarding them are important for seizing opportunities. Moreover, CBI should be proactive in its planning because its work is extremely delicate for a

high level of knowledge and interaction with international organizations. It is noted through the results that there is a discrepancy in interest and employment in the dimensions of digital competence in the CBI. While a lesser contribution was observed in employing the digital infrastructure dimension. Furthermore, the digital integration dimension did not have any significant role in entrepreneurial alertness. Therefore, this indicates the CBI's neglect of activating all dimensions of digital competence with the same efficiency and effectiveness to make an effective and significant impact on the practices of entrepreneurial alertness. The research suggests that the management of the central bank should work to activate the underutilized aspects of the dimensions of digital competence and provide adequate support and reinforcement for all of its departments through a cutting-edge system that works to remove barriers and bureaucratic processes to develop the digital infrastructure of the bank. This can be prepared by hiring a digital consultant or enlisting the assistance of businesses that specialize in digital technology.

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## تأثير الجدارة الرقمية في التأهب الريادي: بحث تحليلي في البنك المركزي العراقي

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## مستخلص البحث:

تحتاج المؤسسات العامة في عصر الاقتصاد الرقمي إلى تدعيم قدرات التأهب الريادي للحد من مخاطر التحولات والتغيرات المفاجئة، وإيجاد آليات ناجعة لاكتشاف الفرص البيئية والاستثمار فيها بشكل استباقي، إذ بات يشكل هذا الهاجس فجوة معرفية تهدد مؤسسات القطاع العام، بناء على ذلك، يهدف البحث الحالي إلى التعرف على دور الجدارة الرقمية في التأثير على التأهب الريادي في البنك المركزي العراقي (CBI)، إذ تم استخدام المنهج الوصفي التحليلي كمنهج بحثي لوصف وتحليل متغيرات البحث الرئيسية، إذ تشمل الجدارة الرقمية كمتغير تفسيري على ثلاثة أبعاد: البنية التحتية الرقمية، والتكامل الرقمي، والإدارة الرقمية، بينما يتألف التأهب الريادي كمتغير مستجيب من ثلاثة أبعاد: المسح والبحث، والتجميع والترابط، والتقييم والحكم، شملت عينة البحث القيادات الإدارية الوسطى والعليا في مجتمع البنك المركزي العراقي عبر اعتماد أسلوب العينة العشوائية الطبقية التناسبية من أجل الحصول على تمثيل جيد لكل فئة من فئات المجتمع، إذ بلغت عينة البحث (125 = n) معاينة، تم استخدام الحزمة الإحصائية للعلوم الاجتماعية (SPSS)، ونمذجة المعادلات الهيكلية (SEM) من خلال برمجية AMOS لتحليل بيانات البحث، أشارت النتائج إلى وجود علاقة ارتباط وتأثير معنوية إيجابية ذات دلالة احصائية بين متغيري البحث الرئيسية وابعادهما الفرعية، وكانت أهم أبعاد الجدارة الرقمية تأثيراً واهتماماً على التأهب الريادي هي البنية التحتية الرقمية والإدارة الرقمية، في المقابل، كان دور التكامل الرقمي غير معنوي في البنك المركزي العراقي (CBI).

نوع البحث: ورقة بحثية، مستلة من أطروحة دكتوراه

المصطلحات الرئيسية للبحث: الجدارة الرقمية، البنية التحتية الرقمية، التكامل الرقمي، الإدارة الرقمية، التأهب الريادي، البنك المركزي العراقي.