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PERFORMING A CONTENT VALIDITY: ESTABLISHING A RELIABLE INSTRUMENT TO MEASURE THE INTENTION TO ADOPT CLOUD COMPUTING SOFTWARE AS A SERVICE IN PUBLIC ORGANISATION

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ABSTRACT

Nowadays, cloud computing software as a service (CC-SaaS) has gained widespread popularity and vast advantages in the information technology domain. However, the adoption rates of CC-SaaS among organisations in developing countries are inadequate and still not widely adopted. Many public organizations are still lacking a broader understanding of adopting and utilizing CC-SaaS to facilitate tasks and increase efficiency. This trend is developing countries is more evident in Iraqi public organisations; thus, it highlighted the need to adopt such technologies to be able to reduce the cost of IT infrastructure and provide fast information accessibility. This paper's main objective is to develop an instrument used to assess the possibilities of CC-SaaS intention to adopt more, especially in Iraqi organisations. Also, to ensure the instrument's validity developed to make sure they are adequate to determine the adoption and avoid the meaningless and uninterpretable experimentation result for the intention to adopt CC-SaaS in a public organization. The paper also describes a systematic approach to assess the research instrument by employing a content validity index for the proposed constructs. A panel of 12 experts was used to validate the instrument through the quantitative (content validity) method, by Item-CVI (I-CVI), Scale-level CVI (S-CVI), and the modified Kappa statistic. The result shows high content validity for the items, and it also helped reduce and modify some of the items. Thus, the results show a high level of trust in the abilities, integrity, and benevolence of CC-SaaS providers will minimize the Iraqi organization's security and privacy concerns and motivate them to acquire the cloud service, as technological, organisational, environmental. Human factors depicted in this paper are valid.

Keywords: *CC-SaaS, Questionnaire, Content Validity, I-CVI, and S-CVI*

1. INTRODUCTION

The Cloud Computing has been applied in information system (IS) domains to facilitate the online evolutionary environment through capability enhancement, enabling handling and expansion of the magnitude of work while leaving the execution of the IS framework unaffected. Furthermore, being a new-generation of Information Communication Technology (ICT), CC has continued to get widespread popularity as it applies a pay-as-you-go service model. Consequently, CC has the potential to reduce cost, time requirements, and resources needed from the dependencies of ICT [1]. The achievement of this is made by aiding the IT providers in the virtualization of their computational resources and its concurrent provision via a service orchestration process [2]. Through the literature review from varieties of theories and models, it is learned that a combination of theoretical perspectives is made by researchert to gain a wider understanding with respect to the adoption of new innovative IT technologies. This implies that to gain a better understanding regarding the organisational decisions with respect to the adoption of any emerging technological innovation, there is a need for a comprehensive context of research as well as variables to be used in alignment with the

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characteristics of the innovation proposed for adoption [3].

In order to achieve that, systematic methodology steps have to be followed, as explained by Cresswell [4] for quantitative research. First of all, the instrument considers an essential toll in quantitative research; thus, a number of the process have to be performed to establish the validity of the instrument to ensure the items of the questionnaire are perfectly and comprehensively represent every aspect of their constructors, The content validity considers one of the essential step to ensure whether the items measure the content they were intended to measure [4]. Thus, this study aims to develop and validate a reliable instrument to investigate the intention to adopt CC-SaaS in Iraqi public organizations. In addition, the significance of this research is to ensure the instruments developed can serve the purpose and measure the intention of the Iraqis organisation for the adoption of CC-SaaS. Moreover, to ascertain that the seventeen factors presented are adequate to determine the CC-SaaS adoption, avoid the meaningless and uninterpretable experimental result which can help any country especially underdeveloped like Iraq, with the peculiar issue for the intention to adopt CC-SaaS in a public organization.

The rest of the paper is organized into three sections after the introductory section, a related works section followed with details of literature review about the benefit of CC-SaaS, instrumental design, and the needs for content validity for reliable instrument design. Then, a section containing the details of the exploratory research to design a valid and reliable instrument to measure the intention to adopt CC-SaaS in a public organisation.

2. RELATED WORKS

Information Technology (IT) is currently used proficiently as an ideal source to gain competitive benefits. It was using a CC technology development that is considered a modern strategy in the concept of utilizing computer technologies. CC technology aims to minimize the IT costs and decrease the response time and, at the same time, increase the productivity, availability, reliability, and flexibility of technologies. Significant progress has been achieved in working with CC through its revolutionary development with respect to the critical variables reflecting the affordability, speed, cost reduction as well as system's capability, process, or network used in handling the work with capacity for expansion and ability to cope with its growth [5]. However, CC's ability has witnessed its concern on the part of organizations in the migration from their IS to the cloud technology-based systems. It has been recognized that many government organisations around the world are willing to become more efficient, and the system of government also endeavors to be highly economical, responsive, and user-friendly [6]. However, some government organizations in developing countries are still facing numerous challenges to accomplish their tasks. Subsequently, adopting CC-SaaS technology can reduce costs and enhance overall public quality services. It is actually coming up to the developing countries, which are still in-service utilization stage just like Iraq.

Consequently, this study considers the potential of adopting CC-SaaS as a prominent technological solution that can play a key role in accomplishing their tasks over the Internet. The fact is that CC represents a complex combination of services linked together under more equipped servers more than those that have been typically used in organisations. Therefore, there is a need to develop a valid and reliable questionnaire to use for the phase of data collection from the IT managers to formulate a successful utilization of CC-SaaS in the Iraq public organisation. The achievement of this can be done through conducting content validity, which was explained by Creswell [7] as the extent to which the components of an assessment instrument are relevant and serve as a representative of the construct being targeted for a particular assessment purpose.

In this study, the survey method through a questionnaire is selected as the main tool used to collect the respondents' data. Muller [8] highlighted that research instrument design requires a good comprehension of the underlying assumption to formulate the right questions. The instrument is a self-administered questionnaire, which will be completed by respondents [9]. Thus, this study will build up the questionnaire that is structurally designed to meet the study objectives to develop an instrument for measuring the public sector's intention to adopt CC-SaaS in the Iraqi organisation. Hence the tool is supposed to be validated through a sequence of steps. Besides, even though the items were adopted from a previous study focused on adopting and using CC in different domains such as healthcare, education, and the public sector. In the context of this research, a content validity will be performed as one of the processes to ensure the

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instrument validity, and it will be led to strength the research design, where it is powerfully deepened on the identified factors and how precisely the item has measured the concept [10] to ensure the inclusion of essential items and eliminate the undesirable one. In order to develop the study instrument, the study adopted Netemeyer [11] procedure by creating a pool of adopted items from an extensive review to the literature based on Technology, Organisation, Environment theory, Diffusion of Innovation theory, and Human, Organisation, Technology model. Further, the items were categorized for four dimensions to select the concept's represented items based on its operational definition.

Previous studies in the different domains have mentioned the necessity of conduced content validity [12], [13], andseveral studies also conducted its for CC adoption, usage, and acceptance have also shown the importance of performing content validity [14]–[19]. Research on CC has been conducted in different fields, like education, health, SME, and the public sector within different countries and context. Amron et al.[19] perform content validity to measure the reliability of CC acceptance instrument in the Malaysia public sector by eight academicians experts, while in Sabi [18] study, five academics were participated to establish the content validity for adopting the usage of CC for the educational sector in Saharan Africa, and the experts provide valuable comments to enhance and remove the instrument ambiguity. Also, Asadi [16] investigate the influencing factors to adopt CC in higher education faculties; ten scholars from different fields assessed the instrument. All the items ware checked by the expert's panel, and they decided whether the items sufficiently cover the construct. Likewise, to assess the validity of the instrument of adopting CC in Saudi Arabian universities was checked by three instructional technology experts who work in Saudi universities [20]. Furthermore, an expert team from consultants and practitioners who has experience in CC services were invited to validate each item from an instrument aim to investigate the adoption of CC in firms [17], content validity was carried out to judge the constructs of adopting CC in the data centre by a number of an expert who has experience in the area of CC for more than ten years' were asked to validate the instrument constructs [15]. Whereas in Al-Sharafi [14] research five practitioners and academician were selected to check the designed questionnaire validity based on their experience in IS adoption filed, their comments were sorted and took into consideration to enhance the instrument before the proceeding of actual data collections to measure the continuous use behaviour towards CC services in SMEs. Therefore, Iraqi as fragile country with high level of civil conflict and corruption needs in depth assessment for the factors that influence the adoption of CC-SaaS. Further, the instruments designed for the investigation of the adoption needs to be validated and make sure that the instruments can measure what it's intended to determine the required data that can quantify the purpose of the research.

In addition, even though content validity was recognized as an essential process to guarantee the validity of the instrument [12], [13], nonetheless it was not performed and rarely reported within [5], [21]–[23] studies which aimed to adopt CC services in different sectors within Iraq, such as Higher Education, healthcare, and public sector represented by the Science and Technology. The absence of a standard measure like content validity will cause a negative implication by decreasing the internal consistency due to the existence of irrelevant items [13]. However, what may be regarded as a good construct by the researcher may differ from what is regarded as important to experts, and they can determine whether the measure represents these constructs completely. The expert's valuable input in the stage of instrument development can improve the acceptability, relevance, and quality of the research measurement [12], [24]. Moreover, while this study aims to identify the represented and reliable items to adopt CC-SaaS, and the Iraqi organisation, and according to [25], investigation of CC must consider the context; different contexts might have explicit determinants. Therefore, there is a need to validate the survey instrument to certify that the instrument's contents are clear and free from ambiguity. Hence, this study aims to develop a reliable and valid instrument to measure the intention of adopting CC-SaaS.

3. METHODS

This is methodological research onducted as part of a larger study undertaken through exploratory research fto designa valid and reliable instrument for the measurement of intention towards the adoption of CC-SaaS among Iraqi public organizations. Although all the items used in measuring the variables of this study were adapted and modified from previous studies, the validation and establishment of the reliability of the construct become highly imperative; the essence is to avoid any potential problem that could arise due to differences in the context and scope of the study [26]. Further, to ensure a well data collection

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instrument, a validity assessment should be carried out through certain experts who check and verify the suitability and potency of the instrument in measuring what exactly it was intended to measure [27]. Towards this end, content validity was performed, because it serves as a precondition for performing other forms of validity assessments, the fact is that its checking must be made while commencing the process of instrument development within the context of a research, the goal is to minimize any potential error that may be linked to the operationalization of instrument in the early stages of its development so as to enhance the probability getting a well-supported construct validity in the subsequent stages [28]. According to Yusoff [29] and Rodrigues [30], seven steps have to be performed in order to come out with CVI, and these are: (a) Preparation of a form for the content validation (b) Selection of a panel of experts for a review of the items of the instrument (c) Execution of the content validation (d) Undertaking reviews of the domain and the items (e) Assigning score for each item (f) Calculation of the Content Validity Index (CVI) and lastly (g) Calculation of the Kappa. Each step will be elaborated in detail, as explained in the upcoming subsequent paragraphs.

3.1 Step 1: Preparation of Content Validation Form

In undertaking content validation, the first step in the process is the preparation of a cover letter that would include the study's purpose, instrument's brief description, and its scoring; it will also include a description of the content validity form for ensuring the review panel of experts for ensuring clarity, understanding and meeting the expectation with respect to the task being undertaken [31]. Further, Sekaran and Bougie [9] stated that content validity is the process for the validation and provides guarantees on whether or not the items represent or depicts the relevant concept; therefore, a recommended rating scale of relevance is based on three scales (1 = Not Relevant; 2 = Relevant but need revision; 3 = Very Relevant) and it has been used for scoring individual items [30]. Besides, Rubio et al. [32] also recommended the provision of a theoretical definition for the construct in the domain, enabling the facilitation of the scoring process of the experts' views.

3.2 Step 2: Selection of Panel of Experts for a Review

The expert review panel selection is the second stage of the instrument validation; it is performed through the confirmation that a specific number of experts agree with the validity of the items in the instrument by assessing its content. In selecting the experts, effort must be made to ensure that such selection is made based on certain criteria such as knowledge, training on specific issues, as well as professional experience of the experts with respect to the subject matter of the research because the judgment of the expert will determine whether the instrument has good content or not. Therefore, for this study, the experts are chosen based on the criteria identified and followed by Sarif et al. [33], [34], and Norfiza [35]. The experts were confirmed as being in the related field in line with the identified research problems and objectives. Their expertise is assured by fulfilling the criteria set in [33]–[35] as follows:

1- Having a Ph.D. in Computer Science (CS), Information Systems (IS) or related areas or/and
2- Having at least five (5) years of University teaching background in CS or IS, and
3- Have been researching/studying in CS or IS.

Furthermore, Rodrigues [30] recommended two to twenty experts to verify the content of the instrument. Concurring with the literature on content validation, two experts are considered the minimum acceptable number, though some researchers recommend six experts as the minimum recommended number [29]. Thus, following the recommendations of Rodrigues [30] with respect to the expert selection, it can be deduced that the minimum number of experts for the purpose of content validation is suggested to be a minimum of two and a maximum of twenty. Therefore, in assessing the instrument's content validity for the purpose of this research, twelve academicians who are experts in the field were selected based on the criteria mentioned. In this, the panel of experts was asked to offer their professional views based on subjective judgment for each of the items of the entire constructs' dimensions. In giving their judgment, a combined assessment using both qualitative and quantitative assessments were offered by the experts based on representativeness, desirability, relevance, and comprehensiveness, the essence is to ensure that the content validity for each and every item is achieved. These viewpoints of the experts were then quantified and CVI was computed.

3.3 Step 3: Undertaking the Content Validation

The content validation is undertaken either via face-to-face or, in some cases, a non-face-to-face approach [29], [31]. In using a face-to-face approach, meeting with a panel of the expert is organized through which the researcher facilitates the process of the content validation. In the case of the non-face-to-face approach, the content validation

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form is mostly sent online to the experts through email which will include an explicit instruction that guides the execution of the content validation process. Further, it can be conducted through the qualitative or quantitative method; using the qualitative approach of the content validity method, experts and target group analyze the content and offers recommendations in terms of grammar, usage of correct and appropriate wordings, application of proper and correct words orders for each of the items, and lastly using the appropriate scoring [36]. Contrarily, in applying the second method, which is the quantitative content validity method, the expert is requested to comment with confidence by selecting the most critical and correct content in the instrument sent to them. Then the opinions are quantified through seeking the expert's comments to state whether or not an item within the instrument is desirable for operationalizing a construct based on its sets of items. To achieve this, in this research, experts were requested to assess each of the item based on the score of 1 to 3 [36]. Additionally, in undertaking this assessment, important factors such as cost, time, and response rate are giving considerations. For instance, the cost and time could be the most challenging factors that need to be considered in conducting the face-to-face approach; this is due to the difficulty in getting all experts together while getting the highest response rate [29]. Differently, the issues of time and response rates might be a key challenging factor in conducting a non-face-to-face approach; the fact is that there could be difficulty in getting timely response as well as the risk of low response or not getting any response from all the experts, though it has the biggest advantage of cost-saving. However, from the researcher's experience, the non-face-to-face approach has been considered the most efficient, especially in instances where systematic follow-up is put in place to improve both timely response and response rate.

3.4 Step 4: Reviews of the Domain and Items in the Content Validation Form

This is a conceptualization step that is conducted for the specification of the content domain and its items in line with the recommendation of Benz, Ridenour, and Newman [37]. Firstly, determination of the construct's content domain as contained in the instrument should be made; the content domain is considered as the area of the construct which the researcher intends to measure; its identification can be made through the review of literature on the concept being measured, it can also be through an interview with the experts in the field [38], this can be achieved via a precise definition of the construct based on its attributes and characteristics, so that a clear image of the construct's dimensions, boundaries and components could be obtained. Following this background, in this study, items for measuring the variables were retrieved by a researcher via a rigorous search of the related literature from reliable publications conducted in the areas of the Innovation Diffusion Theory, Technology-Organisation-Environment Theory, and Human-Organisation-Technology Theory. These items were selected in consideration of its relevance to the concept's operational definition. The definitions of items that represent the domains, as well as the domain itself, are provided clearly based on the experts' recommendations, as suggested by the Rubio et al. [32]. It was clearly stated in the content validation form that the experts should make a critical review of the domain and its items prior to the provision of scores on each item. In addition, the experts were also encouraged to offer written and verbal comments for the improvement of the relevance of items in capturing the targeted domain in order to ensure the validity of the construct being measured. Thus, following the receipt of the comments, all the suggestions were taken into consideration, and modifications and refinements were made for the domain and its items

3.5 Step 5: Assigning Score for Each Item

The rating was made for each item within the instrument based on the assessment criteria specified. The scale for this measurement was adapted from Waltz and Bausell [39] and Asadi [16] to assess the clarity and relevance of the construct's domains and its items. Further, the experts were asked to assign scores independently for each item based on its clarity and relevance. In addition, 3-point Likert scales were used ranging from (1 = not relevance; 2 = relevance but need revision; 3 = very relevance) to measure the relevancy and (1 = not clear; 2 = clear but need revision; 3 = very clear.) to measure the clarity and it has been used for scoring each item individually [30].

3.6 Step 6: Calculating Content validity Index (CVI)

The CVI has been the most commonly used approach for the calculation of the content validity, and the computation can be made either using; CVI for the item (I-CVI) or CVI for scale (S-CVI) [30].In this, I-CVI is calculated based on the number of items for which the experts agree on relevancy by choosing the rating from "very relevant" to " not relevant" for each item, then divided by the total experts that participated in the validation. Normally, the values for I-CVI ranged from 0 to 1, thus, where

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I-CVI > 0.79, such item is considered as relevant, otherwise, any score that falls between 0.70 and 0.79 implied the need for revising such item, or it can even be eliminated when the score falls below 0.70 [38]. In the case of S-CVI, it is computed by using the total number of items in a designated item pool that have achieved a rating of "very relevant" [38]. The formulas of the CVI is stated in the equations (1 and 2).

$$\text{I-CVI} = (nx/ny) \ldots\ldots. (1)$$

$$\text{S-CVI/Ave} = \sum(I - CVI)/nz \ldots\ldots. (2)$$

*Where; *nx* refers to the total agreement among experts, *ny* refers to a total number of experts involved in content validation, and *nz* refers to a total number of items in each construct

4. Calculation of Kappa

Despite the fact that literature documented extensive use of CVI in the estimation of content validity, Wynd et al. [40] thought of the possibility for high agreement by experts by chance; this means that the CVI does not give due cognizance to the possibility of inflated values, consequently to overcome this weakness the computation of a Kappa statistic was suggested in addition to the CVI [30]. This implied that Kappa statistic was developed to serve as a consensus index for estimation inter-rater agreement so as to adjust the chance agreement, and as well to be a significant supplement to CVI; the fact is that Kappa offers information concerning the extent of agreement above a mere chance agreement [41]. There has been a frequent application of Kappa statistics in testing inter-rater reliability. The relevance of rate reliability depends on the fact that it serves as an estimate of the degree to which the collected data for the study is a clear representation or reflection of the variables being measured; in fact, it has been considered as one of the keys and relevant statistics commonly used in testing inter-rater reliability [41]. Therefore, Kappa offers an estimate of the extent of the agreement by experts beyond a mere chance, and it is computed via the following formula:

$$(\text{I} - \text{CVI} - \text{Pc})/(1 - \text{Pc}) \ldots\ldots\ldots (3)$$

$$[\text{N}!/(\text{A}!\ (\text{N} - \text{A})!] * 0.5 \ldots\ldots\ldots\ldots (4)$$

*Where Pc refers to the probability of chance agreement; N refers to the number of experts, and A refers to the number of experts that agree on the items relevant.

Similar to other correlation statistics, the calculation of Kappa ranges from −1 to +1 [41], and the interpretation of its result is made as follows: values ≤ 0 implied no agreement, when the values are within the range of 0.01–0.20 is considered as none to slight, this followed by another range of 0.21–0.40 considered as fair, and then 0.41– 0.60 considered as moderate, followed by the range of 0.61–0.80 considered as substantial, and lastly 0.81–1.00 considered as almost perfect agreement [30], [41].

5. RESULT

The forms were distributed to the experts by two ways; face to face and via email, a response from twelve academicians was received, and these academicians act as experts for this study, their expertise covered the aspects and field of this study, which encompasses IS, CC and more broadly computer science, and they all work as a faculty members in various universities covering Universiti Utara Malaysia (Malaysia), Middle Technical University (Iraq), Al-Hussain University College (Iraq), and Ahmadu Bello University (Nigeria). As mentioned earlier, some of them were interviewed face to face while the others were contacted via email. After collecting the forms, the quantitative and qualitative comments on the items were analyzed for relevancy and clarity. Later on, the CVI was calculated based on the formulas (1,2); the S-CVI/Ave results are illustrated in Table 1 and for the detailed I-CVI, see Table 2.

As stated in Table 2, the researchers recorded the result of I-CVI for each item, and while the value of I-CVI is ranged from 0 to 1, the acceptable value is I-CVI > 0.79 [30]. The result shows that the I-CVI for ten itemswase equal to 0.75, and17 items rateswere between 0.81ando 0.83; other rates were between 0.92 to 1. Therefore, this result indicates that all the items are within the acceptable rating score. Though some were retained without modification, others were retained after some revisions based on experts' suggestions, except the second item for relative advantage construct with a rating score of 0.67, which was eliminated entirely.

Table1: The result of S-CVI

Construct	Initial items	Retained Items	S-CVI/Ave	Construct	Initial items	Retained Items	S-CVI/Ave
Relative Advantage	5	4	0.85	Perceived Intensity of Civil Conflict	5	5	1.00

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Compatibility	5	5	0.85	IT Knowledge	4	4	0.89
Complexity	5	4	0.80	IT Personnel Innovativeness	5	5	0.92
Security	5	5	0.92	IT Experience	3	3	0.86
Privacy	5	5	0.85	Ability	5	5	0.97
Top management support	5	5	0.90	Integrity	5	5	0.89
Organisation Readiness	4	4	0.83	Benevolence	5	5	0.88
External Support	4	4	0.95	Intention to Adopt	5	5	0.93
Compliance with Regulation	5	5	0.83				

In addition, result from Table 1 shows the calculation of S-CVI for each construct; the rate of 10 constructs was between 0.80 to 0.89, the rates for the other six constructs were between 0.90 to 0.97, and the S-CVI of one of the constructs was equal to 1. The result of S-CVI for all constructs was acceptable according to the recommended threshold value of S-CVI, which lies between 0.80 to equal or higher than 0.90 for content validity [42]. Furthermore, the results of the Kappa statistics calculated showed that one item has the rating score of 0.62, 10 items with a rate of 0.74, the previous results tell that the items fall under the substantial level, 14 items with a rate of 0.83, and 30 items with 0.92 of Kappa statistic rate, whereas the last two rates fall under a perfect agreement. Hence, according to [30], [41], Kappa statistics rates present plausible and acceptable values. Accordingly, it can be easily noticed that the contents validity analysis performed in this study comess with accepted range of results and sustainability by applying two different types of validity.

The construct presented in Table 1 with their number of items can be grouped into a technological, organisational, environmental, and human constructs or factors. The Relative Advantage, Compatibility, Complexity, Security, and Privacy are under technological factors to evaluate the relationship between new technology and intention to adopt the said technology. These constructs is acceptable and the items proposed are valid with only one item dropped for relative advantage and complexity. This is due to the different rating and perception of the advantages of CC-SaaS and based on different user opinions for the level of difficulty to use the technology. Also, the Top Management Support, Compliance with Regulation, External Support, and Perceived Intensity of Civil Conflict are under the organizational dimension. They are proposed to assess the Iraqi's organisation's readiness to adopt CC-SaaS based on the proposed items. The S-CVI result retained the proposed items without item's dropped; this is due to the power of decision-makers within the organization for the acceptance, adoption, or willingness to adopt a new organization. The remaining construct such as IT Experience, IT Knowledge, IT Personnel Innovativeness, and trustworthiness factors in respect of Ability, Integrity, and Benevolence are related to human factors and how trustworthy the CC-SaaS is for the decision-makers' peace of mind to adopt the technology. The result proved how important the construct are, as the initial items proposed remain intact after the experiment.

Therefore, the validity results show the relevance of the proposed items and the importance of technological, organisational, environmental, and human constructs to adopt CC-SaaS. Moreover, a high level of trust in the abilities, integrity, and benevolence of CC-SaaS providers will minimize the Iraqi organization's security and privacy concerns and motivate them to acquire the cloud service.

CONCLUSION

Content validity has been considered as an important measure which ensures the overall validity of an assessment instrument based on the variables domain and its items; therefore considering how vital the content validity is, a systematic process needs to be followed in conducting this form of validation through the application of best practice and justifiable evidence. In line with this, this paper followed not only a systematic process but also an evidence-based approach in conducting proper content validation. The fact is that it has been seen as a matter of utmost concern to utilize a valid assessment instrument to ensure that the operationalization of the construct was made based on items obtained from the specific domain of content as applicable to the measurement fields perspectives. In achieving this end, a number of processes have been followed. Firstly, items were identified from the domain of the research, and content validity form was prepared. Secondly,

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twelve experts identified in the field and were asked to rate the items in terms of its relevance and clarity. Thirdly, content validation was performed, and fourthly, reviews of the domains, and content validation form were performed. Fifthly, scores were assigned for each item based on the experts' comments. Sixth, quantification of content validity was made based on CVI (I-CVI & S-CVI), which met the recommended threshold value and guided the researchers in modifying and eliminating the irrelevant items. Lastly, Kappa statistic was computed, and the results fall under the perfect agreement and assisted the researcher in overcoming the possibility of getting a high agreement by chance from the experts using CVI. Therefore, it is clear from the above processes that the measurement instrument was subjected to rigorous testing prior to the respondents' data collection. Nevertheless, future research still needs further subject the instrument to additional checking for reliability as well as other forms of validity while applying the measurement instrument in their studies, especially in a different contexts.

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