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Competing in the era of globalization and digitalization: Implications for accounting education

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Abstract

Purpose: The Industrial Revolution 4.0 has transformed workplaces, with significant implications for higher education. This research was conducted at Sam Ratulangi University, North Sulawesi Province, Indonesia. This is based on the reason that the location is strategic for this kind of research due to its regional relevance, data accessibility, focus on educational development, and the role of universities as research centers. This study evaluates a) the validity of constructs like perceived utility, simplicity, intention to use, and attitudes toward IT (hereinafter abbreviated Information Technology), and their relationships; and b) critical soft competencies for accounting graduates and implications for curriculum development.

Design/methodology/approach: Data were taken from 244 accounting undergraduate students at Sam Ratulangi University of Manado, Indonesia; they were analyzed using confirmatory factor analysis, showing all constructs met validity criteria except one behavioral intention factor.

Findings: This finding confirmed that combining technical skills, mastery of digital technology, and developing soft skills are crucial factors for accounting graduates to compete in the era of globalization. Incorporating the Si Tou Timou Tumou Tou philosophy into curricula is recommended to enhance adaptability to organizational cultures.

Research limitations/implications: The proposed model of TAM (Technology Acceptance Model) is not exhaustive and can be refined by integrating external factors such as individual, organizational, and cultural influences. This research is expected to provide research benefits for the Ministry of Education, Culture, Research, and Technology, which should consider revising the accounting higher education curriculum to be more adaptive to digital technologies such as AI and blockchain, and encourage industry-academia collaboration. The Indonesian Institute of Accountants (IAI) needs to formulate professional and ethical standards that are relevant to digital accounting practices, and provide ongoing training programs for accountants. Finally, regulators and the government need to review and update regulations related to financial reporting and taxation in the digital era, ensuring a legal framework that supports innovation while maintaining accountability and transparency.

Practical implications: The study highlights the need to integrate technical skills, digital literacy, and soft skills in accounting curricula to improve graduate employability. Incorporating local wisdom, such as Si Tou Timou Tumou Tou, can enhance adaptability to organizational cultures. The Ministry of Education and Culture must develop a national policy for universities to integrate tridaya competencies and local wisdom into the accounting curriculum. Universities should implement project-based learning,

internships, budget reallocations for training, and form partnerships to enhance graduates' digital skills and character.

Originality/value: This study provides an original contribution by combining academic and practical perspectives to improve the quality of accounting graduates in facing global challenges and the digital era. In addition, integrating the Sitou Timou Tumou Tou concept in accounting education by adopting an inclusive education paradigm that emphasizes character development and soft skills.

Keywords: Higher education, ASEAN Economic Community (AEC), Confirmatory Factor Analysis (CFA), Technology Acceptance Model (TAM), Soft skills, Local wisdom

Jel Codes: M41, I23, O33, J24

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1. Introduction

The Industrial Revolution 4.0, characterized by the integration of the Internet of Things (IoT), artificial intelligence (AI), big data, automation, and advanced robotics, has fundamentally changed the workplace landscape by transforming operational processes, creating new business models, and shifting demands for workforce competencies. The modern workplace is now dominated by a digital ecosystem that connects machines, data, and humans, where automation has taken over routine and repetitive tasks, while the role of humans is increasingly shifting towards tasks that require complex analysis, creative problem-solving, strategic decision-making, and collaboration within globally distributed teams. This paradigmatic shift has created a significant competency gap, where technical hard skills such as data analytics and programming have become as important as soft skills such as adaptability, critical thinking, and emotional intelligence, placing direct pressure on higher education institutions to adapt their curricula and learning methods to produce graduates who are ready to face the demands of the digital era.

The advancement of information technology has significantly influenced individuals' lives. Advances in information technology have significantly impacted individuals' lives, revolutionizing the way researchers interact, work, and learn. For example, individuals can now communicate instantly with anyone across the globe through messaging apps and video calls, removing geographical boundaries. In the employment aspect, technology has enabled flexibility with remote working and created new types of jobs in the digital space, while also requiring skills adaptation. In education, access to information and online courses has become easier, enabling lifelong learning and personalized learning experiences like never before. Rapid, dynamic, and extensive environmental changes are supported by advances in information technology in all fields. Rapid, dynamic, and extensive environmental changes are supported by advances in information technology that affect almost all areas of human endeavour. This includes the economic sector, with the emergence of e-commerce and the digital economy changing traditional business models. In the socio-cultural sector, information technology shapes the way individuals interact, obtain information, and even form identities. Furthermore, in the field of education, technology has enabled online learning and unlimited access to knowledge, revolutionizing teaching and learning methods. Finally, in the field of government, the implementation of information technology drives e-government to improve the efficiency of public services and transparency. This promotes the transition from a conventional civilization to an information culture. The advent of information and communication technology has significantly impacted the velocity and intensity of transformations in business processes over the past thirty years (Hunton, 2002; Özer & Yilmaz, 2011).

In recent years, accounting graduates have encountered substantial criticism over the quality of their output after commencement from higher education (Mardi & Handarini, 2025; Sampaio, Régio & Sebastião, 2024; Shabeeb, Sobaih & Elshaer, 2022). They are frequently regarded as insufficiently equipped, resulting in assertions that they

cannot execute their professional duties to a high standard in the industry. A significant amount of this critique targets the accounting education system, which is alleged to inadequately prepare students with the essential information and abilities demanded by the swiftly changing accounting profession (Carvalho & Almeida, 2022; García & de-los-Ríos, 2021; Shabeeb et al., 2022). Multiple studies emphasize a significant disparity between market demands and the competencies of prospective accountants being produced in many universities (Abed, Hussin, Ali, Haddad, Shehadeh & Hasan, 2022; Abiri, Rizan, Balasundram, Shahbazi & Abdul-Hamid, 2023; Kroon & Alves, 2023).

The ASEAN member states pledged to create the ASEAN Economic Community (AEC) by 2015 in response to the global challenge of AEC 2025. The AEC signifies economic integration designed to promote the unrestricted movement of commodities, services, investments, skilled labor, and more adaptable capital flow. This change is expected to impact numerous professions, with accounting being one of the most competitive sectors in the region. The lack of preparedness among Indonesian professional accountants and graduates in confronting the AEC may result in the marginalization of the accounting profession in Indonesia, likely leading to dominance by international accountants (Dianita & Hadian, 2016; Sabaruddin & Septemberizal, 2017; Suryani, Helliar, Carter & Medlin, 2018).

The Fourth Industrial Revolution (4IR) presents both benefits and challenges in a digital workplace. Future accountants must understand the uses and constraints of digital technology within the corporate structure and enhance their skills beyond traditional accounting responsibilities. Research underscores the necessity for accountants to harmonize technical proficiency with the increasing significance of soft skills (Tsiligiris & Bowyer, 2021). Soft skills are essential for succeeding in a future workplace that emphasizes advanced cognitive talents. Furthermore, as worldwide and regional citizenship gain prominence in society and the economy, prospective accountants should be acquainted with ideas such as inclusion and sustainability. Although technical skills are essential, there is an increasing demand for important soft skills that the business anticipates accounting graduates will have (Tsiligiris & Bowyer, 2021). Universities can enhance value by prioritizing the cultivation of soft skills and human competencies, acknowledged for their enduring influence on graduate employment (Suleman, 2018).

Alongside soft skills, it is imperative to revise the university curriculum, specifically emphasizing the digital audit process that students need to comprehend. This encompasses the Audit Tool and Linked Archive System (ATLAS) created by the government's Ministry of Finance of the Republic of Indonesia. This application functions as a platform for executing audit procedures and recording outcomes to inform opinion formation. Therefore, research is required to investigate models of accounting students' behavioural intentions to embrace information technology in the digital age, particularly with the adoption of the ATLAS audit. The anticipated outcome of this research is to enhance the competencies of accounting graduates, facilitating the emergence of highly qualified and proficient professional accountants. To thrive in the digital workplace, future accountants must attain a blend of technical and interpersonal abilities. Consequently, the subsequent research question was devised for the study. This study focuses on testing construct validity in analysing the relationship between observed variables (indicators) and latent characteristics. The latent characteristics in question include perceived benefits, behavioural intentions to utilize, perceived ease of use, and attitudes toward information technology adoption. The goal is to understand the extent to which these indicators accurately represent latent constructs in the context of technology adoption in the digital era. Thus, this study verifies how these abstract concepts are measured through observable data. Additionally, it explores identifying fundamental soft skills necessary for future accounting graduates and their implications for accounting education and curriculum development in higher education. The formulation of the problem in this study includes: 1. What is the role of Perception of the use of information technology towards sufficient reliability in higher education? 2.) How does the perception of ease of use of information technology show sufficient reliability and factorial validity? 3.) How will Attitudes towards the use of information technology show strong reliability and factorial validity? 4.) How will behavioural intentions to use information technology show sufficient reliability and factorial validity?

2. Literature Review

2.1. The Impact of the Fourth Industrial Revolution (4IR) on Accounting Education

The Fourth Industrial Revolution (4IR) denotes a transitional period in labour marked by the amalgamation of emerging technologies that convert the physical, digital, and biological domains. These phenomena affect all sectors, economies, and industries, while also questioning conventional concepts of humanity (Schwab, 2017). The future of work in the context of the Fourth Industrial Revolution is defined by the rapid pace of globalization and the integration of people, information, and communication technologies (Gabriel & Pessl, 2016). As technology progressively assumes job responsibilities, the necessity for labor-intensive human work is anticipated to diminish, perhaps resulting in elevated unemployment rates, particularly among graduates globally (Baygin, Yetis, Karakose & Akin, 2016).

The function of higher education in generating proficient and qualified graduates to mitigate skill shortages has faced heightened examination (Fisher & Scott, 2011). Accounting educators often adhere to competence frameworks set forth by professional accountancy organizations, which delineate the essential skills and competencies that graduates must acquire upon joining the profession. Higher education institutions want to enable students to engage actively in their learning, promoting accountability and the cultivation of advanced abilities such as analytical thinking (Saadé, Morin & Thomas, 2012). Russell, Kulesza, Albrecht and Sack (2000) have raised substantial problems regarding the existing delivery of accounting courses, arguing for a thorough reform to emphasize the cultivation of critical skills.

2.2. Technology Acceptance Model (TAM)

The adoption of information technology has been a major study topic over the past decade, with numerous theoretical models suggested to elucidate user acceptance behaviour. The Technology Acceptance Model (TAM), proposed by Davis in 1986, is the most extensively employed and experimentally substantiated framework (Cigdem & Topcu, 2015). Davis (1989) stated that the efficacy of system adoption is predominantly contingent upon user acceptability, which is influenced by three primary factors: perceived usefulness (PU), perceived ease of use (PEOU), and attitudes toward utilization (ATU). The Technology Acceptance Model (TAM) is deemed more cost-effective, predictive, and reliable than alternative models in analysing consumers' behavioral intentions toward technology adoption (Ma & Liu, 2004). The technologies Acceptance Model posits that multiple factors influence individuals' decisions to acquire and utilize new technologies. The approach underscores that usability is essential in addressing difficulties, enhancing users' readiness and intention to adopt the technology. (Quinto-II, 2022) emphasized the imperative for accountants to consistently enhance their competencies to proficiently utilize technological instruments such as accounting software and computers, including QuickBooks and Excel. Likewise, (Mohd-Faizal, Jaffar & Mohd-Nor, 2022) asserted that reskilling and upskilling accountants to embrace digital technologies are crucial for fulfilling future employment demands. Consequently, professional accountants must enhance their competencies to include IR4.0 and digital technologies in their operations to maintain relevance in the changing work market.

A multitude of research has employed the TAM to investigate user acceptance behavior around technology adoption. These studies frequently concentrate on essential characteristics within the TAM, including perceived utility and perceived ease of use, which are routinely utilized to assess information technology adoption levels. TAM posits that users are more inclined to adopt specific technologies depending on their perceived utility and user-friendliness (Mohd-Faizal et al., 2022). Adams, Nelson and Todd (1992) noted that perceived ease of use might exhibit a negative association with technology acceptability in certain contexts, while in others, it demonstrates a positive correlation, contingent upon the applications under investigation. Perceived ease of use does not substantially influence behavioral intention, according to some research (Amaral-Souza, Pereira-Batista-Munay-da-Silva & Morais-Vieira-Ferreira, 2017), while other study illustrates its impact (Hendrickson & Collins, 1996; Subramanian, 1994; Venkatesh & Davis, 2000). Further studies indicate that perceived utility is more significantly impacted by perceived ease of use than technology adoption (Sondakh, 2017; Sondakh, Asaloei & Werang, 2023). Notwithstanding criticisms of the TAM on multiple aspects (Bagozzi, 2007; Taylor & Todd, 1995), it continues to be a prevalent and significant framework, especially for examining the determinants of students' intentions to embrace new technology (Braun, 2013).

Understanding your concerns regarding the transition and synthesis between the sections. To strengthen the argument and show how the Technology Acceptance Model (TAM), the Fourth Industrial Revolution (4IR), and soft skills intersect in justifying the research focus, let us make a smoother and more integrated transition in two paragraphs:

Considering the urgency of comprehensive accounting graduate quality, it becomes crucial to analyze the factors that drive technology adoption and skills development in the current era. This is where the Technology Acceptance Model (TAM), as a framework that explains how individuals accept and use technology, plays a significant role. In the context of the Fourth Industrial Revolution (4IR), characterized by automation, artificial intelligence, and data analytics, future accountants can no longer rely solely on traditional methods. The ability to effectively integrate and utilize new technologies in accounting practice becomes a key determinant of competitiveness. However, as will be discussed further, the successful adoption of these technologies does not only depend on the perceived ease of use or usefulness proposed by the TAM, but is also greatly influenced by other often overlooked skill dimensions.

Therefore, while TAM provides a foundation for understanding technology adoption, the focus of research should go beyond the purely technical aspects and embrace the equally important human dimension: soft skills. Amidst the rapid transformation of 4IR, soft skills such as critical thinking, problem solving, communication, and collaboration become essential as technological capabilities alone are not enough to face the complexity and dynamics of the business environment. The intersection of TAM, 4IR, and soft skills is what justifies the focus of this research. By exploring how accountants can accept and adopt new technologies (in line with TAM) amidst the challenges of 4IR, while integrating soft skills to maximize the potential of these technologies, this study aims to identify a holistic training model. This integrated approach is essential to ensure that accounting graduates are not only technically competent but also adaptive and ready to be agents of change in an ever-evolving profession.

Currently, studies on the impact on the accounting profession with implications for higher education have gaps in test results. This study investigates the acceptability of information technology in the digital era from the perspectives of accounting students and its consequences for higher education. For the testing of research question one, the study hypothesized the following using confirmatory factor analysis:

Positive perceptions of information technology utilization will actually encourage broader and deeper adoption, ultimately improving efficiency and accuracy in accounting processes. Therefore, system reliability is measured not only in technical terms but also in user confidence and acceptance, which will determine the sustainability and reliability of the output produced (Perju-Mitran, Zirra, Căruţaşu, Pîrjan & Stănică, 2020; Seo & Myeong, 2022). This means that the measurement of perceived information technology utilization must consistently provide the same results (reliable) and actually measure what it is supposed to measure (Hamza, Azfar, Mazher, Sultan, Maqsoom, Khahro et al., 2023; Şahin, Yeşiltepe, Ellez, Eraslan, Karataş & Özçetin, 2023; Xie, Boudouaia, Xu, Al-Qadri, Khattala, Li et al., 2023). In the context of research, this will ensure that the instrument or questionnaire used to measure perceived information technology utilization is a strong and accurate measuring tool.

H1. Perceived Ease of Use positively influences Perceived Usefulness (PU)

Perceived ease of use reduces the complexity and threshold of technology adoption, allowing users to optimally utilize features, which in turn results in more consistent and reliable output. This factor serves as a crucial foundation for validating the technology construct in a model, as ease of use directly influences the frequency and accuracy of utilization, which are prerequisites for achieving statistical (Kabir, Hassan, Mukta, Roy, Darr, Leggette et al., 2022; Park & Park, 2020). This means that the way the researchers measure perceived ease of use of information technology must consistently provide reliable results and must also accurately measure the actual concept of ease of use. In short, the instrument or method used to assess perceived ease of use of information technology must be a valid and consistent measuring instrument (Ruiz-Herrera, Valencia-Arias, Gallegos, Benjumea-Arias & Flores-Siapo, 2023; Nikou, De-Reuver & Mahboob-Kanafi, 2022).

H2. The perceived ease of use positively influences Attitude Toward Use

A positive attitude toward information technology use is a key indicator reflecting the internal consistency (reliability) of the construct being measured, as a strong attitude tends to produce stable and predictable responses to technology use. Furthermore, this attitude establishes strong factorial, which demonstrates the measurement tool successfully captures essential dimensions of user perception and motivation, which are the foundation of actual technology adoption behavior (Guillén-Gámez & Mayorga-Fernández, 2020; Racero, Bueno & Gallego, 2020). This means that the measurement of these attitudes must be consistent (reliable) and truly measure what is intended (factorially valid) (Barragán-Sánchez, Corujo-Vélez, Palacios-Rodríguez & Román-Graván, 2020; Novikova, Bychkova, Shlyakhta & Novikov, 2023). In other words, the instrument or questionnaire used to assess individual attitudes toward the use of information technology must be proven to be an accurate and reliable measuring tool in research.

H3. The attitude towards the utilization positively influences Behavioural Intention to Use

The construct of attitudes toward information technology utilization must demonstrate significantly strong levels (Ramu, Osman, Abdul-Mutalib, Aljaberi, Lee, Lin et al., 2023). This means that any method or instrument used to measure these attitudes must consistently produce similar results in repeated measurements (reliability) and accurately reflect the underlying dimensions of the attitudes (factorial validity) (Hair, Gabriel, da-Silva & Braga-Junior, 2019; Manassero-Mas, Moreno-Salvo & Vázquez-Alonso, 2022). In other words, the measure must not only be reliable, but it must also accurately represent the theoretical concept of "attitudes toward information technology utilization."

Therefore, a more complete hypothesis would be that attitudes toward information technology utilization will demonstrate significantly strong reliability and factorial validity from its measurement instrument (Mâță, Clipa, Cojocariu, Robu, Dobrescu, Hervás-Gómez et al., 2021; Sailer , Stadler, Schultz-Pernice, Franke, Schöffmann, Paniotova et al., 2021). The addition of the phrase "from its measurement instrument" makes it clear that this reliability and factorial validity are assessed on the instrument used to collect data on the attitudes, such as a questionnaire or rating scale. This is important to ensure that the results of the study reflect not only the relationships among the variables, but also the quality of the measurement itself (Thuy-Nguyen & Habók, 2022).

H4. Attitudes toward information technology utilization increase behavioural intention

2.3. The Role of Soft Skills in Graduate Employability

Employability is frequently characterized as a collection of individual-centric elements that enhance the probability of securing employment. It has been defined by (Yorke, 2005) as 'a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefit themselves, the workforce, the community and the economy' (Lim, Anabo, Phan, Elepano & Kuntamarat, 2022). A substantial shift has occurred regarding the vital expertise and abilities needed in the workplace, as many businesses emphasize accounting graduates' interpersonal abilities and personal attributes. In this framework, colleges are depicted as generators of graduates equipped with the skills demanded by companies.

The reputation of a university is essential for the employment of its graduates, as are the soft talents they possess. Soft skills, encompassing interpersonal and social competencies, together with behaviors and attitudes, are crucial for effective professional interactions and are integral to career advancement (Matteson, Anderson & Boyden, 2016; Robles, 2012; Tan & Laswad, 2018). Institutions that emphasize the cultivation of soft skills and personal competencies provide substantial value, as these attributes are perceived to exert a lasting influence on graduate employability (Suleman, 2018). Given the increasing importance of soft skills in the workplace, employers usually expect institutions to be responsible for fostering these competencies and helping their graduates create their professional identities (Jackson, Rowbottom, Ferns & McLaren, 2017; Low, Botes, de-la-Rue & Allen, 2016). Businesses are placing more emphasis on soft skills and personal attributes in accounting graduates as the information and abilities needed in the workplace increase. This tendency makes it more difficult for colleges to close the skills gap, particularly when it comes to developing the soft skills necessary to adjust to the changing demands of the business world.

3. Research Methods

3.1. Research Design

In order to make predictions, investigate correlations between research variables, and extrapolate findings to a larger population, this study used a quantitative survey approach, which comprises the collection and analysis of numerical data (Apuke, 2017). According to Bryman (2012), Data analysis and measurement are the main goals of quantitative research. Quantitative approaches were used in this study to give a thorough grasp of students' behavioral intentions about the use of technology in the digital age. Confirmatory factor analysis (CFA) is a robust and adaptable statistical method that has gained prominence across various domains of psychology, including educational research. CFA emphasizes the modeling of the link between manifest (i.e., seen) indicators and underlying latent variables (factors). This CFA aims to evaluate the measurement model, specifically assessing the unidimensionality of exogenous and endogenous latent variable components. Therefore, CFA is used to estimate a model of students' behavioral intentions in using information technology in the digital era.

Survey questionnaires were employed as data collection instruments, as recommended by Williams (2011), enabling participant commentary on a particular topic. Recent studies (Sondakh et al., 2023; Werang & Radja-Leba, 2022; Wula, Yunarti, Wolomasi, Turu, Wulur, Krowin et al., 2020; Yunarti, Asaloei, Wula & Werang, 2020) indicate that surveys offer numerous advantages, including accessible data, cost-effectiveness, robust statistical outcomes, and the absence of researcher bias.

3.2. Sample

The population of this study specifically focused on 740 accounting students of the 2020 academic year at the Accounting Department of Sam Ratulangi University, Indonesia. The Slovin formula is a sampling method included in the category of probability sampling, specifically simple random sampling, which is used to determine the minimum sample size from a population of known size with a tolerable level of error (error tolerance). This method is especially suitable for homogeneous populations and is used when researchers want to ensure precision in estimates by considering the margin of error, usually in situations where no initial data on population variance is available. From this population, sampling was carried out with Slovin, leading to contact with 265 students. The high participation rate was indicated by 244 students agreeing to participate in this study, forming the final sample size. The demographic composition of this sample showed gender diversity with 91 male students and 153 female students, all in a relatively homogeneous age group, namely between 19 and 21 years. Furthermore, the characteristics of technology use in this sample were also detailed. All participants had one to three years of computer experience. Respondents are required to give explicit consent at the start of the questionnaire after being fully informed about the purpose of the research, the procedures involved, potential risks and benefits, as well as their right to withdraw at any point without repercussions. Anonymity of participants should be preserved by avoiding the collection of unnecessary personally identifiable information, and the confidentiality of the gathered data is ensured by restricting access to the Google Form and utilizing the data solely for the specified research objectives. Approval from the Ethics Board (IRB) is typically unnecessary for low-risk, exempt studies, like anonymous, minimal-risk surveys in educational environments or internal audits, yet researchers must still adhere to fundamental ethical standards.

The frequency of online computer use by these students, which varied from weekly to daily, indicates that they were active users of technology and were familiar with the digital environment. These details provide a clear picture of who the research subjects are and their technological experience background, which is very relevant to the context of research on technology acceptance and digital skills among accounting students. The focus was on final-year accounting students, as they had completed all coursework and were nearing graduation, yet remained uncertain about the graduate skills required for workplace success.

3.3. Data Collection

This research sought to explore the behavioural intentions of accounting students in adopting information technology within the digital era. Data were gathered through three survey questionnaires. Conducted in Indonesia, the study did not necessitate Institutional Review Board (IRB) approval. Students provided informed consent, and their data were handled with strict confidentiality. Participation was entirely voluntary, and the

questionnaires, presented in Indonesian, were distributed via Google Forms to 244 accounting students from the 2020 academic cohort.

3.4. Measures

To evaluate students' perceptions of information technology usage, five items were adapted from (Cramarenco, Burcă-Voicu & Dabija, 2023). Five questionnaire items were changed for perceived ease of use (Pattermann, Pammer, Schlögl & Gstrein, 2022) and (Almassaad, Alajlan & Alebaikan, 2024). Students' attitudes toward using information technology were assessed using four items derived from (Shroff, Deneen & Ng, 2011) and (Gardner & Amoroso, 2004). Lastly, four items measuring students' behavioral intention to use information technology were adapted from (Roca, Chiu & Martínez, 2006) and (Moon & Kim, 2001).

Construct	Construct items	Item statistics	
		Mean	Standard deviation
Perceived usefulness (PU)	1. Using information technology makes my learning process more effective	4.26	.61
	2. Using information technology can improve my learning achievement	3.88	.72
	3. Using information technology can increase learning productivity	3.91	.70
	4. Using information technology increases the ability to complete learning tasks quickly	4.40	.64
	5. I find that using information technology to further my education is incredibly beneficial.	4.47	.55
Perceived ease of use (PEOU)	1. Learning to use information technology is easy for me	4.18	.59
	2. Overall, I found information technology easy to use	4.07	.60
	3. My interactions with information technology are clear and understandable	4.09	.57
	4. It is easy for me to be skillful when using information technology	3.93	.65
	5. Instructions using information technology are easy to follow	4.10	.60
Attitude towards use (ATU)	1. I have a positive attitude towards the use of information technology	4.21	.55
	2. I like the idea of using information technology in the lecture process	4.25	.54
	3. Using information technology makes me enjoy studying	4.14	.53
	4. Overall I enjoy using information technology	4.34	.53
Behavioral intention to use (BIU)	1. I intend to use information technology in all my learning activities	3.74	.66
	2. I will use information technology as often as possible in completing college assignments	3.90	.65
	3. In the future, I plan to employ information technology a lot.	3.59	.78
	4. I advise others to utilize information technology.	4.11	.54

Table 1. The results of testing the validity and reliability of the construct items

3.5. Students' Perceived Usefulness

Table 1 demonstrates that accounting students at Sam Ratulangi University evaluated all aspects of perceived information technology utilization favorably, with mean scores ranging from 3.88 to 4.47 and standard deviations between 0.55 and 0.72. The students' perception of utilizing information technology in their studies received the highest mean score (M = 4.47, SD = 0.55), while their belief in its potential to enhance learning performance received the lowest mean score (M = 3.88, SD = 0.72). The majority of accounting students at Sam Ratulangi University recognized the utility of information technology in their studies, irrespective of its impact on academic performance. According to this statement, the effect of information technology usage among accounting students is favorable regarding perceived usefulness, yet it doesn't directly link to quantifiable enhancements in academic achievement. This indicates that students feel that technology plays a crucial role in enhancing their learning experience, such as in obtaining resources, finishing tasks, or working together. Nonetheless, these assumed advantages do not automatically lead to enhanced grades or academic performance

metrics, suggesting the influence of additional elements like comprehension depth, usage quality, or assessment techniques that impact academic results.

3.6. Students' Perceived Ease of Use

Table 1 indicates that accounting students evaluated all aspects of perceived ease of use favorably, with mean scores ranging from 3.93 to 4.18 and standard deviations between 0.57 and 0.65. The mean for students' perception of the ease with which they could become proficient in information technology was the highest (M = 4.18, SD = 0.59), while the mean for their belief in the ease of obtaining necessary information through technology was the lowest (M = 3.93, SD = 0.65). This indicates that the majority of accounting students at Sam Ratulangi University acknowledged the value of information technology, irrespective of its efficacy in streamlining their access to their resources.

3.7. Students' Attitude Toward Use

According to Table 1, accounting students exhibited favourable attitudes toward the utilization of information technology, with mean scores ranging from 4.14 to 4.34 and standard deviations between 0.53 and 0.55. The highest mean was associated with students' preference for engaging with information technology (M = 4.34, SD = 0.53), while the lowest mean pertained to their enjoyment of using information technology for academic purposes (M = 4.14, SD = 0.53). This indicates that most accounting students at Sam Ratulangi University shared similar views on the use of information technology, regardless of how much they enjoyed applying it in their studies.

3.8. Behavioural Intention to Use Information Technology

According to Table 1, accounting students placed a high value on all aspects of their behavioral intention to use information technology, with mean scores ranging from 3.59 to 4.11 and standard deviations between 0.54 and 0.78. Students exhibited the highest level of enthusiasm for promoting the use of information technology (M = 4.11, SD = 0.54), while their intention to use it routinely in the future had the lowest mean (M = 3.59, SD = 0.78). The results of this study indicate that the majority of accounting students at Sam Ratulangi University were in agreement regarding their intention to advocate for the adoption of information technology and to use it, irrespective of their individual plans for ongoing use. Moreover, the standard regression weight (λ) for all items listed in Table 4 exceeds 0.5, with the exception of BIU 4, "I recommend others to use the information technology," which has a value of 0.475. This indicates that students are disinclined to advocate for the use of information technology to others, since they believe that it is already widely utilized by everyone. Therefore, in the ongoing assessment of the technology acceptance model, the elements related to suggestions for the use of information technology by others should be removed from the instrument.

4. Results

4.1. Measurement Model

The next phase was used to evaluate the measurement model for validity and reliability. Establishing construct reliability (CR) and construct validity (CV) is a prerequisite for achieving results that can be viewed with confidence (Chou, Chang, Cheng & Tasi, 2007).

Constructs	Construct reliability CR > .70	Cronbach's alpha > .70	Average variance extracted $p^{(vc)}$ > .50	-PU	PEOU	AT	BIU
PU	0.756	0.781	0.709	0.619*			
PEOU	0.871	0.804	0.554	0.655	0.733*		
ATU	0.781	0.810	0.618	0.673	0.672	0.701*	
BIU	0.729	0.802	0.600	0.602	0.473	0.422	0.672*

*Fornell and Larcker's criterion

Table 2. Validity and reliability analysis of constructs

4.2. CR Analysis

Reliability analysis pertains to evaluating the extent of internal consistency among various measurements of a variable, which can be quantified using Cronbach's alpha coefficient. When using Likert scales, it is thought to be the best indicator for evaluating internal consistency dependability (Gliem & Gliem, 2003; Robinson, 2010). A reliability coefficient of 0.7 is deemed acceptable, whereas a coefficient below 0.7 suggests the necessity for adjustment of the scale item (Hair, Ringle & Sarstedt, 2013). Gefen, Straub and Boudreau (2000) propose that a CR coefficient over 0.7 is deemed acceptable, indicating good reliability and internal consistency (Fornell & Bookstein, 1982). Table 2 displays the reliability results, indicating a Composite Reliability (CR) ranging from 0.756 to 0.853 and Cronbach's alpha values for the constructs and latent variables, all surpassing the required threshold of 0.7, specifically ranging from 0.781 to 0.810. Consequently, internal consistency dependability was validated.

4.3. CV Analysis

The CV encompasses both convergent and discriminant validity (Lin, Huang, Othman & Luo, 2020). Hair, Babin, Anderson and Black (2019) Recommend employing confirmatory validation (CV) to verify that a set of variables accurately represents the theoretical latent construct being studied. (Fornell & Larcker, 1981) assert that the construct validity of confirmatory factor analysis includes two main evaluations: convergent validity and discriminant validity. Consequently, this study offers both. (Hair, Babin, et al., 2019) endorse the average variance extracted (AVE) as a measure of convergent validity, as it assesses the degree of shared variance among items within a construct in Structural Equation Modeling (SEM), with an AVE of 0.5 or greater deemed suitable for confirming convergent validity. In this study, the AVEs ranged from 0.554 to 0.709, all falling within the permissible limits (Table 2). As a result, the latent variables surpassed the threshold value and were considered to meet the criterion for convergent validity. (Hair, Babin, et al., 2019) assert that discriminant validity can be determined by connecting one construct with another. To ensure the discriminant validity of the measurement model, this study additionally examined cross-loading for each indicator, adhering to the measurement standards established by Fornell and Larcker (1981). The results in Table 2 demonstrate that the square roots of the AVEs for the four latent constructs surpassed the inter-construct correlation. The four latent constructs unequivocally met the criteria for discriminant validity, and Fornell and Larcker's criterion was fulfilled.

4.4. Analysis of Measurement Model (CFA)

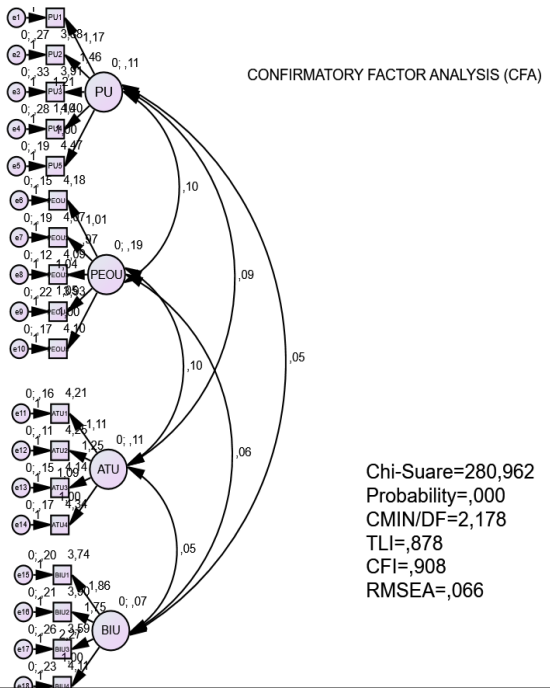

Figure 1. The results of CFA (standardized estimates)

To identify the most pertinent model fit indices, this study used Confirmatory Factor Analysis (CFA). An evaluation of the overall model fit was conducted using the Chi-Square ($\chi 2$), significant probability, Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), chi-square to degrees of freedom ratio (CMIN/DF), and Root Mean Square Error of Approximation (RMSEA). Following the recommendations of Hair, Anderson, Tatham and Black (1988), CFA methods were carried out using AMOS 24 to evaluate the validity of the measurement model. Overall, the findings showed that the measurement model's degree of fit was satisfactory. Following the evaluation of each construct, the comprehensive measurement model was examined in Figure 1 and Table 3. The CFA findings depicted in Figure 1 demonstrated a satisfactory level of fit: Chi-square = 280.962, p = 0.000, CMIN/df = 2.178 < 3, TLI = 0.878, CFI = 0.908 > 0.9 (Preacher & Hayes, 2008), RMSEA = 0.066.

Goodness-of-Fit- Fit Indices	Cut-off Value	Estimated Results	Criteria
X2 p value	< 214.477 p ≥ 0.05	280.962 p <.000	Good fit Good fit
RMSEA	0.05 –0.08	.066	Good fit
CMIN/DF	< 3	2.178	Good fit
TLI	≥ 0.90	.878	Marginal fit
CFI	≥ 0.90	.908	Good fit

Table 3. Goodness of Fit Indices

Table 3's fit indices show how closely the suggested measurement model matches the data that was gathered. The findings of the statistical analysis verified that the model fit was strong enough to assess the measurement model. As stated in the Technology Acceptance Model (TAM), this study demonstrates that the dimensions are suitable for investigating the connections among behavioral intention to use, attitudes toward use, perceived usage, and perceived ease of use.

4.5. Hypothesis Testing

The survey data is deemed credible and genuine if the Cronbach's alpha coefficient is 0.7 or higher (Hair et al., 2013). The outcomes of the validity and reliability assessments for the questionnaire items were satisfactory. Each subscale assessment demonstrated sufficient validity.

Scales	λ	p(VC)	SE	CR	P-value	Assessment
Perceived Usefulness		0.619				Reasonably good level
PU1	0.642		0.154	7.591	0.000	
PU2	0.685		0.193	7.572	0.000	
PU3	0.581		0.179	6.767	0.000	
PU4	0.574		0.152	7.215	0.000	
PU5	0.607					
Perceived Ease of Use		0.733				Reasonably good level
PEOU1	0.746		0.095	10.595	0.000	
PEOU2	0.698		0.096	10.054	0.000	
PEOU3	0.790		0.091	11.437	0.000	
PEOU4	0.700		0.102	10.280	0.000	
PEOU5	0.726					
Attitudes toward Use		0.701				Reasonably good level
ATU1	0.680		0.129	8.601	0.000	
ATU2	0.788		0.135	9.251	0.000	
ATU3	0.690		0.126	8.666	0.000	
ATU4	0.635					

Scales	λ	p(VC)	SE	CR	P-value	Assessment
Behavioral Intention to Use		0.672				Reasonably good level
BIU1	0.727		0.294	6.342	0.000	
BIU2	0.696		0.273	6.411	0.000	
BIU3	0.751		0.349	6.507	0.000	
BIU4	0.475		0.335	6.231	0.000	

Table 4. Summary of Hypotheses Test Data

5. Discussion

The internet has significantly expanded opportunities for global engagement (Solberg, 2011). Careers are continuously evolving due to advancements in technology, globalization, and increasing competition. According to (Gulin, Hladika & Valenta, 2019), seven hundred two job titles are susceptible to automation, with accounting being the most likely to experience significant automation and digitization. In the near future, artificial intelligence and automation technologies are expected to handle a large portion of accounting transactions (Tekbas, 2018). For the accounting industry, digitalization presents both opportunities and challenges. New accounting roles could arise as a result of accountants learning new abilities, especially in engineering (Gulin et al., 2019). However, accountants who fail to grasp the impact of technology and digital transformation on the workplace risk losing their status as vital financial experts within organizations (ACCA, 2020).

There are both opportunities and problems for accountants and accounting graduates as a result of the Fourth Industrial Revolution's predicted effects on the accounting profession. By leveraging digital technology in addition to improving data quality through increased timeliness and accuracy, accountants may now access real-time data that was previously unavailable and increase the dependability of information for decision-making (Hart, 2017). However, Ghani and Muhammad (2019) raise concerns that employer expectations may significantly shift in the 4IR environment, creating uncertainty about the employability of accounting graduates. As "digital natives," contemporary students (Palfrey & Gasser, 2011) highlight the critical role of educators in developing effective teaching methods that integrate technology (Denker, Manning, Heuett & Summers, 2018). Research on students' behavioral intentions regarding technology usage has emphasized the importance of technology in improving access and opportunities for students (Dianati, Nguyen, Dao, Iwashita & Vasquez, 2020; Sondakh et al., 2023). The purpose of this study was to investigate students' behavioral intentions regarding the use of technology and to evaluate the validity of the construct created to assess the factors derived from the latent constructs of attitudes toward information technology in the digital age, behavioral intention to use, perceived usefulness, and perceived ease of use, as described in the technology acceptance model.

The mean scores (M) of accounting students at Sam Ratulangi University, which range from 3.88 to 4.47, indicate that they are largely in agreement regarding the perceived value of technology in their curriculum, according to descriptive statistical analysis. These results are in line with a study by (Novarita (2021), which indicates that students' learning activities and productivity are enhanced by the use of technology. With mean scores ranging from 3.93 to 4.18, the analysis also demonstrates that Sam Ratulangi University accounting students generally concur on how user-friendly the university's information technology is assessed to be. This aligns with the conclusion of (Barat, Rajamma, Zolfagharian & Ganesh, 2009), who state that a tool's ease of use increases the likelihood of its adoption, while greater difficulty in usage correlates with a higher chance of rejection by users.

The perceived utility and user-friendliness may considerably affect students' attitudes towards utilizing and their intention to engage with the information technology offered by Sam Ratulangi University. The descriptive analysis results revealed that accounting students predominantly concurred regarding their intention to utilize the technology, with mean scores *(M)* varying from 3.74 to 4.11, and their attitude towards the use of the information technology provided by the university (*M* ranged from 4.14 to 4.34). In line with Al-Hattami's (2023) findings, lecturers and students agreed that there must be an analysis regarding what factors need to be considered in adopting and integrating technology into accounting education.

Contemporary challenges in accounting education in Indonesia encompass course content and curricula, pedagogical approaches, skill enhancement, technology integration, faculty development, and strategic discretion.

In the past, technical abilities were vital for finding job possibilities in accounting. Nonetheless, as the accounting profession shifts away from technical responsibilities in today's quickly evolving world, interpersonal skills—referred to by the World Bank as social skills—are becoming more and more crucial (Al-Mulhem, 2020; Rumbens, Richardson, Lee, Mizrahi & Roche, 2019). Employers accept that accounting graduates possess important technical accounting skills but often lack critical soft skills (Low et al., 2016; Terblanche & De-Clercq, 2021). At the same time, employers place increased importance on soft skills, such as interpersonal and communication talents, as well as the capacity to integrate and adapt to the organization's culture (Low et al., 2016; World Bank, 2018). The aforementioned interpersonal abilities align with previous studies on the social and emotional skills necessary for the "future of work" (Jackson & Meek, 2021; World Bank, 2018).

Additional discourse on soft skills reveals that the society of North Sulawesi possesses cultural norms that serve as a paradigm for tolerance teaching. (Pangalila & Mantiri, 2020) found that the North Sulawesi people's moral and cultural values (local wisdom)—*Torang Samua Basudara* (we are all brothers), Mapalus (cooperation), and *Si Tou Timou Tumou Tou* (every human being exists to humanize others)—create a climate of tolerance among them, which in turn provides a basis for the adoption and development of a model of tolerance education.

As a higher education institution, the Vision and Mission of Sam Ratulangi University are founded on the philosophy and ideas of Dr. GSSJ Ratulangi, encapsulated in the phrase *"Sitou Timou Tumou Tou"* (www.unsrat.ac.id). The self-assessment report for the Undergraduate Accounting Program (UPA) indicates that the pedagogical approach employs student-centered learning (SCL). Lecturers serve as facilitators or mentors, assisting students in acquiring information, analytical skills, and case-solving abilities through teaching materials grounded in the *Si Tou Timou Tumou Tou* philosophy (University, 2023). The philosophy of *Sitou Timou Tumou Tou* serves as a foundation for cultivating a sense of responsibility for the well-being of others, particularly in the realms of education and lifelong learning. Consequently, the Si Tou Timou Tumou Tou mindset should be incorporated into the undergraduate accounting curriculum as a soft skill, enabling graduates to acclimate to the organizational culture of companies when entering the workforce.

6. Conclusion

The grade of accounting graduates remains a primary concern in this study. This study offers significant insights into the effective training of future accountants, highlighting the necessity of a comprehensive skill set for employability, particularly with the growing importance of soft skills in higher education pedagogy. The results of the statistical analysis demonstrate that the latent constructs established in this study are endorsed by the majority of surveyed accounting students and may be utilized to evaluate overall model fit and produce a comprehensive model. The capacity of accountants to adopt digital technologies and utilize soft skills will profoundly influence their employability and is essential for the evolution of the accounting profession from a transaction-oriented paradigm to one that enhances value. A skills gap hinders innovation and signifies a lost opportunity.

The quality of accounting graduates is indeed a major focus, and this study provides crucial insights into how to prepare future accountants. Our findings highlight the importance of comprehensive skills to enhance competitiveness, especially with the increasing importance of soft skills in higher education pedagogy. The results of the statistical analysis indicate that the model is supported by the majority of accounting students surveyed and can be an effective evaluation tool to create a holistic training model. The ability of accountants to adopt digital technology and utilize soft skills will greatly affect their employability. This is crucial for the evolution of the accounting profession from being merely transaction-oriented to a more strategic and value-added role. The current skills gap not only hinders innovation but also indicates a missed opportunity for accounting professionals.

In this context, the Technology Acceptance Model offers a relevant framework to understand how accountants can integrate digital technologies that are crucial to the evolution of the profession. TAM argues that an individual's intention to use technology is influenced by perceived ease of use and perceived usefulness. If

accounting students perceive digital technology as an easy-to-master and useful tool for accounting tasks, they are more likely to adopt it. However, this study shows that technical aspects alone are not enough. The role of soft skills, such as critical thinking and adaptability, determines how these technologies are actually used to add value, not just to automate transactions. Thus, our findings extend TAM by emphasizing that the success of technology adoption by accountants depends not only on the features of the technology itself, but also on how soft skills facilitate its integration and utilization in changing professional contexts.

The *Sitou Timou Tumou Tou* idea, as a paradigm of inclusive education, augments the significance of universities by prioritizing the cultivation of soft skills and personal attributes, deemed to have enduring impacts on graduates' employment. Specifically, the mastery of soft skills such as collaboration, ethics, and effective communication emphasized in our findings strongly resonates with the spirit of cooperation and social concern in Si Tou Timou Tumou Tou. In the context of accounting education, this philosophy encourages a learning environment where students not only compete individually but also support each other in mastering complex skills, both technical and interpersonal. For example, students can "bring to life" each other in understanding new accounting algorithms or solving complex case studies, which will ultimately improve collective and individual work capabilities.

Furthermore, in the professional world, accountants who apply Si Tou Timou Tumou Tou will see their role not only as transaction implementers, but as advisors who provide added value to clients and organizations. This is in line with the evolution of the accounting profession from a transaction-oriented paradigm to a value-enhancing paradigm. The ability to adopt digital technology is not only seen as a personal skill but as a tool to "bring to life" innovation and efficiency that will ultimately provide broader benefits. Thus, this philosophy can be an ethical anchor and motivator for accountants to continue to develop themselves (technical and soft skills) for the advancement of the profession and positive contribution to society, minimizing the "skills gap" and "lost opportunities" identified in the study. Consequently, as the ASEAN Economic Community period nears, integrating local experience into the curriculum may provide accounting graduates with a competitive advantage in the global employment market. Conversely, the accounting profession in Indonesia faces the risk of losing its competitiveness if professional accountants and graduates fail to balance technical and interpersonal skills. This failure creates a gap that can be exploited by foreign-trained accountants, who are better prepared to compete in the era of globalization and digitalization, thus taking over career opportunities that should be available to local accountants. To enhance the calibre of accounting graduates, essential modifications to critical components, especially the existing curricula and pedagogical approaches, are imperative.

This research has significant policy implications for key stakeholders in the accounting education ecosystem. To ensure that Indonesian accounting graduates are able to adapt and compete in the global and digital arena, universities and professional associations must immediately revise their curricula and competency standards. Policies must encourage the integration of soft skills, such as critical thinking, communication, collaboration, and professional ethics, more deeply into learning materials. In addition, investment in technological infrastructure and training lecturers to master digital literacy is necessary, so that students not only understand concepts but are also able to apply the latest accounting technology. The Ministry of Education and Culture also needs to play an active role in developing a policy framework that supports collaboration between industry and academia, creating relevant internship programs, and encouraging internationally recognized digital skills certification. Thus, accounting graduates will be created who are not only technically competent but also adaptive, innovative, and ready to face the challenges of the profession in the era of globalization and digitalization.

This study significantly contributes to our understanding of how accounting education in higher education must adapt to the demands of a global and digital job market. The findings of this study enrich the literature by empirically identifying the importance of a balance between technical and soft skills, as well as the capacity to adapt to digital technologies, as key predictors of accountants' career success. Specifically, this study fills a knowledge gap by offering a comprehensive, statistically valid model for assessing graduate readiness. The implications for accounting higher education are profound: it is no longer just about mastering financial or managerial accounting, but rather about developing a holistic graduate profile. Curricula must be overhauled to explicitly integrate soft skills development through interactive teaching methods and collaborative projects, and ensure that students have mastery of relevant digital tools and technologies. In doing so, this study helps to lay

out a roadmap for educational institutions to produce accountants who are not only technically competent but also resilient, innovative, and ready to compete in an era of disruption.

The integrated policy implications for universities and the government are that the Ministry of Education and Culture together with the Directorate General of Higher Education need to formulate a national policy that guides universities to integrate tridaya competencies (technical, digital, and soft skills) as well as local wisdom such as Si Tou Timou Tumou Tou (humans live to humanize humans) into the Higher Education Core Curriculum for accounting study programs, while at the institutional level, universities must respond with autonomous policies that include the development of project-based learning modules and internships that internalize the values of local wisdom, reallocate budgets for lecturer training and procurement of supporting technology, and form strategic partnerships with companies and professional organizations to ensure that graduates not only master digital competencies but also have strong character and cultural adaptability, so they are able to contribute positively in various global organizational landscapes.

6.1. Research Limitations and Future Work

This study makes substantial contributions to the current literature on the adoption of information technology in the digital era; however, it has limitations. The model proposed in this study is not comprehensive or definitive; therefore, it can be further refined through the integration of external variables that can substantially enhance the adoption of information technology in the digital era, including individual, organizational, cultural, and other behavioral factors. Future studies can improve the model by integrating additional structures to support the various application areas and the rapid advancement of new technologies. The model can be further tested in a longitudinal study or combined with qualitative research. Second, the data were collected from a limited sample at Sam Ratulangi University. Therefore, additional research is needed in other universities in Indonesia, using cultural attributes such as local wisdom to increase the generalizability of these results. This study is also limited to Sam Ratulangi University. Future research should involve more universities in various regions of Indonesia, including state and private universities with diverse accreditations and characteristics. This will help identify whether the findings regarding the skills gap and the importance of soft skills and digital literacy are universal or vary depending on the institutional and regional context. By presenting study findings broken down by contribution per academic level (Diploma, Bachelor's, Master's), this paper provides empirical evidence on whether the complexity and depth of the curriculum at higher levels are indeed correlated with improved output quality. This comparative analysis will be invaluable for stakeholders in evaluating the effectiveness of each educational level and formulating targeted improvement policies.

Declaration of Conflicting Interests

The authors report there are no competing interests to declare.

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