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International Journal of Academe and Industry Research (IJAIR) is an open-access peer-reviewed quarterly journal focused on business education, industry research and the connection between them. The interconnectedness of the industry and academic institutions needs a platform that aligns their respective research needs. From the academic perspective, the business-related program management and the teaching and learning had been dramatically influenced by the industry trends and needs, collaborative approaches and internationalization. From there comes the indispensable role of the industry as they become partners to the academic institutions in producing quality workforce and entrepreneurs. Along these areas are the interesting topics for academic and industry researchers.

The journal employs rigorous double-blind review to ensure quality publications. Authors receive comment through feedforward communication approach. It is the prime objective of the reviewers to help authors improve the quality of the papers. As the journal promotes internationalization and collaboration, the multi-dimensional perspectives of the author and reviewers add high value to the research article. Moreover, the journal has solid support system for copyediting and formatting. The journal ensures that the research articles are within the standards of international publication.

It publishes high quality research papers that uses quantitative, qualitative or mixed methods. The journal targets a diverse spectrum of readers including academic scholars and industry experts. It focuses on local, regional and global issues on business education and industry. It also fosters academe and industry linkage and collaboration.

The journal covers, but not limited to, the following:

### **Business education**

- Current issues and trends in business education such as experiential learning, work training, community immersion, technical education and the 21st century skills;
- Internationalization and management of business-related programs;
- Management and operation of programs in business management, accounting, tourism and hospitality, agriculture, office administration, health administration and business analytics;
- Teaching and learning, curriculum development and student experience in the business-related and industry-inclined programs;
- Development and application of the 21st century skills;
- Assessment of program quality, institutional services and student satisfaction;
- Evaluation of student experience, skills development and training development;
- Development and evaluation of teaching materials in business-related and industry-inclined programs;
- Benchmarking, institutional and program accreditation and institutional quality management;
- Leadership and management in the school setting; and
- Linkage and collaboration of schools, colleges and universities.
-

### **Business and industry research**

- Current issues and trends in business such as data-driven management, globalization, product innovation and digitalization;
- Internationalization, cross-cultural collaboration and international business;
- Management and operation of any types of business;
- Application of management functions in the industry such as planning, organizing, coordinating and controlling;
- Applied research on human resource, accounting, marketing, operations, and IT;
- Assessment of product and service quality, customer experience and employee satisfaction;
- Evaluation of employee experience, skills development and training development;
- Development and evaluation of employee training materials, operational manuals and business plans;
- Industry quality management such as QMS and ISO;
- Leadership and strategic management in the business;
- Accounting and finance in the industry context;
- Feasibility studies and business plans;
- The industry and industrial revolution 4.0;
- Transformation of industrial to knowledge society;
- Entrepreneurship and entrepreneurial development;
- Agriculture and agricultural development;
- Tourism and tourism development;
- New and emerging industries such as financial technology, biotechnology, renewable energy and telehealth; and
- Research as applied in the different types of industrial sectors.

### **Industry and academe linkage**

- Current issues and trends in the industry-academe linkage such as employability skills and the 21st century skills;
- Evaluation of graduate employability and tracer studies;
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# Relationship of knowledge sharing and innovation intention on the continuous quality improvement in university setting

Niño Philip L. Perculeza

## Abstract

This study assessed the changed knowledge sharing system and innovative intention towards continuous quality improvement in one university system in the Philippines. This descriptive study was participated by 261 faculty members of five schools of a university system. It made use of a modified questionnaire as its primary data gathering instrument, having an excellent remark of its 0.925 Cronbach's Alpha. The data were encoded, tallied and interpreted using different statistical tools such as frequency distribution, ranking, weighted mean and F-Test, Shapiro-Wilk Test, Spearman rho, and were further analyzed and interpreted through PASW version 26 using 0.05 alpha levels. From the results, it was concluded that there has been a strong response of the university towards knowledge sharing system and its teachers possess a strong innovative intention. Further, there is a strong positive presence of continuous quality improvement practices regarding the different processes of the university system. Moreover, there is a high relationship regarding knowledge sharing system, innovative intention, and continuous quality improvement. The results of the study imply a need to develop a continuous quality improvement plan.

**Keywords:** *changed knowledge sharing system, continuous quality improvement, innovative intention, university system*

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## 1. Introduction

The occurrence of the pandemic has surprised the whole world on its effect to the educational system. To ensure continuity of instructions during the lockdowns, alternative arrangements have been made for class, examination, and student's assessment; thus, the knowledge sharing system has changed. It was the first time for all the students to attend a pure online class which landed to some problems like limited access to devices and in transition of knowledge sharing system. The shift to knowledge sharing system could directly affect the quality improvement of instruction and processes provided by each school. With this, a great leap to innovation has become a strategic priority that gives emphasis on new processes, delightful services, and innovative products (Caniels & Veld, 2019). This innovation intention typically includes exploration of opportunities and the generation of new ideas, which are creativity-related behavior. This also include behaviors directed towards implementing change, applying new knowledge or improving processes to enhance personal and/or performance.

The number of students studying in different tertiary education institutions around the world is getting bigger and bigger which calls for a greater emphasis on quality education among higher institutions of learning. However, there are several challenges being faced by Higher Education Institutions (HEIs) when it comes to management of quality assurance. With the challenges being faced by educational institutions, it is timely to address the quality needs of schools; whereas, the intention of the management, together with their instructors, in progressive innovation is equally highlighted. In this situation, as establishing a new method of teaching-learning, it becomes important to know the perspectives of the teachers on how willing they are to embrace innovation.

The changed knowledge sharing system could improve students' ability to understand concepts in class which would be helpful in widening their knowledge. As a new practice of the world, the changed knowledge sharing system has been another effort brought by globalization; and this is where another problem of any organization might take place. It necessitates the management to think of alternative ways to ensure sustainability and generation of innovative ideas. A continuous quality improvement plan could also assist the restructuring of every university's work instructions and existing programs, ensuring that

quality is frequently evaluated; likewise, policies and procedures will also be refined to reinforce quality performance.

The study aimed to determine the changed knowledge sharing system and innovative intention towards continuous quality improvement in one university system in the Philippines. Specifically, it determined the relationships among the three research variables: innovative intention, changed knowledge management and continuous quality improvement.

## **2. Literature review**

### ***2.1. Changed Knowledge Sharing System***

The pandemic lockdowns disrupted and affected the worldwide education system (Zheng et al., 2020) with far-reaching consequences on learners, teachers, and educational organizations (Mailizar et al., 2020). As a result, studies have preserved major educational delays due to the suspension of academic activities triggered by the pandemic. This may be ascribed to the closure of educational institutions, resulting in the resistance to confronting learning and intrusion of academic programs (Jacob et al., 2020). Because the impact on higher education was dramatic and transformative, a common trend to respond to epidemics in the global education system was the “emergency e-learning” protocol, which marks the rapid transition from face-to-face classes to online education. Educational institutions were facing a challenge to adapt to this change and are trying to choose the right technologies and methods to educate and engage their students (Rashid & Yadav, 2020). While some studies showed students are satisfied with the online mode of learning (Xu & Xue, 2023; She et al., 2021; Elshami et al., 2021; Hettiarachchi et al., 2021), thoughts of learners are influenced by a host of factors (Shrestha et al., 2019; Salloum et al., 2019) such as age, gender, prior knowledge of computer literacy, and the learning ways of individuals. There exists spacious literature which practices the theories of “technology acceptance” to study students’ appreciation (Pérez-Pérez et al., 2020).

Relying on and adapting to e-learning during a pandemic may cause a shift in adopting more online elements in the teaching by the educators. This, however, has many practical problems and limitations, in terms of the availability of digital technologies for education. There is a vast “digital inequality” that exists in society. One cannot assume that all students, as well as educators, would have access to internet connectivity and associated powerful devices outside of their university, to be able to communicate. However, according to Rashid

and Yadav (2020), during the epidemic, there has been a shift in the way of knowledge sharing in educational institutions. More and more online content was adopted by educators who had relied on and adapted e-learning. There were also many practical problems and limitations in the availability of digital technology for education due to a huge “digital inequality” in society. No one can say for sure that all students, as well as academics, are able to communicate with a strong internet connection and related devices outside of their university.

## ***2.2. Innovative Intention***

For enterprises to sustain and continue operating effectively, there is a requirement for continuous improvement and development of their products and services that would necessitate a joint effort from all their members. For that, enterprises need to take measures that enhance creativity and innovation processes among their employees. Innovation is one of the critical sources for generating a competitive advantage that helps in the market (Caniels & Veld, 2019). Therefore, enterprises have always attempted to evoke creativity among their members to encourage creative ideas (Anderson et al., 2019).

Innovative intention is defined as developing, finding support, and implementing new ideas. It is also stated as introducing new attractive ideas with responsibilities among employees group (Janssen, 2020) that are necessary for improving the efficiency and performance of the job (Baer & Frese, 2018). Employees with higher self-confidence are more likely to conduct innovative organizational tasks (Tierney & Farmer, 2019). For that, high-tech companies have recently started focusing on recruiting talented employees who have the skills and abilities to behave innovatively and implement adequate measures to ensure a comfortable and attractive business environment for their individuals.

Al-Samarraie and Hurmuzan (2018) has greatly evaluated that creative individuals require training in a solid educational infrastructure and a new creative education mechanism, and higher education is the core component that helps train creative students and facilitates the future. As a result, they are focusing on using creative methods to encourage students to generate ideas and solutions that will be useful in improving learning outcomes. In addition, seeking new working methods, ideas, and solutions are popular ways how to achieve innovation (Al-Samarraie & Hurmuzan, 2018). Furthermore, many researchers investigated new technologies (for example, additive manufacturing and virtual reality) that aid students in the process of innovation.

Filser et al. (2023) argued that clear understanding of the factors that influence the opportunity recognition process is a kind of strategic advantage to attain innovation, but because of its practical relevance, research on opportunity recognition has grown significantly over the last 20 years, resulting in a more complex and confusing process which will result from risk of information overload.

### ***2.3. Continuous Quality Improvement***

Everyone is aware of the need to deliver quality services with the use of continuous quality improvement processes and methods motivated by support from organizational leaders. This indicates that amidst significant changes being experienced in the higher education system such as the increasing competitiveness resulting from globalization in the 21st century, still the HEIs in the Philippines continue to thrive and deliver quality services. However, the least commonly occurring theme is “achieving quality services through management influence” which means that the HEIs are aware that despite minimal management presence the quality service must be delivered to its clientele as it is already indicated in the roles and responsibilities of employees to perform at their best as well as quality service is one of the objectives to remain organizationally competitive.

The study of Rodriguez et al. (2018) showed that many of the HEIs went into institutionalization of quality assurance mechanisms by establishing quality management systems in adopting quality standards and mechanisms. The overall operations must emphasize the need for the appropriate support from the organization’s leaders and stakeholders. The approaches in delivering quality assurance initiatives are to continuously work together in providing the right services to clients which should be in an organization-wide commitment for internal stakeholders. According to Hamann et al. (2018), best practice adoption leads to higher levels of creativity and performance in institutions. Organizations seeking to enhance their performance, provide value, and maintain competitiveness in their sectors must learn from the best practices of top institutions. They can learn from the triumphs and failures of others, spot opportunities for development, and invent new solutions to match their needs.

In the academic institutions, continuous improvement and the integration of new teaching trends are crucial for successful curriculum development. The collection and analysis of relevant data play an essential role in this process. According to Ahmed et. al (2017), continuous improvement is a vital process for enhancing organizational performance, and

analyzing data is an essential element of this process. Data analysis plays a crucial role in identifying improvement areas, identifying the underlying causes of issues, and evaluating the effectiveness of improvement initiatives. Through data analysis, organizations can gain valuable insights into their processes and determine areas where they can make improvements to enhance efficiency, quality, and productivity. Additionally, data analysis can help organizations assess the impact of changes over time and determine if desired outcomes have been achieved. Jansen and Christie (2017) suggest that gathering data can assist in identifying areas where student learning needs improvement and can guide decisions on which modifications are necessary for the curriculum. Collecting and analyzing data should be a continuous process to ensure that the curriculum revisions are sustainable and effective, rather than a one-time event.

### 3. Methodology

#### 3.1 Design

This study employed a descriptive research design, researcher will be able to observe a massive population and make required conclusions about the variables by using the descriptive method (Ritchie et al., 2018). In the descriptive method, data can easily be gathered to find out the thoughts, behavior and perception of the respondents.

#### 3.2 Participants

The study's participants are 261 instructors who have experienced the transition of knowledge sharing system of a university system, with five campuses across Luzon and Mindanao in the Philippines. Categorically, they came from the different colleges and are teaching in the numerous programs provided.

**Table 1**

*Distribution of the participants*

University	Population	Sample
University A	217	70
University B	255	82
University C	92	30
University D	10	3
University E	236	76
<b>Total</b>	<b>810</b>	<b>261</b>



The sample size was computed from a total population of 810 instructors with a response distribution of 0.50, a confidence level of 0.95 and a 0.05 margin of error.

### 3.3 Instrument

The instrument has three parts containing the three variables of the research: changed knowledge sharing system, innovative intention, and continuous quality improvement. For the changed knowledge sharing system, the indicators were adopted from Rahmann et al. (2022) with five constructs: learning environment, satisfaction level, technical efficiency, mental health, and institutional efforts. On the innovation intention, the innovative work behavior scale developed by Dahiya and Raghuvanshi (2020) was used with 20 items categorized into five: opportunity exploration, idea generation, information investigation, idea championing, and idea implementation and application. The last part, continuous quality improvement, was adopted from Rodriguez (2022) with the following dimensions: academic program review, benchmarking, accreditation, and SWOT Analysis. A 4-point Likert-type scale was used to assess each indicator.

**Table 2**  
*The reliability test*

Indicators	Cronbach's Alpha	Remarks
Entire Instrument	0.925	Excellent
Changed Knowledge Sharing System	0.827	Good
Learning Environment	0.862	Good
Technical Efficiency	0.898	Good
Health	0.883	Good
Institutional Efforts	0.897	Good
Innovative Intention	0.936	Excellent
Idea Generation	0.879	Good
Idea Championing	0.903	Excellent
Idea Implementation and Application	0.878	Good
Continuous Quality Improvement	0.958	Excellent
Academic Program Review	0.913	Excellent
Benchmarking	0.855	Good
Accreditation	0.918	Excellent
SWOT Analysis	0.896	Good

*Note:* George and Mallery (2003) provide the following rules of thumb: “>.9 = Excellent, >.8 = Good, >.7 = Acceptable, >.6 = Questionable, >.5 = Poor, and <.5 = Unacceptable

Based on the reliability test, there has been an excellent consistency on the instrument, exhibiting a 0.925 Cronbach's Alpha value. This was validated by the excellent remarks from innovative intention (0.936) and continuous quality improvement (0.958), and a good remark

from changed knowledge sharing system (0.827). This guarantees that the instrument at hand passed reliability index test.

### ***3.5. Data Analysis***

The result of Shapiro-Wilk Test that p-values of two variables are less than 0.05 which would mean that the data set is not normally distributed. Likewise, Spearman rho was used to test the significant relationship between responses on the indicators. All data were treated using statistical software, PASW version 19 using 0.05 alpha levels.

### ***3.6. Ethical Consideration***

The research observed ethical considerations such as voluntary participation and informed consent. These principles were followed to guarantee that all human subjects participate on their own free will and that they have been fully informed regarding the procedures of the research project and any potential risks. No branch or university name was mentioned to protect their privacy. With these, ethical standards also protected the confidentiality and anonymity of the subjects.

## **4. Findings and Discussion**

This study assessed the changed knowledge sharing system, innovation intention and continuous quality improvement of the different branches of an HEI in the Philippines in order to evaluate the relationship among the variables. The participants' self-evaluation of the indicators showed agreement with the changed knowledge sharing system (See Appendix A) and innovation intention (See Appendix B) with highly evident continuous quality improvements (See Appendix C). From these results, the test of relationship was performed.

Table 3 depicts the relationship between the changed knowledge sharing system and innovative intention. Three factors: idea generation, idea championing, and idea implementation, were examined to determine their relevance when grouped in accordance with the four critical success factors: learning environment, technical efficiency, mental health, and institutional efforts. Since the computed p-value is equivalent to 0.000 or less than 0.05 level under idea generation, it was noted that it is highly significant in terms of technical efficiency and mental health. Additionally, the idea generation and learning environment are significant

since the estimated p-value is 0.005 or lower than 0.05. This means that the required technological tools must be supplied in order for the teachers to formulate their thoughts. Additionally, a lot of the instructors' concepts were developed using data that was available online. As a result, having access to materials within the school provides an advantage and broadens the instructors' expertise.

**Table 3**

*Relationship between changed knowledge sharing system and innovative intention*

<b>Idea generation</b>	<b>r<sub>xy</sub></b>	<b>p-value</b>	<b>Interpretation</b>
Learning Environment	-.174**	0.005	Significant
Technical Efficiency	.414**	0.000	Highly Significant
Mental Health	.297**	0.000	Highly Significant
Institutional Efforts	0.017	0.787	Not Significant
<b>Idea championing</b>			
Learning Environment	-0.116	0.061	Not Significant
Technical Efficiency	.322**	0.000	Highly Significant
Mental Health	.268**	0.000	Highly Significant
Institutional Efforts	0.049	0.433	Not Significant
<b>Idea implementation and application</b>			
Learning Environment	-.217**	0.000	Highly Significant
Technical Efficiency	.266**	0.000	Highly Significant
Mental Health	.268**	0.000	Highly Significant
Institutional Efforts	-0.028	0.650	Not Significant

*Legend:* \*\*Correlation is significant at the 0.01 level (2-tailed); \*Correlation is significant at the 0.05 level (2-tailed)

Turner (2023) describes how technology has affected everything from social media to the workplace in people's daily lives. Even in the comfort of their own home, everyone may obtain the knowledge they want. Despite this, everyone is now exposed to contemporary technologies. When an issue persists, most consumers turn to online solutions rather than professional advice. That is closely tied to health issues as well, since individuals frequently search the internet for solutions to several ailments. It follows that a person's mental ability also influences how he or she develops and organizes thoughts in his or her mind. It is important to remember that ideas and concepts from people inside the company are what lead to solutions or procedures. Decisions that enhance the organization's reputation and operations must be made by them. In addition, they must offer them whatever assistance they might require so that they can do the task efficiently without it negatively affecting their mental well-

being. In order for the business to determine which employees need to seek treatment, there should also be a mental health assessment of the workforce.

Dobson (2011, as cited by Sutton, 2021) asserts that problem-solving treatment will lower people's risk of mental health illnesses and will help them deal with challenges. Employees must be able to address difficulties since they sometimes emerge at work and some of them are uncontrollable. Finding solutions for the business will thus benefit both the corporation as a whole and the mental health of its personnel. They understand how coming up with solutions for the business is advantageous for their health as well.

Technical efficiency and mental health were shown to have a high significance in terms of idea championing, with computer p-values for both of them being 0.000 and below the 0.05 threshold. That being stated, it simply means that one needs to be technically skilled and in a good frame of mind in order to champion or win ideas to address problems inside the firm. Having a greater grasp of the environment would encourage the organization to work harder to find solutions to its difficulties. If the concepts have previously been developed, the organization's other members ought to be persuaded to accept them. Being rejected for ideas and solutions is quite typical in organizational settings, therefore having political savvy and knowing when to support ideas is essential. An employee should be able to create a sense of time, know the allies and resisters, establish credibility, know the justifications for the concept, and know how to defend the idea because there will be many pushbacks and difficulties while trying to win certain ideas. An employee might use a variety of methods to support their arguments, such as citing rules or upcoming procedures or providing forecasts, analytics, and figures that could be easily measured (Bacharach, 2013).

The workplace environment where an individual currently works has an impact on how the project or ideas are implemented. To effectively use the real tactics in the appropriate situations, one must understand how to do so. Additionally, since it saves time and effort, access to technology enables the staff to carry out particular activities successfully. Additionally, using these procedures with mental acumen aids in the company's achievement of some corporate objectives as well as more of its own objectives. As a result, the organization should place a high priority on the learning environment's technological effectiveness and employees' mental health in order to continue implementing and using the ideas generated by their work.

Since it requires several research projects, upgrades, development, study, and work, putting the idea into practice is not simple. To ensure that the process of implementation and application goes well, it is also critical to ascertain the purpose of the ideas at the outset. According to Kuranov and Voitovych (2019), organization should have resources accessible for idea generation so that the staff may more easily access some facilities or equipment that will address the issues. Since it takes a lot of work before a concept is properly executed, having the mental fortitude to fight setbacks and keep making progress is essential. Similarly, one aspect of this process that cannot be eliminated is the usage of technology.

Even when other variables are significant, institutional efforts are still unimportant since they have no impact on idea generation, idea championing and idea implementation and application because the computed p-value is bigger than the 0.05 level. It only clarifies that the firm contributes very little to none to idea generation. The workers' concepts are a result of their knowledge, experience, and projections about potential solutions that they may use for the business. Moreover, the employees are founded on their own perceptions, beliefs, and experiences. If the organization provides resources similar to those used in idea generation, it has no direct impact on the workers' championing of ideas. This will only depend on their abilities to persuade others inside the organization. When it comes to idea implementation, the institutional efforts do not correlate effectively.

Table 4 depicts the link between the changed knowledge sharing system and continuous quality improvement. Academic program review, benchmarking, accreditation, and SWOT analysis were the four variables that were highlighted. These factors were examined to determine their relevance when grouped in accordance with the four critical success factors.

Technical efficiency was highly significant to the four variables of academic program review, benchmarking, accreditation, and SWOT analysis as a consequence of the p-value being less than 0.05 level. Since there was a pandemic when the survey was conducted and there is a greater emphasis on virtual learning, academic program review requires the use of technology. Using the available and required resources for holding lessons online also improved the users' abilities and knowledge. It broadens and deepens the expertise of the educators rather than just raising the standard of instruction. Utilizing technology also makes the process simpler because there are resources available online that are ready for discussions and lectures. As a result, the academic curriculum has grown thanks to the usage of technology.

**Table 4***Relationship between changed knowledge sharing system and continuous quality improvement*

<b>Academic Program Review</b>	<b>r<sub>xy</sub></b>	<b>p-value</b>	<b>Interpretation</b>
Learning Environment	-0.108	0.082	Not Significant
Technical Efficiency	.435**	0.000	Highly Significant
Mental Health	.164**	0.008	Significant
Institutional Efforts	-0.044	0.483	Not Significant
<b>Benchmarking</b>			
Learning Environment	0.030	0.629	Not Significant
Technical Efficiency	.314**	0.000	Highly Significant
Mental Health	.167**	0.007	Significant
Institutional Efforts	-.124*	0.045	Significant
<b>Accreditation</b>			
Learning Environment	0.086	0.163	Not Significant
Technical Efficiency	.365**	0.000	Highly Significant
Mental Health	0.097	0.117	Not Significant
Institutional Efforts	-.197**	0.001	Significant
<b>SWOT Analysis</b>			
Learning Environment	0.027	0.667	Not Significant
Technical Efficiency	.334**	0.000	Highly Significant
Mental Health	.146*	0.018	Significant
Institutional Efforts	-.180**	0.004	Significant

*Legend:* \*\*Correlation is significant at the 0.01 level (2-tailed); \*Correlation is significant at the 0.05 level (2-tailed)

Technology currently controls a lot of operations (Herold, 2016) being used by humans, which unquestionably makes work more efficient. Since the majority of the knowledge can be accessible online, technology is widely used in the field of education. Students can quickly discover the information they need by using basic technologies. Additionally, technology can be a tremendous tool for schools in meeting the needs of children from a variety of backgrounds.

Benchmarking and the utilization of modern technology go hand in hand (Alavi & Namazi, 2019). Different platforms are being used by other institutions just for online instruction. They also provide other virtual services that they are confident will raise educational standards. It is difficult for a school to attract students when it cannot keep up with trends, advancements, and innovation since it will reflect poorly on its reputation. In light of this, using modern technology to give instructions even in the event of a pandemic is a wise decision. Without having to cancel courses, the schools will then be prepared for other forthcoming activities. According to Dixit (2022), instructional technology has a variety of advantages, including quick information access, quicker learning, and enjoyable opportunities

for students to apply what they have learned. Other educational institutions that do not use contemporary technology risk losing out on a number of advantages, including access to the newest and most efficient teaching methods and the most recent studies, discoveries, and investigations that will be crucial for the future of education.

In terms of accreditation, data collection, recording, and storage are essential for preserving the knowledge required to meet the objectives. In accordance with this, the benefits of technology's assistance are due to its attributes. Additionally, the instructors' fundamental record-keeping abilities play a significant assistance in pinpointing areas that require development. The staff members will be able to gather the internal actions completed by the company that may be used again soon thanks to their degree of technological literacy and skill. According to Kane (2022), even though maintaining papers and records has several advantages, including increased productivity, lower costs, simpler compliance, improved workflows, reduced risks, and data protection, some firms are having problems doing so. As a result, the staff members must at the very least be able to separate papers that are still valid from those that have expired, digitize various source documents, and remotely update the data. As they maintain and keep track of the student files to make sure they have enough information for their development, these are also extremely common among the teachers at the school. The feedback and evaluation of the students would also be supported by sufficient evidence, as these are all based on the instructors' evaluations, so they could explain and justify them to their parents.

To make sure that the right preventative measures are being used and adequate strategies are being executed, it is crucial to analyze the company's strengths, weaknesses, opportunities, and threats in a SWOT analysis. As some elements are inclined to it, technological efficiency has an impact on the SWOT analysis in the firm. Additionally, it is crucial to evaluate the tactics to be used in digitalization to see if they are enough and compatible with the available resources. Similar to in the realm of education, it is important to first assess the pros and cons, possibilities, and risks of moving from a traditional classroom environment to one that is more accessible and virtual.

To ensure that the digital transformation of institutions is successful, several tests and research are needed. McDonald (2022) describes how the SWOT analysis has impacted digital transformation. Similar to how the traditional classroom has changed, a new environment has emerged that combines traditional remote learning with a hybrid arrangement. Although the

school's capacity to hold lessons in everyone's comfort throughout the pandemic is undoubtedly one of its assets, there are still issues with internet connectivity, the availability of devices, and resource availability. The institutions identified certain chances for improvement, such as expanding the number of online course options. However, the hazards associated with technology, like data breaches, storage, and device failure, still exist and cannot be completely eliminated.

The results showed that the learning environment has absolutely no impact on the four realms of continuous quality improvements. While continuous quality improvement is concerned with the creation of a specific process that is consistent with the program courses on benchmarking, accreditation, and SWOT analysis, the learning environment focuses on the resources provided by the organization to carry out specific procedures in the internal setting and to achieve certain goals (Usman & Madudili, 2019).

**Table 5**

*Relationship between innovative intention and continuous quality improvement*

<b>Academic Program Review</b>	<b>r<sub>xy</sub></b>	<b>p-value</b>	<b>Interpretation</b>
Idea Generation	.561**	0.000	Highly Significant
Idea Championing	.562**	0.000	Highly Significant
Idea Implementation and Application	.729**	0.000	Highly Significant
<b>Benchmarking</b>			
Idea Generation	.606**	0.000	Highly Significant
Idea Championing	.449**	0.000	Highly Significant
Idea Implementation and Application	.624**	0.000	Highly Significant
<b>Accreditation</b>			
Idea Generation	.407**	0.000	Highly Significant
Idea Championing	.165**	0.007	Significant
Idea Implementation and Application	.350**	0.000	Highly Significant
<b>SWOT Analysis</b>			
Idea Generation	.485**	0.000	Highly Significant
Idea Championing	.365**	0.000	Highly Significant
Idea Implementation and Application	.629**	0.000	Highly Significant

*Legend: \*\*Correlation is significant at the 0.01 level (2-tailed); \*Correlation is significant at the 0.05 level (2-tailed)*

As per table 5, academic program review has a high significant relationship with idea generation, idea championing and idea implementation and application. The goal of reviewing academic program is to steer the development of academic programs on an ongoing basis. A program review is a procedure that reviews the status, efficacy and progress of academic programs and assists in determining the future direction, needs and priorities of such programs.



Through the help of idea generation which allows broadening the range of ideas beyond what is currently thinking about, this helps in encompassing more information and concepts. Idea championing helps in supporting new ideas and overcoming obstacles and ensures that innovations are implemented. After generating the ideas and thinking of ways on how to apply it, idea implementation and application comes in wherein creating methods and processes to grow new ideas and implementing and applying it so that continuous quality improvement will be measured.

In the study of McGowan (2019), a cyclic academic program review is a targeted approach to gathering evidence of programmatic practices and policies, which include inputs, outputs, processes and mapping between them in a continuous manner improved framework. Academic program review is still being codified at some institutions and academic field organizations, usually to improve accountability, legitimacy and effective transformation. A best technique for assuring academic quality is academic program review. Qualification guidelines and other measures are being implemented by institutions to make the process more robust.

Idea generation championing and implementation and application have a high significant relationship when grouped according to benchmarking. It assists educational administrators in reforming or realigning both administrative processes and instructional structure. Benchmarking has also enabled institutions to collaborate with one another by establishing effective communication networks. Through benchmarking, gaps can be identified, seeking new techniques to bring about improvements, set targets and uncover new ideas for meeting fundamental assessment objectives of both certifying and boosting learning through benchmarking. It improves operations and understands what will work or not, it also focuses on practices and offerings that promote innovation which will help the institution in obtaining continuous quality improvement (Janssen et al., 2015). On the other hand, benchmarking is an organized process that leads to continual improvement and positive change, since it is one of the administrative techniques that helps institutions to accomplish qualitative leaps in their area or the way they are managed regardless of the nature of the work or effectiveness. This process is carried out by measuring the performance of the institution, comparing it to the best performance standards institutions in their field and referred to as the reference on the basis of which a comparison is made of the results, with an indication of how to defines the criteria for the best and how to apply them to indicate the levels of performance.

The used information was extracted as a basis for building and formulating goals, strategies and various management systems (Kissi et al., 2023).

The results further show that accreditation has a high significant relationship with idea generation and idea implementation and application. Institutional accreditation confirms that an institution not only delivers good work, but also has good financial, administrative, operational and supervisory practices. This independent validation can provide confidence which is needed by the whole institution as it grows. Generating ideas and implementing them enhances quality outcomes. It also establishes an institution's commitment to higher standards and provides competitive advantage. Processes for fast and accurate evaluation and remedy are provided. Accreditation allows the educational institution to conduct critical analysis, which leads to improvement in quality, services and operations. It certifies to the public that an institution or program has met or exceeded the standards set by other institutional bodies. Ching (2018) argues that accreditation provides assurance and quality control in which an institution or its services are recognized as meeting certain acceptable standards as a result of inspection or assessment. As a status, it informs the public that an institution or program fulfills the quality requirements established by an accrediting agency. Accreditation as a process reflects the fact that, in order to achieve acknowledgment by the accrediting agency, the institution or program is committed to self-study and external peer review in order to not only meet standards but to continuously seek ways to improve the quality of training and education provided.

SWOT analysis also has a significant relationship with idea generation, idea championing and idea implementation and application. Institutions can discover their own strengths and limitations, as well as areas of opportunity and threat. This understanding will assist them in comprehending the aspects that influence their learning process and performance. It prompts institutions and administration on the practical and less effective in the institution's systems and procedures. Similarly, the efficiency of SWOT-analysis technology in the process of quality management of future education programs has been demonstrated. For the successful operation of a higher education institution, improving the quality of educational services and the competitiveness of the institution, and building resilience to force majeure circumstances, it is critical to anticipate future threats and new appropriate possibilities that must be actively developed (Shvardak, 2021). Hence, it is necessary to identify the priority areas of the quality training system and develop a strategy for

the development of higher education institutions, as well as to adapt to changes in the external environment, maximize the use of internal resources, and employ modern technologies.

## 5. Conclusion

This study provides empirical evidence on the efforts of the HEIs in the Philippines in response to the changed knowledge sharing system. The statistical analyses assert the high relationship among changed knowledge sharing system, innovative intention, and continuous quality improvement. Hence, this study argues that an institutional program to promote continuous quality improvement needs to be developed. The program needs to emphasize the enrichment of a more conducive learning environment, promotion of proper healthcare practices, and trainings on championing ideas.

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## Appendices

### Appendix A

*Summary table of changed knowledge sharing system*

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Learning Environment	3.12	Agree	4
2. Technical Efficiency	3.22	Agree	2
3. Health	3.20	Agree	3
4. Institutional Efforts	3.26	Agree	1
<b>Composite Mean</b>	<b>3.20</b>	<b>Agree</b>	

*Legend: 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 – 1.49 = Strongly Disagree*

**Appendix B***Summary table of innovative intention*

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Idea Generation	3.52	Strongly Agree	1
2. Idea Championing	3.36	Agree	3
3. Idea Implementation and Application	3.42	Agree	2
<b>Composite Mean</b>	<b>3.44</b>	<b>Agree</b>	

*Legend:* 3.50 – 4.00 = Strongly Agree; 2.50 – 3.49 = Agree; 1.50 – 2.49 = Disagree; 1.00 – 1.49 = Strongly Disagree

**Appendix C***Summary table of continuous quality improvement*

Indicators	Weighted Mean	Verbal Interpretation	Rank
1. Academic Program Review	3.55	Highly Evident	3
2. Benchmarking	3.50	Highly Evident	4
3. Accreditation	3.72	Highly Evident	1
4. SWOT Analysis	3.68	Highly Evident	2
<b>Composite Mean</b>	<b>3.61</b>	<b>Highly Evident</b>	

*Legend:* 3.50 – 4.00 = Highly Evident; 2.50 – 3.49 = Evident; 1.50 – 2.49 = Somewhat Evident; 1.00 – 1.49 = Not Evident

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# Effects of conflicts and technostress on employees' job performance and satisfaction in a work-from-home scheme

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## Abstract

This study investigated the work-from-home (WFH) experiences of 211 customer and service representatives, along with five team leaders, employed in the five top-ranking Business Process Outsourcing (BPO) companies in Pampanga, Philippines. It examined the effects of conflicts and technostress on the employee job performance and satisfaction. The study revealed that while quantitative analysis shows that family-work conflict has a negative effect on the job performance, qualitative data suggests that the WFH scheme permits BPO employees to balance their work and family obligations, despite statistical evidence of the opposing results. While quantitative results indicate that technostress, specifically techno-pile and techno-invasion, has a negative effect on job performance and satisfaction, qualitative findings emphasize the importance of computer know-how as well as other factors when measuring BPO employees' job satisfaction. The divergent findings between quantitative and qualitative data underscore the role of cultural, organizational, and contextual factors in shaping outcomes in WFH environments. This study underlines the difficulties of WFH relations, as well as the importance of employing a diversified approach to identifying and addressing the issues that WFH BPO employees confront. The findings of this research are vital for developing tailored interventions and shaping effective remote work policies in the BPO sector, aiming to mitigate challenges and enhance the overall WFH experience.

**Keywords:** *embedded mixed methods, conflicts, technostress, employee job performance, job satisfaction, WFH scheme*

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## 1. Introduction

The work-from-home (WFH) scheme, particularly in the Business Process Outsourcing (BPO) industry has grown in the past few years (Waghmare, 2021). Although working from home has many benefits for both employees and employers (Bick et al., 2021), it also presents unique challenges that might affect employee job performance (Delanoeije et al., 2019) and job satisfaction (Jostell & Hemlin, 2018). Employee work-family conflicts (Grant et al. 2019), family-work conflicts (Kazekami, 2020), and technological stress (Benzari & Torrès, 2020) have been discovered as possible challenges in the WFH environment.

Previous academic papers revealed valuable insights on the association between employee conflicts and employee job performance, however, the findings varied. For instance, work-family conflict was found to have a negative significant relationship with job performance among banking employees in Pakistan (Sultan & Akhtar, 2019), sea fearers in China (An et al., 2020), medical employees in Indonesia (Zain & Setiawati, 2018), and Romanian WFH IT employees (Mihalca, 2021). In contrast, Soomro et al. (2018) revealed that work-family conflict does not significantly affect employees' performance while family-work conflict revealed to have no correlation on employees' performance among teaching faculty members in Pakistan. Researchers from previous academic papers on techno-stress and employee performance also show contradicting results. For instance, techno-stress has been negatively associated with and job performance among IT Professionals in Chennai (Kanimozhi & Buvanewari, 2019), academic staffs in Nigeria (Tagurum et al., 2017) and teachers in Mindanao, Philippines (Cahapay et al., 2021). According to Malik et al. (2021), techno-stress has a favorable impact on employees' performance as opposed to having negative impacts among university instructors in Pakistan. On the other hand, academic papers concerning techno-stress and job satisfaction from scholars revealed different findings. Techno-stress was revealed to have a negative effect job satisfaction among Polish ICT employees (Kot, 2022), educators in Pakistan (Nuzulia & Saputra, 2022), and China while working from home (Han et al., 2019). However, Hassan et al. (2018) found no significant links between technological stress and job satisfaction among school teachers in Malaysia.

Previous scholars also conducted studies on the association between conflicts and job satisfaction; results are inconsistent. For instance, the general findings of the study of Berger (2018) and Rahman et al. (2018) revealed that higher work-family conflict correlates with

lower job satisfaction, while higher family-work conflict correlates with lower job satisfaction among employees from various sectors in USA. Goudarzi (2017) also revealed that work family conflict has a negative relationship with job satisfaction among drilling company employees in Iran. However, conflict between family and work was revealed not related to job satisfaction in Korean hotel industry employees (Choi et al. 2018), Indonesian employees Purwanto (2020), and Qatari WFH employees (Lari, 2020).

Despite the existing body of knowledge, there are notable gaps in understanding the specific dynamics of conflicts and technostress on employees in a WFH scheme within the BPO industry. For instance, a study by Alfanza (2021) conducted in the Philippines found that long periods of telework could have negative impacts, such as a sense of loneliness, a blurring of work and home responsibilities that could cause conflict and a poor relationship with coworkers. The study of Kena et al. (2016) revealed that, on average, employees in a call center in the Philippines are experiencing technostress. Even while WFH has advantages, including shorter commutes and more control over one's schedule, it can be difficult to establish a distinct line between the work and personal lives of BPO employees (Mores, 2022). These conflicts and technostress could affect employee performance and job satisfaction.

Given the gap in the literature and the limited studies in the Philippine setting, this study opens a new insight into the formative discussion about WFH concerns, focusing on the intensified dynamic shift toward WFH in the BPO Industry in the Philippines using an embedded mixed methods analysis. Hence, this study investigates the effects of conflicts and technostress on employee job performance and satisfaction of BPO employees during the WFH scheme. The results of this study have practical implications on establishing management techniques, technology advancements, and HR policies to reduce conflict and technostress, which will eventually help employees have a more positive and satisfying remote work experience.

## **2. Literature Review**

### ***2.1. Work from Home in the BPO Industry***

Even before the pandemic, the WFH scheme was already adopted across the world because of the benefits to employees, such as rendering professional activity while at home, a more flexible work environment, and the promotion of greater employee autonomy (Tavares,

2017). But as Kossek and Lautsch (2018) highlight, many were unprepared for this sudden change, which resulted in differing levels of adaptability among organizations.

WFH suitability is highlighted by Kumar and Mathias (2020) in industries such as BPO and education. The BPO industry in the Philippines accounts for 10-15% of the global market, with a stable yearly growth rate of 10%. BPO are incessantly working in a WFH scheme in order to continue their employment (Cabello, 2022). The legal landscape further endorses WFH in the Philippines through Republic Act 11165, titled "Telecommuting as an Alternative Work Arrangement," encouraging remote labor. Telecommuting is defined as distant work in the Revised Implementing Rules and Regulations (IRR) issued by the Department of Labor and Employment (DOLE). Employers in the private sector can provide telecommuting programs that meet labor standards.

The legislative framework for WFH schemes in the BPO industry emphasizes program efficiency and allows operations to continue even when external disruptions occur. WFH, however, introduces new challenges in addition to its versatility such as conflicts (Mores 2022) and technostress (Kena et al. 2016), which may affect employees' job satisfaction and performance. Understanding the multifaceted nature of these hurdles is critical for maximizing the WFH experience and improving employee well-being in the BPO industry.

## ***2.2. Conflicts, Techno-stress and Employee Job Performance***

Employee job performance, either on-site or in a WFH environment, is a vital key manifestation of the company and an essential variable in academic work or research. According to da Costa and Loureiro (2019), job performance is a multifaceted concept of behavior that is required for organizations to achieve their activities and unique strategic goals. Literature revealed that employees' conflicts and job performance are critical aspects that can have a substantial impact on an organization's success. Slavković et al. (2022) revealed that teleworkers who deal with high levels of work-family conflict may experience distractions and stress, which may impair job performance. Similarly, excessive levels of family-work conflict can make it difficult to balance work and home duties, resulting in poor job performance. In addition, there is a significant relationship between family-work conflict, work-family conflict and job performance (Ajala, 2017). It is evident that many working from home employees have combined family and work roles while executing or performing their duties in their respective workplaces. In some cases, these roles are incompatible, and therefore cause work-family and

family-work conflict which have adverse concerns for both employees and organizations or companies particularly in the WFH scheme.

Technology has permeated not only personal but also the professional lives of individuals especially those who are in a WFH scheme of various companies. According to Hurbean et al. (2022), individual work performance of the teleworkers is positively associated to techno-overload and techno-invasion and negatively associated to techno-complexity. Employees exposed to a higher volume of technology and frequent technology interruptions tend to perform better in their work. However, complex technology use in the work can lead to decreased work performance (Hurbean et al., 2022). Lin and Wang (2020) support the argument that techno-complexity had a negative significant relationship on teleworkers performance while techno-overload have a significant positive relationship on teleworkers performance.

With the widespread use of information and communication technology in different organizations during remote working, techno stress has emerged caused by the individual's attempt to constantly deal with the use of technology in performing their work-related activities creating an impact to their job performance. Therefore, it is hypothesized that:

H<sub>1a</sub> Conflicts significantly affects employees' job performance.

H<sub>2a</sub> Technostress significantly affects employees' job performance.

### ***2.3. Conflicts, Techno-stress and Employee Job Satisfaction***

Aside from the performance of employees, employee job satisfaction is likewise an important construct and a huge factor used to determine employees' well-being (Benzari & Torrès, 2020). Indicators of job satisfaction include work itself, relationship with superiors, salary, and promotion (Dziuba et al., 2020). According to Hong et al. (2021), conflict between work and family domains can reduce job satisfaction. When employees face conflict between their work and home roles, it might cause stress, weariness, and dissatisfaction which can lower their total job satisfaction (Hong et al., 2021). Furthermore, work-family conflict and family work conflict were found to have negative consequences such as, negative correlation on job satisfaction among employees' working from home (Mohammed, 2022), job dissatisfaction (Landolf et al., 2020). These findings imply that conflict might have a major effect on workers' job satisfaction, particularly when it comes to remote employment in the BPO sector.

Studies showed that techno-stress can result to reduced efficiency, greater tardiness, and decreased job satisfaction. Suh and Lee (2017) revealed that techno-invasion led to greater strain resulting to a high level of techno-stress, which in turn reduced teleworkers' job satisfaction. Moreover, Ranathunga and Rathnakara (2022) revealed the significant negative correlation between techno-invasion and employees' job satisfaction during remote working but contradicts the non-significance of techno-overload and techno-complexity on WFH employees' job satisfaction. These findings imply that employee stress related to technology can have significant consequences on remote work success. This stress can be caused by insufficient technology, difficulties navigating new applications or platforms, and excessive screen time. Hence, this study hypothesized that:

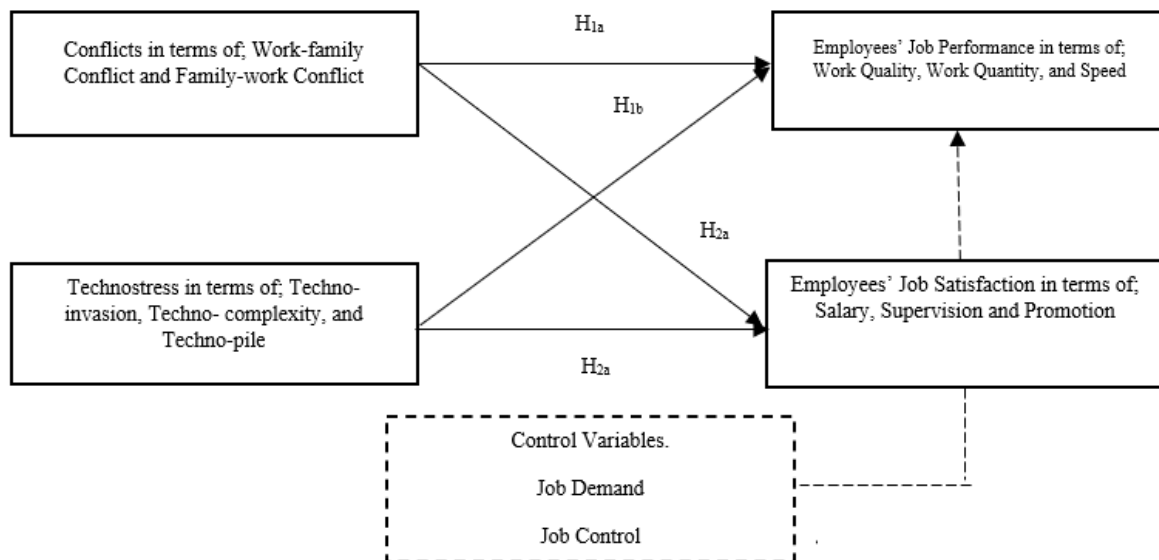
H<sub>1b</sub> Conflicts significantly affects employees' job satisfaction.

H<sub>2b</sub> Technostress significantly affects employees' job satisfaction.

Based on the established hypothesized relationships, the conceptual framework was formulated as shown in figure 1.

**Figure 1**

*Paradigm of the study*



The study incorporates control variables such as job demand and job control. The inclusion of control variables in the paradigm minimizes the possibility of other explanations for the observed connections between the independent and dependent variables. The paradigm

depicts the effects of job control and job demand on the job performance and satisfaction of BPO employees in the WFH scheme.

### **3. Methods**

#### ***3.1. Research Design***

This study employed a mixed-methods approach, which include a combination of qualitative and quantitative data as part of the research process in addition to data collecting direction and analysis (Creswell & Clark, 2003). An embedded mixed methods technique was utilized, which Edmonds and Kennedy (2017) describe as simultaneous collection of both quantitative and qualitative data, followed by the comparison and integration of these various data sources. This approach entails gathering various complementary data on the same phenomenon. The quantitative design was used as the primary method of the study while qualitative findings (experiences of BPO employees with their performance and job satisfaction concerning conflicts and techno-stress during WFH scheme) either confirm or contradict the statistical findings using side by side comparison.

The design incorporates control variables (job demand and job control), which are crucial for examining workplace dynamics like job satisfaction and performance. These variables can improve the validity and reliability of the quantitative findings and provide deeper insights into the phenomenon under study. These were used to limit the influence of both confounding and other extraneous variables. According to Chandra et al. (2015), control variables help and support establishing a correlation between the variables of interest and help avoid the so-called research bias. Control variables job demand and job control variables were measured using single-item questions. There are no measurement problems because control variables were evaluated by the employees'-respondents-informants using single-item questions.

#### ***3.2. Sample and Sampling Technique***

The number of employees of the select BPO companies in the province of Pampanga, namely Ttech, Concentrix, Sutherland Global, Alorica, and TaskUs, was derived from the study of Mallari (2023). For the quantitative phase, the selection of BPO employees was done through convenience sampling technique. Respondents were selected depending on their willingness to participate and ease of availability while working from home. These BPO

employees were (i) employed in the BPO company regardless of gender and marital status, (ii) with customer relationship management activities for either voice or non-voice accounts for at least one (1) year, and (iii) under the WFH scheme. However, only 211 responses (see table 1), were retrieved during the conduct of the study and were included in the data processing and statistical treatment of data.

**Table 1**

*Respondents of the study*

<b>Company</b>	<b>Number of Employees</b>	<b>Number of Respondents</b>	<b>Percentage</b>
BPO 1	325	37	17.54
BPO 2	528	53	25.12
BPO 3	374	50	23.70
BPO 4	336	22	10.43
BPO 5	418	49	23.22
<b>Total</b>	<b>1981</b>	<b>211</b>	<b>100</b>

Five (5) employees from the quantitative phase or one equivalent per BPO Company participated in the semi-structured interview. The selection of the informants was through purposive sampling. To qualify as one of the five informants in the qualitative phase, employees were (i) employed as team leader for at least 1 year, and (ii) with no prior WFH experience regardless of marital status and gender.

### ***3.3. Research Instrument***

The study used an adapted modified survey questionnaire from five related studies. Part 1 includes employee conflict indicators comprising work-family and family-work types of conflict (Mansour & Tremblay, 2016), part 2 consists employee technostress indicators including techno-pile, techno-invasion, and techno-complexity (Farid et al., 2021), part 3 consists of employee performance indicators referring to work quality, work target, and speed (Marasigan, 2020), part 4 consists job satisfaction indicators such as salary, supervision, and promotion (Zorlu, 2012), and part 5 consists of single-item questions for the control variables regarding job demand and job control (Chandra et al., 2015). The questionnaire was carefully modified for the present study. To enhance the relevance of the questionnaire with the changing dynamics of the BPO sector and the issues associated with the WFH scheme, wording

and format changes were made to capture the intricacies of conflicts, techno-stress, job performance, and satisfaction in remote work environments. Despite these changes, the modified survey remained thoroughly focused, with no additional items beyond those required to achieve the study objectives. This allowed it to be brief while also gathering significant data for study. Four-point Likert scale was used to evaluate the level of conflicts, technostress, job demand, and job control.

The measure of internal consistency through Cronbach alpha was 0.927 on the 9 items of employee conflicts as to work-family conflict and family-work conflict, 0.934 on the 14 items of employee technostress in terms of techno-pile, techno-invasion, and techno-complexity, 0.946 on the 30 items of level of employees' job performance during the WFH scheme in terms of work quality, work target, and speed, and 0.886 on the 10 items of level of employees' job satisfaction in terms of salary, promotion and supervision . The coefficient of reliability confirms that the items are acceptable.

In qualitative data collection, a semi-structured interview was used. The copy of the interview guide questions was based on the quantitative adapted survey. The set of guide questions were open-ended questions focused on how conflicts and technostress affect job performance and satisfaction during the WFH scheme. The interview provided an opportunity for the informants to express the conflicts and technostress experienced in the performance of their job and achieving satisfaction during the WFH scheme. Both instruments were validated by four experts (HR personnel, a team leader from a BPO Company, a professor from academe, and a licensed Guidance Counselor) to ensure that the instruments are aligned with the research objectives of the undertaking.

### ***3.4. Data Collection Procedure***

The data collection for the quantitative (Google forms) and qualitative (virtual semi-structured interview) phases was done in concurrent timing using social media platforms such as online communities to look for the target participants. BPO online community groups were carefully selected to ensure that only employees from the select BPO company participated in the study. Participants were informed that (i) the participation for the study was arbitrary, (ii) they were allowed to withdraw anytime just by closing the Google Form, (iii) only those team leaders who were willing to participate on the interview for qualitative phase was considered, (iv) all responses for both quantitative and qualitative phase were anonymized, (v) the



researcher have no financial, professional, or personal relationships with the select BPO companies they are employed and, (vi) should they feel distressed while completing the survey or during the interview questions or clarifications be entertained by the researcher.

### **3.5. Data Analysis**

Using multiple regression analysis, the quantitative data were used to analyze the effects of conflicts and techno-stress on employees' productivity and job satisfaction. R-squared measures the predictability of job outcomes; beta coefficients assess the effect size of conflicts and technostress; ANOVA examines the overall model significance; and T-tests reveal the significance of each individual coefficient. Meanwhile, hierarchical regression analysis was utilized to test the significant effect of job demand and job control on the relationship between the variables.

A thematic analysis akin to Creswell's (2013) approach was used to understand the quantitative data since qualitative is not just limited to text-based data, which takes the form of interview transcripts, documents, interpretations, and descriptions. The process begins with familiarizing researchers with the gathered data, and then it entails systematic coding to find themes and patterns pertaining to employee conflicts and technostress. Afterwards, by grouping related codes together, researchers would look for overarching themes. They would then go over and improve these codes to make sure they were coherent and relevant. To aid with understanding, themes would then be identified and arranged.

In the mixed method phase, the researcher utilized data integration through a side-by-side comparison adopted from the study of Razali et al. (2019). The main purposes of data integration are illustration, validation, and development and achievement of the richness of data (Creswell et al., 2013).

## **4. Results**

The research was conducted to determine the significant effect of conflicts (work-family conflict and family-work conflict) on job performance using multiple regression equations. It was hypothesized that these predictors will significantly affect job performance. The results presented on table 2 revealed that the combination work-family conflict and family-work conflict only explained 5.3% of the variance in employee job performance,  $R^2 = .053$ .  $F(2.208) = 5.848$ ,  $p < .003$ . It is noteworthy, nonetheless, that the  $R^2$  value of 5.3% suggests that

the predictor variable conflict have a relatively low explanatory power. Specifically, work-family conflict was not found to have a significant effect on job performance ( $\beta = .022$ ,  $t = .215$ ,  $p > .830$ ). Conversely, family-work conflict shows significant effect on job performance ( $\beta = -.247$ ,  $t = -2.328$ ,  $p < .018$ ).

**Table 2**

*Regression analysis on the effect of conflicts and technostress on job performance*

Predictor Variables/s	Outcome Variable/s	Estimates	SE	$\beta$	t	p
Constant		3.32	.12		26.729	.000
Work-Family Conflict		.02	.09	.022	.215	.830
Family-Work Conflict		-.18	.08	-.247	-2.328	.018*
<b>Overall Conflict</b>	Job Performance	<b>-.02</b>	<b>.07</b>	<b>-.211</b>	<b>-3.114</b>	<b>.002*</b>
Constant		3.15	.12		27.417	.000
Techno-pile		-.12	.06	.198	2.126	.035*
Techno-invasion		-.24	.08	-.348	-3.100	.002*
Techno-complexity	Job Performance	.05	.07	.063	.713	.477
<b>Overall Technostress</b>		<b>-.08</b>	<b>.06</b>	<b>-.100</b>	<b>-1.448</b>	<b>.149</b>

Note: \*p<. 05

The study revealed that overall conflict has negative effect on job performance ( $\beta = -.211$ ,  $t = -3.114$ ,  $p < .002$ ). Thus, the alternative hypothesis of the study is accepted.

In terms of the multiple regression equation test of techno-stress (techno-pile, techno-invasion, and techno-complexity) on the job performance, it was predicted that these factors would have a significant effect on job performance. However, the results showed that the combination of techno-pile, techno-invasion, and techno-complexity only explained 1.0% of the variance in employee job performance,  $R^2 = .010$ .  $F(1,209) = 2.097$ ,  $p < .149$ . This shows that the explanatory power of these variables evaluated collectively to predict job performance is not significant. Specifically, the results revealed that techno-pile ( $\beta = .198$ ,  $t = 2.126$ ,  $p < .035$ ) and techno-invasion ( $\beta = -0.348$ ,  $t = -3.100$ ,  $p < .002$ ) significantly affect job performance.

However, techno-complexity has no significant effect on job performance ( $\beta = .063$ ,  $t = .713$ ,  $p > 0.477$ ). The  $\beta = -.100$ ,  $t = -1.448$ ,  $p > 0.149$  confirmed that the effect of overall technostress on job performance while working from home is not statistically significant.

**Table 3**

*Significant effect of conflicts and technostress on job performance as controlled by job demand and job control*

Predictors	Employees` Job Performance			
	$\beta$	p	$R^2$	$\Delta R^2$
Job Demand, Job Control (Step 1)			0.091	
Job Demand, Job Control, Conflicts (Step 2)	-0.126	0.078	0.105	0.014
Job Demand, Job Control, Technostress (Step 2)	-0.027	0.660	0.092	0.001

The step 1 of the hierarchical regression analysis of  $R^2$  value of .091 on table 3 revealed that job demand and job control explained 9.1% of job performance variance with  $F(2.208) = 10.418$ ,  $p < .000$ . In step 2, the  $R^2$  value of .105 revealed that the inclusion of employees' conflicts explained for 10.5% of employees with  $F(3.207) = 8.000$ ,  $p < .078$ . Step 2 of the hierarchical regression analysis also revealed that, along with job demand and job control, conflicts explain to  $\Delta R^2$  value of .014 additional variance in job performance. The 1.4% additional variance was not statistically significant. The inclusion of techno-stress explained for 9.2% of WFH BPO personnel, with  $F(3.207) = 6.983$ ,  $p < .660$ , based from  $R^2$  value of .092. Step 2 of the hierarchical regression analysis also showed that techno-stress explains to  $\Delta R^2$  value of .001 additional variance in job performance along with job demand and job control. There was no statistical significance for the 1% additional variance.

Multiple regression analysis was utilized to test the hypothesis that conflicts have significant effect on job satisfaction. The test presented on table 4 revealed that the combination work-family conflict and family-work conflict explained 15.2% of the variance in employee job satisfaction,  $R^2 = .152$ .  $F(1.209) = 37.45$ ,  $p < .000$ . This suggests that a significant percentage of variance in job satisfaction can be attributed to these conflicts taken

collectively. The family-work conflict shows to have a significant effect on job satisfaction while working from home ( $\beta = -.258, t = -2.625, p < 0.009$ ).

**Table 4**

*Regression analysis on the effect of conflicts and technostress on job satisfaction*

Predictor Variables/s	Outcome Variable/s	Estimates	SE	$\beta$	$t$	$p$
Constant		3.36	.13		27.18	.000*
Work-Family Conflict		-.16	.10	-.158	-1.610	.109
Family-Work Conflict	Job Satisfaction	-.21	.08	-.258	-2.625	.009*
<b>Overall Conflict</b>		<b>-.42</b>	<b>.07</b>	<b>.390</b>	<b>-6.120</b>	<b>.000*</b>
Constant		3.63	.11		32.689	.000*
Techno-pile		.06	.05	.084	1.059	.291
Techno-invasion	Job Satisfaction	-.52	.08	-.661	-6.887	.000*
Techno-complexity		.08	.07	.090	1.194	.234
<b>Overall Technostress</b>		<b>-.43</b>	<b>.06</b>	<b>-.459</b>	<b>-7.475</b>	<b>.000*</b>

Note: \* $p < .05$

However, work-family conflict has no significant effect on job satisfaction ( $\beta = -.158, t = -1.610, p > 0.109$ ). The  $\beta = .390, t = -6.120, p < .000$ , revealed that overall conflicts have significant effect on job satisfaction while working from home. In addition, techno-pile ( $\beta = 0.084, t = 1.059, p > 0.291$ ) and techno-complexity ( $\beta = 0.090, t = 1.194, p > .234$ ) revealed no significant effect on job satisfaction. However, techno-invasion has significant effect on job satisfaction ( $\beta = -0.661, t = -6.887, p < 0.000$ ). Overall technostress shows negative effect on job satisfaction ( $\beta = -.459, t = -7.475, p < 0.000$ ). Thus, the alternative hypothesis of the study is accepted.

The step 1 of the hierarchical regression analysis of  $R^2$  value of .223 on table 5 showed job demand and job control explained for 22.3% of job satisfaction variance with  $F(2.208) = 29.912, p < .000$ . The p-value indicates that the regression model is very statistically significant.

**Table 5***Significant effect of conflicts and technostress on job satisfaction as controlled by job demand and job control*

Predictors	Employees` Job Satisfaction			
	$\beta$	p	$R^2$	$\Delta R^2$
Job Demand, Job Control (Step 1)			0.223	
Job Demand, Job Control, Conflicts (Step 2)	-0.332	0.000	0.318	0.095
Job Demand, Job Control, Technostress (Step 2)	0.369	0.000	0.335	0.112

In step 2, the  $R^2$  value of 0.318 demonstrated that the inclusion of conflicts accounted for 31.8% of employees  $F(3.207) = 28.624, p < .000$ . Results showed that employee conflicts, in addition to job demand and job control, contributed to an additional variance in job satisfaction with an  $R^2$  value of .112. This additional variance of 11.2% was statistically significant.

**Table 6***Themes generated from the interview*

Themes	Informants Responses
Unaffected job performance in the presence of work-family demands vice-versa and computer tech during remote work	"So far sir, I haven't encountered any problems with duties at home and deliverables while working at home." (Male, age 27) "Not at all. I haven't had any problems with work and my family demands now that we work from home." (Male, age 24) "“So far, I was able to manage my work performance, satisfaction and family responsibilities.” (Male, age 34) ““The computer sir is a big help in our work since we rely on the computer for all of our deliverables.” (Male, age 27) “Computer-related technology, sir, is a necessity for us who work in BPO, so that we can achieve job performance.” (Female, age 39) ““I didn't encounter any problems in using the computer, just like my answer earlier, in our work we need it, and we have to study, to learn how to use it.” (Male, age 24) ““You will not be able to perform well if you will not learn these computer-related technologies.” (Male, age 34) ““And computer technology matters in our deliverables, without this we are inefficient.” (Male, age 29)

Themes	Informants Responses
Job satisfaction unaffected by	“I never encountered any significant problem or conflicts and was satisfied with my job while I am working from home.” (Male, age 27)
computer tech and work-family	“I am very satisfied with my job; I also have time to go out with my family.” (Male, age 24)
demands vice-versa in remote work.	<p>“I am content and satisfied with my job, since I have more time now with my family.” (Male, age 34)</p> <p>“As a single Mom, I never experienced conflicts with my family duties and work duties, and I must say I am satisfied with my work.” (Female, age 39)</p> <p>“The opportunity to work and be with my kids and wife at the same time really makes me feel satisfied with my present job.” (Male, age 29)</p> <p>"In the case of our work technology helps us a lot to be efficient." (Female, age 39)</p> <p>“As a BPO employee, computer related technologies really help us to fulfill our tasks easily and that makes us feel satisfied in our job.” (Male, age 34)</p> <p>“As a BPO employee working from home, my use of computer-related technologies has a significant effect on how well I accomplish my job and satisfaction as well.” (Male, age 29)</p>

Several themes emerge from the interview concerning the effects of conflicts and techno-stress on the job performance and satisfaction. Table 6 shows that informants often have no difficulty balancing their work responsibilities and family obligations when working remotely. There is wide acceptance that computer technology, specifically computers and related technologies, is critical for job performance. They understand the need for learning and utilizing computer-related technology for effective job performance during WFH scheme. There is also an acknowledgement that computer expertise improves job performance and efficiency, which is critical for meeting deliverables.

Informants describe high levels of job satisfaction, despite the prevalence of work-family obligations and the need for computer technology while working from home. They emphasize that being able to balance work and family life has beneficial effects on job satisfaction. Parents, in particular, express satisfaction with their ability to balance work and family commitments. They underline the value of computer-related technologies in facilitating duties and increasing job satisfaction. The employment of computer-related technology is associated with job satisfaction.

## 5. Discussion

The integration of quantitative and qualitative findings provides insight on the dynamics of work-family conflict, and job performance. Quantitatively, the study showed that while work-family conflict had no significant effect on job performance, family-work conflict revealed a significant effect. This implies that family-work conflict harms job performance among WFH BPO employees. Furthermore, overall conflict was found to have an adverse effect on job performance. In addition to these findings, informants' personal experiences demonstrate the seamless balance they establish between job responsibilities and family obligations while working from home. Despite statistical results indicating that family-work conflict has adverse effects on job performance, employees are, in general, able to harmoniously manage their familial and work responsibilities when working remotely. As a result, integrating quantitative and qualitative data offers a more complex picture. While quantitative result indicates that family-work conflict has a detrimental effect on job performance, qualitative data analysis reveals that employees consider remote work as an effective means to manage household duties. This shows that, despite the statistical significance of family-work conflict, individuals may have developed coping strategies or techniques to mitigate the effects on job performance while working from home.

The study findings contradict to that of Slavkovi (2022) on the note that employees working from home with high levels of work-family conflict may encounter distractions and stress, which may hinder job performance. Similarly, significant levels of family-work conflict can make balancing work and home tasks difficult, leading to poor job performance. Ajala (2017) also discovered a substantial association between family-work conflict, work-family conflict, and job performance. Inconsistency on the results of the present to that of Slavkovi (2022) could be caused by differences in samples or cultural circumstances. Cultural variations, corporate rules, and job roles all have the potential to influence the dynamics of work-family conflict as well as the effectiveness of social support mechanisms.

The results further show that techno-pile and techno-invasion have a substantial effect on job performance while techno-complexity shows no significant effect on job performance. These are consistent with the employee insights gathered from the interview on the importance of computer technology for job performance. Thematic data illustrate that informants recognize the relevance of computer proficiency for effective job performance during WFH scheme. Both methods showed consistency that exposure to high levels of techno-pile, which

indicates an extensive number of technological resources, improves job performance. Conversely, the negative effect of techno-invasion on job performance supports the concept that excessive technological intrusion can impede productivity.

The findings revealed contradiction between the quantitative statistical data and qualitative data. While the qualitative data reveal that computer competence contributes a significant part for enhancing job performance, the quantitative findings suggest that techno-complexity is not a substantial source of technostress. This shows that, while computer ability is recognized as beneficial, the complexity of technology may not be a substantial barrier to job performance. The quantitative findings provide empirical support to few qualitative findings, such as the effect of techno-pile and techno-invasion on job performance. However, there are certain nuances to consider, such as the disparity in the significance of techno-complexity, which may necessitate additional investigation to reconcile with qualitative understandings of the importance of computer competence for job performance.

The literature generally confirms the integrated findings of the current study. For instance, Hurbean et al. (2022) revealed that numerous technological resources and proper assistance improve job performance. While the current study found no significant effect of techno-complexity and job performance, Hurbean et al. (2022) argue that sophisticated technologies can contribute to poorer performance. Additionally, Li and Wang (2020) discovered a negative association between techno-complexity and job performance, which contradicts the findings of the quantitative results of the present study. However, Li and Wang (2020) finding of the beneficial effect of techno-overload on job performance is consistent with the current understanding of techno-invasion's negative effect on job performance.

The integration of quantitative and qualitative findings sheds insight into the multifaceted effects of conflicts on job satisfaction among WFH BPO employees. The quantitative results show that family-work conflict has a substantial effect on job satisfaction, which is in line with the qualitative findings that emphasize the importance of harmonizing work and home life for overall job satisfaction. Despite the presence of family-work conflict, which has a detrimental effect on job satisfaction, qualitative data indicate that employees sustain a satisfactory level of job satisfaction, presumably due to their perceived ability to effectively manage their work and home responsibilities. It is worth mentioning that, while family-work conflict affects job satisfaction, it is not found to have a significant effect on workplace performance, based on the quantitative data. This demonstrates that individuals may



be able to maintain their work and family obligations at a certain level, allowing them to continue working efficiently even when confronted with family-related issues.

The findings from both methods show that family-work conflict has a significant negative effect on job satisfaction. This is consistent with prior studies, such as Hong et al. (2021), on conflicts in between work and family domains leading to decreased job satisfaction. Surprisingly, the quantitative data reveal that, while family-work conflict affects job satisfaction, it has no substantial effect on job performance. This study contradicts prior studies, like Mohammed's (2022), which found a negative association between work-family conflict and job satisfaction. However, this study supports the idea that people may, to some extent, divide their work and family responsibilities, allowing them to maintain workplace effectiveness even when dealing with family concerns.

The quantitative results show that technostress, namely techno-invasion, has a substantial effect on job satisfaction. However, the qualitative data show that employee job satisfaction can be affected by a larger range of characteristics, including work-life balance and autonomy. The qualitative findings explain how techno-pile and techno-complexity may not have had a significant effect on job satisfaction. It has been suggested that, while these variables may contribute to techno-stress, they are less crucial for predicting total job satisfaction than factors such as techno-invasion. The combined qualitative and quantitative analyses show that technostress has a considerable negative effect on job satisfaction. This highlights the importance for BPO organizations to address not solely techno-stress but also other work-related issues to increase job satisfaction and overall well-being among WFH employees.

The current findings support the earlier conclusions on the negative effect of techno-invasion on employee job satisfaction, as revealed by Ranathunga and Rathnakara (2022). Furthermore, Suh and Lee (2017) discovered that WFH employees under higher pressure experienced considerable levels of technostress, which had a negative effect on job satisfaction. This demonstrates that techno-invasion and associated pressures have a major effect on employee satisfaction while working remotely. However, similar to the findings of the current study, the negative effect of techno-pile and techno-complexity on job satisfaction, based on findings by Suh and Lee (2017) and Ranathunga and Rathnakara (2022), may indicate that while these variables are associated with technostress, they may not have comparable effects on total job satisfaction as techno-invasion.

## 6. Conclusion

The complex nature of WFH context is highlighted by the inconsistencies between quantitative and qualitative findings of the study. These conflicts are a result of methodological differences, such as the emphasis on standardized metrics in quantitative research against the investigation of subjective experiences in qualitative inquiries. Furthermore, cultural norms and organizational processes, among other contextual elements present in the WFH BPO setting, may have an effect on employees' experiences in ways that are not fully captured by quantitative measurements. The complexity of work-family dynamics and techno-stress adds to the complexity of the situation; qualitative research provides a more nuanced understanding of people's coping strategies and sense of balance. Also, the objectivity of quantitative measurements contrasts with the subjectivity of qualitative data, emphasizing the necessity of taking both viewpoints into account in thorough analysis.

The findings have various practical implications for firms that employ BPO employees involved in the WFH scheme. BPO companies should recognize and deal with conflicts between personal and professional obligations, as well as vice versa, among WFH employees, because they have significant effects on job performance. To help WFH employees better manage their time, BPO firms might provide flexible scheduling alternatives such as staggered hours or shorter workweeks. Implementing targeted support services for working parents, which might include virtual parenthood groups or childcare options, may improve employees' job satisfaction. BPO companies may consider implementing "Digital Sabbath" practices, giving employees one day off per week to disengage from technological devices and focus on physical activities. To mitigate the effects of technostress on job satisfaction, gamifying the learning process of computer-related technologies or developing peer-to-peer learning programs within the WFH scheme can make technology education more entertaining and effective.

Further research could aim to include a larger and more diverse sample of respondents from a wider range of BPO companies, which is considered as one of the limitations of the present study. A larger and more diverse sample of respondents would increase the findings' generalizability and provide a more comprehensive understanding of the experiences of BPO employees under the WFH scheme. Future studies should use longitudinal research, taking into account both subjective experiences over time and objective measurements, in order to reconcile the inconsistencies between quantitative and qualitative data. Finally, future studies

might examine other aspects such as social support, work-life balance practices, and organizational support that may have an effect on job performance and satisfaction in the context of remote work. Investigating such elements may lead to a better understanding of workplace operations.

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# Exploring the impact of environmental uncertainty and strategic management accounting on competitive advantage and performance: Empirical insights from SMEs in Indonesia

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## Abstract

Small and medium-sized businesses (SMEs) in Indonesia have suffered significantly because of the COVID-19 pandemic that led to unpredictability of operational performance. Hence, SMEs must formulate the right strategies and innovative techniques to be able to hurdle the challenges. In this study, the numerous factors influencing SMEs' performance are evaluated to determine their impact on internal business procedures. Performance, environmental uncertainty, the use of strategic management accounting, and competitive advantage with a focus on product differentiation are the variables examined. This study employs a quantitative methodology and questionnaire-based data collection approaches. Furthermore, structural equation modelling is used to process the gathered data. According to the data collected from 167 respondents across 67 firms, environmental uncertainty has a negative impact on business performance, but has no effect on the usage of strategic management accounting. While having a positive impact on the competitive advantage that focuses on product differentiation, the use of strategic management accounting has no impact on performance. Furthermore, performance is positively impacted by a competitive advantage that emphasizes product differentiation. The results of this research contribute to the development of accounting science, especially management accounting. Meanwhile, the practical contribution for SMEs is in terms of increasing their competitive advantages.

**Keywords:** *competitive advantage, environmental uncertainty, firm performance, use of strategic management accounting*

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## 1. Introduction

The Indonesian economy is heavily dependent on small and medium-sized businesses (SMEs). In fact, according to Pratama (2021), an economist for UNDP Indonesia, the SME sector is the foundation of the national economy. However, the COVID-19 pandemic has had a significant negative impact on SMEs and the Indonesian economy (Indrawan, 2020) on several factors including trouble paying debts, fixed expenditures such rent, and employee salaries (Artha, 2021). Mulyani (2020), Minister of Finance of the Republic of Indonesia, asserts that the COVID-19 pandemic-related uncertainty influenced Indonesia's economic circumstances in 2021. As Widodo (2021), President of the Republic of Indonesia, declared the pandemic circumstances to continue create severe uncertainty, which Frank (2016) refers to the inability to precisely identify upcoming environmental changes. While environmental uncertainty affects organizations (Yu et al., 2016), empirical studies showed improved organizational performance during environmental uncertainty (Mukherji & Mukherji, 2017; Abdallah & Persson, 2014; Bastian & Muchlish, 2012; Sung et al., 2010). However, several studies have also found negative effects on organizational performance (Aprisma & Sudaryati, 2020; Sajilan et al., 2019; Singh, 2019). Of the pressing uncertainties, market and customer demands still remains a problem for SMEs (Siow, 2021), caused by the COVID-19 pandemic's unexpected shifts in consumers' preferences and lifestyles (Davina, 2021).

The environmental factors brought by the COVID-19 pandemic on the performance of SMEs include strategic, technological, cultural, and environmental aspects (Tworek, 2019; Colquitt et al., 2019; Rao, 2016). The pandemic has negatively impacted SMEs' earnings as evidenced by performance degradation (Suhariyanto, 2020) resulting to reduction in reported revenues by 82.4% of small and medium-sized businesses and 92.29% of big and medium-sized businesses (Central Statistics Agency, 2020). According to Rumondang (2020), this drop is the result of fewer customers making demands, which was supported by Hartarto (2020), as per the Asian Development Bank survey, emphasizing the negative impact on demand for 30.5% of SMEs.

Despite the setbacks brought by the pandemic, SMEs are highly encouraged to keep up with the current lifestyle and preferences of the consumers. Masduki (2021) believes that SMEs can either provide a new product or develop a new market niche through innovative ideas. Dorson (2018) argues that competitive advantage and innovation are positively

correlated. The company's competitive advantage outperforms the competition through cost leadership or product differentiation (Li, 2018; Drury, 2018). On the other hand, product differentiation is a strategy used by businesses to acquire a competitive edge by raising the value of the good or service the client receives (Barney & Hesterly, 2019). The threats to the environment can be eliminated, and businesses can seize the possibilities that already exist, through product differentiation. Consequently, the performance of a company is impacted by competitive advantage through product differentiation (Yuliansyah et al., 2017; Teerantasirikool et al., 2013; Mwangi, 2013; Aykan & Aksoylu, 2013).

As a result of the COVID-19 pandemic, SMEs have begun to diversify their product lines. The words "diversify" and "differentiate" both refer to adding something new to a firm through diversification (Deepak & Jeyakumar, 2019). However, according to Masduki (2021) citing the survey conducted by the Central Statistics Agency, only 15 out of 100 enterprises diversified their operations during the COVID-19 pandemic. For this, Aviliani (2021) suggests that SMEs need to stand out from their competitors and have an advantage over their products to survive the aftermath of the pandemic. Similarly, Rahadi (2020) encourages strategy to raise product quality in the COVID-19 pandemic-affected industries.

An integrated collection of possibilities known as a strategy helps businesses build sustained competitive advantages (Lafley & Martin, 2013). According to Setyawan (2020), in order to ensure that strategies are successful in an uncertain crisis situation, it is crucial to understand the characteristics of sustainable businesses. To this, Lautour (2018a) suggests strategic management accounting, a strategy used to determine the best value chain for the business to make informed judgments. Strategic management accounting is anticipated to make it possible to enhance SMEs' performance because it has a positive effect on firm performance (Wajdi & Arsjah, 2019; Alamri, 2019; Phornlaphatrachakorn, 2019; Lay & Jusoh, 2017; Al-Mawali, 2015a; Zenita et al., 2015).

While it was evident that the pandemic has tremendously affected the performance of the SMEs, Zulaeha (2021) believes that SMEs are still challenged to thrive at the aftermath of the crisis. Hence, to understand how SMEs performed during the COVID-19 pandemic, this study examines environmental uncertainty, competitive advantage with emphasis on differentiation strategies, and the use of strategic management accounting. Within the framework of developing ways to enhance performance and business continuity amidst the

pandemic effect, it is hoped that this research will offer policy input for SMEs and the government.

## **2. Literature Review**

### ***2.1. Environmental uncertainty and firm performance***

Performance is structured to improve teamwork, information exchange, and employee oversight (Colquitt et al., 2019). It is also the result of the adjustment of two or more aspects, such as strategy, structure, technology, culture, and environment (Tworek, 2019). The company's resources and capacities are managed through performance planning (Barney & Hesterly, 2019). Uncertainty for businesses can be driven by elements relating to the economy, environment, and society (Daft et al., 2010). Because the company cannot reliably foresee potential changes in the future, environmental uncertainty exists (Frank, 2016). Uncertainty in the environment is the absence of knowledge about environmental factors that have an impact on a company's performance (Chen, 2013). Empirical findings showed that environmental uncertainty affects firm performance (Aprisma & Sudaryati, 2020; Sajilan et al., 2019; Singh, 2019; Mukherji & Mukherji, 2017; Abdallah & Persson, 2014; Bastian & Muchlish, 2012; Sung et al., 2010). According to Mukherji and Mukherji (2017), Abdallah and Persson (2014), Bastian and Muchlish (2012), and Sung et al. (2010), high levels of environmental uncertainty have a positive effect on company performance. Given the findings from previous studies, this study posits that:

*H<sub>1</sub>: Environmental uncertainty has a positive effect on firm performance.*

### ***2.2. Environmental uncertainty and the use of strategic management accounting***

Businesses must develop adaptable ways to deal with uncertain situations (Barney & Hesterly, 2019). The design of strategies and management accounting are combined in strategic management accounting. A framework is created through strategic management accounting to maintain control and provide data for management planning and decision-making (Li, 2018). To ensure the company's survival, decision-makers must adapt to environmental uncertainties that arise (Kramer, 2013). Business makes strategic choices to adapt to shifting environmental conditions (Ganswein, 2011). According to Sumkaew and Intanon (2020), Al-Mawali (2015a), and Pavlatos (2015), high environmental uncertainty has

an effect on the high use of strategic management accounting, particularly in terms of planning, controlling, and decision-making. Hence, this study argues that:

*H<sub>2</sub>: Environmental uncertainty has a positive effect on the use of strategic management accounting.*

### ***2.3. The use of strategic management accounting and firm performance***

The company and the information users determine the use of strategic management accounting and the management accountants must be able to comprehend the given data (Lautour, 2018b). Therefore, management accountants' focus extends beyond the operational to the strategic sphere (Li, 2018). The application of strategic management accounting significantly affects how well business functions (Al-Mawali, 2015b). According to Wajdi and Arsajah (2019), Alamri (2019), Phornlaphatrachakorn (2019), Lay and Jusoh (2017), Al-Mawali (2015b), and Zenita et al. (2015), organizations that employ strategic management accounting extensively perform better. Thus, this study hypothesizes that:

*H<sub>3</sub>: The use of strategic management accounting has a positive effect on firm performance.*

### ***2.4. The use of strategic management accounting and competitive advantage***

The company's strategy, its position in the market, and the necessary production model are all determined using strategic management accounting (Lautour, 2018a). Corporate strategy is a company's method of matching its skills with market opportunities to achieve its objectives (Datar & Rajan, 2018). The company's objective in this instance is to get a competitive advantage. A corporation can use its competitive advantage to successfully dominate the market and outperform its rivals (Li, 2018). Cost leadership and product differentiation are two ways to gain a competitive advantage (Drury, 2018). The purpose is to exploit product differentiation to give the company a competitive advantage. Increasing the perceived worth of a company's goods or services among consumers is a strategy used by businesses to achieve a competitive advantage (Barney & Hesterly, 2019). It is predicted that the extensive usage of strategic management accounting will impact product differentiation (Lay & Jusoh, 2012). The findings of earlier research showed that the usage of strategic management accounting had a positive impact on competitive advantage, with an emphasis on

product differentiation (Wajdi & Arsjah, 2019; Oyewo & Ajibolade, 2019; Alamri, 2018; Jaf et al., 2015; Lay & Jusoh, 2012). Hence, this study postulates that:

*H<sub>4</sub>: The use of strategic management accounting has a positive effect on competitive advantage.*

### **2.5. Competitive advantage and firm performance**

The capacity of a business to provide more economic value than its competitors is known as a competitive advantage (Barney & Hesterly, 2019). Competitive advantages can be acquired through cost leadership or product differentiation. In this study, the theory of competitive advantage is used to describe product differentiation. Companies that can thrive in an unpredictable environment exhibit a high degree of differentiation and integration (Daft et al., 2010). Compared to cost leadership, product differentiation is seen to be able to improve business performance (Yuliansyah et al., 2017). Similar findings from earlier studies have been confirmed; product differentiation improves corporate performance (Teerantansirikool et al., 2013; Mwangi, 2013; Aykan & Aksoylu, 2013), hence:

*H<sub>5</sub>: Competitive advantage has a positive effect on firm performance.*

## **3. Methodology**

### **3.1. Participants and procedures**

This study employs a descriptive survey research design and quantitative methodology. Utilizing both online and offline distribution of questionnaires, data gathering approaches were conducted. Small and medium-sized businesses in DKI Jakarta and Banten comprise the study's sample, and management accountants served as respondents. The two provinces were selected based on the findings of a survey conducted by the Central Statistics Agency in 2020, which revealed that DKI Jakarta and Banten were among the four provinces where business actors endure the greatest income decreases. The research sample contained up to 188 respondents drawn from the population. However, 21 responses did not fit the sample's requirements. Therefore, only 167 samples can be utilized and dispersed across 67 businesses. As a result, 88.83 percent retrieval rate. This amount of samples still complies with Hair et al. (2014) that 100 samples should be collected at a minimum when the model has five or fewer variables, each of which has at least three measurable variables.

### ***3.2. Instrumentation***

The performance of SMEs and the variables that affect it, such as environmental uncertainty, competitive advantage, and the use of strategic management accounting, are observed in this study. The study employed the indicators from Govindarajan (1984) with modifications of Gupta and Govindarajan (1984) to measure performance variables. These indicators were chosen because these were frequently used by researchers to assess the performance of businesses, such as Hoque (2005), Teeratansirikool et al. (2013), Lay and Jusoh (2012, 2017). They are converted into a questionnaire, which is evaluated on a Likert-like five-point scale, with 1 indicating "below average" and 5 indicating "above average." Furthermore, Hoque's (2005) research indicators are used to measure the environmental uncertainty variable. Additionally, this was employed in previous research, specifically Sung et al. (2010) and Bastian and Muchlish (2012). This indicator is converted into a questionnaire that is rated on a Likert-like five-point scale, with 1 denoting "highly predictable" and 5 denoting "extremely unpredictable". In this study, a competitive advantage with a focus on product differentiation is the third variable used. These factors are measured using the Porter indicator, which Allen and Helms (2006) developed. The indicator was selected since it has been employed by numerous prior researchers, including Aykan and Aksoylu (2013) and Teeratansirikool et al (2013). This indicator is converted into a questionnaire in a Likert-like scale with 1 being "never" and 5 being "always". Finally, indicators from Guilding et al. (2000) are used to measure the variable of strategic management accounting use. These indicators are frequently used to assess how well strategic management accounting variables are being employed, such as Al-Mawali (2015), Pavlatos (2015), Zenita et al. (2015), and Sumkaew and Intanon (2015). This is converted into a questionnaire that is rated in a Likert-like scale of 1 to 5, where 1 is "not applied at all" and 5 is "mostly applied."

### ***3.3. Data analysis***

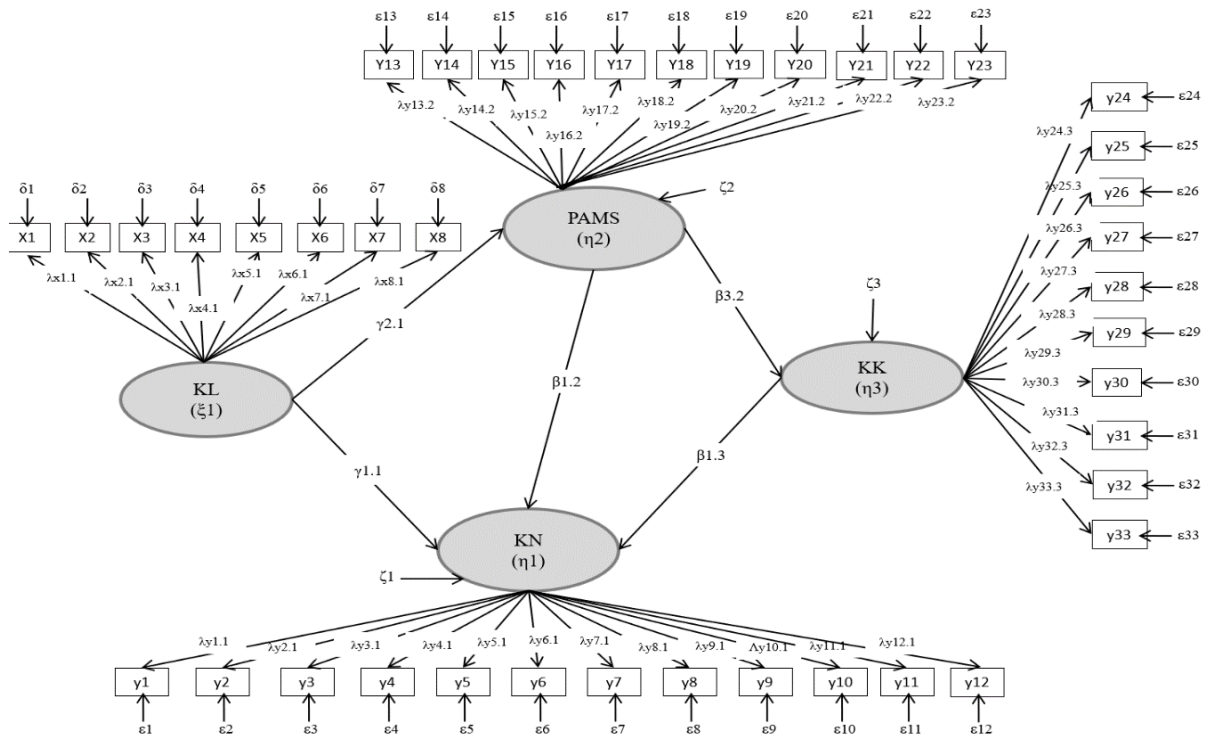
Following data collection, the data were examined using Lisrel structural equation modeling (SEM). To determine the latent variable score (LVS), Lisrel 8.8 software with a model simplification technique was employed. The stages in the analysis using Lisrel structural equations are model conceptualization, flow chart preparation, specification of measurement models and structural models, model identification, parameter estimation by performing multivariate normality tests (p-value of skewness and kurtosis 0,50), testing the fit on the



measurement model by testing the construct reliability ( $\geq 0,70$ ), extracting variance ( $\geq 0,50$ ), and fitting the overall model using the goodness of fit (GOF). Figure 1 shows the path of this research.

**Figure 1**

*Structural equation model with Lisrel*



Source: processed by researchers

## 4. Results

It was possible for researchers to get information from 167 respondents who worked for 67 SMEs. The observed organizations' business sectors are dispersed over the hospitality, food and beverage, manufacturing, construction, trade and automobile repair, transportation, and other services industries. Utilizing these data, Lisrel was used for data analysis. The normalcy test is the first test carried out. The researchers performed a bootstrapping process on the data by doubling the number of samples by two after the normality test of the 167 samples revealed that the distribution of the data did not match the assumption of multivariate normality. The number of samples climbed to 334 following the bootstrapping technique, and

the sample passed a second normality test. The results of the 334 sample normality test showed that the p-value for skewness and kurtosis was  $0.062 \geq 0.05$ . This result shows that the data distribution fulfills the multivariate normality condition. As a result, data analysis for each research variable can be continued.

On each variable in this study, validity, and reliability tests, as well as model fit, were conducted. The validity test is conducted using the standardized loading factor (SLF)  $\geq 0.5$ . The construct reliability ( $\geq 0.70$ ) and variance extracted ( $\geq 0.50$ ) values are looked at while the reliability test is being conducted. The findings of the validity and reliability tests for each variable are shown in table 1.

**Table 1**

*Validity and reliability test results*

Variable	SLF $\geq 0,5$	Errors	Reliability		Description
			CR $\geq 0,7$	VE $\geq 0,5$	
KN			0,941229	0,644152	Good reliability
KN1	0,83	0,31			Good validity
KN2	0,87	0,24			Good validity
KN3	0,94	0,13			Good validity
KN4	0,91	0,18			Good validity
KN5	0,77	0,4			Good validity
KN6	0,85	0,27			Good validity
KN7	0,65	0,58			Good validity
KN8	0,72	0,49			Good validity
KN9	0,63	0,61			Good validity
KK			0,917022	0,526901	Good reliability
KK1	0,62	0,62			Good validity
KK2	0,72	0,48			Good validity
KK3	0,74	0,45			Good validity
KK4	0,67	0,55			Good validity
KK5	0,74	0,46			Good validity
KK6	0,64	0,59			Good validity
KK7	0,74	0,45			Good validity
KK8	0,73	0,46			Good validity
KK9	0,85	0,28			Good validity
KK10	0,78	0,39			Good validity
PAMS			0,944569	0,60845	Good reliability
PAMS1	0,73	0,47			Good validity
PAMS2	0,85	0,28			Good validity
PAMS3	0,8	0,37			Good validity
PAMS4	0,8	0,35			Good validity
PAMS5	0,73	0,47			Good validity

Variable	SLF $\geq 0,5$	Errors	Reliability		Description
			CR $\geq 0,7$	VE $\geq 0,5$	
PAMS6	0,77	0,4			Good validity
PAMS7	0,82	0,33			Good validity
PAMS8	0,76	0,42			Good validity
PAMS9	0,82	0,32			Good validity
PAMS10	0,78	0,39			Good validity
PAMS11	0,7	0,5			Good validity
KL			0,845401	0,525164	Good reliability
KL2	0,8	0,36			Good validity
KL4	0,71	0,5			Good validity
KL5	0,61	0,63			Good validity
KL6	0,81	0,34			Good validity
KL7	0,67	0,54			Good validity

*Source: processed by researchers*

Several indicators were left out in order to achieve high reliability and validity for the variables performance (KN), competitive advantage (KK), usage of strategic management accounting (PAMS), and environmental uncertainty (KL). The six indicators KN10, KN11, KN12, KL1, KL3, and KL8 are not included.

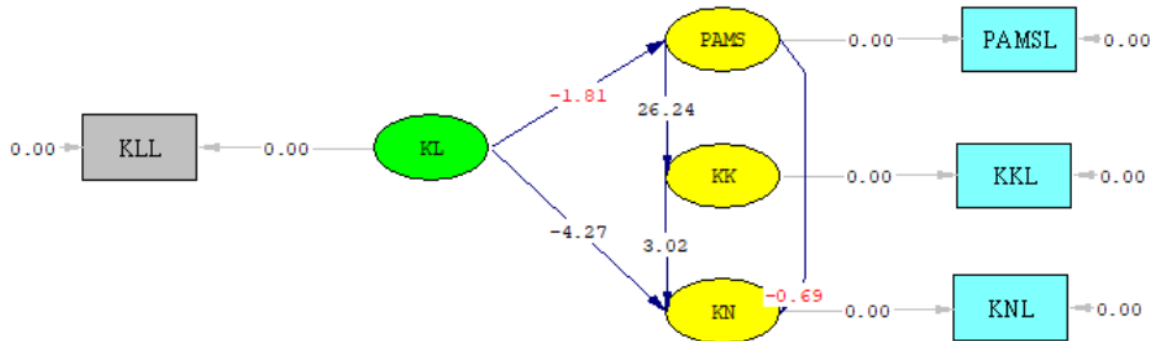
Furthermore, the model fit test was conducted using the goodness of fit (GOF) measurement after the validity and reliability tests for each variable were finished. There is 18 goodness of fit indicators used, namely absolute fit measures using the chi-square statistical value, p-value, non-centrality parameter (NCP), goodness-of-fit index (GFI), root mean square residual (RMR), root mean square error of approximation (RMSEA), expected cross-validation index (ECVI), incremental fit measures using non-normed fit index (NNFI), normed fit index (NFI), adjusted goodness of fit index (AGFI), relative fit index (RFI), incremental fit index (IFI), comparative fit index (CFI), parsimonious fit measures using parsimonious goodness of fit (PGFI), parsimonious normed fit index (PNFI), akaike information criterion (AIC), consistent akaike information criterion (CAIC), other fit measures using the critical value "N" (CN). Based on these 18 indicators, the performance variables (KN), competitive advantage (KK), the use of strategic management accounting (PAMS), and environmental uncertainty (KL) have good-fit results.

The latent variable values can be arranged in order to make the structural model simplified after the validity, reliability, and model fit tests have been conducted. The findings of this model simplification provide results that are well-fitted, and the latent variable values can be arranged in a way that makes the structural model simplified. Results with a good fit

are produced by this model simplification. With a critical value of 1.96, the structural model testing can therefore be continued to see the significance test. The findings of putting the structural model to the test are shown in figure 2.

**Figure 2**

*Struktural Model Analysis (T-value) with Lisrel 8.8*



Chi-Square=0.01, df=1, P-value=0.91246, RMSEA=0.000

Source: processed by researchers

According to the test results, the structural model equations can be written as follows:

$$\text{PAMS} = -0.10 \cdot \text{KL}, \text{ Errorvar.} = 0.98, R^2 = 0.010$$

(0.056)                      (0.077)

-1.81                              12.67

$$\text{KK} = 0.80 \cdot \text{PAMS}, \text{ Errorvar.} = 0.36, R^2 = 0.64$$

(0.030)                      (0.032)

26.24                              11.31

$$\text{KN} = -0.063 \cdot \text{PAMS} + 0.29 \cdot \text{KK} - 0.20 \cdot \text{KL}, \text{ Errorvar.} = 0.88, R^2 = 0.11$$

(0.091)                      (0.096)                      (0.047)                      (0.072)

-0.69                              3.02                              -4.27                              12.20

Three structural model equations have been created. According to the **first structural model's equation**, the environmental uncertainty (KL) variable's coefficient of direct influence on the use of strategic management accounting (PAMS) is -0.10 with a 0.056 error value. The t-value obtained when the coefficient value is immediately divided by error is -1.81. The environmental uncertainty (KL) variable has no impact on the use of strategic management accounting (PAMS), as indicated by the fact that this 1.81 value is less than 1.96 (**H2 is**

**rejected**). The **second structural equation model (SEM)** also demonstrates the coefficient of direct influence of the variable using strategic management accounting (PAMS) on competitive advantage (KK) of 0.80 with an error value of 0.030. The direct coefficient is divided by the error value to produce the t-value, which comes out to be  $26.24 \geq 1.96$ . Using strategic management accounting (PAMS) has a beneficial impact on competitive advantage (KK), in other words (**H4 is accepted**). The coefficient of direct influence of the performance (KN)-affecting variables can be shown in **the last structural equation model (SEM)**. The use of strategic management accounting (PAMS), which has a direct coefficient of -0.063 and an error value of 0.091, is the first factor that influences performance (KN). The t-value of -0.69 is the combination of the direct coefficient value and the error value. Since 0.69 is less than 1.96, the use of strategic management accounting (PAMS) has no bearing on performance (KN) (**H3 is rejected**). Competitive advantage (KK), the second factor that influences performance (KN), has a direct coefficient of 0.29 and an error value of 0.096. The t-value obtained when the coefficient value is immediately divided by the error value is  $3.02 \geq 1.96$ . In other words, performance (KN) is positively impacted by the competitive advantage (KK) (**H5 is accepted**). Finally, the performance (KN) variable has a direct coefficient of -0.20 with an error of 0.047 on the environmental uncertainty (KL) variable. Divide the direct coefficient value by the error, and the result is -4.27. The performance (KN) variable is influenced by the environmental uncertainty (KL) variable, as indicated by the t-value of  $4.27 \geq 1.96$ . The performance (KN) variable is negatively impacted by the environmental uncertainty (KL) variable because the direct coefficient value's sign is negative (**H1 is rejected**).

**Table 2***Hypothesis test results*

Hypothesis	Direct Coefficient Value	Error	t-value	Result
KL → KN (+)	-0,20	0,047	-4,27	H1 rejected
KL → PAMS (+)	-0,10	0,056	-1,81	H2 rejected
PAMS → KN (+)	-0,063	0,091	-0,69	H3 rejected
PAMS → KK (+)	0,80	0,030	26,24	H4 accepted
KK → KN (+)	0,29	0,096	3,02	H5 accepted

*Source: processed by researchers*

## 5. Discussion

This study aims to examine the factors that influence small and medium-sized business performance (KN) during the COVID-19 pandemic. Environmental uncertainty (KL), competitive advantage (KK), with an emphasis on differentiation strategies, and the use of strategic management accounting (PAMS) are the factors that influence performance (KN). The impact of environmental uncertainty (KL) on the use of strategic management accounting (PAMS) and the impact of strategic management accounting (PAMS) on competitive advantage are also covered in this study (KK).

According to the findings of the **first hypothesis** test, performance (KN) is negatively impacted by environmental uncertainty (KL). These findings are consistent with those of Aprisma and Sudaryati (2020), Sajilan et al. (2019), and Singh (2019). This indicates that the high level of environmental uncertainty (KL) that occurred during the COVID-19 pandemic has triggered a decline in performance (KN). The analysis of the results shows that the factors that contribute most to this COVID-19 pandemic's high level of uncertainty are government regulations and policies, information and production technology, and market activity from competing companies. These three factors are reportedly difficult to foresee based on the experiences of the small and medium-sized businesses. Performance (KN) has decreased because of the failure to anticipate this, especially in terms of sales volume, market share, operational profit, profit margin, and ROI.

Furthermore, the results of testing the **second hypothesis** show that the use of strategic management accounting (PAMS) is unaffected by environmental uncertainty (KL). This contrasts with Sumkaew and Intanon (2020), Al-Mawali (2015a), and Pavlatos (2015) that environmental uncertainty (KL) has a positive impact on the usage of strategic management accounting (PAMS). This indicates that the COVID-19 pandemic's high degree of environmental uncertainty (KL) has not been able to persuade small and medium-sized businesses to use strategic management accounting (PAMS). In accordance with the findings, usage of strategic management accounting (PAMS) in small and medium-sized businesses is still comparatively low. The lowest usage is shown in the indicators of the application of attribute costs, budgeting and monitoring of brand value, competitor assessment, life cycle costing, and quality costs. The low use of strategic management accounting is due to the lack of training for SMEs to be able to apply the concept.

The results of the **third hypothesis** test indicate that the performance (KN) of small and medium-sized businesses is unaffected using strategic management accounting (PAMS). These findings contrast with those found in the studies of Wajdi and Arsjah (2019), Alamri (2019), Phornlaphatrachakorn (2019), Lay and Jusoh (2017), Al-Mawali (2015b), and Zenita et al. (2015), which state that the use of strategic management accounting (PAMS) improves corporate performance (KN). This discrepancy arises from the fact that the amount of strategic management accounting (PAMS) use during the COVID-19 pandemic is still low. The COVID-19 pandemic-affected enterprises' poor performance (KN) cannot possibly be influenced or improved by the low adoption of strategic management accounting (PAMS).

The **fourth hypothesis** was also tested, and the findings indicate that the use of strategic management accounting (PAMS) improves competitive advantage (KK). Competitive advantage (KA) in this situation is more heavily centered on product differentiation. The findings of this study were supported by earlier studies by Wajdi and Arsjah (2019), Oyewo and Ajibolade (2019), Alamri (2018), Jaf et al. (2015), and Lay and Jusoh (2012). This means that if the use of strategic management accounting (PAMS) is still minimal during the COVID-19 pandemic, the use of product differentiation to gain competitive advantage (KK) is also minimal. Based on the results, indicators of product differentiation implementation are still at a low level, particularly in external training for marketing staff, the creation of new products and services, the use of advertising to foster positive relationships in the industry in the context of technology leadership, forecasting the growth of the existing market, and increasing market share.

The results of testing the **fifth hypothesis** conclusively demonstrate that small and medium-sized businesses' performance (KN) during the Covid-19 pandemic is positively impacted by competitive advantage (KK) focusing on product differentiation. These findings are consistent with those of the studies conducted by Teerantansirikool et al. (2013), Mwangi (2013), and Aykan and Aksoylu (2013). Based on the analysis of the results, the company's performance (KN) is still poor because there has been limited use of product differentiation to achieve a competitive advantage (KK) during the COVID-19 pandemic. The company's poor performance (KN) is shown by a decrease in sales, market share, operating profit, profit margin, and ROI.

### *Implications for practice*

The use of strategic management accounting, competitive advantage with an emphasis on product differentiation, and environmental uncertainty all had an impact on how well SMEs performed during the COVID-19 pandemic. It also clarifies how environmental uncertainty affects the application of strategic management accounting as well as how this affects competitive advantage that focuses on product differentiation. It is clear from the discussion that strategic management accounting has not been fully utilized in small and medium-sized businesses. This is evident from the data collected through the questionnaire, which indicates that there is still a lack of strategic management accounting usage. Maximizing the use of strategic management accounting is one of the actions small and medium-sized businesses may take to enhance performance even after the aftermath of the COVID-19 pandemic. The application of attribute costs, budgeting and monitoring brand value, competition analysis, life cycle costing, and quality costs can all be fully concentrated on possible when using strategic management accounting. It is hoped that by utilizing strategic management accounting to its fullest potential, small and medium-sized businesses will be able to mitigate the consequences of the COVID-19 pandemic's high environmental uncertainty.

Besides the use of strategic management accounting, product differentiation for the purpose of gaining competitive advantage also requires improvement. The following activities of the product differentiation strategy need to be improved by small and medium-sized businesses: external training for marketing staff members; creation of new products and services; use of advertising to foster positive relationships in the industry in the context of technology leadership; forecasting the growth of existing markets; and gaining a sizable market share. With this increase in inactivity, it is hoped that small and medium-sized businesses will be able to adjust with the after effects of the COVID-19 pandemic. This is in keeping with the advice of industry experts that small and medium-sized businesses should diversify their industries by creating new goods and services. Additionally, it is crucial for small and medium-sized firms to adapt through the use of technology.

The conditions of high environmental unpredictability can be addressed if small and medium-sized businesses are successful in expanding the use of strategic management accounting and the deployment of product differentiation strategies. The company's performance will benefit from this, allowing for an increase in sales volume, market share, operating profit, profit margin, and ROI. As a result, SMEs can adjust to any crisis situation



and protect the viability of their businesses. However, the government must assist small and medium-sized businesses. Government rules and policies are one of the markers of environmental uncertainty encountered by small and medium firms. Therefore, the government is anticipated to establish legislation and policies that can at the very least have a beneficial impact on the growth of small and medium-sized businesses. These laws and regulations may cover things like company training and financial aid. Business training can focus on how to differentiate products and apply strategic management accounting, enabling businesses to diversify while utilizing technology to its fullest.

#### *Limitation and future research*

This study is subject to several limitations. The first limitation is that the observation area is exclusively comprised of the two provinces of Banten and DKI Jakarta. For the findings to reflect the conditions more accurately in Indonesia, it is suggested that future studies broaden the observation area. Second, only 167 samples were gathered because there was not enough time for sampling. A bootstrapping process must be performed twice as often to achieve the assumption of multivariate normality since the number of samples tend to be small. To gather many more samples than necessary, it is anticipated that a longer sampling period will be allocated in future studies. Third, a large proportion of sample data is gathered online. The majority of data collecting, and communication is done online as a result of widespread social constraints and limitations on community activities. This can be better managed in upcoming studies, allowing for offline data gatherings. Fourth, the factors of environmental uncertainty (KL), the use of strategic management accounting (PAMS), and competitive advantage (KK), with an emphasis on product differentiation, are the only ones that can be observed to have an impact on the performance (KN) of small and medium-sized businesses. Only 11% of the effect on the performance (KN) variable is explained by these variables; the remainder is explained by other variables. Therefore, additional factors, such as organizational culture or organizational management's, leadership capabilities, that may impact the performance (KN) of small and medium-sized businesses can be introduced in future research.

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# The mediating role of intention in the digital bookkeeping adoption among MSMEs in Indonesia

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## Abstract

Digital bookkeeping is a financial innovation that serves a critical function in documenting the financial transactions of businesses. The aim of this study is to predict factors that influence the intention of Micro, Small, and Medium Enterprises (MSMEs) in Cirebon, Java, Indonesia to utilize digital bookkeeping. This study uses a quantitative approach to gain the perception of 225 MSMEs that represent a wide range of industrial sectors. The valid data was analyzed using Structural Equation Modeling (SEM) through Partial Least Square. The findings show that perceived usefulness, perceived ease of use, and convenience are factors that impact the intention of MSMEs to adopt digital bookkeeping, while perceived usefulness, perceived ease of use, and convenience have no effect on continuance intention. This research has practical implications for the development of effective financial management systems for MSMEs, enabling the monitoring of business growth systematically. This study makes a valuable contribution to the advancement of knowledge concerning the adoption of technology in the financial sector and enhances the Technology Acceptance Model (TAM) through its innovative approach.

**Keywords:** *perceived usefulness, perceived ease of use, convenience, intention, continuance intention, TAM, SEM*

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## 1. Introduction

Micro, Small and Medium Enterprises (MSMEs) play an important role in Indonesia's economic growth (Ardhi, 2023; Salsabillah et al., 2023; Nursini, 2020; Tambunan, 2019). The MSMEs in the country relate to the productive businesses owned by individuals or business entities that have met the criteria of Rp1.000.000.000 to Rp10.000.000.000 capitalization and Rp2.000.000.000 to Rp50.000.000.000 annual revenue (Article 35 of GR No. 7/2021). By 2024, 30 million MSMEs in Indonesia are expected to be connected to the digital ecosystem (Ardhi, 2023; Meilariza et al., 2024). According to the World Bank (2023), Indonesia's economy is projected to grow by more than 0.1% per year in the next three years. Of which, MSMEs will drive the country's economy and are projected to reach 83.3 million businesses by 2034. Therefore, MSMEs are continuously encouraged to improve their competitiveness. This provides an opportunity for small and medium enterprises (MSMEs) to contribute to the Indonesian economy.

According to Kadin (2023), data from the Indonesian Joint Funding Fintech Association (AFPI) shows that of the 64 million MSMEs in Indonesia, around 46.6 million have not had access to capital from banks or non-bank financial institutions in 2020. Due to the difficulty in securing funds, the government offers support for additional financing facilities, such as Mekar PNM, Bank Wakaf Mikro, Ultra Micro Financing (UMi), and Kredit Usaha Rakyat (KUR). As the business level of MSMEs grows, they can also access these financing schemes according to their class. Kadin (2023) further elaborated that the development of MSMEs loans continued to increase, and NPLs remained stable at around 4%. MSMEs loans continued to increase to reach Rp1,275.03 trillion, or grew 16.75%. The challenges that MSMEs will face in the future must be addressed by all parties involved, including digital literacy (Julianti et al., 2023; Shakira, 2024; Hariyanti, & Kristanti, 2024; Anatan & Nur, 2023; Aminullah et al., 2022), innovation (Apriani et al., 2022; Raya et al., 2021; Astriani et al., 2022; Achmad, 2023; Fizzanty, 2024; Farliana et al., 2022) and productivity (Poernamasari, 2023; Shahrullah et al., 2021; Anatan & Nur, 2021). Currently, Kadin and the Indonesian government are striving to improve the performance of MSMEs across the country by implementing digitalization strategies to increase competitiveness, become global players, and focus on exports. To obtain funding sources from external parties,

reports on the financial performance of MSMEs are required. Digital bookkeeping is seen as the solution to assist businesses in conducting bookkeeping online.

The MSMEs' intention to adopt digital bookkeeping is influenced by several factors such as usefulness, ease of use and convenience. The perceived usefulness relates to the extent to which a person believes that using a particular system will improve their job performance (Luo et al., 2024; Henderson & Divett, 2003; Buabeng-Andoh, 2018). Business actors tend to use new technology if they consider that the technology is more beneficial than the effort spent, including in using digital financial records (Zebua & Widuri, 2023). This is supported by studies showing that perceived usefulness affects e-wallet users (Esthiningrum & Sari, 2019; Daragmeh et al., 2021; Liébana-Cabanillas et al., 2020; Ming & Jais, 2022).

On the other hand, perceived ease of use is one of the four most important constructs of technology acceptance model (Venkatesh, 2000; He et al., 2018; Kelly & Palaniappan, 2023), and is the main factor influencing the intention to use a technology. The easier a technology is to use, the more people use it (Wibasuri et al., 2023). Hence, the ease of the system will affect a person's desire to use digital bookkeeping. Previous research shows that perceived ease of use has a positive effect on the use of e-walet (Prabawa & Aminah, 2023). The convenience of the system has a major impact on the use of digital bookkeeping as most economically active Indonesians own smartphones (Putera Kosim & Legowo, 2021). Previous research shows that perceived ease of use has a positive effect on the use of e-wallets (Daragmeh et al., 2021; Hasan & Gupta, 2020; Liébana-Cabanillas et al., 2020).

According to Khuong et al. (2022), convenience in using technology is also a factor considered by prospective users, in accordance with his research in Vietnam, which shows that convenience has a positive effect on the use of Fintech. If users find the system useful in their lives, they will be more interested in using it again. Similarly, research in Korea conducted by Jo and Bang (2023) found that digital financial record users will be more interested in using the system if they find it easy to use. Therefore, if users give a good response, they will definitely continue to use the digital bookkeeping-based financial transaction recording application. In effect, this will encourage other users to use it, which is consistent with the findings of Jangir et al. (2023) that intention to use has a positive effect on continuance usage intention towards Fintech in India.

Given the necessity to adopt digitalization of MSMEs in Indonesia, this study aims to predict the factor that influences the intention of MSMEs to utilize digital bookkeeping. This study contributes to the Sustainable Development Goals No. 8, 9, 11 in enhancing economic growth through the role of MSMEs.

## 2. Literature review

### 2.1. Theoretical framework

Technology acceptance model (TAM) is the theory used in this study. Introduced by Davis in 1989, TAM is an adaptation of the theory of reasoned action (TRA) which is specialized in modeling user acceptance of technology. It explains a causal relationship between a belief (the benefits of an information system and its ease of use) and the behavior, needs and users of an information system. A person's choice to use digital bookkeeping technology or the actual use of the system depends on the intention to use information technology (Izzah & Istiqomah, 2023).

### 2.2. Hypothesis development

**Perceived usefulness and intention to use digital bookkeeping.** Davis (1989) defines perceived usefulness as the extent to which a person believes that using a particular system will improve their job performance. If a person feels a new technology is more useful than the effort expended, they are likely to use it. Research in Indonesia conducted by Zebua and Widuri (2023) states that perceived usefulness significantly affects users' intention to use digital bookkeeping. Similarly, a study in China shows that perceived usefulness has a positive effect on the use of e-commerce systems (Esfahbodi et al., 2022). Furthermore, several studies highlighted positive influence of perceived usefulness on the intention to use new technology (Wibowo et al., 2024; Kelly & Palaniappan, 2023; Himel et al., 2022; Moura et al., 2020; Hanafia & Toolibb, 2020; Kemarauwana & Darmawan, 2020; Tahar et al., 2020) and accounting software (Syamsu et al., 2020; Pramono et al., 2023; Ilias et al., 2014; AlNasrallah & Saleem, 2022; Zebua & Widuri, 2023). Hence, this study states the null as:

H<sub>01</sub>: Perceived usefulness has no positive effect on the intention to use digital bookkeeping.

***Perceived ease of use and intention to use digital bookkeeping.*** Davis (1989) states that perceived ease of use means the extent to which a person believes that using a particular system will improve his job performance. Research conducted by Zebua and Widuri (2023) in Indonesia shows that individual tend to use new technology if they think it is more beneficial than the effort expended. Therefore, perceived ease of use significantly increases the desire to use digital bookkeeping. Research in Iran also showed that perceived ease of use affects the use of LMS (Ashrafi et al., 2020). Empirical evidence supported the assumption that perceived ease of use influences the intention to use new technology (Pramono et al., 2023; Kelly & Palaniappan, 2023; Himel et al., 2022; Moura et al., 2020; Hanafia & Toolibb, 2020; Kemarauwana & Darmawan, 2020; Tahar et al., 2020) and new accounting software (Jackson & Allen, 2024; Ilias et al., 2014; AlNasrallah & Saleem, 2022; Zebua & Widuri, 2023). Hence, this study states the null as:

H0<sub>2</sub>: Perceived ease of use has no positive effect on the intention to use digital bookkeeping.

***Convenience and intention to use digital bookkeeping.*** According to Daragmeh et al. (2021), customer's perception of how much time and effort is spent using a particular service is called convenience. Since the process is quick and easy, customers tend to feel more comfortable. The service convenience model aims to save customers time and effort, consumers also consider when choosing goods and services. Therefore, the desire to use digital bookkeeping will increase if the concept is comparable to the convenience model. The study of Khuong et al. (2022) in Vietnam showed that convenience has a positive effect on the use of FinTech. Empirical evidence provided that perceived convenience has positive influence on the intention to use new technology (Wardana et al., 2022; Thomas et al., 2024; Shankar & Rishi, 2020; Khiong et al., 2022; Apriani et al., 2023; Khairial & Ridanasti, 2023; Phonna et al., 2023) and new accounting software (Lea & Caoa, 2020). Hence, this study states the null as:

H0<sub>3</sub>: Convenience has no positive effect on the intention to use digital bookkeeping.

***Intention and continuance intention to use digital bookkeeping.*** According to Jo and Bang (2023), positive perceptions and attitudes, such as perceived usefulness, guide behavioral intentions, including intention to continue using, and top management support are key drivers

of intention to continue. Users will rate their experience with digital accounting and give their emotional reaction to the use of digital accounting. If users give a positive response, they will want to continue using digital accounting and will encourage many people to use it. In fact, Jangir et al. (2023) showed that intention has a positive effect on continuance intention to use Fintech. Hence, this study states the null as:

H0<sub>4</sub>: Intention has no positive effect on the continuance intention to use digital bookkeeping.

***Perceived usefulness on continuance intention to use digital bookkeeping mediated by intention.*** The benefits of a technology are the basis for someone deciding to use the technology. MSMEs that consider the benefits of using digital bookkeeping and have experience in using online record keeping, are more likely to have a continuing intention to use digital bookkeeping. This is consistent with previous studies that emphasize the importance of technology benefits to encourage intention to use the technology and use it in the long term. Research conducted by Esfahbodi et al. (2022) in China found perceived usefulness with a positive effect on the use of e-commerce systems. Similarly, Israr et al. (2022) concluded that the intention to use has a positive effect on continuance intention to use internet banking in Pakistan. Hence, this study states the null as:

H0<sub>5</sub>: Perceived usefulness has no positive effect on the continuance intention to use digital bookkeeping mediated by intention.

***Perceived ease of use on continuance intention to use digital bookkeeping mediated by intention.*** According to Mufarih et al. (2020), Indonesian consumers who perceive system benefits and convenience are influenced by their intention to participate in the system. The extent to which potential users expect the target system to be used without effort is called ease of use. A person considers technology easy to use or perceived ease of use based on how easy an application performs its activities. Research conducted by Ashrafi et al. (2020) in Iran showed that behavior of users to continue using digital bookkeeping is based on ease of use. Similarly, intention to use has a positive effect on continuance intention to use internet banking (Israr et al., 2022). Hence, this study states the null as:

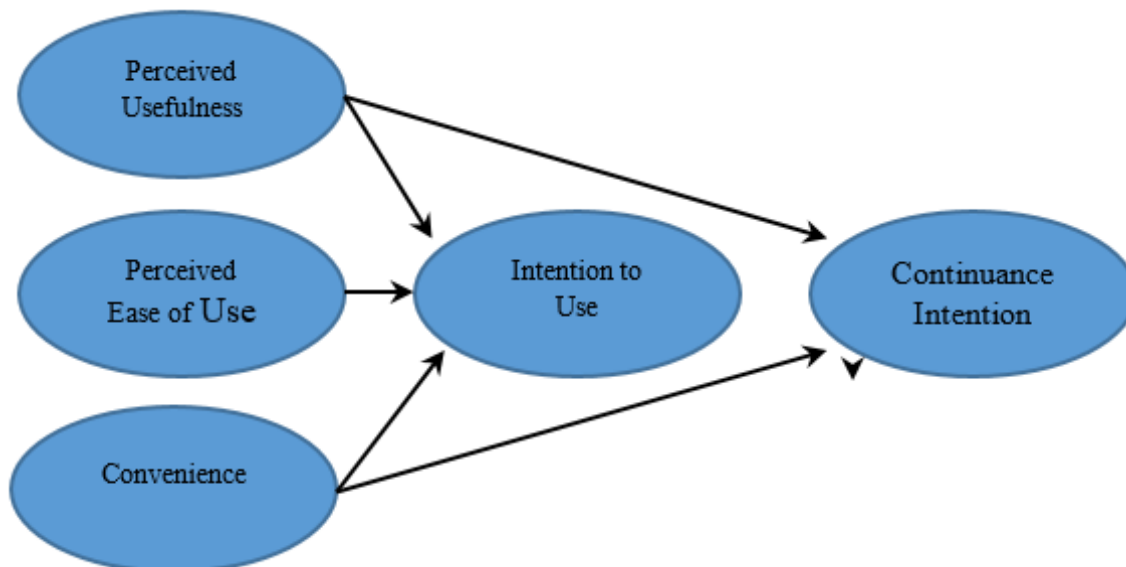
H0<sub>6</sub>: Perceived ease of use has no positive effect on continuance intention to use digital bookkeeping mediated by intention.

***Convenience on continuance intention to use digital bookkeeping mediated by intention.*** The customer's perception of how much time and effort is spent using a particular service is called convenience. Since the process is quick and easy, customers tend to feel more comfortable. Research in India conducted by Chang et al. (2010) found that the service convenience model aims to save consumers time and effort. Therefore, if the concept of using digital bookkeeping is comparable to the convenience model, the desire to use it will increase. With the desire to use increasing, the user's interest in continuing to use it will also increase. Similarly, the intention to use has a positive effect on continuance intention to use internet banking (Israr et al., 2022). Hence, this study states the null as:

H0<sub>7</sub>: Convenience has no positive effect on continuance intention to use digital bookkeeping mediated by intention.

**Figure 1**

*Research model*



### 3. Methodology

This study uses a quantitative approach with data collection through questionnaires to obtain the perceptions of MSMEs regarding the use of digital bookkeeping to record financial transactions. An interval scale was used to measure respondents' answers with numbers 1 (strongly disagree) to 5 (strongly agree).

The population in this study totaled 61,234 MSMEs with various industrial sectors from Cirebon, Java, Indonesia. Based on the results of the Raosoft formula calculation, a sample size of 382 was obtained. The response rate of the questionnaire is more than 50% and 225 valid data were analyzed with Structural Equation Modeling (SEM) through PLS. Stages in data analysis include outer model analysis, inner model analysis and hypothesis testing. The result of data analysis has passed validation, reliability, and diagnostic tests for SEM analysis.

**Table 1**

*Operationalization of research variables*

Variable	Description
Perceived ease of use (independent variable)	Measured by 9 items (Almajali et al., 2022; Ashrafi et al., 2020; Esfahbodi et al., 2022; Kasilingam, 2020; Liébana-Cabanillas et al., 2020)
Perceived usefulness (independent variable)	Measured by 4 items (Ashrafi et al., 2020; Kasilingam, 2020)
Convenience (independent variable)	Measured by 4 items (Prabawa & Aminah, 2023)
Intention to use (mediating variable)	Measured by 4 items (Mohamad Zain et al., 2023)
Continuance intention (dependent variable)	Measured by 3 items (Jangir et al., 2023).

*Source:* Previous studies

The respondents of the study were the owners or employee-representative assigned in the accounting section of the MSME. Based on the demographic characteristics, the highest age range of respondents comprises: 21-30 years (56%), 31-40 years (32.1%), 41-50 years (10.7%), <20 years (6.7%), >50 years (3.5%). Based on the age of the business, the majority of them are less than 5 years old with 133 respondents (59.1%), 5-10 years with 77 respondents (34.2%), and 11-20 years with 5 respondents (6.7%). With regards to the educational qualifications, majority of the respondents have high school education (47.6%) while some of them have bachelor's degree (29.3%), junior high school (12.9%), elementary diploma (6.2%) and diploma degree (2.7%). Most of the respondents are from the food sector (72.00%) followed by beverage sector (5.33%), goods sector (16.89%), and service sector (5.78%).

#### 4. Findings and Discussion

The results of the descriptive analysis in table 2 show that respondents' intention to use digital bookkeeping received the highest score. This indicates that MSMEs agree that digital bookkeeping can help them to record finances practically and systematically. This encourages the intention to immediately use digital bookkeeping compared to using manual financial records. In addition, a high perception was also given to the benefits perceived by MSMEs in implementing digital bookkeeping. Meanwhile, the lowest perception of MSMEs among the variables in this study is technology anxiety with a mean value of 3.21.

**Table 2**

*Descriptive analysis*

Constructs	Item	M	SD	Loading	Cronbach Alpha	CR (>0,7)	AVE (>0,5)
Intention to Use (IU)	IU1	3.94	0.884	0.840	0.882	0.919	0.738
	IU2			0.895			
	IU3			0.858			
	IU4			0.843			
Perceived Usefulness (PU)	PU1	3.93	0.928	0.869	0.910	0.937	0.788
	PU2			0.902			
	PU3			0.900			
	PU4			0.879			
Perceived Ease of Use (PEOU)	PEOU1	3.86	0.938	0.779	0.942	0.951	0.684
	PEOU2			0.835			
	PEOU3			0.822			
	PEOU4			0.847			
	PEOU5			0.887			
	PEOU6			0.860			
	PEOU7			0.774			
	PEOU8			0.814			
	PEOU9			0.819			
Convenience	C1	3.94	0.854	0.835	0.895	0.927	0.762
	C2			0.904			
	C3			0.863			
	C4			0.888			
Continuance Intention (CI)	CI1	3.89	0.851	0.876	0.865	0.917	0.787
	CI2			0.897			
	CI3			0.887			

*Source:* Author's Computations

The Cronbach alpha values of the five main variables ranged from 0.882 to 0.947, greater than the 0.7 level. In addition, the Composite Reliability (CR) values of all variables ranged from 0.919 to 0.958, greater than 0.7. These results indicate that the constructs in this study meet reliability. There are two measurement models, convergent validity shown through



question reliability, construct composite reliability (CR), and construct variance extracted. A good reliability value is that the loading value must be higher than 0.70. The average variance extracted (AVE) value has been used to test convergent validity, and the value should be higher than 0.50.

**Table 3**

*Result of discriminant validity - by Fornell Larcker Criterion*

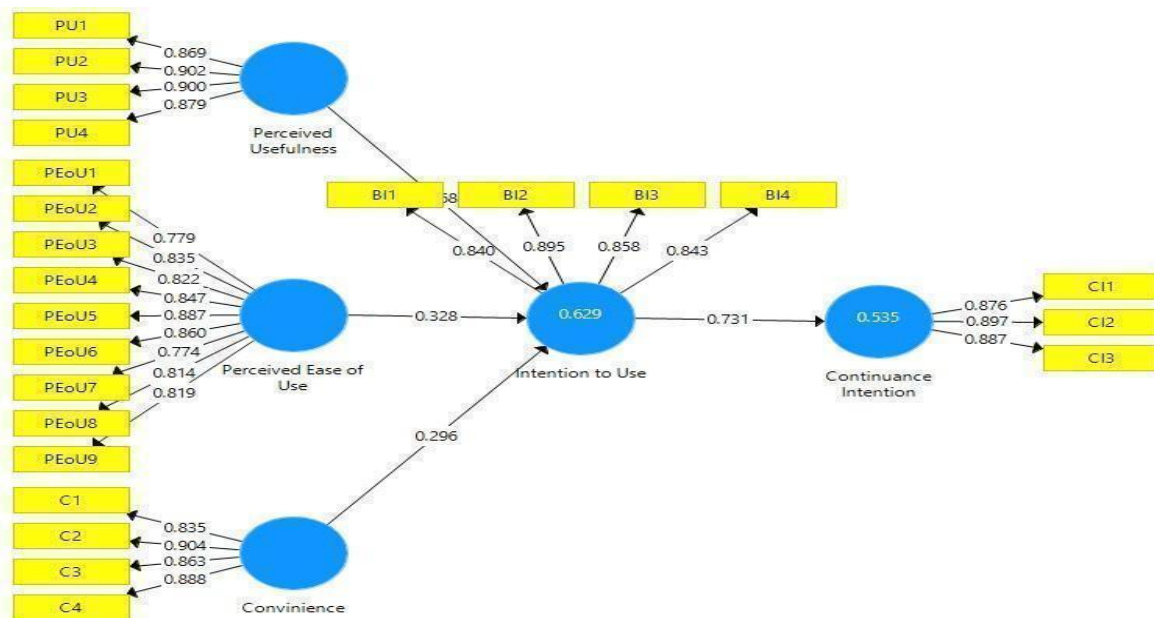
Constructs	Continuance Intention	Convenience	Intention to Use	Perceived Ease of Use	Perceived Usefulness
Continuance Intention	0.887				
Convenience	0.728	0.873			
Intention to Use	0.731	0.655	0.859		
Perceived Ease of Use	0.644	0.629	0.742	0.827	
Perceived Usefulness	0.614	0.567	0.714	0.847	0.888

*Source:* Author's Computations

Using the Fornell Larcker criterion, the linear validity of the indicators has been assessed. AVE square roots that are greater than the correlation values between constructs meet the linear validity requirements.

**Figure 2**

*The structural model evaluation and hypothesis testing*



The structural model evaluation and hypothesis testing are illustrated in figure 2, table 4 and table 5. Both  $H_{01}$  and  $H_{02}$  are supported by the data ( $\beta = 0.268$ ,  $t = 2.661$ ,  $p < 0.008$  and  $\beta = 0.328$ ,  $t = 2.701$ ,  $p > 0.007$ ), to suggest that perceived usefulness and perceived ease of use have stronger impact on the intention to use digital technology-based bookkeeping software. Hypotheses  $H_{03}$  and  $H_{04}$  are corroborated by ( $\beta = 0.296$ ,  $t = 3.054$ ,  $p < 0.002$ ) and ( $\beta = 0.731$ ,  $t = 15.543$ ,  $p > 0.000$ ), which indicate that convenience and continuance intention significantly influence the intention to use digital technology-based financial recording applications, especially bookkeeping.  $H_{05}$  is not supported by the data ( $\beta = 0.196$ ,  $t = 2.687$ ,  $p > 0.007$ ), indicating that there is no evidence to suggest that perceived usefulness increases the impact of continuance intention through intention in terms of using digital recordkeeping applications.  $H_{06}$  is not supported by the data ( $\beta = 0.240$ ,  $t = 2.788$ ,  $p < 0.006$ ), indicating that there is no evidence to suggest that perceived ease of use increases the impact on continuance intention through intention.  $H_{07}$  is not supported by the result ( $\beta = 0.217$ ,  $t = 2.714$ ,  $p > 0.007$ ), which indicates that convenience has no impact on the continuance intention towards the use of digital-based bookkeeping through intention.

**Table 4***Hypothesis testing results  $H_{01}$ - $H_{04}$* 

Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviations (STDEV)	T Statistics (O STDEV)	P Value	Decision
$H_{01}$ : PU $\Rightarrow$ INT	0.268	0.225	0.101	2.661	0.008	Reject
$H_{02}$ : PEOU $\Rightarrow$ INT	0.328	0.325	0.122	2.701	0.007	Reject
$H_{03}$ : C $\Rightarrow$ INT	0.296	0.313	0.097	3.054	0.002	Reject
$H_{04}$ : INT $\Rightarrow$ CI	0.731	0.372	0.047	15.543	0.000	Reject

*Source:* Author's Computations

**Table 5***Hypothesis testing results of mediating effect H0<sub>5</sub>-H0<sub>7</sub>*

Null hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviations (STDEV)	T Statistics (O STDEV)	P Value	Decision
H0 <sub>5</sub> : PU ⇒ INT ⇒ CI	0,196	0,186	0,073	2,687	0,007	PU ⇒ CI 0,196 PU ⇒ INT 0,268 (Direct)  (0,196 X 0,268) = 0,052 (Indirect)  Fail to Reject H0 <sub>5</sub>
H0 <sub>6</sub> : PEOU ⇒ INT ⇒ CI	0,240	0,236	0,086	2,788	0,006	PEOU ⇒ CI 0,240 PEOU ⇒ INT 0,328 (Direct)  (0,240 X 0,328) = 0,078 (Indirect)  Fail to Reject H0 <sub>6</sub>
H0 <sub>7</sub> : C ⇒ INT ⇒ CI	0,217	0,232	0,080	2,714	0,007	C ⇒ CI 0,217 C ⇒ INT 0,296 (Direct)  (0,217 X 0,296) = 0,064 (Indirect)  Fail to Reject H0 <sub>7</sub>

*Source:* Author's Computations**Table 6***The association between IU and CI*

Hypothesis	R Square
Continuance Intention	0,535
Intention to Use	0,629

*Source:* Author's Computations

R Square continuance intention is 0.535, as shown in table 5. This indicates that all research variables explain 53.5% of the variance, leaving 46.5% influenced by other factors studied. Conversely, the R Square intention to use value of 0.629 indicates that the collective contribution of all research variables is 62.9%, leaving the remaining 37.1% influenced by other factors not studied.

**Hypothesis 1.** Perceived usefulness has a positive effect on the intention of MSMEs to adopt digital bookkeeping (reject  $H0_1$ ). Digital bookkeeping can help MSMEs record financial transactions and increase productivity. Digital bookkeeping can also help small and medium businesses be more efficient. MSMEs in Cirebon believe digital bookkeeping can help them complete financial records faster. Previous research in China proved that the benefits perceived by MSMEs from using digital-based financial records will affect their intention to utilize it (Esfahbodi et al., 2022). This study is in line with the TAM, which states that if a system is easy to use and offers benefits to its users, people's interest in using it will increase. This study shows MSMEs in Indonesia consider that digital bookkeeping that offers benefits will be more likely to adopt this application.

**Hypothesis 2.** Perceived ease of use has a positive influence on the intention to use digital bookkeeping by MSMEs in Cirebon (reject  $H0_2$ ). MSMEs found digital-based financial recording as easy to learn. They do not hesitate to use this application because of its clarity and ease of use. To assess the progress of their business, digital-based financial record is very important. This is also consistent with the research of Ashrafi et al. (2020), showing that perceived ease of use affects the use of digital bookkeeping in Iran. According to TAM, digital bookkeeping can help MSMEs save time by speeding up transaction recording. The study found that this would encourage people to use the system. As a result, MSMEs think that digital bookkeeping offers benefits enabling them to likely adopt this application.

**Hypothesis 3.** Convenience has a positive effect on the intention to use digital bookkeeping (reject  $H0_3$ ). The results show that new application systems, especially digital bookkeeping, are acceptable to MSMEs. However, MSMEs are fair when assessing that they prefer to record by hand rather than using digital accounting. Research in India conducted by Chang et al. (2010) found that convenience involves spending less energy for customers. This is also in accordance with the findings of Khuong et al. (2022). According to TAM, an individual's intention to use the system will increase if the system provides convenience to

MSMEs as it makes the process easy and fast. Therefore, there is a greater likelihood that MSMEs finding digital bookkeeping offers advantages will use the application.

**Hypothesis 4.** Hypothesis testing results show that intention has a positive impact on the continuance intention of MSMEs in Cirebon to use digital business bookkeeping (reject  $H_{04}$ ). As a result, most MSMEs agree that using digital accounting to record finances is a wise choice. This is supported by Jangir et al. (2023) that intention has a positive effect on continuance intention to use a specific system. The study is also in line with TAM, which states that individuals will be more interested in using the system if they see a good response from users. In this sense, users encourage other users to use digital bookkeeping.

**Hypothesis 5.** The result showed that intention has no mediating effect on the relationship between perceived usefulness and continuance intention to use digital bookkeeping (fail to reject  $H_{05}$ ). This contradicts the findings of Israr et al. (2022) that intention to use has a positive effect on continuance intention to use internet banking in Pakistan. This shows that through the mediation of MSMEs intention to use digital bookkeeping, perceived usefulness does not affect the continuance intention to use digital bookkeeping.

**Hypothesis 6.** The result showed that intention has no mediating effect on the relationship between perceived ease of use and continuance intention to use digital bookkeeping (fail to reject  $H_{06}$ ). This contradicts the findings of Ashrafi et al. (2020) and Israr et al. (2022). This shows that through the mediation of MSMEs intention to use digital bookkeeping, the perceived ease of use does not affect continuance intention to use digital bookkeeping.

**Hypothesis 7.** The result showed that intention has no mediating effect on the relationship between convenience and continuance intention to use digital bookkeeping (fail to reject  $H_{07}$ ). This contradicts the findings of Khuong et al. (2022) and Israr et al. (2022). Although the MSMEs found convenience in the use of digital bookkeeping, it does not affect their intention to adopt digital bookkeeping in the long run.

## 5. Conclusion

Perceived usefulness, perceived ease of use, convenience, and intention are factors that influence the continuance intention of MSMEs to utilize digital accounting applications. As

reflected in the results, all the factors influence MSMEs towards the adoption of digital accounting applications. However, the intention has no mediating effect on the relationship between perceived usefulness, perceived ease of use, and convenience and the continuance intention to use digital bookkeeping. The results provide empirical evidence that MSME players agree that digital bookkeeping applications simplify their financial recording process. In addition, MSME players find digital bookkeeping applications easy and comfortable to use.

With the challenges faced by the MSMEs on financial management, the use of digital and mobile-based applications is becoming imperative for them. The continuous innovation of the digital products allows the MSMEs to choose the appropriate features they need for their accounting records. Given the results of this study, MSMEs in Cirebon can further scrutinize available digital accounting services that suits their budget and needs. While the results show that they are positive with the adoption of digital bookkeeping, it is also recommended to increase their knowledge on the latest development and proper usage of new technologies. Given the limits of formal education of the MSME owners, as reflected in the demographic characteristics, it is highly recommended to give them proper orientation and training on the proper use of the digital bookkeeping. In addition, further research is recommended on the practices and experiences of MSMEs on the use of digital bookkeeping.

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