Journal of the Academy of Business and Emerging Markets 2021, 1(2), 51-62
https://www.abem.ca/journal ISSN: 2563-6960

The robotic process automation in accounting: Impacts of relative advantage, trialability and user-friendly innovation adoption attributes

Prince Joy T. Mappala, *San Beda University, the Philippines*
*Michael Pasco**, *San Beda University, the Philippines*
*Corresponding author: mpasco@sanbeda.edu.ph

The adoption of the robotic process automation (RPA) is important to perform tasks efficiently and recently to keep social distancing as way to prevent spread of COVID-19. In addition, innovation plays a vital role to be competitive in today's market. One of the innovations that is gaining popularity is the application of automation other than manufacturing. However, because of its early development, there are limited studies to predict and analyze RPA in accounting. The purpose of the study is to examine to the effects of innovation adoption attributes on the acceptance of users and adoption of robotic process automation in accounting. Using PLS-SEM method, our findings indicate that trialability has significant relationship with RPA adoption. Trialability was also noted as the highest predictor.

Keywords: adoption, accounting, innovation, robotic process automation, trialability

Received May 10, 2021, Revised June 3, 2021; Accepted June 14, 2021

https://doi.org/10.5281/zenodo.5044569

Introduction

Robots accomplish physical tasks related to logistics, disinfection, provide COVID-19 information to people, and reduce the threat of infections (Zhanjing et al. 2020). The impacts of COVID-19 drive further research in robotics to address risks of infectious diseases "but without sustained research efforts, robots will, once again, not be ready for the next incident" (Yang et al. 2020, p 2). Zhanjing et al. (2020) argued that COVID-19 drives robotic adoption to increase the efficiency of work, the quality of services, and reduce the financial costs. During the COVID-19 pandemic, robots helps to maintain social distancing. Typically for companies, what matters most is the end figure of the statement of financial performance for the year-end. A net income means favorable growth, well-managed cost or substantial increase in sales or revenue. A net loss signals the management to revise its strategy on pricing, costing and focus on areas of development. Decade-old companies watch how the market grow and develop throughout the years. A promising technological advancement that gains competitive advantage is the introduction of Robotic Process Automation (RPA) (Al-Jabri & Sohail 2012). Brussel and Theyssens (2017) state that innovation, an

early stage of development, is hard to track. Accounting functions are not spared from the need for adoption of robotics as brought by social, technological, ecological, economic, and political changes.

RPA is a software-based approach of process automation by capturing, interpretation and coordination of the actions of existing applications and processes. Ivančić et al. (2019) noted the examples of RPA that included automation of repetitive, routine, rule-based human tasks, aiming to bring benefits to the organizations that decide to implement software solution such as in RPA operating system for the digital enterprise and software bots for shared services across different departments of firms. In accounting audit, summarizing relevant data and generations of financial statements, RPA involves software that operates as a virtual workforce and replaces the human movements and interventions in repetitive and recurrent tasks (Huang & Vasarhelvi 2019).

Accounting is both an art and a process. It provides three important activities in the accounting processes, namely: identifying, measuring, and communicating. The ultimate purpose of accounting is classified into two categories: control and decision- making. Financial reports provide information about the entity's economic resources, claims against the entity and the effects of transactions, events and conditions that change those resources and claims.

The purpose of study is to investigate, in the context of accountancy, innovation attributes that affect adoption of RPA. Specifically, we determine the impact of relative advantage, trialability and user-friendly attributes (compatibility, complexity, and observability) on RPA.

Conceptual Framework

We focused on the readiness to adopt RPA to bridge the gap between RPA and the perceived adoption of RPA to provide a framework for companies to successfully implement RPA (Gullkvist 2011). Attributes of adoption and acceptance of potential users provide a successful entry of technology (Al-Jabri & Sohail 2012). The contextual limitations of reviewed literature (Ivančić et al. 2019) led to investigate the effects of the attributes of innovation on the adoption of RPA in accounting. The research limitations also pave way to address the research problem: What are the effects of the attributes of innovation on the robotic process automation adoption in accounting? Technologies enabled digital accounting that were regarded innovations. In line with Rogers (1995), the idea, thing, procedure, or system were regarded as innovations when it was perceived to be new by whoever was adopting it. The diffusion of innovations was regarded as a social process that communicated perceived information about a new idea; it produced an alteration in the structure and function of a social system, thus, producing social consequences (Rogers 1995). The diffusion effect was the increasing, cumulative pressure from interpersonal networks to adopt or reject innovation.

Theory of Innovation Adoption

Venkatesh (2016) argued that UTAUT has strengths "as a quality theory and performed well in importance, novelty, falsifiability dimensions and technology acceptance while its weakness is low parsimony due to the complexity among attributes" (p 338). But, the ambiguity of UTAUT limit the extension of said theory but its strength dwells on the utility. Bagozzi (2007) emphasized that important independent variables in unified theory of acceptance and use of technology (UTAUT) were not tested and left-out because some predictors were fundamental, generic, and universal. In contrast, Bagozzi (2007) also recognized parsimony in different settings, industry, and context as the strength of the technology acceptance model (TAM) but criticized "its absence of a sound theory and methods for determination of the antecedents of perceived usefulness and perceived ease of use, the neglect of social, group and cultural aspects of decision making, reliance on notions of affect or emotions and missing to consider self-regulation process" (p 245).

With few research outputs about RPA adoption in accounting (Ivančić et al. 2019), we perceive its adoption in accounting as an innovation. Moreover, the strength of IDT is its applicability in different industries and discipline (Lee et al. 2011). IDT served as a fundamental theoretical lens of innovation adoption research in many disciplines, including sociology, communications, marketing, and education (Yoon et al. 2014). As weakness, IDT did not consider an individual's resources or social support to adopt the new behavior or innovation (Yu 2012). We viewed that innovation diffusion theory (IDT) fitted our research because it explained simply, clearly, although at broader scope the rate at which people adapted the RPA innovation, given the emerging research topic. IDT is a theoretical foundation for relative advantage, trialability and user-friendly innovation attributes. As IDT works better to explain the innovation adoption behavior in new functions, we choose IDT as the theoretical foundation of our research.

Several studies continued to utilize IDT and other acceptance model but very few about RPA adoption in accounting. (Cooper et al. 2020). We adopted the application of IDT established by Al-Jabri and Sohail (2012) as they attempted to study mobile banking innovation adoption. The conceptual framework highlighted the variables to be investigated in this research, as shown in Figure 1.

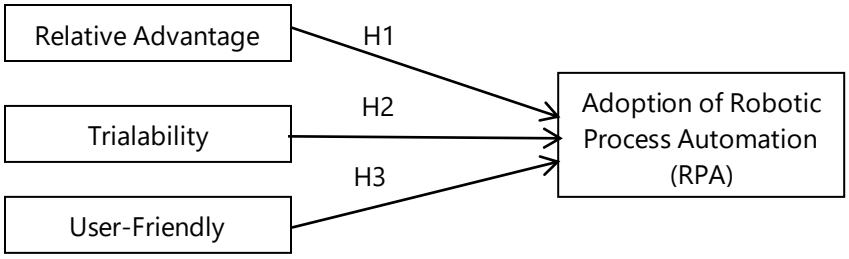

Figure 1. Conceptual Framework: Innovation Adoption of RPA in Accounting
Source: the authors

Hypotheses Development

Relative Advantage and Robotic Process Automation Adoption

The perceived relative advantage consists of financial, social, or other types of outcomes perceived as gains by the adopter while better innovation is the faster adoption process (Straub 2009). Compatibility refers to the degree to which innovation is regarded as being consistent with the potential end-users' existing values, prior experiences, and needs. Attributes of compatibility impact the decision to use new technology because technology often requires establishments to change their existing business practices and operations to increase the benefits of using the technology (Mndzebele 2013). Complexity is the end-users' perceived level of difficulty in understanding innovations and their ease of use. It is suggested that high complexity tends to create frustration among individuals and has negative association with adoption (Juntunen 2018). According to Rogers (1995), relative advantage is the degree to which an innovation is perceived. Relative advantage means better than the idea it supersedes (Lee et al. 2011), Stieninger and Nedbal (2014) and Al-Jabri and Sohail (2012) identified relative advantage with positive effect in the adoption of users. When users perceive relative advantage or usefulness of a new technology over an old one, they tend to adopt it (Rogers 1995). Cooper et al. (2021) recognized the positive influence of adoption of RPA on the accounting profession as it positively changes the job and career that employees perform. However, while firm leaders believe RPA improved work satisfaction, lower-level employees did not exhibit such progress (Cooper et al 2021). Our first hypothesis to be tested is:

H1. There is significant relationship between relative advantage and robotic process automation adoption.

Trialability and Robotic Process Automation Adoption

Trialability refers to the degree to which innovations can be tested on a limited basis. It reflects how easily individuals can experiment with the innovation and high trialability tends to lower the perceived risk and uncertainty experienced by the individuals. (Kee 2017) Observability is the degree to which the results of innovations are visible to other people (Al-Jabri & Sohail 2012, Lee et al. 2011, Stieninger & Nedbal 2014, Zhang et al. 2015). Often, observability construct is combined with visibility and communicability constructs and together and separately are perceived to increase the likelihood for adoption (Kee 2017). According to Rogers (1995), trialability is the degree to which an innovation may be experimented with on a limited basis. Also, potential adopters test innovation, feel comfortable with it, and are more likely to adopt it. Lee et al. (2011), Stieninger and Nedbal (2014), and Al-Jabri and Sohail (2012) hypothesize that trialability has positive effect on innovation adoption and acceptance of users. It was argued that trialability is required in adoption of large innovative projects and may even involve consultants. Moreover, trialability is a mandatory procedure for different companies who are adopting innovation and new technologies (Burritt et al. 2019). Our second proposed hypothesis is:

H2. There is significant relationship between trialability and robotic process automation adoption.

User-Friendly Attributes and Robotic Process Automation Adoption

User-friendly innovation adoption composed of compatibility, complexity, and observability. Compatibility was a vital feature of innovation as conformance with user's lifestyle can propel a rapid rate of adoption (Rogers 1995). Past research found that organizations would be more than willing to adopt technology if innovations were compatible with the environment and work practices. Complexity was the degree to which an innovation is perceived as relatively difficult to understand and use (Rogers 1995). Mndzebele (2013) stated that complexity is positively correlated with each of the e-commerce variables. Observability, according to Rogers (1995), was the degree to which the results of an innovation are visible to others. Past research has concluded that observability has a significant effect on adoption. In addition, Lee et al. (2011), Stieninger and Nedbal (2014), and Al-Jabri and Sohail (2012) identified compatibility, complexity and observability to have a positive effect on innovation adoption of users. Our final hypothesis to be tested is:

H3. There is significant relationship between user-friendly attributes and robotic process automation adoption.

Methodology

Questionnaires were developed to understand perceived RPA adoption as an innovation adoption in accounting. To facilitate data gathering, random sampling was utilized to select the respondents. After clarification of the information on the first 30 respondents, questionnaires were distributed both manually and through google survey form. Questionnaires were given to 150 respondents and only 100 answered. Collected questionnaires were checked for completeness and edited by reviewing eligible, inconsistent, and ambiguous responses (Hair et al. 2010). Ethical practices were observed by the research during the conduct of this research. Ethical concerns regarding the protection of human subjects in research were based on the Nuremberg Code in 1947. Informed consent was being presented to the head of office prior the floating of manual of the Internet, which made opportunities for international publishing and viewing of visual data much more widely available (Boxall & Ralph 2009). Descriptive statistics, factor analysis, and PLS-SEM used 5% level of significance (Hair et al. 2010). To determine the factors that influence adoption

by users, we classified this quantitative research as cross-sectional, and determined the cause and effect relationships and computed for partial least squares coefficients in PLS-SEM using Smart PLS 3 software to determine the factor scores and path coefficients (Brains et al. 2011, Hair et al. 2019).

Sampling Design and Research Instruments

Random sampling was utilized in the conduct of the research. Random sampling was selected because it was a fair way of selecting sample from a given population which gave every member an equal opportunity to be selected (Hair et al. 2010). In performing an unbiased selection of the respondents, we assigned a number to every CPAs identified within Tuguegarao City. Assigned numbers were chosen through a draw-lot method to maintain the randomness of the sample, although randomness of selection of respondents were not prerequisite for PLS-SEM. The data gathering instruments that were applied were adapted survey questionnaires from Al-Jabri & Sohail (2012). Questionnaires regarding RPA characteristics were also adapted from the characteristics identified by Anagnoste (2018).

Data Collection

First, we assumed that the accounting personnel in Tuguegarao City provided relevant insights and perceptions about the innovation characteristics or attributes that influenced acceptance and adoption of robotic process automation. Secondly, we assumed that there would be no revision on Philippines Accounting Standards and Philippine Financial Reporting Standard within the next 15 years involving automation on Finance and Accounting. Then, we also that RPA adoption is an innovation adoption.

A pre-testing for first 30 respondents was conducted to test the reliability of the questionnaire using the Cronbach's Alpha. Cronbach's alpha and all item results for each variable were: relative advantage (.76), trialability (.77), user-friendly- compatibility, complexity, and observability (.76), and the robotic process automation adoption (.75). The internal consistency of the research instruments supports the analyses of this research (Wessa 2019). Rogers (1995) described user-friendly as the opposite of complexity while Al-Jabri & Sohail (2012) associated compatibility on user-friendly innovation attributes, like in interface.

Tuguegarao City has produced CPAs over the past 5 years. In 2013, it gained fame when University of Saint Louis, Tuguegarao (USLT) produced another first placer in the CPA board examination with an average of 93.86%. According to the Bureau of Internal Revenue, there were 100 accredited tax accounting professionals composed of CPAs and non-CPAs rendering bookkeeping and accounting services within Cagayan and Isabela. The research participants were finance and accounting professionals, public practitioners and partners of accounting firms in Tuguegarao City. The respondents identified the applications of RPA in the survey such as in banks, credit and payments, balance sheet reconciliation, revenue recognition, variance analysis, cost allocations, journal entry, controls verification, inventory management, and amortization and depreciation. The assumptions before running PLS-SEM were made as suggested by Hair et al. (2019). Kaiser-Meyer-Olkin test (.74) and the sample size (n=100) was determined to be adequate

Analysis and Results

We adapted the 11 measurement items for the innovation adoption as the criterion (Al-Jabri & Sohail 2012). All variables were measured with 5-point Likert scale: 5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree, and were tested reliable. Baseline measurement items were listed in Table 1. Because of the improved internal consistency and inter-item correlation when compatibility, complexity, and observability were merged, user-friendly attributes measured the impacts of social and cultural values and belief, previously introduced ideas, fit, and easiness of use. We used SPSS software and SMART-PLS 3 for factor analysis and dimension reduction.

Table 1. Rotated Component Matrix and Variance Inflation Factor of Measurement Items

			Latent Variables			
Measurement Items	**Short Name**	**VIF**	**Adoption of RPA**	**Relative Advantage**	**Trialability**	**User-Friendly**
Adoption of RPA 2	A2	1.15	.86			
Adoption of RPA 9	A9	1.15	.78			
Relative Advantage 1	RAQ1	1.82		.97		
Relative Advantage 4	RAQ4	1.69		.73		
Relative Advantage 6	RAQ6	2.05		.76		
Trialability 1	TQ1	1.24			.78	
Trialability 3	TQ3	1.24			.90	
User-Friendly 1	UF1	1.17				.91
User-Friendly 2	UF2	1.17				.73

Note: Measurement items with <.70 factor loadings were suppressed (n=100)

After principal component analysis with varimax rotation(Table 1), Kaiser normalization, and suppression of components with less than .70 loadings, 3 measurement items for relative advantage, 2 for trialability, 2 for user-friendly, and 2 measurements items for adoption of RPA (dependent variable) were retained (Hair et al. 2019).

Descriptive Statistics

We focused on Certified Public Accountants (CPA) because they were directly involved in accounting functions and would be the users upon adoption of RPA. Majority of the research participants were from government agencies. Mean scores were based on a five-point Likert Scale where 1 was strongly disagree, 3-neither agree nor disagree, and 5 was strongly agree. Seventy-four of the respondents were male and 26% were female. Majority (89%) were single and 11 percent were married. Eighty-four percent were Bureau of Internal Revenue Officers while 16% were private accountants.

Out of 100 respondents, 62 recognized computer-aided tool and automated control verifications as current RPA with Microsoft, IBM, Oracle, and NAV as some of the suppliers. The 15 respondents identified enterprise resource planning RPA tools, software, and mechanisms in the reduction of accountants' routine tasks and cross-functional tasks, while 13 respondents mentioned programs for automation of accounting reports and print-out. However, 10 respondents have no idea about existing RPA but think of those available tools that replace human actions or manipulations outside their workplace such as software robots that were even assigned password to gain access of data and perform generate processed reports. The mean responses confidence levels were listed in Table 2.

Table 2. Descriptive Statistics of Independent and Dependent Variables (n=100).

Variables	**Mean**	**Standard Deviation**	**Mode**	**Confidence Level (95%) +-**
Relative Advantage	4.23	.46	3.85	.09
Trialability	4.31	.50	4.00	.09
User-friendly (Compatibility, Complexity, Observability)	4.26	.36	4.25	.07
RPA Adoption	4.42	.39	4.63	.07

The variance inflation factors (VIF) range (1.2-2.5) indicated no multicollinearity. This research provided indications of relationships between the determined innovation attributes (Rogers 1995) and adoption of RPA. The cross loadings are lower than correlations of items on latent construct, as seen in Table 3. As a non-parametric test, "no multicollinearity" was the assumption for PLS-SEM (Hair et al. 2019).

Table 3. Inter-item Correlation (n=100)

Measurement Items	Short Name	A2	A9	RAQ1	RAQ4	RAQ6	TQ1	TQ3	UF1	UF2
Adoption of RPA 2	A2	1								
Adoption of RPA 9	A9	**.67**	1							
Relative Advantage 1	RAQ1	.19	.18	1						
Relative Advantage 4	RAQ4	.15	.14	**.70**	1					
Relative Advantage 6	RAQ6	.15	.14	**.73**	.55	1				
Trialability 1	TQ1	.20	.19	.06	.04	.05	1			
Trialability 3	TQ3	.23	.21	.07	.05	.05	**.71**	1		
User-Friendly 1	UF1	.15	.14	.04	.03	.03	.05	.05	1	
User-Friendly 2	UF2	.12	.11	.03	.03	.03	.04	.04	**.67**	1

User-friendly (path coefficient, beta=.16) and relative advantage (path coefficient, beta=.20) showed aweak relationship to adoption of RPA. In contrast, trialability (path coefficient, beta=.27) showed significant relationship with adoption of RPA. As seen in Figure 2, the results of path analysis between the effects of relative advantage, trialability, and user-friendly have r^2=.16. The weak level is typical for research with limited literature such as this research. Although the value of the coefficient of determination (r^2) is weak, the innovation attributes of RPA adoption may indicate the opportunity to include more antecedents.

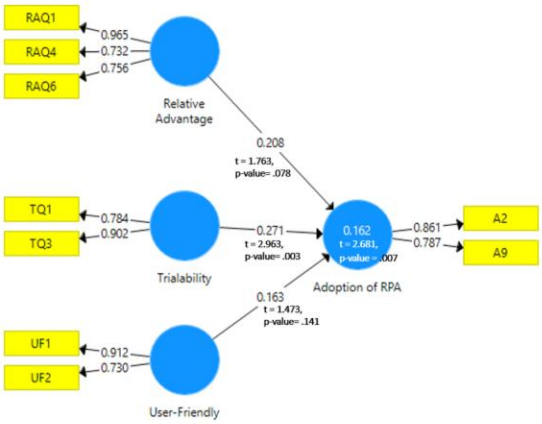

Figure 2. Structural Relationships between Relative Advantage, Trialability, and User-friendly Innovation Attributes of RPA Adoption
Source: Mappala and Pasco (2021)

Model Fit Measurement

The coefficient of determination (r^2=.16, t=2.68, p-value=.00) of the factors has small but significant explanatory power. The construct reliability and validity of the reflective model of the latent variables are

acceptable. Further, the Fornell Larcker criterion indicated discriminant validity given values of average variance extracted (AVE) were greater than the squared latent variable correlations. HTMT also confirmed discriminant validity. (Hair et al. 2019). There is also a relatively good model fit as indicated by standardized root mean square residual (SRMR=.10 close to .08), unweighted least squares discrepancy (dULS=.47 <UL of CI 95%), and geodesic distance (dG=.21 <UL CI 95%). We do not propose a final model given the small explanatory power that we measured but we emphasize the indications of influences of trialability attributes on the innovation adoption of RPA (SmartPLS 2016)

Our results indicates: Hypothesis 1 that there is significant relationship between relative advantage and robotic process automation is rejected as the path coefficient (*beta*=.20, *t*= 1.76, *p*= .08) in Figure 2 is weak. Hypothesis 2 that there is significant relationship between trialability and robotic process automation adoption is accepted, the path coefficient (*beta*=.27, *t*=2.96, *p*=.00) being statistically significant. Hypothesis 3 that there is significant relationship between user-friendly attributes and robotic process automation adoption is rejected (path coefficient (*beta*=.16, *t*=1.47, *p*=.14).

Discussions

We presented the discussions according to the research objectives. The respondents did not perceive RPA as better than other systems with the mingling of technology and accounting professionals created a fear due to changes in the work processes encountered. Microsoft office tools, together with manual tools, were dominantly used by respondents in executing their tasks, but respondents did not explore use of other open sources in big data management like in Hadoop, other software and programs. It was observed during the conduct of research that some CPAs did not participate in the study because they thought that RPA was not included in their line of expertise and function. They perceived RPA could be properly be answered by IT professionals.

There is no significant relationship between relative advantage and RPA adoption. The results are different with the study conducted by Lee et al. (2011), Stieninger & Nedbal (2014) and Al-Jabri & Sohail (2012) which stated that relative advantage has a positive effect on adoption of technological advancement and innovation. These mentioned studies focused on e-learning system, mobile banking, cloud-computing and precision agricultural technologies. Meanwhile, this result was affirmed by Mndzebele (2013) which stated that relative advantage was not a predictor of e-commerce adoption in the hotel industry. Cooper et al. (2021) is similar in asserting that majority of lower-level employees in accounting did not perceive the benefits of RPA for their job performance and career.

The results of this research showed that there is significant relationship between trialability and adoption of RPA. This result was similar with the research conducted by Lee et al. (2011), Stieninger & Nedbal (2014) confirmed that trialability affects RPA and was a preparation for further implementation. The findings of Burritt et al. (2019) matched the significant impact of trialability in adoption of innovative projects. Trialability is indeed a mandatory procedure for different companies who are adopting innovation and new technologies.

There is no significant relationship between user-friendly attributes and robotic process automation adoption. This result is different with the research of Lee et al. (2011), Stieninger & Nedbal (2014) and Al-Jabri & Sohail (2012 who explain that compatibility, complexity, and observability have significant relationships on the adoption of innovation. Majority of the accounting processes of the respondents were performed on a daily and monthly basis according to the respondents. Krumwiede (2016) suggested that the accounting processes that were commonly performed on monthly basis would have the opportunity for user-friendly, automated, and continuous accounting. In addition, since majority of respondents were from 22-24 years old. There would be no hindrance on the acceptance and adoption of new technology despite its complicated features and interface. Being clear, understandable, and fit with the way users gathered information at work, would be considered by companies on implementing RPA at

work. Although RPA's user-friendly attributes offer economic profitability, low initial cost, decrease in discomfort, social prestige, and savings of time and effort, respondents' exposure to different technologies have affected how they adopt RPA especially during test usage. Trialability is also the stronger predictor of the adoption of RPA.

Recommendations and Future Research Direction

From management perspective, the aim is to properly identify if the organization fits with the application of RPA. Examination of the organization's vision and mission must be done to align the strategy with the benefits of RPA in the company. RPA has high initial costs of implementation so management must properly identify the items for capital budgeting decision that needs proper evaluation. Once RPA is tested in the organization, managers need to establish a performance measure to critically assess RPA and operational flexibility. Also, RPA implementation has a possible effect on the employees. The perceptions of employees that they are replaced by hardware that works 24/7 may result to a dilemma within the organization. Management needs to properly conduct series of consultations, trials on use, and gathering of feedbacks from employees on how they perceive working together with RPA. Big data management and technologies other than application of Microsoft Office are opportunities in accounting. This research spurs new studies on the accounting profession's attitudes towards other new management movements.

Because RPA is only implemented by few large companies, further research on managers who plan to test RPA need to analyze users' acceptance. Because the study dwells only on the persuasion stage of the decision process model, of accountants who are mostly revenue officers, and mostly single in early to middle part of career, further research can advance the model on the upper management, with a well-defined RPA. It is worthwhile to ask accountants about their specific concerns about technology and their reasons for fear adoption and accountant's mindset or attitude in a qualitative research to uncover deeper contexts in a qualitative research. The moderating and mediating effects of other variables such as the influence of gender, age, income, and lifestyle on the readiness to adopt RPA are also areas for future research. The model can be tested further with a parametric test that satisfies strict statistical assumptions, and the variables can be expanded to other group of respondents from IT department and other relevant personnel, while using the latest theory of UTAUT or TAM as lens. Further research can also examine users' acceptance from different locations and across different industries to expand the context of this research. The measurement technology readiness of respondents is a research opportunity. While researchers develop artificial intelligence (AI), business intelligence (BI), cloud computing, digital accounting, and remote sensing, and other accounting software, this study dwells on the attributes of adoption of robotic process automation in accounting. With the unfamiliarity to modern RPA in accounting by the respondents, this research poses opportunities to establish specific RPA in accounting as focal point of future research.

Conclusions and Limitations

Users adopt RPA as an innovation if they experience the trialability attributes. Trialability is the most important innovation attribute that affects RPA in accounting that highlights a preliminary experience of the features, and easy to use capabilities of RPA. RPA in accounting is in its beginning stage and helps prevent spread of diseases through social distancing. Theorizing said benefits of trialability impacts adoption of RPA. Introduction of new accounting techniques ensures further advancement of RPA towards its adoption. Faced with large volume of transactions and big data, adoption of RPA in accounting is triggered by the unavailability of information, urgency of reports and managing data errors, and pandemics. Trialability influences alignment of RPA adoption on how users perform their accounting

processes while considering costs, risks, and returns. Testing ensures that accounting is being improved to cope with changing standards and frameworks while overcoming fear of the innovation adoption. RPA benefits accounting on data management and information gathering. To ensure RPA adoption in accounting, limited experiments to evaluate the experience on RPA must be well planned and implemented.

Trialability is the highest predictor of RPA adoption in accounting, as indicated in this research. Commercial research discussed that accounting would be perfect application of RPA because of the volume of transactions and big data needed to be processed in every accounting task. However, accountants' primary issue was on how they would gather information in a clear and understandable manner. This implied that RPA innovation adoption needed to focus on how to provide a "feel" for the respondents on the use of RPA before being adopted in the accounting processes. The moderating or mediating effects of other variables that included the influence of gender, age, income, and lifestyle on the readiness to adopt RPA were not tested in this research. Further, RPA should be adjusted on data management to compensate for the volume of transaction handled by the users. The contextual limitations were focused on the analyses of innovation characteristics of robotic process automation adoption. Research participants were limited to accounting professionals, public practitioners and accounting firms located in Tuguegarao City.

References

Al-Jabri I & Sohail M 2012. Mobile banking adoption: Application of diffusion of innovation theory. Journal of Electronic Commerce Research, 3(4), 379-391.

Anagnoste S 2017. Robotic Automation Process - The next major revolution in terms of back Office operations improvement. Proceedings of the 11th International Conference on Business Excellence, 676-686. https://doi.org/10.1515/picbe-2017-0072

Bagozzi RP 2007. The legacy of the Technology Acceptance Model and a proposal for paradigm shift. Journal of the Association of Information Systems, 8(4), 245-254.

Brains C, Willnat L, Manheim J & Rich R 2011. Empirical Political Analysis. Boston, MA: Longman.

Burritt RL, Herzig Z, Schaltegger S & Viere T 2019. Diffusion of environmental management accounting for cleaner production: Evidence from some case studies. Journal of Cleaner Production, 224, 479-491. https://doi.org/10.1016/j.jclepro.2019.03.227

Brussels I & Theyssens J 2017. RPA: The Automation of Automation. http://www.initio.eu

Boxall K & Ralph S 2009. Research ethics and the use of visual images in research with people with intellectual disability. Journal of Intellectual & Developmental Disability, 34(1), 45-54. https://doi.org/10.1080/13668250802688306

Cooper L, Holderness DK, Sorensen T & Wood DA 2020. Perceptions of robotic process automation in Big 4 public accounting firms: Do firm leaders and lower-level employees agree? https://doi.org/10.2139/ssrn.3445005

Gullkvist B 2011. Drivers of diffusion of digital accounting practice. In: Contributions to Accounting, Auditing and Internal Control. Essays in Honour of Professor TeijaLaitinen. ActaWasaensia, 234, 25–43. https://www.univaasa.fi/materiaali/pdf/isbn_978-952-476-333-2.pdf

Hai, JF, Black WC, Babin BJ & Anderson RE 2010. Multivariate Data Analysis. New Jersey: Prentice Hall.

Hair F, Risher JJ, Sarstedt M & Ringle CM 2019. When to use and How to report the results of PLS-SEM. European Business Review, 31(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Juntunen K 2018. Influence of contextual factors on the adoption process of Robotic process automation RPA. Master Programme in Industrial Management and Innovation, UPPSALA Universitet. http://www.diva-portal.org/smash/get/diva2:1223866/FULLTEXT01.pdf

Huang F & Vasarhelvi MA 2019. Applying robotic process automation (RPA) in auditing: A framework. International Journal of Accounting Information Systems, 35. https://doi.org/10.1016/j.accinf.2019.100433

Ivančić L, Vugec DS & Vukšić VB 2019. Robotic process automation: Systematic Literature Review. International Conference on Business Process Management, BPM 2019: Business Process Management: Blockchain and Central and Eastern Europe Forum, 280-295. https://doi.org/10.1007/978-3-030-30429-4_1

Kee KF 2017. Adoption and Diffusion, In Scott, C.R. and Lewis, L.K. (eds.), the International Encyclopedia of Organizational Communication. https://www.chapman.edu/research/ institutes-and-centers/leatherby-center/_files/researchoffice-photos/Adoption-and-Diffusion.pdf

Krumwiede K 2016. Process automation in finance and accounting. Institute of Management Accountants. https://imanet.org/insights-and-trends/technology-enablement/process-automation-in-accounting-and-finance?ssopc=1

Lee Y-H, Hsieh Y-C & Hsu C-N 2011. Adding innovation diffusion theory to the Technology Acceptance Model: Supporting employees' intentions to use e-learning systems. Educational Technology & Society, 14 (4), 124–137. https://www.researchgate.net/publication/220374023

Mndzebele N 2013. The effects of relative advantage, compatibility and complexity in the adoption of EC in the hotel industry. International Journal of Computer and Communication Engineering, 2(4), 473-476. https://doi.org/10.7763/IJCCE.2013.V2.229

Rogers EM 1995. Diffusion of innovations. New York: Free Press.

SmartPLS 2016. E-book on PLS-SEM. https://www.smartpls.com/documentation/getting-started/ebook-on-pls-sem

Stieninger M & Nedbal D 2014. Diffusion and acceptance of cloud computing in smes: Towards a valence model of relevant factors. 47th Hawaii International Conference on System Science. https://doi.org/10.1109/HICSS.2014.410

Straub E 2009. Understanding technology adoption: Theory and future directions for informal learning. Review of Educational Research, 79, 625–649. http://rer.sagepub.com/content/79/2/625

Venkatesh V 2016. Unified Theory of Acceptance and Use of Technology: A synthesis and the road ahead. Journal of the Association of Information Systems, 17 (5), 328-375.

Wessa P 2019. Free Statistics Software, Office for Research Development and Education. version 1.2.1. https://www.wessa.net

Yang G-Z, Tong SJ, Nelson BJ, Murphy RR, Closet H. Christensen H, Collins SH, Dario P, Goldberg K, Ikuta K, Jacobstein N, Krajic D, Taylor RH & McNutt M 2020. Combating COVID-19: The role of robotics in managing public health and infectious diseases. Science Robotics, 5, 1-2. https://doi.10.1126/scirobotics.abb5589

Yoon T, Ghosh B & Jeong B 2014. User acceptance of business intelligence (bi) application: technology, individual difference, social influence, and situational constraints. 47th Hawaii International Conference on System Science, 3758-3766. https://doi.org/10.1109/HICSS.2017.467

Yu C-S. 2012. Factors affecting individuals to adopt mobile banking: Empirical evidence from the UTAUT Model. Unpublished Paper. Department of Information Technology and Management. Shih Chien University. http://www.jecr.org/sites/default/files/13_3_p01_0.pdf

Zhanjing Z, Chen P-J & Lew AA 2020. From high-touch to high-tech: COVID-19 drives robotic adoption. Tourism Geographies. https://doi.org/10.1080/14616688.2020.1762118

Authors

Prince Joy T. Mappala (OrcID 0000-0002-4110-0863) is a Certified Public Accountant. He has a Master in Business Administration degree from San Beda University. He also graduated from Saint Paul University Philippines-Tuguegarao. He has a few years of professional experience in Management Consultancy and Taxation. He is currently working at Bureau of Internal Revenue. He is also a part-time accounting instructor handling financial management and management advisory services. Mr. Mappala can be contacted at princemappala@gmail.com

Dr. Michael B. Pasco (OrcID 0000-0001-9147-1729) is a Professor at the Graduate School of Business, San Beda University, Manila, the Philippines. Along with his various research related to management innovation, he teaches strategic management and human behavior in organization at undergraduate levels, and managerial statistics, and advanced statistics at the graduate levels. He is a licensed veterinarian and an Animal Premix Business Director of a US global company subsidiary in the Philippines. Dr. Pasco can be contacted at mpasco@sanbeda.edu.ph

.