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Task-Technology Fit and ICT Use in Remote Work Practice During the COVID-19 Pandemic

Jean Robert Kala Kamdjoug, ESSCA School of Management, France
https://orcid.org/0000-0002-5734-5902

Paule Bridelle Tchatat Tchana, Catholic University of Central Africa, Cameroon
https://orcid.org/0009-0005-1135-4829

Samuel Fosso Wamba, TBS Business School, France
https://orcid.org/0000-0002-1073-058X

Arielle Ornela Ndassi Teutio, Catholic University of Central Africa, Cameroon*
https://orcid.org/0000-0003-2248-2453

ABSTRACT

This study examines the use of information and communications technology (ICT) in remote work practice during the COVID-19 pandemic by integrating task-technology fit theory and the post-acceptance model of IS continuance into a research framework. In addition, it operationalizes the technological characteristics of TTF (task-technology fit) with the technology acceptance model (TAM) and the diffusion of innovation (DOI) theory. The methodology to test the research model takes support from the partial least squares structural equation modeling (PLS-SEM) method using a sample of 320 employees. The results show that TAM significantly explains TTF. Furthermore, there is a positive impact of ICT use on individual and organizational performance. User satisfaction has the most significant effect on individual performance, organizational performance, and IS continuance intention. The authors provide some managerial implications for addressing the challenges of remote work related to ICT disruptions for the post-COVID-19 period.

KEYWORDS

COVID-19, ICT, IS Continuance, Performance, Remote Work, TTF, User Satisfaction

INTRODUCTION

Coronavirus Disease 2019, known as "COVID-19", took the world on an unprecedented journey. In a short time, the outbreak, initially localized in Wuhan, China, became a pandemic with a high human cost. By the end of 2020, the World Health Organization (WHO) data reported over 1.7 million deaths and more than 79 million confirmed positive cases worldwide since the start of the pandemic (WHO, 2020). Many countries experienced economic and non-economic disruptions that led to undesirable lifestyle changes (Ahir et al., 2020). The increase in COVID-19 incidents worldwide necessitated the

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implementation of immediate and appropriate countermeasures to limit the negative impact of the virus (Chamola et al., 2020). Beyond the health countermeasures, numerous reforms have been implemented in various sectors. Digital transition and technological disruption have assumed a significant role (Golinelli et al., 2020). The digitalization of organizations is a new phenomenon that is receiving increased attention in research and practice mainly around the contemporary concept of "digital transformation." This concept refers to a large-scale change fundamentally impacting how an organization uses information and communication technologies (ICT) to conduct business, create value, and respond to evolving business and market demands (Madsen et al., 2020). Indeed, the COVID-19 pandemic has had a significant impact on organizations around the world and, consequently, on workforce activities. The workplace is undergoing a profound transformation driven by ICT. The characteristics of this transformation include: 1) digitization of work processes, 2) flexibility of organizational structures, and 3) development of new skills. The COVID-19 crisis has amplified and accelerated these changes (Hannart & Weissbrodt, 2021).

Many organizations have opted for remote work and have modified their internal processes to adapt to sudden changes without sacrificing efficiency. In this study, we focus on the contribution of ICT to the practice of remote work during the COVID-19 pandemic. The question, then, is how the ICT implemented by organizations for remote work during the COVID-19 crisis affected employees. To answer this research question, we examine the technical characteristics and operational aspects of tasks by exploring the Task-Technology Fit (TTF) theory (Goodhue & Thompson, 1995). To deepen our understanding of this theory in our study context, we operationalize the technology characteristics by integrating the Technology Acceptance Model (TAM) for its perceived usefulness and perceived ease of use constructs (Davis, 1989) and the Diffusion of Innovation (DOI) theory for its relative advantage and complexity constructs (Rogers, 1995). In addition, we measure performance at the individual and organizational levels. To extend the relevance of TTF, we combine the post-acceptance model of information systems (IS) continuance by examining user satisfaction and IS continuance intention.

Technology adoption has become a concern for many employees, who are not always sure how to adapt to a new work environment where ICT is essential. Uncertainty about new technologies for some employees is akin to taking a leap in the dark, particularly concerning digital features that can facilitate their daily work. Workers' attitudes toward ICT in the context of remote work is a relevant topic, yet the theoretical literature providing clear explanations for such behavior in the wake of the COVID-19 pandemic is not exhaustive. Thus, this research holds interest on three levels: scientific, managerial, and socio-economic. At the scientific level, we use a model that allows us to analyze the influence of ICT on employees' activities by combining the models based on the adoption and use of ICT that affects performance. The advantage of our study over the existing literature lies in its additional contribution to demonstrating the usefulness of information technology (IT) during a health crisis. In terms of managerial interest, we provide some recommendations that will help workers adapt to new technologies in times of crisis while turning this change into a real force for improving organizational and individual performance. Our study follows the current trend at the socio-economic level by providing solutions to address the economic challenges during the COVID-19 pandemic. A starting point in this regard is the contribution of ICT to the development or emergence of some countries.

The remainder of this article is composed of seven sections. Section 2 develops the literature review and theoretical background. Section 3 presents the theoretical framework and hypotheses development. Section 4 deals with the research methodology. Section 5 presents the results obtained. Section 6 proceeds to the discussions. Section 7 provides implications of the results. Finally, Section 8 concludes this study.

LITERATURE REVIEW AND THEORETICAL BACKGROUND

Digitalization as a Solution During the COVID-19 Pandemic

ICT in the workplace has become commonplace, with remote work gaining momentum and becoming an integral part of a company's evolving system. Individuals have found their daily work profoundly

modified by ICT. The health crisis has underscored related concepts such as virtual work, which were known but somewhat overlooked. The high number of COVID-19 cases worldwide has prompted governments to implement protective measures, such as social distancing and advocating for remote work supported by ICT, to counter the spread of the pandemic. The extreme urgency in the diversification of technological innovations has brought to the fore the positive contributions of technologies to the professional environment. The implications of these digital technologies can maintain or even increase business performance and enhance employees' skills and competencies to cope with the digital world. The integration of ICT into everyday work has become increasingly necessary over the years.

The literature shows that responses to the crisis have led to significant changes for companies, organizations, and their employees. Many technologies for remote work and pandemic tracking have emerged. The pandemic is causing firms to experience new management, collaboration, and communication practices, and new professional relationships. As a result, the healthcare sector has responded to the COVID-19 pandemic by rapidly adopting digital solutions and advanced technological tools. Many of these implemented solutions may soon consolidate, thereby contributing to the development of new, digitally based care models (Golinelli et al., 2020). A study examines the relationship between SMEs' digitalization and their public crisis responses. This study shows that digitalization has enabled SMEs to respond effectively to public crises using their dynamic capabilities. Moreover, digitalization can help improve SMEs' performance (Guo et al., 2020).

Additionally, scholars highlight the strength of five technologies that have contributed enormously to containing this pandemic: deep learning applications to detect COVID-19 symptoms, AI-based robots to maintain social distancing, blockchain technology to keep patient records, mathematical modeling to predict and assess the situation, and big data to track the spread of the virus and other technologies (Ahir et al., 2020). Studies on the relationship between ICT and productivity show a connection between the virtual organization —an alliance of individuals, business units or companies where all members are situated in different geographic locations, using various technology to communicate and work together—and ICT, which influences employees in terms of stress, and work pressure. The consequences for the organization come through the culture of urgency and the modification of traditional hierarchical structure circuits (Ngoungo, 2021). In the learning context, a study tried to understand how technology managed learning during the early stages of the pandemic and how students and teachers experienced this sudden change. The results of this study indicate that the adoption of distance learning technologies during the pandemic significantly impacted the educational process, ICT use, and personal adaptation (Oliveira et al., 2021). Some studies have investigated the potential of ICT-supported home-based work arrangements to reshape rural employment opportunities. Findings suggest that transitioning to ICT-supported remote working arrangements could open up diverse employment opportunities for individuals in rural areas. Moreover, it will also help to address the persistent digital divide (Davies, 2021). The implementation of home-based work has changed the orientation of workplaces in India in terms of mapping changes in workplaces, identifying the use of ICT for remote work, and analyzing work systems in future cities. The concept of home-based work is highly recommended for the management of large cities. The use of ICT has been paramount in the implementation of home-based work (Rachmawati et al., 2021). Various online platforms for recruitment and selection of personnel have proven to be important to the challenges faced by organizations in using ICT during the pandemic (Jalagat & Aquino, 2022).

Digitization has increasingly impacted organizational transformation during the COVID-19 crisis. The literature shows us that this pandemic provides new opportunities for online education, remote work, e-commerce, digital currencies, artificial intelligence–based services, cloud computing, blockchain, and the Internet of Things (Chamola et al., 2020). In this study, we focus on remote work. Recent research has demonstrated that remote work is, undoubtedly, the hybrid work model of the future. Many remote workers have stated that they will continue to telework in the future. Based on this trend, this study aims to understand how ICT has contributed to job activities during remote work by examining the task-technology fit.

Theoretical Background

The main theoretical foundation of this study supports the Task-Technology Fit (TTF) theory. This theory argues that the use of information systems (IS) and the resulting performance outcomes are effective when there is a fit between the characteristics of the IS and the tasks that must be performed (Goodhue & Thompson, 1995). TTF continues to be widely used in IS research to understand information technology use and its consequences in the workplace. Discussions on TTF have been relevant at several levels of analysis, both at the organizational and individual levels. Indeed, TTF refers to "the extent to which a technology assists an individual in performing his or her portfolio of tasks" (Goodhue & Thompson, 1995, p. 216). It is "the user perceptions of the fit of systems and services they use based on their personal task needs" (Pendharkar et al., 2001, p. 84).

Research on TTF has been applied across various contexts, with education being the most frequently evaluated area, followed by social media, and business (Hidayat et al., 2021). The circumscribed nature of the research on TTF leads us to explore the task-technology fit in a crisis context such as the COVID-19 pandemic vis-à-vis the organization of remote work by diverse employees. As such, TTF will provide a comprehensive understanding of the value of IS and its implications for performance in times of crisis.

The literature reveals different approaches to operationalizing task-technology fit. Some authors choose to measure task-technology fit directly, while others attribute measures of other variables to it (Furneaux, 2012). Thus, the further advantage of TTF is that this theory offers a possibility to incorporate task- and IS-level constructs. As such, TTF provides a solid foundation for operationalizing its central purpose. The researcher then needs to pay attention to the context of the study and focus on the coherence between IS capabilities and the tasks to be performed (Furneaux, 2012).

Previous literature has linked TTF theory and the Technology Acceptance Model (TAM) constructs (Davis, 1989) of perceived usefulness and perceived ease of use (Wu & Chen, 2017; Pal & Patra, 2021). The literature demonstrates the academic strength of combining the constructs of these two theories (Dishaw & Strong, 1999; Goodhue et al., 2006). The integration of TAM with TTF provides an adequate understanding of how the functionality and use of an information system meets the perceived needs of users. However, it is equally important to understand how technology relates to individual expectations in our study context. Given the sudden changes that the COVID-19 pandemic brought to work practices, workers may have perceived different values for diverse technology features. Therefore, integrating the Diffusion of Innovation (DOI) theory with TTF is relevant to explore how change affects the perceived value of IS (Kim, 2009; Kim & Ammeter, 2014). This theory focuses on five constructs: relative advantage, compatibility, complexity, observability, and trialability. One advantage of the DOI is its ability to examine the specific characteristics of innovation that drive technology adoption (Rogers, 1995). To better understand this specificity offered by the DOI, we examine the fit between the characteristics of the innovation and the tasks for technology use. Further, to improve our understanding of how TTF leads to individual and organizational performance benefits during the COVID-19 crisis, we pay more attention to the capabilities than to the task-technology fit of fostering continuity of IS use. The post-acceptance model of IS continuance fits this pattern (Bhattacherjee, 2001).

The post-acceptance model aims to explain users' intentions to continue using a given IS. The model is supported by expectancy-confirmation theory (Oliver, 1980), which focuses on cognitive beliefs and factors that influence intention to continue. The model posits that after using the technology, users form an opinion about the benefits of the IS they have used. The degree of expectancy confirmation and perceived usefulness are the antecedents of perceived satisfaction. Thus, perceived usefulness and satisfaction impact the intention to continue using the IS (Bhattacherjee, 2001).

The existing literature on the contribution of TTF to the knowledge of remote work during the COVID-19 crisis has demonstrated that task-technology fit positively influences job performance, satisfaction, and intention to continue using technology. TTF is an essential factor that drives the organizational commitment of mobile workers (Robberts et al., 2020). In addition, the study of the relationship between ICT use and job performance during the COVID-19 pandemic reveals

that high task-technology fit directly and indirectly influences individuals' job performance. Also, individuals are less likely to experience loneliness while working from home and are more likely to perform better in their work-related tasks (Abelsen et al., 2021). Drawing upon TTF theory and information system success models (ISSM), a study aiming to identify the critical factors of enterprise social networks continually shows that TTF, performance expectancy, and satisfaction significantly influence the continuous usage intention of enterprise social networks (Wu & Tian, 2021). Some studies examining individuals' intention to use smart home offices for remote work have found that TTF, service relevance, attitude toward smart homes, innovativeness, hedonic beliefs, usefulness, ease of use, and control over environmental conditions correlate with perceived well-being. The intention to work from smart home offices depends on this perceived well-being (Marikyan et al., 2021). Furthermore, the analysis of the adoption of augmented reality technology in education (settings from a developing country context) reveals that TTF, performance and effort expectancy, social influence, facilitating conditions, and hedonic motivation impact behavioral intention in the adoption process of augmented reality in educational settings (Faqih & Jaradat, 2021). Finally, the comparison between the continuance intention of full-time business school students and faculty in India and Italy shows that perceived usefulness, satisfaction, and task-technology fit significantly impact the continuance intention of students and faculty. TTF drives Italian students more than Indian students in their continuance intention. Italian faculty are more inclined to combine digital classroom technology with a portfolio of related tasks (Chauhan et al., 2022).

TTF provides a comprehensive understanding of the contours of the contribution of ICT to remote work during COVID-19. However, most studies have utilized a direct measure of task-technology fit. As such, our comprehension of the task-technology factors that underpin TTF among remote workers during the COVID-19 pandemic, and how this fit contributes to ICT use affecting organizational and individual performance, remains unclear. To address this gap, we operationalize the TTF by measuring other variables. The following section presents the theoretical framework designed and the hypotheses development.

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

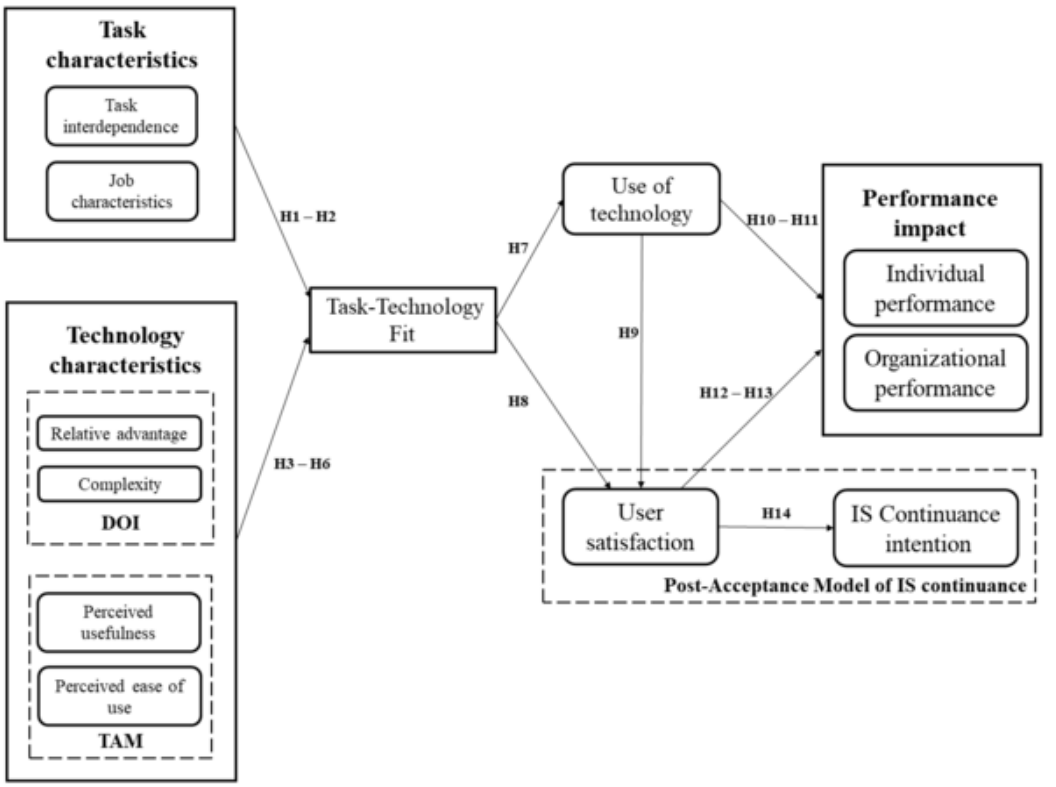
This study sets out to identify the factors that influence task-technology fit and to evaluate the perceived impact of technology use on user satisfaction and individual and organizational performance. The TTF, which is central here and was first mobilized in management science, has become prominent in information systems. In particular, it is used to develop indicators of system design quality. TAM specifies the causes of the relationship between different information systems. These include perceived usefulness, perceived ease of use, consumer attitude, and usage behavior. We emphasize in this study that TAM and TTF provide a comprehensive understanding of the contours of the contributions of ICT to remote employee workers during the COVID-19 period. Thus, in order to better discern the technology characteristics, we propose two main factors from TAM: perceived usefulness and perceived ease of use.

Alternatively, we amalgamate specific IS features like relative advantage and complexity, as advocated by DOI, to understand to what extent users perceive the ICT to meet their needs. Also, we operationalize task characteristics according to task interdependence and job characteristics (Goodhue & Thompson, 1995). We also postulate that task-technology fit during the COVID-19 pandemic positively influences the use of technology. Furthermore, this use positively impacts individual and organizational performance. Lastly, we propose that TTF positively affects user satisfaction, which in turn influences IS continuance intention. Figure 1 shows the theoretical framework.

Task Characteristics and TTF

The TTF theory suggests that task interdependence and job characteristics positively influence task-technology fit (Goodhue, 1995). Prioritizing areas for ICT use necessitates identifying individuals who have the opportunity to utilize this new technology. In line with the concept of task-technology fit, the characteristics of an employee's task, including the interdependence with such a task, must

Figure 1. Research model



be considered (Gebauer & Shaw, 2004). Task interdependence refers to the circumstance in which an employee's tasks are reliant on other business functions, necessitating the identification, access, and integration of data or information from various systems. This fact influences the perception of the reliability and compatibility of the system (Goodhue & Thompson, 1995). Job characteristics here refer to non-routine tasks, or the extent to which an employee does not regularly perform a task (Goodhue & Thompson, 1995). These two factors, which relate to tasks and job roles, are critical for IT adoption. During the COVID-19 crisis, many companies had to embrace remote work as an emergency solution. Both the work habits of employees and the organizational structure of companies should change to adapt to the new context. Thus, task and job characteristics become essential aspects for the efficient use of ICT to ensure their companies' missions. We, therefore, hypothesize the following:

H1: Task interdependence has a positive influence on Task-Technology Fit.
H2: Job characteristics have a positive influence on Task-Technology Fit.

DOI and TTF

Relative advantage refers to the extent to which ICT is perceived to be better than the usual way of working. Complexity refers to the extent to which ICT is perceived as relatively difficult to use and understand (Rogers, 1995). Diffusion of innovation, represented here by complexity and relative advantage, is vital for IT adoption and use. In the context of COVID-19, the suddenness of events has forced companies to urgently implement remote working solutions to ensure business continuity. This context differs from what we know about the DOI, where the changes are more spread out over

time and rely on a specific organizational maturation. However, the aim here is to verify whether the change of context significantly affects the following hypotheses:

H3: Relative advantage has a positive influence on Task-Technology Fit.
H4: Complexity has a negative influence on Task-Technology Fit.

Perceived Usefulness, Perceived Ease of Use, and TTF

TAM, one of the most famous IT adoption models, highlights that perceived usefulness and perceived ease of use are two critical determinants of information technology adoption (Davis, 1989). Perceived usefulness refers to the belief of individuals that using a particular system would improve their job performance (Davis, 1989). Perceived ease of use is the extent to which an individual believes it is easy to use a product or service (Davis, 1989). In other words, it is the degree to which a person believes using a system would be effortless (Venkatesh et al., 2003). Even though the need to use ICT has taken on a constraining character during the COVID-19 pandemic, feelings of ease of use and usefulness may prove significant for employee performance and post-COVID-19 use. Therefore, we hypothesize the following:

H5: Perceived usefulness has a positive influence on Task-Technology Fit.
H6: Perceived ease of use has a positive influence on Task-Technology Fit.

TTF, Use of Technology, and User Satisfaction

Task-Technology Fit has positively influenced the use of technology (Goodhue, 1995). "Usage" refers to how remote workers have integrated ICT to accomplish different tasks. To measure this, we rely on frequency of use. Indeed, Goodhue (1995) mentioned that usage should ideally be measured as the proportion of times users choose to engage with systems. The TTF of the technological resources implemented during the COVID-19 period constitutes a lever for using ICT for remote work. It is also essential to increase the satisfaction of employees, who are able to perform their professional tasks with at least the same level of efficiency as if they were on-site in the company. We make the following assumptions:

H7: Task-Technology Fit has a positive influence on use of technology.
H8: Task-Technology Fit has a positive influence on user satisfaction.

Use of Technology and User Satisfaction

Obviously, a good experience using technology will lead to satisfaction. This implies that a remote worker whose job requirements are effectively met through ICT use is likely to experience satisfaction (Isaac et al., 2017). Based on this, we hypothesize the following:

H9: Use of technology has a positive influence on user satisfaction.

Use of Technology and Performance Impact

According to TTF, the use of technology positively impacts performance. Trice and Treacy (1988) consider technology use as one of the necessary conditions for technologies to achieve results. A high level of performance implies a good combination of IS effectiveness and efficiency in task execution. Individual performance is the extent to which ICT has improved employees' productivity, knowledge, and work capabilities (Diamantidis & Chatzoglou, 2019) during the COVID-19 period. Organizational performance represents the ability of the firm to organize and structure itself to improve

its operational management through ICT (Gupta et al., 2020) during the COVID-19 pandemic. We propose the following hypotheses:

H10: Use of technology has a positive impact on individual performance.
H11: Use of technology has a positive impact on organizational performance.

User Satisfaction, Performance Impact, and IS Continuance

User satisfaction is the critical factor for the success of an IS (DeLone & McLean, 2003). Therefore, the more satisfied an employee is with the implemented ICT, the greater the impact on individual and organizational performance. Assume that the effectiveness of the ICT employed during the pandemic creates a conducive environment for task execution, decision-making, and successful interaction between management and IS. In such a scenario, performance improvements are likely to be observed (DeLone & McLean, 2016). IS continuance intention refers to post-adoption behavior (Zhang et al., 2021). In developing the post-acceptance model of IS continuance, Bhattacherjee (2001) points out that user satisfaction is a strong predictor of the continuance intention to use an IS. From this standpoint, if remote workers have found satisfaction in using ICTs during the COVID-19 pandemic, they might be inclined to continue using them in the future. Consequently, we propose the following hypotheses:

H12: User satisfaction has a positive impact on individual performance.
H13: User satisfaction has a positive impact on organizational performance.
H14: User satisfaction has a positive impact on IS continuance intention.

RESEARCH METHODOLOGY

Research Design and Data Collection

Following a thorough review of existing literature, we developed a research model. This model aims to explore the implications of ICT for remote workers during the COVID-19 pandemic, particularly in terms of task-technology fit and the subsequent impact on individual and organizational performance, satisfaction, and IS continuance intention. We identified measurement items related to each construct in the literature to measure the 12 constructs of the research model. These items use a 7-point Likert scale ranging from "strongly disagree" to "strongly agree" (Boone & Boone, 2012). A list of the items along with their respective sources is provided in Table 2. We first drafted the questionnaire in Microsoft Word to facilitate text processing. Afterward, we printed the questionnaire and distributed it to a sample of 12 master's degree students to conduct the pre-test. The pre-test phase, an essential step in designing a questionnaire, ensures understandability, coherence, and absence of ambiguity in the measurement items (Taherdoost, 2019). At the end of this phase, the students reported strong accuracy of understanding for our questionnaire. In order to facilitate data collection through digital tools, we designed the questionnaire on the Google Forms platform. Our questionnaire targets knowledge workers, who produce information for managerial decision-making daily. These individuals belong to organizations that have transitioned to remote work and implemented ICT to facilitate operations amid the COVID-19 crisis. To determine the minimum sample size to ensure the relevant assessment of the research model, we used GPower 3.1.9.2 software, which is particularity efficient to calculate the statistical power for various statistical tests (Schoemann et al., 2017; Kang, 2015). Therefore, with a total of 12 predictors, a probability of error $\alpha = 0.05$, an effect power $(1 - \beta) = 0.80$, and an effect size of $f^2 = 0.15$, the minimum sample size obtained is 127 responses.

Prior to collecting data, we confirmed the reliability and validity of the construct measurement items through a pilot test involving a sample of 35 responses from our target population (Hair Jr. et al., 2014). To most efficiently reach our target population during the containment period, we shared

the link to the questionnaire through social networks such as LinkedIn, WhatsApp, and Facebook. In addition, to reassure respondents, the questionnaire included a notice explaining the purpose of the study, anonymity, and confidentiality of the data collected. We did not limit the geographic scope of the study, and our targets were able to respond regardless of where they lived. Data collection was conducted from June to August 2021. At the end of data collection, we received 320 valid responses.

Descriptive Statistics of the Sample

The collected data sample includes respondents from six African countries: South Africa (3.05%), Cameroon (32.01%), Ivory Coast (7.32%), Mali (7.93%), Nigeria (3.96%), and Senegal (10.06%). It also features responses from five non-African countries: Germany (3.96%), Canada (6.71%), France (17.99%), Romania (4.27%), and the United States (2.74%). Out of the 320 respondents in the sample, 210 were based in Africa, while 110 were located outside Africa. Table 1 shows that according to the gender criterion, 68% were men and 32% were women. 52% were between 20 and 30 years old, and 67% had a master's degree. The distribution of the sample in terms of work experience shows a large majority of individuals in the interval between one and six years, with a share of 76%. The experience of the employees ranges from one year to "number of years in the company," with most of them having spent between one and three years in their respective companies.

Common Method Bias (CMB)

Common Method Bias (CMB) is derived from Harman's single-factor test (Podsakoff et al., 2003). The analysis revealed that the first factor accounted for 30.984% of the variance, which is below the threshold value of 50%. In addition, the full collinearity test was performed to complete the limitations of Podsakoff et al. (2003). Kock (2015) showed that when the VIF (variance inflation factor) values of the latent constructs are greater than 3.3, it indicates pathological collinearity and contamination of the model by the CMB. After analysis, the test revealed that all the VIF values of the latent variables are less than 3.3. Hence, these tests confirm the absence of CMB in the collected data.

Data Analysis

Data analysis was performed using the partial least squares structural equation modeling (PLS-SEM) method with SmartPLS 4 software (Ringle et al., 2022). This method is widely used in information systems and organizational behavior research (Hair Jr. et al., 2014; Khan et al., 2019; Ndassi Teutio et al., 2021) and is highly relevant for complex causal relationships. Determining the relevance of the results involves two steps (Hair Jr. et al., 2020). In the first step, the measurement model is evaluated to confirm the reliability and validity of the constructs. This step relies on four key measures: Cronbach's alpha, composite reliability, Rho_A, and average variance extracted (AVE). The recommended values for Cronbach's alpha, composite reliability, and Rho_A are between 0.70 and 0.95 (Hair et al., 2019). In addition, the AVE must be greater than or equal to 0.5. The analysis of measurement model reliability takes into account the outer loading of the items and the outer variable inflation factor (VIF). The outer loading should exceed 0.7, while the outer VIF should be under 5 (Hair et al., 2019). The Fornell-Larcker criterion is used to assess discriminant validity. The second step evaluates the structural model, which provides information on the validity of the relationships between constructs (Hair et al., 2019). We used the R^2 of the constructs, where the explanation of a construct is considered viable if it has an R^2 greater than 0.1 (Hair et al., 2019). Bootstrapping was used to validate the hypotheses by considering a p-value of less than 0.1.

RESULTS

Reflective Measurement Model Assessment

The objective in this section is to evaluate the measurement model. This first step aims to assess the consistency and validity of the items measuring the constructs. The examination is based on

Table 1. Demographic profile of respondents

Profile	Description	Frequency	Percentage
Gender	Man	217	68%
	Woman	103	32%
	Total	320	100%
Age	20 – 30	165	52%
	31 – 40	139	43%
	41 – 50	12	4%
	Older than 50	4	1%
	Total	320	100%
Education level	< Bachelor's degree	10	3%
	Bachelor's degree	69	22%
	Master's degree	213	67%
	PhD	28	9%
	Total	320	100%
Company's years of activity	Less than 1 year	15	5%
	1 – 3	48	15%
	4 – 5	79	25%
	6 – 8	44	14%
	9 – 10	22	7%
	More than 10	112	35%
	Total	320	100%
Number of working years in the company	Less than1 year	48	15%
	1-3	149	47%
	4 – 6	92	29%
	7 – 10	16	5%
	11 – 15	11	3%
	More than 15	4	1%
	Total	320	100%
Working sector of company's activity	Digital and telecommunications	45	14%
	Chemistry	7	2%
	Banking and insurance	31	10%
	Consulting	30	9%
	Agrobusiness and brewery	12	4%
	Transport and logistics	3	1%
	Public administration	21	7%
	Commerce, trade, and distribution	14	4%
	Health	27	8%
	Other	130	41%
	Total	320	100%

the assessment of different indicators. Outer loadings serve as indicators of the reliability of the measurement items. Values greater than or equal to 0.7 are considered satisfactory (Hair Jr. et al., 2014; Hair Jr. et al., 2016). Cronbach's alpha (α), Rho_A, and composite reliability (CR) assess internal consistency. Their values will be greater than or equal to 0.7 and close to 0.95 (Hair et al., 2019). AVE measures the amount of variance captured by a construct versus the amount of variance due to measurement error—the recommended value is greater than or equal to 0.50 (Hair et al., 2019). We assessed the discriminant validity, which denotes the extent to which the constructs are empirically distinct, using the Fornell-Larcker criterion, which suggests that the square root of the AVE must be greater than all the values located below them and to its left (Fornell & Larcker, 1981).

Table 2 demonstrates that the outer loadings of the measurement items exceed 0.7. Nevertheless, we retained items IMO4 and IMO5 due to their values nearing 0.7, which doesn't compromise the reliability of their construct. To improve the convergent and discriminant validity, we excluded the items AVR3, AVR4, CIT3, CIT4, CAJ1, COM4, PEOU2, INT2, INT3, SAU2 and UT2. The internal

Table 2. Construct's reliability and validity/outer loadings/outer VIF

Constructs and Measurement Items	Outer Loading	Outer VIF
Relative advantage (Venkatesh et al., 2003). α = 0.841, Rho_A = 0.846, CR = 0.926, AVE = 0.862		
AVR1: The use of ICT during the COVID-19 pandemic allows me to complete tasks faster than the usual way of working.	0.935	2.108
AVR2: The use of ICT improves the quality of my work during the COVID-19 pandemic compared to the usual way of working.	0.922	2.108
IS continuance intention (Tseng, 2015). α = 0.837, Rho_A = 0.845, CR = 0.924, AVE = 0.859		
CIT1: I will continue to use ICT for professional purposes even after the COVID-19 crisis.	0.918	2.074
CIT2: I will continue to use ICT to manage the company's needs, even after the COVID-19 crisis.	0.936	2.074
Job characteristics (Goodhue & Thompson, 1995). α = 0.685, Rho _A = 0.718, CR = 0.862, AVE = 0.758		
CAJ2: In my job, I frequently deal with problems related to specific areas.	0.906	1.373
CAJ3: In my job, I frequently deal with new problems.	0.834	1.373
Complexity (Venkatesh et al., 2003). α = 0.833, Rho_A = 0.724, CR = 0.862, AVE = 0.678		
COM1: The use of ICT during the COVID-19 pandemic is slowing down my job duties.	0.943	1.782
COM2: Working with the ICTs set up during the COVID-19 pandemic is complicated.	0.738	2.513
COM3: The use of ICT implemented during the COVID-19 pandemic requires too much time in technical operations.	0.774	1.965
Task-Technology Fit (Goodhue & Thompson, 1995). α = 0.809, Rho_A = 0.821, CR = 0.874, AVE = 0.634		
TTF1: During the COVID-19 pandemic, I can count on ICT to be operational and available when I need it.	0.847	2.861
TTF2: During the COVID-19 pandemic, I can count on ICT to be operational and available no matter where I am.	0.814	2.771
TTF3: My work is made easier by ICT because it is not subject to unexpected or annoying downtime.	0.780	2.525
TTF4: My work is efficient and effective thanks to ICT because it is not subject to frequent problems and breakdowns.	0.741	2.417
Perceived ease of use (Ali et al., 2018). α = 0.737, Rho_A = 0.744, CR = 0.850, AVE = 0.654		

continued on the following page

Table 3. Continued

Constructs and Measurement Items	Outer Loading	Outer VIF
PEOU1: It's easy to learn how to use the ICT I need for my job during the COVID-19 pandemic.	0.771	1.491
PEOU3: It is easy for me to become proficient in using ICT services for knowledge management during the COVID-19 pandemic.	0.811	1.367
PEOU4: My interaction with ICT during the COVID-19 pandemic is clear and understandable.	0.842	1.718
Individual performance. (Sirsat & Sirsat, 2016). α = 0.892, Rho_A = 0.894, CR = 0.920, AVE = 0.699		
IMI1: The company's IT environment during the COVID-19 pandemic has a significant and positive impact on my efficiency and productivity in my work.	0.788	2.577
IMI2: The company's IT and services are an important and valuable aid to my work during COVID-19.	0.830	2.868
IMI3: ICT helps to find innovative ideas for my work during the COVID-19 pandemic.	0.857	2.652
IMI4: ICT provides new knowledge during the COVID-19 pandemic.	0.859	2.943
IMI5: ICT facilitates learning related to my function during the COVID-19 pandemic.	0.843	2.959
Organizational performance (Sirsat & Sirsat, 2016). α = 0.835, Rho_A = 0.859, CR = 0.882, AVE = 0.600		
IMO1: ICT helps the company accomplish tasks faster during the COVID-19 pandemic.	0.839	2.135
IMO2: ICT enables staff to accomplish their missions more easily during the COVID-19 pandemic.	0.863	2.327
IMO3: ICT established during the COVID-19 pandemic is instrumental in acquiring new knowledge.	0.774	1.625
IMO4: The use of ICT improves communication among employees during the COVID-19 pandemic.	0.695	1.827
IMO5: The use of ICT improves communication between employees and customers during the COVID-19 pandemic.	0.687	1.793
Task interdependence (Goodhue & Thompson, 1995). α = 0.518, Rho_A = 0.591, CR = 0.798, AVE = 0.666		
INT1: In my job, the problems I deal with involve more work than those normally attributed to my professional function.	0.722	1.139
INT4: In my job, the problems I usually deal with sometimes involve the help of staff from another function.	0.901	1.139
User satisfaction (Isaac et al., 2017). α = 0.836, Rho_A = 0.838, CR = 0.901, AVE = 0.753		
SAU1: My decision to use ICT to deal with the COVID-19 pandemic was a wise one.	0.834	1.817
SAU3: Overall I am satisfied with the ICT implemented during the COVID-19 pandemic.	0.905	2.484
SAU4: I am satisfied with the usefulness of ICT in my work during the COVID-19 pandemic.	0.863	1.951
Perceived usefulness (Ali et al., 2018). α = 0.880, Rho_A = 0.905, CR = 0.911, AVE = 0.672		
PU1: The use of ICT improves my professional performance during the COVID-19 pandemic.	0.838	2.429
PU2: The use of ICT allows me to keep the efficiency of my work during the COVID-19 pandemic.	0.798	2.024
PU3: The use of ICT in knowledge management increases my performance.	0.775	2.008
PU4: The use of ICT always allows me to accomplish tasks more quickly despite the COVID-19 pandemic.	0.820	1.919
PU5: The use of ICT increases my results for the same level of effort as before the COVID-19 pandemic.	0.864	2.203
Use of technology (Agarwal & Prasad, 1997). α = 0.853, Rho_A = 0.853, CR = 0.911, AVE = 0.773		
UT1: I use ICT a lot during the COVID-19 pandemic to do my work.	0.870	1.998
UT3: I use ICT several times a day during the COVID-19 pandemic to do my job.	0.870	2.045
UT4: I use ICT during the COVID-19 pandemic whenever necessary to do my work.	0.897	2.378

consistency was also confirmed. Cronbach's alpha, Rho_A, CR, and AVE meet the recommended thresholds. Despite task interdependence having Cronbach's alpha and Rho_A values lower than 0.7, we decided to retain this construct, primarily due to its satisfactory CR value (0.798) and AVE value (0.666). We also kept this construct because the reliability of these indicators (α, CR, AVE) was significant ($p<0.001$) after using bootstrap confidence intervals.

Table 3 clearly demonstrates adherence to the Fornell-Larcker criterion, where the values on the diagonal (highlighted in bold) are considerably higher than the ones beneath and to their left. Therefore, we can confirm that discriminant validity is not a concern in our research model.

Structural Model Assessment

In assessing the structural model, our first step was to identify any collinearity issues by examining the variance inflation factor (VIF) of both the measurement items and latent constructs. As emphasized by Hair et al. (2019), VIF values should ideally be near or less than 3. We also confirmed that the inner VIFs are lower than 3. Thus, our research model does not exhibit a collinearity problem.

Explanatory Power

The R^2 values of the dependent constructs measure the explanatory power of the model. In the interpretation of this indicator in scientific research dealing with management issues, there are four levels of R^2 ratings: 1) $R^2 < 0.25$ is very weak; 2) $0.25 <= R^2 < 0.50$ is weak; 3) $0.50 <= R^2 < 0.75$ is moderate; and 4) $R^2 >= 0.75$ is substantial (Hair et al., 2019). As depicted in Table 4, both Task-Technology Fit and IS continuance intention demonstrate very weak R^2 values, less than 0.25. The R^2 values for organizational performance and use of technology are weak, whereas individual performance and user satisfaction exhibit moderate R^2 values.

The f^2 effect size of the constructs is evaluated to examine the relative impact of a predictor construct on the R^2 values of the endogenous constructs. Acceptable effect size values of 0.35,

Table 3. Discriminant validity: Fornell-Larcker

Constructs	COM	CIT	IMI	CAJ	IMO	PEOU	PU	AVR	INT	TTF	UT	SAU
Complexity (COM)	**0.823**											
IS continuance intention (CIT)	-0.030	**0.927**										
Individual performance (IMI)	0.004	0.465	**0.836**									
Job characteristics (CAJ)	-0.083	0.112	0.246	**0.870**								
Organizational performance (IMO)	-0.032	0.476	0.756	0.097	**0.775**							
Perceived ease of use (PEOU)	-0.149	0.466	0.514	0.225	0.525	**0.808**						
Perceived usefulness (PU)	-0.058	0.395	0.470	0.276	0.595	0.545	**0.820**					
Relative advantage (AVR)	-0.054	0.322	0.319	0.095	0.462	0.347	0.687	**0.929**				
Task interdependence (INT)	0.179	0.066	0.155	0.393	0.080	0.150	0.202	0.090	**0.816**			
Task-Technology Fit (TTF)	-0.072	0.471	0.492	0.160	0.429	0.370	0.414	0.285	0.200	**0.797**		
Use of technology (UT)	-0.108	0.626	0.629	0.142	0.574	0.480	0.378	0.319	0.070	0.560	**0.879**	
User satisfaction (SAU)	-0.068	0.497	0.743	0.228	0.677	0.542	0.464	0.380	0.089	0.542	0.710	**0.868**

Table 4. Explanatory power (R^2)

Dependent Constructs	R^2	R^2 Adjusted	Interpretation
Task-Technology Fit (TTF)	0.216	0.201	Very weak
IS continuance intention (CIT)	0.247	0.245	Very weak
Individual performance (IMI)	0.573	0.570	Moderate
Organizational performance (IMO)	0.476	0.473	Weak
Use of technology (UT)	0.314	0.311	Weak
User satisfaction (SAU)	0.535	0.532	Moderate

0.15, and 0.02 are considered substantial, medium, and small, respectively. As presented in Table 5, user satisfaction exhibits a substantial effect size in its relationship with IMI, yet demonstrates a medium effect size in its relationships with CIT and IMO. TTF displays a substantial effect size in its relationship with UT, and similarly, UT shows a substantial effect size in its relationship with SAU. The remaining exogenous constructs indicate a small effect size.

Hypotheses Testing

The bootstrapping method was used to measure the causal relationships between the constructs. The results (Table 6) show that three (03) hypotheses are rejected, and 11 hypotheses are accepted. INT (β=0.130; $p<0.05$), PU (β=0.270; $p<0.01$), and PEOU (β=0.192; $p<0.05$) have a positive influence on TTF, while CAJ (β=-0.015; $p=0.799$), AVR (β=0.020; $p=0.793$), and COM (β=-0.051; $p=0.595$) have an insignificant influence. TTF positively influences UT (β=0.560; $p<0.001$) and SAU (β=0.210; $p<0.001$). UT positively influences SAU (β=0.592; $p<0.001$), IMI (β=0.204; $p<0.01$), and IMO (β=0.189; $p<0.01$). SAU positively affects IMI (β=0.598; $p<0.001$), IMO (β=0.543; $p<0.001$), and CIT (β=0.497; $p<0.001$).

Importance Performance Matrix Analysis (IPMA)

Importance Performance Matrix Analysis (IPMA) expands upon the results of PLS-SEM (figure 2) by considering the performance of each construct (Ringle & Sarstedt, 2016; Su & Cheng, 2019). This method helps highlight key factors within the research model that can enhance managerial implications (Sternad Zabukovšek et al., 2022). IPMA allows researchers to identify three aspects:

Table 5. Effect size f^2

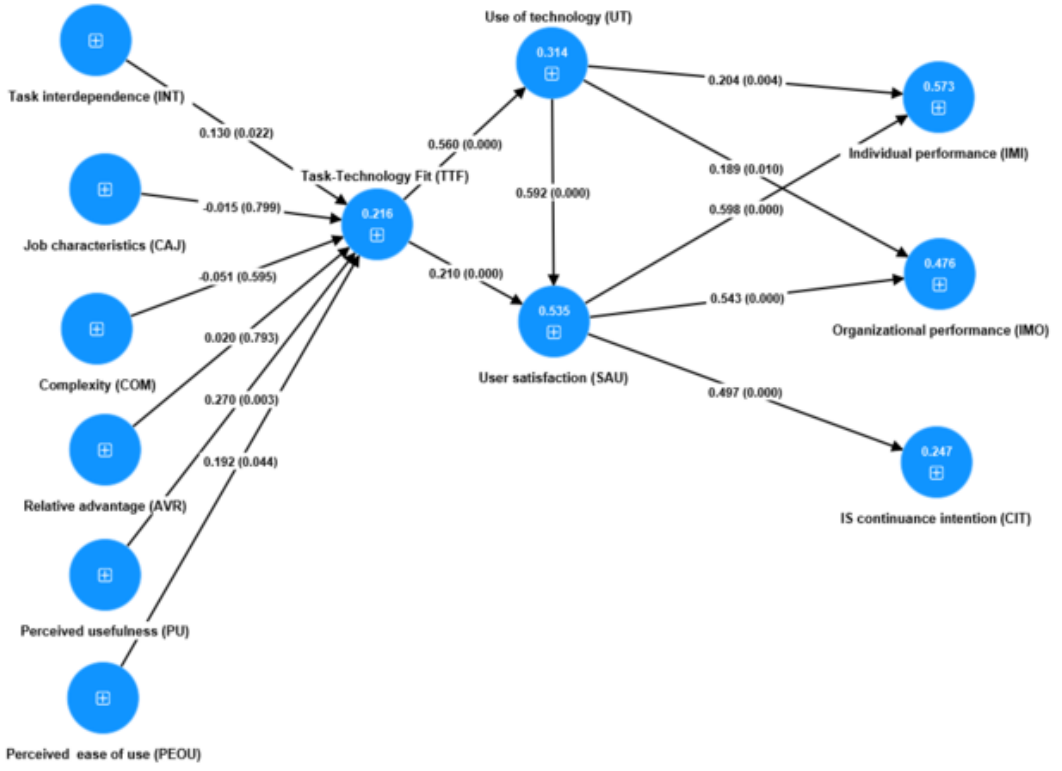
Constructs	CIT	IMI	IMO	TTF	UT	SAU
Complexity (COM)				0.003		
Job characteristics (CAJ)				0.000		
Perceived ease of use (PEOU)				0.032		
Perceived usefulness (PU)				0.037		
Relative advantage (AVR)				0.000		
Task interdependence (INT)				0.017		
Task-Technology Fit (TTF)					0.457	0.065
Use of technology (UT)		0.048	0.034			0.518
User satisfaction (SAU)	0.329	0.415	0.279			

Table 6. Hypotheses testing results

Hypotheses		Original Sample (β)	T Statistics	P Values	Significance Level	Conclusions
H1	INT -> TTF	0.130	2.290	0.022	**	Supported
H2	CAJ -> TTF	-0.015	0.255	0.799	n.s	Rejected
H3	AVR -> TTF	0.020	0.262	0.793	n.s	Rejected
H4	COM -> TTF	-0.051	0.531	0.595	n.s	Rejected
H5	PU -> TTF	0.270	2.925	0.003	***	Supported
H6	PEOU -> TTF	0.192	2.015	0.044	**	Supported
H7	TTF -> UT	0.560	9.668	0.000	****	Supported
H8	TTF -> SAU	0.210	3.520	0.000	****	Supported
H9	UT -> SAU	0.592	10.112	0.000	****	Supported
H10	UT -> IMI	0.204	2.899	0.004	***	Supported
H11	UT -> IMO	0.189	2.561	0.010	***	Supported
H12	SAU -> IMI	0.598	9.908	0.000	****	Supported
H13	SAU-> IMO	0.543	7.405	0.000	****	Supported
H14	SAU -> CIT	0.497	7.592	0.000	****	Supported

**** P<0.001; *** P<0.01; ** P<0.05; * P<0.1; n.s. not significant (Hair Jr. et al., 2021)

Figure 2. PLS estimation results



the importance of explanatory constructs based on total effects scored from 0 to 1; the performance of explanatory constructs based on average latent variable scores from 0 to 100; and the specific explanatory constructs for a given explained construct. The latter can elucidate the specific direction within a complex research model. Similarly, for any given explained construct, IPMA can identify explanatory constructs that are of high importance but low performance within the research model (Schloderer et al., 2014).

We applied IPMA to the following explained variables: Task-Technology Fit (TTF), individual performance, organizational performance, and Information Systems (IS) continuance intention. As seen in Table 7, the results show that for TTF, perceived usefulness (PU) holds the highest importance (0.270), while perceived ease of use (PEOU) exhibits the highest performance (70.984). For the remaining constructs, IPMA accentuates user satisfaction (SAU) as the explanatory construct with the highest importance (0.598; 0.543; 0.497) and use of technology (UT) as the explanatory construct with the highest performance (78.895). Furthermore, the results indicate that PU, PEOU and task interdependence (INT) are vital for TTF. SAU, UT, and TTF are the most critical factors for individual performance (IMI) and organizational performance (IMO), while SAU, UT, and INT are key factors for IS continuance intention (CIT).

DISCUSSIONS

ICT has enabled the development of telework, which has proven to be essential for the continuity of business activities worldwide (Wrycza & Maślankowski, 2020; Espitia et al., 2022). However, the implementation of telework across different companies has yielded varied results (Madero Gómez et al., 2020). Therefore, this study sought to answer the following questions: What factors are likely to increase the adequacy of ICT with the professional tasks of employees during the COVID-19 pandemic? What are the direct consequences of this adequacy on the use and satisfaction of employees, and the indirect consequences on the continuity of post-COVID-19 use of ICT and the individual and organizational performance perceived by employees? The present study extends the TTF and

Table 7. IPMA results

Constructs	Task-Technology Fit (TTF)		Individual Performance (IMI)		Organizational Performance (IMO)		IS Continuance Intention (CIT)	
	Importance	Performance	Importance	Performance	Importance	Performance	Importance	Performance
Complexity (COM)	-0.051	31.685	-0.023	31.685	-0.021	31.685	-0.014	31.685
Job characteristics (CAJ)	-0.015	65.368	-0.007	65.368	-0.006	65.368	-0.004	65.368
Perceived ease of use (PEOU)	0.192	**70.984**	0.084	70.984	0.077	70.984	0.052	70.984
Perceived Usefulness (PU)	**0.270**	67.856	0.119	67.856	0.108	67.856	0.073	67.856
Relative advantage (AVR)	0.020	60.827	0.009	60.827	0.008	60.827	0.005	60.827
Task interdependence (INT)	0.130	58.993	0.057	58.993	0.052	58.993	0.270	58.993
Task-Technology Fit (TTF)	-	-	0.438	72.032	0.400	72.032	0.035	72.032
Use of technology (UT)	-	-	0.558	**78.895**	0.510	**78.895**	0.295	**78.895**
User satisfaction (SAU)	**-**	**-**	**0.598**	78.218	**0.543**	78.218	**0.497**	78.218

the post-acceptance models of IS continuance to better understand the contribution of ICT to remote work practice during the COVID-19 pandemic. The study shows that TTF is influenced by perceived usefulness, perceived ease of use, and task interdependence. Indeed, the extant literature on IT adoption shows that TTF is critical for IT utilization and performance. However, it does not explain how task and technology characteristics lead to employee performance and the continuance of IS in work practice in the post-COVID-19 period. Based on this study, we can identify three paths to explain this. These paths reveal that TTF explains 85% of the variance in utilization and satisfaction regarding IT during the COVID-19 pandemic. This finding underscores the importance of TTF in employee performance and the continued use of IS. It is shown that when ICT contributes to teleworker satisfaction, this has a strong impact on organizational performance (R^2=47.6%), individual performance (R^2=57.3%), and the intention to continue use of IS (R^2=24.7%). The IPMA analysis helps to confirm this assertion.

Path 1: Independence in the execution of tasks as a factor of performance and continuance in the use of ICT.

The first path highlights the importance of employee independence in the execution of tasks as a factor of performance and continuity in the use of ICT. It shows that teleworkers could develop the skills to perform their tasks independently, without the need for direct assistance from a third party. For this to occur, information systems must provide employees with data and information resources that enable them to perform their professional and collaborative tasks remotely. Thus, the ICT at their disposal must be aligned with their functions within the organization, as stipulated by TTF theory (Marikyan et al., 2023). Indeed, an information system that meets the requirements of TTF is likely to have a positive impact on the efficient use of IT and, at the same time, increase satisfaction. These two factors are essential to ensure the performance of employees at the individual and organizational levels. As the world emerges from the COVID-19 pandemic, we observe new work requirements and preferences of employees: telework has gained momentum among knowledge workers, and employees increasingly prefer job profiles that explicitly integrate telework. Companies that have not adapted to the new work arrangement requirements face many resignations (Ng & Stanton, 2023).

Path 2: The usefulness of ICT in the employees' professional tasks as a factor of performance and continuance of ICT use.

This path shows that usefulness of ICT is an essential element that ensures the TTF of ICT for those employees who must work remotely if their enterprise to survive. The literature, through studies based on TAM, has sufficiently demonstrated the importance of usefulness in the adoption and use of ICT (Davis, 1989; Baker et al., 2010; Marangunić & Granić, 2015). Indeed, during the COVID-19 era, knowledge workers were the subset of the workforce that most effectively highlighted the usefulness of ICT. Most importantly, these workers could perform their roles effectively by working remotely (Jacks, 2021). This perceived usefulness has thus strengthened the determination of these workers to work remotely using ICT in the post-COVID-19 period. Their primary motivation is to benefit from the advantages of remote work, such as the possibility of fulfilling professional functions while enjoying family life.

Path 3: ICT ease of use in the accomplishment of tasks as a factor of performance and continuance in the use of ICT.

A sound understanding of ICT is crucial for employees to perform their professional tasks efficiently. This path reveals that the ICT ease of use is an effective predictor of TTF, which positively impacts employees' use and satisfaction with ICT in remote work during the COVID-19 pandemic. Indeed, employees' mastery of IT is essential for their autonomy and speed in performing their professional

tasks remotely (Arunachalam, 2019). Consequently, this mastery positively influences their individual and organizational performance. Thus, training activities in the use of technology are essential to ensure the operational capacity of companies during the COVID-19 period. Similarly, the use of ICT in remote work has become widespread worldwide in this post-COVID-19 period (Willcocks, 2021).

In addition to the identified paths, this study shows that job characteristics, relative advantage, and complexity are not predictors of TTF. According to job characteristics, following the changes imposed by the COVID-19 pandemic in the work process, these employees did not modify their usual problem-solving methods or were unable to use ICT to do so. Also, the problems that employees faced in accomplishing their tasks may not have motivated their attachment to ICT. Hence, the task characteristics in this study have a weak effect on TTF. For relative advantage and complexity, which are technical characteristics of ICT, their non-significance in predicting TTF means that teleworkers did not find ICT too complex to use during the pandemic. This is consistent with the significance of perceived ease of use. The results also show that the relative advantage of ICT over usual working methods before the pandemic is not relevant in the study context. The study population may not have identified a significant difference in usual work practices and ICT use while teleworking during the COVID-19 pandemic.

IMPLICATIONS

Research Contributions

The literature has intensely highlighted the positive impact of integrating ICT into corporate business processes during the COVID-19 pandemic (Hooda & Hooda, 2021; Iqbal et al., 2021). ICT was essential for the survival and business continuity of many companies worldwide. In this context, our study makes three critical contributions to IS research.

First, our study confirms the positive impact of TTF on employee utilization and performance (Goodhue & Thompson, 1995). In addition, it provides three important points: 1) TTF has a positive impact on employee satisfaction with ICT; 2) details are given about the types of performance, including individual and organizational performance; and 3) TTF positively influences the continuity of ICT use in the post-COVID-19 period through satisfaction with ICT. This last causal relationship corroborates the trend of remote work becoming an integral part of the organizational strategy in many companies worldwide. Furthermore, to our knowledge, our study is one of the first to elucidate the reasons for employees' continued use of ICT in the post-COVID-19 period.

Second, this study contributes to research on employee performance during major crises that disrupt traditional organizational operations. This is one of the first studies to identify the factors that influence TTF, and simultaneously analyze its effects on the use of ICT, performance of employees, and continuance of post-COVID-19 use of ICT. To this end, the study highlights three paths establishing the complex link between the perception of employees and the impact of ICT in organizations. The validation of these theoretical paths by the organizational orientations taken by companies during the COVID-19 and post-COVID-19 periods makes this study an effective contribution to understanding the TTF theory. This study also contributes to research on the post-COVID-19 organizational transformation of companies (Tripathi, 2021).

Third, concerning the context of a crisis such as the COVID-19 pandemic, where changes are abrupt and the future is uncertain, the study shows that perceived usefulness and perceived ease of use contribute strongly to ICT use. It enriches the debate on the technological transition in the workplace and the preponderance of technology in the daily habits of individuals. Finally, this study confirms that user satisfaction is crucial in motivating users' intentions to continue using ICT in remote work.

Contributions to Practice

This study offers three significant contributions that can aid: 1) corporate managers in establishing remote work systems for their organizations, 2) ICT designers in developing solutions for remote work,

and 3) consultants in providing ICT services for setting up remote work in various organizations. The goal is to alleviate the effects of the crisis caused by the COVID-19 pandemic.

First, the need for autonomy corresponds to the ability to perform professional tasks independently. It is an essential aspect of the performance of employees using ICT tools for remote work during the COVID-19 pandemic and post-COVID-19 period. Managers should demonstrate organizational creativity. For example, they must ensure that the ICT implemented meets the needs of the employees according to their respective tasks and functions. It is essential for managers not to assess the needs of teleworkers but to distinguish among employees whose activities are more routine than others, and whose tasks require more decision-making than others, in order to better match ICT inputs with the real needs of employees. To emphasize the relative advantage of ICT use in future remote working practices, we recommend that managers adopt a culture of flexibility, grounding it in a deeper implementation of ICT for managing hybrid work models in the post-COVID-19 era.

Second, employees need to be aware of the usefulness of ICT as an essential tool for performing their professional tasks. The literature extensively emphasizes the importance of perceived usefulness for the adoption and use of ICT (Davis, 1989; Mortenson & Vidgen, 2016). In times of crisis, such as during the COVID-19 pandemic, managers must implement ICT awareness and change management programs in their organizations. This will ensure the performance of their employees and the continuity of post-COVID-19 use of ICT in their organizations.

Third, ease of use is essential for employees' adoption and use of ICT, and managers must consider employee recruitment and capacity-building throughout their careers. Furthermore, effective use of ICT during the post-COVID-19 period contributes to improved individual and organizational performance, as well as user satisfaction. Therefore, we recommend that IS designers invest more in the perceived ease of use and perceived usefulness of ICTs to increase task-technology fit and thus promote a greater attractiveness of remote working in future practices.

CONCLUSION

This study aims to investigate the use of ICT in the practice of remote working during the COVID-19 pandemic by integrating the TTF and the post-acceptance model of IS continuance. We measure the technological characteristics of TTF using TAM and DOI theories. Therefore, we proposed a research model to test the different causal relationships. The analysis of this model reveals four significant results: 1) task independence, perceived usefulness, and perceived ease of use significantly explain TTF; 2) TTF significantly explains use of technology and user satisfaction; 3) individual performance, organizational performance, and user satisfaction are significantly impacted by ICT usage; and 4) user satisfaction significantly impacts intention to continue using ICT. The results also show that user satisfaction has the most significant effect.

This study contributes to both practice and theory, and it provides recommendations for managers. However, we recommend that future studies further investigate the contribution of ICT by segmenting its use by industry. We also recommend a longitudinal study that includes perceptions for the post-COVID-19 period. In addition, we recommend that future studies conduct cross-cultural research to determine whether the results can be generalized across contexts.

CONFLICT OF INTEREST

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Jean Robert Kala Kamdjoug is an associate professor of information systems at the ESSCA School of Management. His research interests include the business value of IT, information systems, decision support systems, e-government, IT-enabled social inclusion, e-commerce, mobile commerce, social commerce, and more. To date, He has published in renowned international journals such as Information Technology and People, the Annals of Operation Research, the International Journal of Information Management (IJIM), the Business Process Management Journal (BPMJ), Production Planning & Control (PPC), Computational Economics, the International Journal of Medical Informatics, the Journal of Small Business & Entrepreneurship, the International Journal of Technology Diffusion, and the Journal of Retailing and Consumer Services. He has also presented papers at international conferences such as AMCIS, WorldCIST, AIM, and ICTO.

Paule Bridelle Tchatat Tchana is currently pursuing an MBA in digital marketing at Laval University in Canada. She holds a master's degree in management and information systems from the Catholic University of Central Africa in Cameroon.

Samuel Fosso Wamba is a full professor of information systems and data science and the associate dean for research at TBS Education, France. He is among the 2% of the most influential scholars globally based on the Mendeley database for 2020, 2021, and 2022. He ranks in Clarivate's 1% of most cited scholars in the world for 2020, 2021, and 2022 and among CDO Magazine's Leading Academic Data Leaders 2021. Finally, in 2023, he was ranked as the fourth-best business and management scientist in France by research.com.

Arielle Ornela Ndassi Teutio earned her master's degree in banking and finance from the Catholic University of Central Africa in Cameroon. She also holds a master's of business administration in audit and management control with an option in internal control and risk management from the Ecole Supérieure de Gestion de Paris (ESG Paris). She is a regular member and research assistant of the Groupe de Recherche en Intelligence Artificielle et Gestion (GRIAGES). She is also a member of the Association for Information Systems (AIS). Her research interests include FinTech, entrepreneurship, social impact, risk management, digital transformation, and banking adoption.