Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
The adoption of remote work platforms after the Covid-19 lockdown: New approach, new evidence

Jean Michel Sahut c, *, Raphael Lissillour a, b

a IPAG Business School, France
b Associate researcher at BILIS School of Sustainability Management, Czech Republic
c IDRAC Business School, France

ARTICLE INFO

Keywords:
Unified theory of acceptance and use of technology (UTAUT)
Remote work
Platform
Technology adoption
Service

ABSTRACT

With the aim of providing further insights into the driving factors influencing behavioral intentions and expectations to use remote work after the Covid-19 lockdown, this study draws on an enhanced version of the technology acceptance model to analyze the determinants and moderating factors of remote work platform use. From an analysis of quantitative data collected from questionnaires and qualitative data from interviews with employees of Chinese firms in the service sector, we conclude that post-lockdown adoption of remote work is explained by three main variables: behavioral intention, behavioral expectation and facilitating conditions, but demographic characteristics and factors related to the specific features of remote work all nevertheless moderate the relationships in our model. In addition to gender, the generational gap and behavioral tendency should be taken into consideration to improve employee acceptance rates.

1. Introduction

Digital technologies have made remote working easy (Olson & Olson, 2000) and potentially widely accepted in both established organizations (Daniels et al., 2001) and entrepreneurial ventures (Nambsian, 2017; Sahut et al., 2021). However, remote working was not a particularly common practice before the pandemic and was rather a privilege of the few (Kossek & Lautsch, 2018). The Covid-19 pandemic has change this, inadvertently requiring the adoption and acceptance of remote working for employees worldwide, thus turning the world into a global lab of remote working (Kniffin et al., 2020). Since the study of Perez et al. (2004), few studies have studied the drivers of acceptance and use of remote work with technology acceptance theories and models (Venkatesh & Davis, 2000), with the notable exception of a handful of studies which focused on the adoption of cloud computing technologies (Arpaci, 2017; Song et al., 2020).

Prior studies have identified and surveyed many factors influencing remote work outcomes (Sarbu, 2018; Nakrosiene et al., 2019, Belanger, 1999a, 1999b; Mokhtarian et al., 1998; Earle, 2003), but the role of these variables and moderating factors in the adoption of remote work platforms has not been defined in the literature despite the need for more theoretical developments in remote work research (Bailey & Kurland, 2002). Moreover, the pandemic outbreak has made remote work a key capability for most companies (Kniffin et al., 2020) as technologies have become instrumental to achieve strategic resilience (Rusinko, 2020). Consequently, the stakes are high for companies to better understand the determinants of remote work adoption to ensure successful implementation and use of remote work platforms.

Thus, this research aims to answer to the following question: After the Covid-19 lockdown, what are the driving factors that influence behavioral intentions and expectations to use remote work across generational and gender boundaries?

To investigate this research question, we developed a mixed-methods approach to interview employees of the service sector in China several months after the end of the lockdown. These employees were subjected to remote work during the lockdown, but had regained their freedom of choice after this period at the time this study was undertaken. Our results have enabled us to formulate three main contributions. First of all, we propose and tested an enhanced version of the UTAUT (Unified theory of acceptance and use of technology) model (Maruping et al., 2017) which includes three categories of moderating factors relevant to the study of remote work platform adoption, namely, demographic characteristics, behavioral tendency, and factors related to the specific features of remote work. Consequently, this study...
contributes to the literature on remote work by providing theoretically-grounded relationships and moderating variables to explain the use of remote work platforms (Bailey & Kurland, 2002). Second, it provides empirical evidence to the discussion on the effect of the distance between office and home on remote work use which has led to conflicting findings in prior studies (Sarbu, 2018; Nakrošienė et al., 2019). Third, it digs deeper into investigating the effects of generational and gender factors, which have been identified in prior studies (Belanger, 1999a, 1999b; Mokhtarian et al., 1998; Earle, 2003; Nakrošienė et al., 2019), thus providing more insight into the role of these variables in the adoption of remote work platforms.

This paper is organized in five parts. First, a brief review of the literature is presented which leads on to the development of the research model and hypothesis. Then, the quantitative and qualitative methods adopted are detailed. Thirdly, we present the findings including testing each hypothesis and setting out the implications of each moderating variable. The study concludes with a discussion of the findings and of its theoretical contributions and managerial implications.

2. Theory background and hypothesis

To represent a nomological net of variables explaining the adoption of remote work, the present research model is based on UTAUT as per Maruping et al. (2017), which includes several relationships from the extended technology acceptance model which were subsequently published by Venkatesh and colleagues, namely TAM2 (Venkatesh & Davis, 2000) and TAM3 (Venkatesh & Bala, 2008). This model was selected because, unlike other models of technology acceptance which focus only on BI, it integrates the relationship between BI and BE. Mahardika et al. (2020) found that BE has a stronger temporal stability and predictive ability than BI. Indeed, “subjects may overestimate their likelihood to act when responding to BI questions” (Mahardika et al., 2020). Some variables from the original model were excluded from our model because they were not adapted to the study of remote work, namely price value and hedonic motivation. Despite its common use in the literature, UTAUT 2 has been adapted to specific technologies integrating variables according to their characteristics and contexts (Shaw & Sergueeva, 2019; Rasli et al., 2020; Baudier et al., 2020). Thus, our model includes several variables which are specific to the study of remote work, such as the distance between one’s home and office (Ollo-López et al., 2021). In this section, we develop the hypothesis and emphasize its relevance in the context of remote work.

2.1. Behavioral intention and behavioral expectation

BI and BE are the core constructs of the model, focusing on understanding how individuals form BE and BI to engage in remote work. Maruping et al. (2017) define BE as “the subjective probability of performing a behavior based on an individual’s cognitive appraisal of various behavioral determinants”. A core volitional determinant is BI itself, which is a conscious drive that motivates remote work behavior. Consequently, BI influences BE while both influence the actual use of remote work, thus we hypothesize that:

H1a: Behavioral expectation has a positive effect on remote work use.

H1b: Behavioral intention has a positive effect on behavioral expectation.

H1c: Behavioral intention has a positive effect on the remote work use.

In addition to BI, BE has two main no volitional determinants. These are extrinsic factors such as social influence and facilitating conditions, which make remote work behaviors more probable (Maruping et al., 2017).

2.2. Social influence

Social influence is conceptualized as the influence of the opinions of important referents on one’s own views regarding remote work, which is likely to influence BE and BI (Maruping et al., 2017). Indeed, supervisors and colleagues can put pressure on others to accept or reject remote work and thus comply with their expectations. Prior studies have highlighted the importance of the supervisor’s management style on the practice of telework (Peters et al., 2004). Indeed, the probability of employees being given the opportunity to work remotely is found to be lower when managers are afraid of losing control (Tomaskovic-Devey & Risman 1993). Remote work is perceived to secure retention rather than turnover intention (Harker Martin and MacDonnell, 2012). More recently, Golden and Gajendran (2019) confirmed that supervisor-rated job performance is an important determinant, even more so for employees dealing with complex activities, for those receiving less social support, and for those with less task interdependence.

Like the impact of subjective norms on adoption, the adoption of remote work technologies is significantly impacted by social influence. This is notably the case with the use of cloud-computing technologies (Ali et al., 2019; Alostaib, 2016).

Therefore, we can hypothesize that:

H2a: Social influence has a positive effect on behavioral intention.

H2b: Social influence has a positive effect on behavioral expectation.

2.3. Facilitating conditions

The concept of facilitating conditions relates to “the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system” (Venkatesh et al., 2003, p. 453). Facilitating conditions are external factors from the environment which enable or impede remote work and thus affect likelihood of its use (Mathieson, Peacock, & Chin, 2001). Facilitating conditions should lead to BE because they are an extrinsic factor which acts as a nonvolitional determinant of BE. Facilitating conditions have been identified in the literature on remote work, notably the technical means with which to access necessary corporate documents from home (Cooper & Kurland, 2002; Wiesenfeld et al., 2001) which has been identified as a major difficulty of remote work (Perez et al., 2003).

Access to ICT infrastructure is a condition to remote work (Schofield & Peel, 2009) and its increasing availability plays an important role in the development of remote work as it provides employees the means to communicate in real time and ensure “telepresence” at a distance (Venkatesh & Johnson, 2002).

The overall appropriateness of the home being the workplace environment is a key facilitating condition since unsuitability of the workplace negatively impacts employees’ effectiveness (Bailey & Kurland, 2002). These findings led to further research on job satisfaction, which depends on work ergonomics and workplace characteristics, such as noise and temperature (Morgeson & Humphrey, 2006). Thus, we propose:

H3a: Facilitating conditions have a positive effect on behavioral expectation.

H3b: Facilitating conditions have a positive effect on behavioral expectation.

2.4. Performance expectancy and effort expectancy

Performance expectancy and effort expectancy reflect an individual’s understandings of the link between the effort required to engage in remote work and performance gains. According to Venkatesh and his colleagues, performance expectancy is “the degree to which an individual believes that using a system will help him or her to attain gains in job performance” (Venkatesh et al., 2003, p. 447). This cognitive factor influences the beliefs that underlie BI formation. Remote work is often associated with higher performance expectancy because employees are likely to be able to work more intensely, with less...
interruptions (Kellihier & Anderson, 2010), and with more autonomy (Gajendran et al., 2015; Ter Hoeven & Van Zoonen, 2015). Recent studies have highlighted the fact that performance expectancy positively impacts individuals’ expectations regarding knowledge creation and discovery, storage and sharing (Arpaci 2017). Indeed, the perceived usefulness of cloud computing seems to significantly influence the behavioral intention (Ali et al., 2019; Almarazroii et al., 2019). Hence, we hypothesize that:

H4a: Performance expectancy has a positive effect on behavioral intention.

Effort expectancy is described as “the degree of ease associated with the use of the system” (Venkatesh et al., 2003, p. 450). A positive relationship between effort expectancy and performance expectancy has been identified in prior research on technology adoption (Venkatesh & Davis, 2000). Effort expectancy notably includes the dimension of perceived ease of use (Owivedi et al., 2017; Rana et al., 2017) which positively influences the BI to use a remote work platform, including its cloud-computing component (Almarazroii & Shen, 2018; Tripathi, 2018).

We hypothesize that such a relationship will also exist for the adoption of remote work, thus:

H4b: Effort expectancy has a positive effect on behavioral intention.

H4c: Effort expectancy has a positive effect on performance expectancy.

2.5. The influence of moderators in the adoption of remote work

The UTAUT model comprises moderators such as gender, age, voluntariness of use, and experience which moderate the relationships between BE and BI and their determinants. But this model did not originally include variables specific to the study of remote work such as distance from home to office (Olo-López et al., 2021). Our model integrates three types of moderating variables, namely demographic characteristics, behavioral tendency, and specific features of remote work.

2.5.1. Demographic characteristics

Demographic characteristics include gender and age. Gender issues are prevalent in remote work because men valued remote work less than women (Belanger, 1999a, 1999b). Indeed, remote work enables workers to take care of family-related issues with more flexibility (Ammons women (Belanger, 1999a, 1999b). Indeed, remote work enables workers to take care of family-related issues with more flexibility (Ammons & Markham, 2004; Johnson et al., 2007), which is appreciated by women more than men (Mokhtarian et al., 1998). The increased flexibility and autonomy provided by remote work (Chapman et al., 1995) provides women with an opportunity to balance and optimize work and family time (Lim & Teo, 2000). Prior research has shown that remote work improves career prospects for mothers, who can thus combine work with maternity leave (Schreiber, 1999).

The impact of age on remote work has been partially covered in prior studies. Younger employees value remote work more than older generations (Nakrosiene et al., 2019) as they associate it with freedom and autonomy (Earle, 2003). Other studies similarly find that age is likely to impact remote workers’ productivity and well-being (Gajendran & Harrison, 2007). Age is also a moderator of the relationship between remote work and organizational commitment (Harker Martin and MacDonnell, 2012).

2.5.2. Behavioral tendency

Behavioral tendency includes voluntariness and prior experience. A successful prior experience with remote work platforms is likely to positively influence the intention to work remotely. Voluntariness to use remote work platforms may also impact users’ behavior. Indeed, to avoid work-family conflicts, employees may have access to remote work but choose not to use it (Allen et al., 2013). In the context of the Covid-19 pandemic, many people have been involuntarily forced to work remotely. Unlike voluntary remote work, “involuntary variable schedules are associated with greater work-to-family conflict, stress, burnout, turnover intentions, and lower job satisfaction” (Kaduk et al., 2019).

2.5.3. Specific features

Specific features of remote work include distance to office, job position and firm culture. The distance between office and home is a determining factor because remote workers can reduce the time they spend commuting (Tremblay & Genin, 2007) and related travel costs (Sarbu, 2018). Despite the fact that, where large geographical distances characterize a dispersed work force and the company, remote work is more frequent (Gray et al., 1993), a recent study found that reduced travel expenses have no overall significant effect on remote work outcomes (Nakrosiene et al., 2019). Despite these contradicting results, remote work is considered a tool for companies to solve problems linked to employees’ geographical constraints and dispersion (Malhotra et al., 2007). Moreover, remote work may help companies to attract and retain talented employees (Beauregard et al., 2019) by presenting this working modality as an inventive initiative (Mayo et al., 2016) while boosting its performance and intellectual capital (Daniels et al., 2001). The firm culture and organizational subcultures are key aspects for understanding the degree of acceptance of new technological systems (Lissillour & Wang, 2021). Prior studies have shown how innovative cultures have had strong positive effects on commitment (Bigliardi et al., 2012), which is likely to be instrumental in the degree of commitment to effectively use remote work technologies. The innovative culture is defined as a “creative and dynamic work environment” in which “people are always under stress to perform better. The various adjectives that are used to describe innovative culture are result-oriented, risk-taking, creative, pressurized, challenging, stimulating, enterprising and driving” (Saha & Kumar, 2018). The adoption of new technologies such as the remote work platform is likely to be boosted by adherence to the cultural values inherent to the technology (Lissillour & Wang, 2021). Indeed, workers who adhere to innovative culture are eager to acquire new skills and knowledge (Yiing & Ahmad, 2009). The conceptual model is shown in Fig. 1 below.

3. Research methodology

Our empirical study consists of two parts: a quantitative analysis which aims to validate our conceptual model and its underlying assumptions, and a qualitative analysis. The use of this qualitative methodology is supported by its capacity to gather complete data on employee views of remote work - notably regarding potential issues of confidentiality, security and privacy that could limit their use by employees - hence validating the conclusions of the qualitative approach (Galletta, 2013; Sahut et al., 2022). Additionally, Bryman (2006) demonstrated how this combination of quantitative and qualitative methodologies successfully confirm the conclusions from both data sources.

3.1. Quantitative study

To examine the impact of the different factors in our model on remote work use, we employ a Partial Least Squares (PLS) approach, which estimates complex causal relationships between latent variables, themselves measured by so-called manifest observed variables (Moncke & Leisch, 2012). The main advantage of this method, compared to ordinary least squares regression, is that it is not subject to potential multicollinearity between explanatory variables, due to the fact that this analysis uses several blocks of variables (Tenenhaus & Hauati, 2007). Moreover, Bagossi and Yi (1994) show how PLS modeling is more suitable when the distributions of the variables are highly asymmetrical, because there are no conditions on their distribution.

3.1.1. Construct and variable measures

The study is composed of seven main constructs drawn from the UTAUT model (Maruping et al., 2017) and three categories of
moderating variables specific to the study of remote work, namely, demographic characteristics, behavioral tendency, and specific features. All constructs from the UTAUT model were measured using validated items (see Table 1). We adapted the scales from Venkatesh et al. (2003) to measure PE, EE, SI, FC, BI. For PE, we added two items from Nakrošienė et al. (2019) and for FC, one item from Ajzen (2002). For measuring BE and system use, we adapted the item scale from Venkatesh et al. (2008). All constructs were measured on a 7-point Likert-type scale ranging from strongly disagree to strongly agree.

Demographic characteristics (gender and age) and behavioral tendency (prior experience) were measured with scales adapted from Venkatesh et al. (2003), while the items set out by Moore and Benbasat (1991) were used to measure voluntariness. Specific features of remote work include distance to office, job position and firm culture. Items provided by Saha and Kumar (2018) were used to measure firm culture on a seven-point Likert scale ranging from “describes my organization most of the time” (7) to “does not describe my organization” (1).

3.1.2. Data
Our empirical analysis is based on a questionnaire survey conducted in the service sector. To minimize bias, we chose to administer our questionnaire face-to-face to employees working in the Central Business District of Beijing, in office buildings or shopping malls in this district. We selected participants on a voluntary basis, ensuring beforehand that they work in this district in the service sector. Following the methodology described by Hair et al. (2008), the convenience sampling method was used, and we collected over 200 questionnaires given the number of items in the questionnaire. To collect our data, we administered the questionnaire face-to-face and retained only those for which all questions had been answered. Consequently, our sample is composed of 244 employees working in Chinese firms in the service sector located in the Central Business District of Beijing (in the firm headquarters or branches).

The case of China is interesting because it was the first country to impose a lockdown following the emergence of Covid-19. However, in January 2021, less than 1% of those surveyed were still working at home full-time, according to Gensler. With employees no longer under any Covid-related constraints by May 2021, at the time of our survey, we thought it would be interesting to obtain a better understanding of which driving factors influence employees’ behavioral intentions and expectations regarding the adoption of remote work across generational and gender boundaries. To avoid bias, when analyzing the adoption of a technology, it is necessary for people to have already used the technology in order for them to be familiar with the benefits and drawbacks (Leyton et al., 2015). The post-lockdown period is therefore an opportunity to study this.

The service industry has been selected because the adoption of remote work in this sector has been more prevalent than in other industries (Gallacher & Hossain, 2020), thus making it a more compelling case. These companies implemented a remote work platform composed of multiple tools including corporate tools and tools which were added by the employees themselves. The respondents included managers and specialized workers with remote work experience from different groups of age, gender, and distance to the office (see Table 2). The face-to-face interviews were conducted in May 2021 in Beijing. The measurement items from the UTAUT model, together with the design and structure of the questionnaire, were in line with prior research (Maruping et al., 2017). Relying on a review of relevant literature (e.g. Saha and Kumar, 2018; Nakrošienė et al., 2019; Ollo-López et al., 2021), the survey questionnaire was arranged to measure additional variables specific to the study of remote work. The questionnaire was originally developed in English and later translated into Chinese, and then translated back into English to ensure accuracy in translation.

3.2. Qualitative study
This study was undertaken after the quantitative study to enrich the interpretations on the determinants and moderating factors of the use of remote work platforms by employees.

Fig. 1. Conceptual model (inspired by Maruping et al., 2017).

1 https://www.gensler.com/blog/lessons-from-china-what-hybrid-work-really-looks-like-in,
Table 1

| Construct | Item | Reference |
|-----------|------|-----------|
| Performance Expectancy | PE1 I would find remote work useful in my job. | Maruping et al., 2017 |
| | PE2 Remote work enables me to accomplish tasks more quickly | Maruping et al., 2017 |
| | PE3 Remote work increases my productivity. | Maruping et al., 2017 |
| | PE4 I expect remote work to provide other advantages | Nakrošiene et al., 2019 |
| | PE5 When I work from home my career opportunities decrease as I do not develop professionally | Nakrošiene et al., 2019 |
| Effort Expectancy | EE1 My interaction with a remote work system would be clear and understandable. | Maruping et al., 2017 |
| | EE2 I would find a remote work system easy to use. | Maruping et al., 2017 |
| | EE3 Learning to operate the remote work system is easy for me. | Maruping et al., 2017 |
| Social Influence | SI1 People who influence my behavior think that I should work remotely. | Maruping et al., 2017 |
| | SI2 People who are important to me think that I should work remotely. | Maruping et al., 2017 |
| Facilitating Conditions | FC1 I have the resources necessary to work remotely. | Maruping et al., 2017 |
| | FC2 I have the knowledge necessary to work remotely. | Maruping et al., 2017 |
| | FC3 The remote work system is not compatible with other systems I use | Maruping et al., 2017 |
| | FC4 A specific person (or group) is available for assistance with remote work difficulties. | Maruping et al., 2017 |
| | FC5 For me to work remotely for at least 30 days in a row in the forthcoming month would be [possible – impossible] | Ajzen, 2002 |
| Behavioral Expectation (BE) | BE1 I expect to work remotely in the next < n > months. | Venkatesh et al., 2008 |
| | BE2 I will work remotely in the next < n > months. | Venkatesh et al., 2008 |
| | BE3 I am likely to work remotely in the next < n > months. | Venkatesh et al., 2008 |
| Behavioral intention (BI) | BI1 I intend to work remotely in the next < n > months. | Venkatesh et al., 2008 |
| | BI2 I predict I will work remotely in the next < n > months. | Venkatesh et al., 2008 |
| | BI3 I plan to work remotely in the next < n > months. | Venkatesh et al., 2008 |
| Use | USE1 On average, how many hours do you work remotely each week? | Venkatesh et al., 2008 |
| | USE2 How often do you work remotely? | Venkatesh et al., 2008 |
| | USE3 How do you consider the extent of your current use of remote work? | Venkatesh et al., 2008 |
| Voluntariness to use | VOL1 I work remotely on a voluntary basis. | Moore & Benbasat, 1991 |
| | VOL2 My supervisor does not require me to work remotely | Moore & Benbasat, 1991 |
| | VOL3 Although it might be helpful, working remotely is certainly not compulsory in my job. | Moore & Benbasat, 1991 |
| Corporate culture | CUL1 The management style is characterized by risk-taking and innovation. | Saha & Kumar, 2018 |
| | CUL2 My organization is results-oriented (getting the job done). | Saha & Kumar, 2018 |
| | CUL3 My organization is characterized by creativity. | Saha & Kumar, 2018 |

Table 1 (continued)

| Construct | Item | Reference |
|-----------|------|-----------|
| | CUL4 My organization is a pressurized place. | Saha & Kumar, 2018 |
| | CUL5 My organization is a very stimulating and dynamic place. | Saha & Kumar, 2018 |
| | CUL6 My organization creates new challenges. The focus is on being cutting edge. | Saha & Kumar, 2018 |
| | CUL7 Enterprising – my organization focuses on acquiring new resources. | Saha & Kumar, 2018 |
| | CUL8 My organization is a competitive place. | Saha & Kumar, 2018 |

Table 2

| Characteristics | Number | % |
|-----------------|--------|---|
| Gender | - Male | 105 | 43.0% |
| | - Female | 139 | 57.0% |
| Age group | - Below 30 | 81 | 33.2% |
| | - Above 30 | 163 | 66.8% |
| Position | - Manager | 93 | 38.1% |
| | - Specialized worker | 151 | 61.9% |
| Distance from office | - Under 45 min | 124 | 50.8% |
| | - More than 45 min | 120 | 49.2% |

3.2.1. Elaboration of the interview guide

The interview guide consisted of four main sections. The first section included questions concerning remote work in relation to the job position held by respondents, i.e. Could you describe your activity? What is the importance of remote work in your activity? Is the choice of remote work voluntary or governed by rules in your company? In your opinion, what are the advantages / disadvantages of remote work in your activity?

The second section comprised questions on the remote work platform and its components, asking interviewees to talk about the tools they use, i.e. What types of tools, software and systems do you use to work remotely? Why? Are the tools provided by your company integrated into a platform or do they provide access to your firm’s information system as if you were in the office? Does this remote work platform meet your needs? Do you use other tools than those provided by your company to work remotely? If so, which ones and why? Do you feel you have access to more resources using this remote work platform? Do you trust the remote work platform?

The third section involved questions on the performance of the platform tools, i.e. For what types of tasks is this remote work platform relevant and effective? What are the advantages and disadvantages of this remote work platform compared to face-to-face meetings in terms of managing a team or employees? What are the advantages and disadvantages of this remote work platform compared to face-to-face collaboration with colleagues (without a hierarchical link) or external partners? What impact does this remote work platform have on your organization, your work? Does this remote work platform affect your performance at work? What impact does this remote work platform have on your relationships with your team or your superiors? Are you able to establish relationships of trust via this platform (for example with colleagues, managers, clients and suppliers)? Do you think your data is protected when you work with the platform?
3.2.2. Data

The qualitative data collection was conducted in June 2021 with 16 interviewees, working in the same Chinese companies as those in the quantitative study, asked to provide details about their remote working practices, and more specifically about issues of privacy, trust, security, and efficiency (see Table 3). These employees were selected on the basis of the user typology identified by the quantitative study to better understand the motivations, uses and barriers to the use of remote work platforms. Indeed, acceptance models can demonstrate the influence of certain factors on the use of a technology, but they do not explain why. The interviews were conducted by a Chinese native researcher who explained to participants that their names would be substituted by coded numbers in order to further ensure anonymity, thus making them feel more at ease to speak freely about their work practices. The interviews lasted from 26 to 50 min and took place on video call via Tencent Meeting. All interviews were fully audio-recorded and transcribed into Chinese and then translated into English. The data from the verbatim were analyzed using thematic analysis around four themes, namely, security, privacy, efficiency and trust. These themes are complementary to the quantitative analysis because they enable a better understanding of the underlying relations between the variables from the quantitative model.

4. Results of the quantitative study

A PLS analysis was conducted to analyze the relationship between the constructs of our research model using SmartPLS3 software.

4.1. Outer and inner models

The different tests carried out confirmed the validity and reliability of the outer model (see Appendix 1). The reliability of the outer model is validated by the composite reliabilities and Cronbach’s alpha values of constructs that are all above the minimal value of 0.7. The reliability is also confirmed with the item loadings of the selected variables being above 0.7. As the square root of the Average-Variance-Extracted (AVE) of each variable is higher with the variable studied than with the other constructs, this discriminant validity is verified. Finally, the convergent validity is ensured because the AVE values exceed the threshold of 0.5. There is no problem of collinearity as the VIF values for inner and outer of the outer model (see Appendix 1). The reliability of the outer model is also confirmed with the item loadings of the selected variables being validated by the composite reliabilities and Cronbach’s alpha values of constructs, the discriminant validity is verified. Finally, the convergent validity is ensured because the AVE values exceed the threshold of 0.5. The reliability is also confirmed with the item loadings of the selected variables being above 0.7. As the square root of the Average-Variance-Extracted (AVE) of each variable is higher with the variable studied than with the other constructs, this discriminant validity is verified. Finally, the convergent validity is ensured because the AVE values exceed the threshold of 0.5. There is no problem of collinearity as the VIF values for inner and outer of the outer model.

In Table 4, the values of $R^2$ and $Q^2$ enable us to validate the inner model and the significance of the relationships between the constructs is analyzed with the path coefficients (if $p > 0.200$) and p-value of the Student t-test (if $p < 0.05$). Globally, the model explains 66.9% of the use of remote work through three variables: BI (pc = 0.313, p-val. = 0.000), BE (pc = 0.176, p-val. = 0.028) and Facilitating Conditions (pc = 0.390, p-val. = 0.000). The size effect is measured by $f^2$ which is the change in $R^2$ when an exogenous variable is removed from the model. It is large for BI ($f^2 > 0.35$) and medium for BE and Facilitating Conditions ($f^2 > 0.15$).

The quality of the model is assessed according to several fit measures (Hair et al., 2017), and its predictability is assessed using Stone-Geisser’s $Q^2$. The Goodness of Fit index, at 0.73, the Standardized-Root-Mean-Square-Residual below 0.1 (0.053), the Normed-Fit-Index close to one (0.834) and the RMS Theta close to zero (0.076) all indicate the good quality of the model. To calculate the $Q^2$, we used the Blindfolding procedure in Smartpl. The $Q^2$ for Use (0.488), Behavioral Expectancy (0.539), Behavioral Intention (0.318), and Performance Expectancy (0.530) is higher than zero, confirming the predictive relevance of the model.

Sixty-two per cent of the BE construct is explained by BI (pc = 0.603, p-val. = 0.000), Social Influence (pc = 0.183, p-val. = 0.028) and Facilitating Conditions (pc = 0.158, p-val. = 0.062) at the 6% risk level. Indeed, Facilitating Conditions have a direct and strong effect on use, but a weak one on BE.

The BI construct has a $R^2 = 0.138$ which is the lowest in this model. Only two variables explain this construct: Performance Expectancy (pc = 0.358, p-val. = 0.000) and Social Influence (pc = 0.375, p-val. = 0.000). So, hypotheses H4A and H2A are validated and hypothesis H4B is rejected. Finally, 61% of the variance of Performance Expectancy is explained by Effort Expectancy (pc = 0.786, p-val. = 0.000).

To summarize, as stated in Table 4, eight hypotheses (H1C, H1A, H3B, H1B, H2B, H3B, H2A, H4C) are validated (V) and one is rejected (H4B) at a risk level of 5%. Hypothesis H3A can be accepted with a risk level of 6%, which is still well below the tolerance level of 10%. The low significance of this relationship and the rejection of hypothesis H4B (expected effort to use technology has no impact on intentions), which contrast with the results of Maruping et al. (2017), leads us to suspect that the moderator variables play a significant role in this model.

4.2. Moderation

Our model integrates three types of moderating variables: i) demographic characteristics (gender and age), ii) behavioral tendency (voluntariness and experience), iii) specific features of remote work (distance to office, job position and firm culture). To analyze the moderating effects of these variables, the Multi-Group-Analysis (MGA) procedure of SmartPLS is selected.

4.2.1. Demographic characteristics

Gender distinction and age provide interesting results for

| Respondents | Gender | Age | Dept | Function | Distance to Office (mins) | Voluntariness to use RW | Interview length (mins) |
|-------------|--------|-----|------|----------|--------------------------|------------------------|------------------------|
| A1          | F      | >30 | Finance | Manager | 40                       | Y                      | 30                     |
| A2          | F      | >30 | IT | Manager | 30                       | Y                      | 30                     |
| A3          | M      | >30 | HR | Employee | 40                       | Y                      | 32                     |
| A4          | F      | <30 | HR | Employee | 40                       | N                      | 32                     |
| A5          | M      | >30 | HR | Manager | 75                       | N                      | 45                     |
| A6          | F      | >30 | HR | Manager | 80                       | Y                      | 40                     |
| A7          | M      | <30 | HR | Employee | 60                       | N                      | 40                     |
| A8          | M      | <30 | HR | Team Leader | 40                   | N                      | 26                     |
| B1          | F      | >30 | R&D | Manager | 90                       | Y                      | 30                     |
| B2          | M      | <30 | R&D | Manager | 60                       | Y                      | 30                     |
| B3          | M      | <30 | R&D | Employee (Engineer) | 100                   | Y                      | 30                     |
| B4          | M      | <30 | R&D | Junior Engineer | 30                   | Y                      | 30                     |
| B5          | M      | <30 | R&D | Junior Engineer | 60                   | Y                      | 50                     |
| B6          | F      | >30 | R&D | Team Leader | 120                  | Y                      | 42                     |
| B7          | F      | <30 | R&D | Project | 30                       | Y                      | 40                     |
| B8          | F      | <30 | R&D | Team Leader | 30                   | Y                      | 30                     |
understanding differences in behavior between the respondents. Four relationships of the model are moderated by gender (see Table 5). Gender positively moderates H4B and negatively moderates H4A for females. Gender negatively influences H4B, H2B and H2A for males. Hypothesis H4B is validated for females (the impact of EE on BI is significant with a risk level of 6%), but hypothesis H4A is rejected (PE does not impact BI). These two assumptions are therefore reversed for males and females. This means that females are sensitive to the effort required and males are focused on expected performance (PE). Conversely, males are focused on expected performance and not effort.

Hypotheses H2A and H2B are generally validated, but data shows that BE and BI are not determining factors for those with low voluntariness to use a remote work platform, namely, those who are high versus low voluntariness (Baudier et al., 2020) to use a remote work platform highlighted the moderating role of voluntariness for five hypotheses (see Table 7). H1A and H1C have generally been validated, but data shows that BE and BI are not determining factors for those with low voluntariness to use a remote work platform, namely, those who are

4.2.2. Behavioral tendency

Our study captures behavioral tendency through two factors: voluntariness and experience. Distinguishing between individuals with high versus low voluntariness (Baudier et al., 2020) to use a remote work platform highlighted the moderating role of voluntariness for five hypotheses (see Table 7). H1A and H1C have generally been validated, but data shows that BE and BI are not determining factors for those with low voluntariness to use a remote work platform, namely, those who are

### Table 6

#### Moderation by age.

|                      | Digital natives |                  | Digital immigrants |                  |
|----------------------|----------------|------------------|--------------------|------------------|
|                      | pc | t-val. | p-val. | pc | t-val. | p-val. |
| Behavioral Intention | 0.065 | 1.408 | 0.159 | 0.274 | 4.508 | 0.000 |
| Effort Exp. -> Behavioral Intention (H4B) | −0.090 | 0.680 | 0.497 | −0.146 | 2.033 | 0.042 |
| Social Influence -> Behavioral Exp. (H2B) | 0.073 | 0.675 | 0.500 | 0.162 | 2.034 | 0.041 |
| Social Influence -> Behavioral Intention (H2A) | 0.081 | 1.262 | 0.207 | 0.431 | 3.801 | 0.000 |

### Table 7

#### Moderation by voluntariness.

|                      | High voluntariness |                  | Low voluntariness |                  |
|----------------------|-------------------|------------------|-------------------|------------------|
|                      | pc | t-val. | p-val. | pc | t-val. | p-val. |
| Behavioral Exp. -> USE (H1A) | 0.330 | 3.130 | 0.002 | −0.031 | 0.261 | 0.795 |
| Behavioral Intention -> USE (H1C) | 0.276 | 2.108 | 0.035 | 0.997 | 1.189 | 0.234 |
| Effort Exp. -> Behavioral Intention (H4A) | 0.503 | 2.947 | 0.003 | 0.078 | 1.493 | 0.136 |
| Social Influence -> Behavioral Exp. (H2B) | 0.271 | 12.238 | 0.000 | 0.075 | 1.221 | 0.222 |
| Social Influence -> Behavioral Intention (H2A) | 0.506 | 9.610 | 0.000 | 0.059 | 0.784 | 0.433 |

### Table 5

#### Moderation by gender.

|                      | Male |                  | Female |                  |
|----------------------|------|------------------|--------|------------------|
|                      | pc | t-val. | p-val. | pc | t-val. | p-val. |
| Effort Exp. (EE) -> Behavioral Intention (H4B) | −0.011 | 1.040 | 0.298 | −0.159 | 1.912 | 0.057 |
| Perf. Exp. (PE) -> Behavioral Intention (H4A) | 0.503 | 2.936 | 0.003 | 0.051 | 0.756 | 0.450 |
| Social Influence (SI) -> Behavioral Exp. (H2B) | 0.088 | 1.030 | 0.303 | 0.235 | 4.676 | 0.000 |
| Social Influence -> Behavioral Intention (H2A) | 0.096 | 1.279 | 0.201 | 0.471 | 4.689 | 0.000 |
obliged to use them (low vol). It is therefore logical that for these people, their intentions do not influence their use, just as expected performance of the system and social influence do not influence their intentions, unlike those who are in a voluntary process of use. The latter are also influenced by their social relations in the adoption of this technology (H2A and H2B are validated).

Regarding experience, following the approach of Al-Qeisi et al. (2015), we constructed two groups (low and high experience) from the median score obtained on our items. Six hypotheses were found to be sensitive to employees’ individual prior experience with remote work platforms (see Table 8). H1C is generally validated, but the impact of BI on the use of remote work platforms is not validated for those with low prior experience with remote work platforms. The lack of knowledge of the technology and its benefits among those with a low amount of experience means that expected performance does not influence their intentions (H4A is rejected) and their intentions do not translate into use (H1C is also rejected).

Those with low experience thus have difficulty adopting the technology. This is confirmed by the fact that the effort required to master this technology has a very negative impact on their intentions (H4B is strongly validated), whereas this variable has no impact on the intentions of experienced individuals. Indeed, prior experience reduces EE because employees have already learned how to work remotely. Moreover, facilitating conditions become very significant for people with low experience (H3A), which means that these individuals need incentives (logistical) to adopt the technology.

Although H2A and H2B are validated, the BE and BI of employees with strong prior experience are not particularly influenced by social influence. Their experience makes them less sensitive to the opinions of other people, even if they are referents.

### 4.2.3. Specific features of remote work

With regard to the specific features of remote work, three main characteristics were defined through the literature review: distance to office, job position and firm culture.

Following the same approach as for the previous moderator variables, we differentiated two groups (low and high distance) from the median score obtained to the question about distance between office and home (in minutes). The distance between home and office mediates four hypotheses (see Table 9). Although hypothesis H1A is validated for the sample as a whole, BE does not influence use for those who live close to their workplace. These people are indifferent regarding working from home or in their office.

In contrast, H4A is validated, but PE does not play a role for those living far from the office, perhaps because they save time in travelling between their home and the office. Therefore, the expected performance of this technology has only a small effect (at the 10% risk threshold) on their intentions.

Interestingly, both H2A and H2B are validated but SI does not influence the BE of those who live far away and does not influence the BI of those who live close to the office, which can be explained by the preponderance of the convenient aspects of working in the office.

The job positions of individuals within their organization, whether they hold a management position or not, has been found to moderate four hypotheses (see Table 10).

Managers’ BE does not impact their use of remote work platforms, which rather mainly depends on whether they have employees to manage remotely. Unlike that of specialized workers which follows hypothesis H2A and H2B, their BE et BI are not influenced by SI. Indeed, they are less subject to social influences that would push them to work remotely because their BI and use largely depend on the working modality of their staff. Generally, H4A is validated because for the majority of employees, BI depends on PE, but this is not the case for their managers who are obliged to follow, control, and supervise the work of others who may be working remotely.

Adherence to the values of an innovative corporate culture was rated according to a Likert scale ranging from “describes my organization most of the time” (5) to “does not describe my organization” (1) (Saha & Kumar, 2018). We defined two groups (facilitating firm culture or not) from the median score obtained from this scale. This factor moderated four hypotheses (see Table 11). Although H1A is validated, for employees who do not fit to the values of the innovative culture, BE does not influence the use of remote work platforms. Such use then depends on BI and FC as per hypotheses H1C and H3B. Similarly, H4A is validated, but PE does not influence BI for these people, which depends rather on SI, in accordance with H2A.

### 5. Qualitative data analysis

In this section, we complement the quantitative analysis with a qualitative analysis of 16 interviews performed in order to refine our understanding of remote work practices. We coded the interview verbatim according to four main themes, namely, privacy, trust,
security, and efficiency. This analysis, synthesized in Table 12, enabled us to identify three main results.

First, the companies provide many tools which, when combined, constitute the remote work platform. Indeed, remote work tools are not necessarily integrated, and they include corporate tools and employee self-added tools. In addition to the cloud and VPN, corporate tools include QQ (an instant messaging program from Tencent), OA (Office Automation) and Ding (a corporate cooperation and communication platform from Alibaba). These tools are complemented by WeChat (mobile social media from Tencent) which is added by employees themselves who use it in their private communications as well.

While WeChat fulfills the same communicative functions as Ding, employees typically use WeChat for two main reasons. First, WeChat allows them to disconnect from the tools provided by the company while maintaining contact in case of emergency. Indeed, Ding is considered intrusive because managers can track employees and monitor their activities. Interviewees reported cases in which their managers contacted them during the evening and weekend for work related matters. Also, WeChat enables them to engage in informal information exchanges with colleagues and external partners, while Ding is mostly used by interviewees for formal communication with their superiors in the command line.

The diversity of tools within the remote work platforms enables a better understanding of our model. Indeed, the more tools are included in the platform, the higher the performance expectancy, but the higher the effort expectancy also, which can reduce the attractiveness of the platform for some employees. More specifically, our results indicated that effort expectancy limits behavioral intention among women, so the fact of there being plenty of tools may be a hindrance to their acceptance of the remote work platform. For men, the higher the performance, the less the quantity of the tools available is an issue provided they perform well.

Furthermore, the remote work tools provided by the company seem to be globally efficient for intra-organizational exchange and do not engender major security and privacy challenges because employees did not need to look for other tools (except WeChat) for operational purposes. In contrast, interviewees indicated that WeChat is widely used for teamwork and cooperation because the other tools are not adequately efficient for informal information exchange. WeChat is commonly used

| Table 11 | Table of platform usage | Source: authors’ analysis |
|----------|-------------------------|--------------------------|
| Usage    | Platform                | Privacy                  | Trust                     | Security                             | Remote work efficiency          |
| Formal Info Exchange | Corporate tools: Email, Ding, ERP, CRM, QQ, VPN, Huawei Cloud, Corporate WeChat, OA | Occasionally my director asks me to work at the weekend (A8). | We meet face-to-face to build trust (A3). | Remote work accounts are personal, no strict measures for security of information; however there has been no incident so far (B6). | Remote work is fine for reporting results (B6). Remote work communications may create misunderstanding, as we may not react immediately (A4). |
| Informal Info Exchange | Self-added tools: WeChat | In my case, informal communication using WeChat did not cause any leakage of private information (B1). | Informal exchanges are often absent in remote work settings (A7). | Strict management of confidential documents/data. Data can be collected via the remote work platform but cannot be exported (B5). | Remote work is not efficient compared to face-to-face communication, because it is not as authentic (B6). Remote work is more suitable for introverted employees (B5). Some employees procrastinate when they work remotely (A7). Working face-to-face is more suitable for communication with leaders (B6). |
| Management | Self-added tools: WeChat | Since we can remotely access company information systems, we were occasionally asked to work at the weekend (A6). | Team meeting in a face-to-face setting is more suitable for trust building (B6). | Individual accounts so no security issues so far (A6). | Remote work is not fine for reporting results (B6). Remote work communications may create misunderstanding, as we may not react immediately (A4). |
| Internal Cooperation (without hierarchical interference) | Self-added tools: WeChat | Internal co-operation using VPN or Ding has not caused any privacy issues (B1). | Working face-to-face is extremely important as it is more functional, being able to see each other. Remote work is not suitable for building trust (A7). | No security issues found when communicating with colleagues via remote work tools (B1). | In remote work, we do not contact colleagues in other departments, but only contact our managers and subordinates (A7). We could not have in-depth communications via RW tools (A2). |
| External Cooperation (clients, suppliers, and partners) | Self-added tools: WeChat, Skype, Zoom, TenCent meeting, Corporate tools: Email, QQ, phone | Some candidates wish to remain anonymous (A8). WeChat allows us to communicate with candidates in the evening (A5). | Face-to-face exchanges are a conventional way to establish trust. Face-to-face meetings are necessary for establishing friendship, which is important for business deals (A7). Face-to-face meetings allow more efficient trust building, as we can observe facial expressions (B7). | Some clients require confidentiality about positions for recruitment; we ask staff to communicate the position to only one candidate at a time, no group posting (A8). | We use remote work in the beginning (of a relationship), and we meet face-to-face if [the prospect is] interested (B4). |
in people’s private lives, so it benefits from a high acceptance as it does not require additional appropriation efforts.

Ding Ding, however, is solely used for management purposes, so it is uniquely associated with work. Consequently, its use is limited beyond the organizational boundaries because it is considered to be more intrusive than WeChat. The interview verbatims indicate that the tools provided by the company are considered secure and procedures and guidelines are provided to ensure safe use. For instance, group postings are not encouraged for all types of information in order to protect confidential data, and, in some cases, data can be imported into the remote work platform, but not exported, so the organization prevents any information leakage.

Thirdly, despite the sophistication of remote work tools, digital exchanges are perceived as being less efficient than face-to-face exchanges for complex tasks and their ability to build trust is deemed to be very limited. Indeed, verbatim reflected how employees have limited trust in the tools to provide the same potential as face-to-face interactions. They only allow for limited social relationships with colleagues and partners. Relationships conducted via the platform are considered less authentic and efficient, especially concerning potential partners still in the process phase. Nevertheless, remote work tools are reported to provide a good forum for introverted employees who feel more at ease on the platform than in face-to-face contexts. So, the remote work tools are not deemed to be totally efficient. Trust and perceived efficiency are intimately connected because they tend to under-evaluate a tool which they do not trust. Limited trust in the remote work platform generates a general preference for face-to-face meetings.

Finally, this qualitative study reinforces the conclusions obtained from the survey because it provides insight into how the problems of adopting remote work platforms stem from the diversity of remote work tools, the perception of the efforts required to master them and their expected performance. These differences in perception depend on three types of factors identified as moderating variables, and not on potential issues of security, confidentiality, or privacy.

6. Discussion and implications

After the Covid-19 lockdown, this study explores the driving factors that influence behavioral intentions and expectation to use remote work, together with the moderating role of several factors including generation and gender. The following section develops the theoretical contributions for each of the three categories of moderating factors, namely, demographic characteristics, behavioral tendency, and factors related to the specific features of remote work. Following this, the managerial implications of these findings and future research directions are discussed.

6.1. Key findings and theoretical contributions

This study contributes to the literature on remote work by providing theoretically-grounded relationships and moderating variables to explain BE; BI and use of remote work platforms by drawing on an enhanced version of the UTAUT model (Maruping et al., 2017). Thus, we contribute to “theory-building and links to existing organizational theories” in remote work research (Bailey & Kurland, 2002, Chabaud et al., 2017).

6.1.1. Demographic characteristics

Prior studies have found that females value remote work more than males (Belanger, 1999a, 1999b; Mokhtarian et al., 1998) even though more recent studies indicate that things have changed over the last twenty years (Nakrosiene et al., 2019). Our study found that males and females do share the same characteristics with a few major exceptions. For example, the impact of EE on BI is significant for females but not for males. Conversely, the PE does not impact BI for women while it does for males. Finally, unlike for females, SI does not impact BE and BI for males. Thus, our study contributes to the discussion by providing empirical insights into the role of gender in determining BE, BI and use of remote work platforms.

Prior studies have found that differences in age lead to gaps in the perceptions of the advantages of remote work (Earle, 2003; Nakrosiene et al., 2019) but none have made associations between age and BI and use. Our study contributes by providing more insights into the role of age in the adoption of remote work platform use. For instance, we found that BI has no impact on use of remote work platforms among digital natives, which may be explained by the fact that BE is more stable than BI (Mahardika et al., 2020).

6.1.2. Behavioral tendency

We found that the impact of BI on the use of remote work platforms is stronger among those having prior experience with remote work platforms. The impact of BI on use had also been identified in the study by Maruping et al. (2017) on the adoption of IT technology. Indeed, the more experience an individual has, the more BI depends on EE and PE and impacts their behavior. The impact of BI on use of remote work platforms is stronger among those with lower prior experience. This result matches that of Maruping et al. (2017), who also found that the more prior experience a person had, the less BE influenced their behavior.

6.1.3. Facilitating conditions

Another aspect is facilitating conditions such as the technical means to access necessary corporate documents from home (Cooper & Kurland, 2002; Wiesenfeld et al., 2001) and access to ICT infrastructure (Scholefield & Peel, 2009) which can negatively affect remote work (Perez et al., 2003). Prior research also highlighted the importance of the overall appropriateness of the home as the working place environment (De Croon et al., 2005; Bailey & Kurland, 2002; Morgeson & Humphrey, 2006) which favorably impacts satisfaction with remote work, perceived advantages of remote work, career opportunities and productivity (Nakrosiene et al., 2019). Even though these studies have advanced our understanding of remote work practices, they have not shown the effect of these facilitating conditions on BE and use. Our findings validate the hypothesis that facilitating conditions are determining factors of BE and use. Although facilitating condition have been shown to be an important factor in determining the acceptance of remote work use (Bailey & Kurland, 2002), no prior research has measured its relative importance for any distinct group of people (Morgeson & Humphrey, 2006). For instance, even though FC has generally been found to be a determining factor of BE in our sample, our results indicate that FC is not a determinant of use among workers with prior experience.

The present study enriches the findings of previous studies which did not include the ‘facilitating conditions’ construct in their model (Song et al., 2020).

6.1.4. Specific features of remote work

In addition to facilitating conditions, other specific features of remote work have their own impact on remote work adoption, namely innovative cultures and distance between office and home.

Prior research has shown and measured the positive moderation of innovative cultures regarding affective commitment on employees’ job satisfaction (Saha & Kumar, 2018) but has not measured its effect on BE and BI. Our results show how, for employees who are not aligned with the values of the innovative culture, BE does not influence use of the remote work platform, which is instead largely dependent on BI and FC. This result contributes to the study of innovative culture, while also contradicting the results of Maruping et al. (2017) which confirmed that the effect of BE on use is weaker the more experience the employee has. In the same way, for those who do not share the values of the innovative culture, PE does not influence BI, which depends on SI. Interestingly, Maruping et al. (2017) found no moderator for the influence of BI on BE regarding the adoption of IT technologies, neither did we in our study of
remote work platforms.

Previous research has shown contradicting results regarding the effect of the distance between office and home on remote work. Indeed, commuting time (Tremblay, 2018) and travel cost reduction (Sarbu, 2018) are important aspects which make remote work more attractive, yet their overall effect on remote work outcomes is debated (Nakrosiene et al., 2019). Our study contributes to the debate by showing that BE does not influence use for those who live close to their workplace, but that PE does not play a role for those far away from the office. Moreover, SI does not influence the BE of those who live far away and does not influence the BI of those who live close to the office.

Despite these findings, remote work is considered as a tool for companies to solve problems linked to employees’ geographical constraints and dispersion (Malhotra et al., 2007). Moreover, remote work may help companies to attract and retain talented employees (Beau-regard et al., 2019) by presenting them this working modality as an innovative initiative (Mayo et al., 2016) while boosting their performance and intellectual capital (Daniels et al., 2001). This study furthermore extended the applicability of the UTAUT model which is the latest in the IS/IT acceptance area (Maruping et al., 2017) by providing a supplementary validation from an additional field.

6.1.5. Security, confidentiality and privacy issues

Prior literature has described the disadvantages remote work technologies such as cloud computing services present, including compromised security and limited privacy on sharing (Chu et al., 2013; Paquette, Jaeger & Wilson 2010; Rong, Nguyen & Jaatun 2013) which negatively affect their perceived values. Although privacy, security, and confidentiality are recognized as key determining factors (Gupta, See-tharaman & Raj, 2013), security and confidentiality are not factors in the adoption of remote work platforms in this case study. This finding contributes to prior research which has focused on the positive aspects of remote work platform adoption (Arpacı, 2017).

Only privacy is a concern because being connected all the time can lead to work-family life conflicts (Kossek & Lautsch, 2018). This result confirms that of Mariani et al. (2021) who showed that security and confidentiality are less strong issues if the utility of the services provided by web platforms is strong such as providing digital storage of personal data. Moreover, employees are used to storing confidential data in their companies’ information systems when they work in the office. The switch to remote work platforms does not seem to change their practices. Finally, the context (China, where surveillance is extensive⁵), and the culture can explain these results in terms of cyber-security, confidentiality and privacy (Benjamin, 2017).

6.2. Managerial implications

While promoting remote work within an organization, change managers should take into consideration the role of demographic characteristics, behavioral tendency, and specific features of remote work. Indeed, to be persuasive, employees should be addressed differently depending on their gender, age, voluntariness, prior experience, distance between their home and office, job position and values. For instance, hypothesis H4B is rejected, but the impact of EE on BI is nevertheless significant among females. Conversely, hypothesis H4A is validated, but PE does not impact BI for women. Therefore, while supporting organizational change towards more remote work, managers should place more emphasis on low effort requirements to learn how to use the platform for females, and on high platform performance for males. Hypotheses H2A and H2B are validated, but the data shows that SI does not impact BE and BI for males. Hence, to persuade women, organizations may ensure strong SI to boost their BE and BI, but this is less necessary for males.

In addition to gender, the generational gap should be taken into consideration. Indeed, H1C is validated but BI has less impact on use among digital natives. In the same way, H4B is rejected, but EE does impact BI for digital immigrants. H2A and H2B are validated but SI has no impact on BE and BI among digital natives. Hence, change managers should justify the effort and provide social support for digital immigrants to learn how to use a new remote work platform component, but this is not so necessary among digital immigrants.

Behavioral tendency is also to be taken into account. For example, H1A and H1C are validated, but not for those who are obliged to use remote work platforms, namely, those with low voluntariness. For these people, BE and BI do not lead to use of remote work, and although H4A, H2A and H2B are validated, their BI is not influenced by PE, and SI has no influence on their BI and BE. Consequently, managers should design their communication plan on H1B, H3 and H4B/C in order to convince those with low voluntariness, thus placing the emphasis on facilitating conditions, high performance, and low effort.

FCs influence BE for employees with low prior experience, so managers should provide them with better conditions to facilitate the adoption of remote work. For these employees, PE does not greatly influence BI, which may be explained by a relative misunderstanding of the performance of remote work platforms. In line with the literature, training and education appear to be instrumental in generating a perceived ease of use among users of remote work platforms (Arpacı, 2017). Thus, while organizing training for remote work, managers should place the emphasis on the performance of the system to better convince employees with low experience to use it.

6.3. Limitations and future research

Despite its contributions, this study has several limitations that may be addressed in future research. Indeed, future research may further the debate looking at appropriation rather than adoption of remote work (Orlikowski, 2007). Disregarding the role of human agency by studying remote work technologies as only a material dimension to be adopted may be misleading, given that people are active creators rather than passive beneficiaries of technologies (Kaplan & Tripsas, 2008). Moreover, the integration of remote work technologies in organizations does not occur in a power vacuum. Future research could mobilize the theory of practice (Lissillour & Sahut, 2021; Monod et al., 2022) to shed sociological insights on the impact of remote work technologies in organizations in which several groups are competing for authority and influence (Lissillour & Wang, 2021). Indeed, remote work also has a dark side which has itself generated considerable literature (Soga et al., 2022). Thus, future research could investigate the determinants of the unintended consequences (Soga et al., 2021) and hidden costs (Rubery et al., 2016) generated by the implementation of remote work platforms.

Moreover, as in a recent study (Choudrie et al., 2018), future studies may look at the Task Technology Fit to better understand the importance of the fit between the way the organization is organized and remote work modalities. One further domain which studies on remote work could look at is innovativeness, which is the extent to which creative ways of working remotely while creating utility are more attractive and accepted than a shift toward a more classic form of remote work. The recent pandemic has forced companies to invest in IT in order to develop capabilities to remain resilient in times of crisis (Rusinko, 2020). Beyond IT, the successful implementation of a remote work platform implies adaptive work to ensure that it remains strategically aligned to the corporate strategy and infrastructure (Lissillour et al., 2020). Future research may look at how to adapt the strategic alignment model to ensure performance and acceptance of a remote work platform.

The scope of this study was also limited to the characteristics of employees which are most cited in the literature: gender, age, position, distance from the office, and experience. Other demographic variables could be added in future research.

---

⁵ https://fpf.org/wp-content/uploads/2019/07/Peter-Swire-le-monde-annotated-bibliography.pdf.
Finally, this study was conducted in the Chinese context. Given that Chinese labor relations and culture strongly influence practices and thus the use of remote work platforms (Zhou et al., 2021), international comparison studies are therefore needed to be able to assess the generalizability of our results.

7. Conclusions

The objective of this paper is to identify and test the determinants of the BE of use of remote work platforms. We selected BE as a core construct because it has been shown by prior research in the field of IT to be a better predictor of use than BI (Venkatesh et al., 2008). To achieve this objective, we adapted the UTAUT model to propose a nomological set of interrelationships between the two antecedents of BE and four moderators provided by the model. We also identified three categories of moderating variables, namely, demographic characteristics, behavioral tendency, and specific features of remote work. The results provide strong support for adapting the research model for the study of remote work platforms, as nine out of ten hypotheses were validated. The results of the analysis reveal how the moderating variables directly affect most relationships, which has managerial implications for companies implementing a remote work platform. Meanwhile, despite its limitations, this study provides theoretical contributions to the study of remote work platforms by highlighting the sources and mechanisms of remote work platform use. Considering the relevance and increasing prevalence of remote work since the beginning of the Covid-19 pandemic, our findings provide researchers and practitioners with a deeper understanding of remote work platforms which can be used to develop interventions to optimize its adoption and use.

CRediT authorship contribution statement

Jean Michel Sahut: Conceptualization, Methodology, Formal analysis, Project administration, Resource, Validation, Supervision, Writing – original draft, Writing – review & editing. Raphael Lissillour: Investigation, Conceptualization, Data curation, Writing – original draft.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Appendix A. Construct reliability and validity

|                   | Cronbach’s Alpha | rho_A | Composite Reliability | AVE   |
|-------------------|------------------|-------|-----------------------|-------|
| Behavioral Exp.   | 0.884            | 0.887 | 0.945                 | 0.896 |
| Behavioral Intention | 0.879          | 0.896 | 0.942                 | 0.891 |
| Effort exp.       | 0.882            | 0.882 | 0.944                 | 0.894 |
| Facil. Condition  | 0.852            | 0.855 | 0.901                 | 0.696 |
| Perf. Exp.        | 0.924            | 0.925 | 0.952                 | 0.866 |
| Social Influence  | 0.918            | 0.922 | 0.942                 | 0.804 |
| USE               | 0.888            | 0.890 | 0.947                 | 0.899 |

Discriminant validity was also tested according to the recommendations of Chin (2010). Since the square root of the AVE of each factor exceeds the correlations between the factors in pairs, the discriminant validity is validated.

References

Allen, T. D., Johnson, R. C., Kiburz, K. M., & Shockley, K. M. (2013). Work-family conflict and flexible work arrangements: Deconstructing flexible. Personnel Psychology, 66 (2), 345–376.
Al, U., Mehmod, A., Majeed, M. F., Muhammad, S., Khan, M. K., Song, H., et al. (2019). Innovative citizen services through Public Cloud in Pakistan: User’s privacy concerns and impacts on adoption. Mobile Networks and Applications, 24(1), 47–68. https://doi.org/10.1007/s11036-018-1132-x
Al-Qesiti, K., Dennis, C., Hegazy, A. A., & Abbad, M. (2015). How Viable Is the UTAUT Model in a Non-Western Context? International Business Research, 8, 204.
Almarzooi, A. A., Kabbar, E., Naser, M., & Shen, H. (2019). Gender effect on cloud computing services adoption by university students: Case study of Saudi Arabia. International Journal of Innovation, 7(1), 155–177. https://doi.org/10.5588/ijv.71.351
Almarzooi, A. A., & Shen, H. (2018). Adoption of cloud computing services by developing country students: An empirical study. In F. Saeed, N. Gazem, F. Mohammed, & A. Bulaish (Vol. Eds.), Recent trends in data science and soft computing. IRTC 2018. Advances in intelligent systems and computing: Vol. 843Cham. Springer. https://doi.org/10.1007/978-3-319-99007-1_85.
AlGalbawi, M. B. (2016). Antecedents of software-as-a-service (SaaS) adoption: A structural equation model. International Journal of Advanced Computer Research, 6(25), 114–129. https://doi.org/10.19101/IJACR.2016.626619.
Ammons, S. K., & Markham, W. T. (2004). Working at home: Experiences of skilled white-collar workers. Sociological Spectrum, 24(2), 191–228.
Arpaci, I. (2017). Antecedents and consequences of cloud computing adoption in education to achieve knowledge management. Computers in Human Behavior, 70, 382–390.
Bagozzi, R. P., & Yi, Y. (1994). Advanced topics in structural equation models. Bagozzi RP (ed) Advanced methods of marketing research. Blackwell, Oxford, 1–51.
Bailey, D. E., & Kurland, N. B. (2002). A review of telework research: Findings, new directions, and lessons for the study of modern work. Journal of Organizational Behavior, 23(4), 385–400.
Baudier, P., Ammi, C., & Deboeuf-Rouchon, M. (2020). Smart Home: Highly educated students’ acceptance. Technological Forecasting and social Change, 153, Article 119355. https://doi.org/10.1016/j.techfore.2018.06.043
Beauregard, T. A., Bastle, K. A., & Canonicos, E. (2019). Telework: Outcomes and facilitators for employees. In R. N. Landers (Ed.), The Cambridge Handbook of Technology and Employee Behavior (pp. 511–543). Cambridge: Cambridge University Press.
Belanger, F. (1999a). Workers’ propensity to telecommute: An empirical study. Information & Management, 35(3), 139–153.
Belanger, F. (1999b). Evaluation and Implementation of Distance Learning Technologies, Tools and Techniques: Technologies. IGI Global, Hersey: Tools and Techniques, Benjamin, G. (2017). Privacy as a Cultural Phenomenon. Journal of Media Critiques, 3 (10), https://doi.org/10.17349/jmc117204.
Bigliardi, B., Dormio, A. I., Galati, F., & Schiama, G. (2012). The impact of organisational culture on the job satisfaction of knowledge workers. VINE: The Journal of Information and Knowledge Management Systems, 42(1), 36–51.
Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? Qualitative Research, 6(1), 97–113.
Chabaud, D., Corbel, P., Janssen, F., & Sahut, J. (2017). 80 ans d’Innovation en Gestion. Gestion, 2000(34), 51–61. https://doi.org/10.3971/jg2000.345.0051
Chapman, A., Sheehy, N., & Hoodwood, S. (1995). The organizational implications of teleworking. International Review of Industrial and Organizational Psychology, 10, 229–248.
Choudrie, J., Junior, C. O., McKenna, B., & Richter, S. (2018). Understanding and conceptualising the adoption, use and diffusion of mobile banking in older adults: A research agenda and conceptual framework. Journal of Business Research, 88, 449–465.
Chu, C. K., Zhu, W. T., Han, J., Liu, J. K., Xu, J., & Zhou, J. (2013). Security concerns in popular cloud storage services. IEEE Pervasive Computing, 12(4), 50–57.


Tremblay, D. G., & Genin, E. (2007). The demand for telework of IT self-employed workers. The Journal of E-working, 1(2), 98–115.

Tripathi, S. (2018). Moderating effects of age and experience on the factors influencing the actual usage of cloud computing. Journal of International Technology and Information Management, 27(2), 121–158.

Venkatesh, V., & Johnson, P. (2002). Telecommuting technology implementations: A within-and-between-subjects longitudinal field study. Personnel Psychology, 55(3), 661–673. https://doi.org/10.1111/j.1744-6570.2002.tb00125.x

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. Decision Sciences, 39(2), 273–315.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. Management Science, 46(2), 186–204.

Venkatesh, V., Brown, S. A., Mursuping, L. M., & Bala, H. (2008). Predicting different conceptualizations of system use: The competing roles of behavioral intention, facilitating conditions, and behavioral expectation. MIS Quarterly, 22(3), 483–502.

Wiesenfeld, B. M., Raghuram, S., & Garud, R. (2001). Organizational identification among virtual workers: The role of need for affiliation and perceived work-based social support. Journal of Management, 27(2), 213–229.

Yiing, L. H., & Ahmad, K. Z. B. (2009). The moderating effects of organisational culture on the relationships between organisational commitment and job satisfaction and performance. Leadership & Organisation Development Journal, 30(1), 53–86.

Zhou, X., Rasool, S. F., Yang, J., & Asghar, M. Z. (2021). Exploring the Relationship between Despotic Leadership and Job Satisfaction: The Role of Self Efficacy and Leader-Member Exchange. International Journal of environmental research and public health, 18(10), 5307. https://doi.org/10.3390/ijerph18105307

Dr. Raphael LISSILLOUR is an associate professor in management at IPAG Business School and holds the position of China Program Director. He created and directs professional doctoral programs, Msc, EMBA and MBA programs in foreign markets in Asia and Africa in which he promotes the principles of Engaged Management Scholarship and Evidence-based Management. He graduated from IPAG Business School where he majored in international business. After having worked as a business developer during 10 years in Germany, South America and China (working language German, Spanish, and Chinese), he engaged in doctoral studies and holds a PhD in International Relations from Jilin University. He is also a Non-Resident Research Fellow at the Ecole Polytechnique (CRG) and was a Visiting Professor of Management at Zhejiang Gongshang University (China). His scientific interests focus on (1) logistics and international relations with a focus on maritime safety, (2) sociological approaches to information systems, and (3) innovation and entrepreneurship. His research articles have been published in top tier journals such as Information Technology and people, Logistique & Management, RIMHE, Revue Interdisciplinaire Management, Homme & Entreprise, Supply Chain Forum: an International Journal, and Gestion 2000. He is a member of the scientific committee in several international conferences such as the Knowledge Conference on Economics and Management 2019 and 2020 (organized by Falacky University in Olomouc), and the “AI in Management” conference 2019 (in partnership with AOM divisions MC and OCIS). He regularly participates in international conferences on management and supply chain such as IRM-BAM, RIRL, IICEG, EMS, and AOM ODC division conference.

Dr. Jean Michel SAHUT is Professor of Finance & IT at IDRAC Business School, France. He teaches entrepreneurial finance, business plan, electronic payments, finance and technologies, research methodology, and serious game. Previously, he was Professor at Geneva School of Business Administration, University of Applied Sciences (Ch), Associate Dean for Research at Amiens School of Management (Fr), Professor of Finance at Telecom & Management Paris Sud (Fr) and the director of the RESFIN Laboratory (IT & Finance). He has held Visiting Professorship positions at numerous universities in Canada, China, India, UK, Switzerland, Slovakia, Senegal and Tunisia. He served as an expert to the French Ministry of Education & Research, the Swiss National Foundation and the European Commission. He has received a lot of grants to finance his researches from the European Commission (FP5 and Tempus Meda), French Ministry of foreign Affairs (Cocop project), AMF of Quebec, Institute of Financial Market Grant (www.thefilm.org, US), Louis Leprince-Ringuet Foundation, and International Telecommunication Union, among others. He was also the Hewlett Packard chair holder on “Mobile technologies & Management” at Excelia Group, France. He has been a main organizer of 31 international conferences. He has published more than 100 scientific papers about finance, entrepreneurship, digital and innovation in international peer review journals and five books. He has been a guest editor for special issues of Journal of Business Research, Small Business Economics, Technological Forecasting and Social Change, Economic Modelling, Canadian Journal of Administrative Sciences, Journal of Management & Governance, Management International, Bankers, Markets & Investors, etc. He is the editor-in-chief of Gestion 2000 (academic journal created in 1936, indexed by Scopus and Pensee).