Improving Employee Agility Using Enterprise Social Media and Digital Fluency: Moderated Mediation Model

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ABSTRACT The usage of enterprise social media (ESM) has rapidly increased in the workplace. Firms adopt the ESM platform for the knowledge sharing and work-related communication of employees. However, the efficient use of the ESM technology in the workplace remains a challenge for organizations and business leaders. Previous studies have inconsiderably focused on this domain of research. The existing research investigates the influence of ESM usage on employee agility through meta-knowledge considering the moderation role of digital fluency. Using 263 responses from Chinese employees, this study investigates how ESM usage improves employee agility through meta-knowledge. Results confirm that organizations can improve the meta-knowledge of employees through investment in the ESM technology and that ESM usage is significantly related to individual agility via meta-knowledge. Digital fluency strengthens the relationship between ESM usage and employee agility and supports the correlation between ESM usage and employee agility via meta-knowledge. Finally, on the basis of the results, the theoretical and managerial implications of the study are discussed.

INDEX TERMS Meta-knowledge, digital fluency, employee agility, ESM usage.

I. INTRODUCTION

The enterprise social media (ESM) technology has increasingly penetrated the workplace, and organizations have been strategically deploying such technology to support the communication and collaboration of their employees [1], [2]. ESM relates to a digital system that allows employees to cooperate and share content with a particular partner or send messages to everyone in the workplace [3]. The distinctive features of ESM set it apart from existing communication and collaboration technologies. For instance, the ESM technology allows individuals to view other individual communications and discussions without the interdependence of time and space [4], [5]. Scholars have reported the several benefits of ESM usage in the workplace, specifically in information sharing, social interaction, and work performance [6]. With such benefits, ESM usage elucidates employee agility, which is based on the individual capability to react and

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adopt unexpected changes quickly [7], [8]. However, studies related to ESM usage and employee agility are limited and scarce [7], [9], [10]. Specifically, Alavi *et al.* [7] reported that employee agility is based on flexible organizational environments. Cai *et al.* [10] highlighted the role of the psychological conditions of employees in improving employee agility in the ESM environment. Pitafi *et al.* [9] based on information processing theory also discussed the relationship between workplace conflict and employee agility in the ESM context. These studies has indicated that collaboration, knowledge sharing, and flexible working environment are essential elements for improving employee agility. Therefore, addressing the consequence and implications of employee agility in the ESM environment is crucial.

ESM technology features in the workplace have precipitated scholars to investigate the relationship between ESM technology characteristics and employee work performance [6], [11], [12]. Several scholars have also reported that ESM usage increases the meta-knowledge of other employees, which in turn increases their work performance

[13]–[15]. For instance, on the ESM platform, the exchange of contents between two individuals often appears on the wall of the third party, which improves the meta-knowledge of the third party. Specifically, meta-knowledge is the expertise of another coworker who is a professional in a specific field [16]. Meta-knowledge enables an individual to utilize more knowledge than they personally have by facilitating them to locate and thus access the domain-specific knowledge of others. Although meta-knowledge improves individual knowledge, it may have a double-edged role in the workplace. For instance, on the one hand, scholars have noted that meta-knowledge increases employee work efficiency because it allows individuals to know what other colleagues are doing [4], [17]. On the other hand, scholars have also reported that meta-knowledge reduces individual performance since individuals cannot handle considerable information quickly and may make decision-making mistakes [18]. These arguments have yielded mixed results. Therefore, the relationship between meta-knowledge and employee agility must be examined.

The rapid development of the ESM technology has fundamentally transferred work-related communications and faced the challenges of adopting continuous usage behaviors. Additionally, scholars reported that the success of digital technologies, based on individual ability to fluently explore and proper use of technologies [19], [20]. ESM offers several functionalities, including information exchange, social interaction, and work-related communication [4], [21]. These ESM-related functionalities will only be useful if users have the ability to properly explore and use ESM functionalities. Previous surveys have given limited consideration to individual capacities with associated ESM usage [22]–[24]. This shortcoming has encouraged us to investigate the role of digital fluency in the ESM technology. Digital fluency refers to the ability to use ESM and potentially have implications on how individuals benefit from ESM usage [25]. Therefore, the current study investigates the moderating role of digital fluency in the relationship of ESM usage, meta-knowledge, and employee agility.

In this research, we examined how the implementation of ESM in the workplace will change the way employees work. We also investigated how ESM usage affects employee agility through meta-knowledge and how digital fluency strengthens the connection between ESM usage and meta-knowledge through a survey conducted from different companies in China. This study has many theoretical and managerial implications. First, the present research outlined the role of meta-knowledge produced by ESM usage in enhancing employee agility. Second, this study discussed the role of digital fluency in improving meta-knowledge. Third, it provided managers with several suggestions in terms of employee agility and ESM usage.

II. LITERATURE REVIEW
A. ESM USAGE IN THE WORKPLACE
Recently, the proliferation of social media tools in organizational context has several implications in organizational communication. ESM usage refers to the extent in which employees use ESM inside enterprises for business- and work-related communications. ESM is a digital platform that facilitates individuals to post, share, edit, and view several types of information with other individuals [3], [26], [27]. Moreover, it is used for effective communication, collaboration, and knowledge sharing and provides other spontaneous activities. Companies use the ESM platform for the communication and collaboration of their employees, which include Jive, Chatter, DingTalk, Slack, IBM Connections, and Yammer. ESM usage by companies has a core trend for business activities [22], [28]. For instance, the allure of these emerging technologies is an increased capability to promote the communication and collaboration of employees within enterprises [26], [29], [30]. According to a recent survey of European Union, approximately 27% of organizations use the ESM technology for their employees [31], [32]. Hence, scholars have begun to explore the consequences and implications of ESM usage in the workplace [1], [33]. For instance, Wong *et al.* [33] proposed that the frequent use of the ESM technology increases communication, which in turn improves employee work performance. Similarly, Song *et al.* [1] conducted a study on a large financial company and found that ESM (DingTalk) usage has a significant effect on an individual or team performance.

Nevertheless, in addition to the benefits of ESM usage, few studies have challenged its efficacy by examining its negative outcomes on employee work performance [18], [34], [35]. For instance, Cao and Yu [34] found a significant relationship among technology–work conflict, ESM usage, and strain, which in turn reduces employee work performance. Chen and Wei [18], investigated the relationship between ESM usage and strain and found that the visibility feature of ESM usage creates communication overload, which has a positive effect on strains. Similarly, Turban *et al.* [35] argued that individual excessive attachment with the ESM technology leads to poor performance and that it is a misuse of Internet resources. The theoretical literature has suggested that further investigation is crucial to address the challenges and implications of ESM usage by employees. Therefore, this study explores the role of ESM usage in improving employee agility through meta-knowledge

B. META-KNOWLEDGE
Meta-knowledge is described as the information or knowledge of others [36]. It facilities other individuals to develop more knowledge than they individually possess by helping them to access other domain-specific knowledge [37]. In previous literature, several scholars have discussed the role of meta-knowledge in distinct contexts [18], [29], [34], [38]. Specifically, Leonardi [36] indicated that, with meta-knowledge, employees can acquire the knowledge of other employees, which, in effect, leads to work performance. By contrast, Cao and Yu [34] asserted that the ESM technology increases information overload, which then improves strains and affects employee work performance. Similarly,

Chen and Wei [18] also found that communication on ESM generates communication overload, which in turn creates strains and poor performances. The above discussion shows the double edge role of meta-knowledge and work performance. Therefore, in the current research, we investigate the role of meta-knowledge in improving employee agility in the ESM environment.

C. DIGITAL FLUENCY

In recent years, digital fluency has been considered an imperative set of the skills and capabilities of individuals for success in the digital age. Digital fluency is defined as the ability of employees to create and reformulate information and use digital technologies properly [25]. Moreover, it can represent the knowledge, abilities, and responses of individuals required to use digital technologies for various reasons in the digital era [39]. Digital fluency is based on the ability of individuals to source information, assess information quality, and learn emerging technologies [20], [25]. In addition, the usage of ESM technology has increased in Chinese firms. Employees use ESM technology for social and work-related communications. The increasing popularity of ESM technology in the workplace has created copious digital information that can be useful for competitive advantages for employees who are able to process, execute, and access the information promptly [40].Furthermore, the ESM platform facilitates individuals to expand their social networks and establish connections with other employees who are expert in a specific domain [20] and extend their social networks. On the basis of individual digital fluency, employees with a high level of digital fluency maintain greater social networks and use ESM technologies more compared with other employees who have a low level of digital fluency [41]. Therefore, this research elucidates how individuals with digital fluency use ESM technology and organize meta-knowledge to respond to unpredictable market changes effectively and promptly.

D. EMPLOYEE AGILITY IN THE WORKPLACE

Employee agility refers to the ability to react to and adapt changes appropriately and promptly and allows employees to capitalize changes and turn them into opportunities for development [7], [11], [42]. Scholars have reported the several benefits of employee agility, which include dealing with customer needs, facing uncertain scenarios, learning from uncertainties, and providing proper solutions of problems promptly [11], [43]. Sherehiy [44] and Alavi *et al.* [7] proposed the three dimensions of employee agility, namely, adaptability, proactivity, and resiliency. Hence, employee agility comprises three important characteristics. According to Patil and Suresh [43] and Sherehiy *et al.* [45], the adaptability dimension involves the abilities of employees to quickly adopt market changes and collaborate with other colleagues across the boundaries of organizations. The proactivity dimension shows the capabilities of employees to discover new opportunities, take necessary actions to overcome the issues related to change, and present solutions to change-related issues. The resiliency dimension refers to the capabilities of employees to perform tasks efficiently under stressful environments and tolerance to unpredictable situations.

Previous research relevant to organizational agility has also proposed that individual agility is a significant component of organizational agility [46], [47]. For instance, Tallon and Pinsonneault [46] reported that organizational agility can be achieved by individual ability to use and adopt new emerging technologies. Similarly, Queiroz *et al.* [47] proposed that the use of IT applications is crucial for firm and individual agility performances. The theoretical literature has validated that the appropriate use of IT applications considerably increases employee agility through collaboration and the advancement of information exchange. The ESM technology consists of more distinct features compared with existing collaboration technologies. Its appropriate use will promote employee agility in the workplace through knowledge sharing. Therefore, the current research aims is to explore employee agility through meta-knowledge in the ESM environment

III. HYPOTHESIS DEVELOPMENT
A. ESM USAGE AND META-KNOWLEDGE

In view of the abovementioned benefits of ESM usage in the workplace, a critical question is how meta-knowledge be expanded using the ESM technology [26], [29], [48]. On the one hand, previous scholars have verified that frequent communication and mutual training are critical to build meta-knowledge [37], [49], [50]. Additionally, Kanawattanachai and Yoo [51] asserted that digital communication among individuals improves meta-knowledge relative to face-to-face communication. On the other hand,Leonardi [36] suggested that even in team collaboration, not every individual can communicate or collaborate with another individual in very large groups. Accordingly, developing meta-knowledge hardly occurs in organizations with several employees. Previous studies have stressed that knowledge management software is essential for the growth of meta-knowledge [38], [52], [53]. Specifically, Choi *et al.* [38] argued that search engines and knowledge management software might improve individual meta-knowledge. Similarly, Majchrzak *et al.* [52] proposed that Wikis facilitate individuals to locate the domain-specific knowledge and expertise of their colleagues because individuals contribute their knowledge using these systems. Nevertheless, this knowledge management software requires individual actively contribute their knowledge [14], [26], [54], has shown that individuals are impossible to do so because a lot of time and effort is required [55].We followed the previous argument of Leonardi [36] that ESM usage increases communication awareness that will then increase meta-knowledge. The communication visibility feature of the ESM technology facilitates users to view and observe the communication of other users. In addition, Leonardi and Meyer [4] reported that communication between individuals on the ESM platform is accessible. If the information of communicator parties is available on the ESM platform,

then other users become aware, which increases the meta-knowledge of other users. The ESM technology consists of more distinct features of communication compared with other communication technologies. For instance, the ESM technology consists of historical communication contents, and employees can view that contents any time even if they are not directly involved in the communication session [18], [56], [57]. Furthermore, Leonardi and Meyer [4] proposed that daily communication among employees on the ESM platform consists of considerable information, which directly increases the meta-knowledge of other employees. On the basis of previous arguments, this study proposed the following hypothesis:

H1: ESM usage is positively related to meta-knowledge.

B. META-KNOWLEDGE AND EMPLOYEE AGILITY
We hypothesized that ESM usage can directly increase the meta-knowledge of employees as it enables the contents of communication awareness as suggested by Leonardi [36]. Without meta-knowledge, individuals would not be capable of using the domain-specific knowledge of their colleagues because they would not know what others know [58]. Meta-knowledge allows employees to know the expertise and location of their colleagues. Finding an expert person in a specific domain in an enterprise is often challenging. Domain-specific information consists of some specific functionalities that are usually not publically available within or outside an organization [59], and meta-knowledge allows employees to know who is expert in a specific domain. However, some expert search module implemented in enterprises databases which requires lot of effort to update and maintain [23], with meta-knowledge individual can quickly search and utilize expertise of other coworker at any time and response to market changes more rapidly [10], [60]. Accordingly, meta-knowledge allows employees to predict what type of information is required to solve an unexpected problem. For instance, employees can use meta-knowledge to view relevant information related to the market to observe its situation, and on the basis of that information, they can also develop different strategies to respond effectively to market changes. The meta-knowledge of employees also plays a distinctive role within an organization [37], [61]. For instance, managers can use the meta-knowledge of their employees in a specific task and benefit from the expertise of their coworkers.

ESM usage improves the awareness of communication content, which then enhances knowledge sharing [33], [48], [62]. As specified earlier, the previous information of other workmates increases meta-knowledge, which is expected to further increase ESM usage. In this context, we claimed that an individual with a high level of observing activities on ESM is likely to have a great level of meta-knowledge, which allows him to respond to market changes. As the frequency of ESM usage increases among employees, they share additional information and contents, which would increase their meta-knowledge and thus enhance their agility. Summing

up the above literature, this research proposed the following hypotheses:

H2: Meta-knowledge is positively related to employee agility.

H3: Meta-knowledge mediates the relationship between ESM usage and employee agility.

C. ROLE OF DIGITAL FLUENCY AS A MODERATOR
In the current digital environment, the procedure of working is rapidly changing. Organizations adopt the ESM technology for their employees as a primary channel of communication, and the increased use of the technology has changed the way employees collaborate, communicate, work, make decisions, and exchange information. However, individuals may lack the critical abilities necessary to use digital technologies and evaluate information. According to previous studies, digital fluency relates to the skills, specific knowledge usage, and critical thinking of individuals [63]. A key feature of digital technologies is information explosion. Hence, we explored the role of digital fluency as a moderator.

Conceivably, individuals with a high level of digital fluency are more capable of using ESM functionalities and more likely to benefit from ESM usage compared with those with a low level of digital fluency. A high level of digital fluency facilitates individuals to access and gain capability in multiple and comparable ESM technologies, thereby leading to a relatively low stickiness to any specific ESM platform. However, no research studies have examined how digital fluency could affect ESM usage.

Furthermore, employees who have a high level of digital fluency are expected to use diverse information produced by ESM usage. They possess the ability to make a selective use of meta-knowledge to fulfill their information needs in the most efficient way. Conversely, employees with a low level of digital fluency are less competent in acquiring and processing information via ESM usage. Given that ESM usage generates a large amount of information through frequent communication and collaboration of employees. As the amount of information increases from different sources, further information emerges, which may reduce individual efficiency in gathering and organizing the information [20]. Digital fluency allows an individual to organize and maximize meta-knowledge. On the basis of previous arguments, we proposed the following hypothesis:

H4: Digital fluency positively moderates the relationship between ESM usage and meta-knowledge.

We hypothesized that digital fluency strengthens the relationship between ESM usage and meta-knowledge, and we also expected that it will conditionally moderate the indirect effect between ESM usage and employee agility. Consistent with our research model, we hypothesized a moderated-mediation arrangement whereby the indirect effect of ESM usage on employee agility that occurs through meta-knowledge will depend on individual digital fluency moderators.
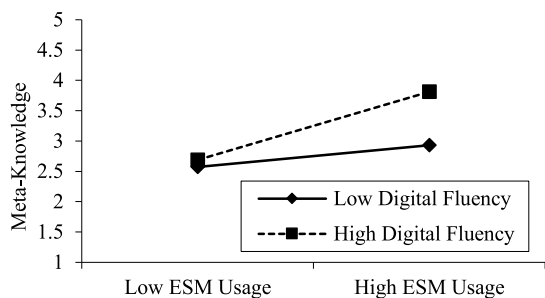
FIGURE 1. Moderating effect of digital fluency.

TABLE 1. Sample demographic information.

	N	Percentage
Gender		
Male	170	64.6
Female	93	35.4
Age		
21–30 years old	126	47.9
31–40 years old	110	41.8
Above 40 years old	27	10.3
Education		
College degree or below	36	13.7
Bachelor's degree	123	46.8
Master's degree or higher	104	39.5
Hours of ESM usage per day		
1 to 2 hrs	35	13.3
3-5 hrs	63	24.0
> 6 hrs	165	62.7
Experience		
1 to 4 years	21	8.0
5-10 years	86	32.7
11-15 years	87	33.1
>16	69	22.2

H5: Digital fluency will moderate the indirect effect of ESM usage on employee agility via meta-knowledge, and the mediated relationship will increase when an employee has a high level of digital fluency.

IV. RESEARCH METHODOLOGY

A. INSTRUMENTS AND SCALES

The scales and instruments used in this study have been adopted by previous studies, which are well structured in their respective domain. All the instruments were measured using a five-point Likert scale from strongly agree to strongly disagree. The research model of the study consists of four constructs, namely, ESM usage, digital fluency, meta-knowledge, and employee agility. To measure the ESM usage, we asked the respondents to answer the questions related to the frequency of ESM usage for work-related communication. Six items were used to measure the use of the ESM technology, and the scale was adopted by Pitafi *et al.* [64]. The digital fluency scale measures the skills and knowledge associated with the ESM technology. The measurement items consist of four items and were adopted by [25]. The meta-knowledge instrument measures the knowledge and communication information of other users. The meta-knowledge construct consists of six items and was adopted by Kanawattanachai and Yoo [51]. To measure the employee agility, we adopted the scale of Alavi *et al.* [7]. The scale measures the quick response of an individual to unexpected environmental changes and to adopt those changes appropriately. Eighteen items were used to measure the employee agility constructs. However, to measure the actual impact of employee agility, age, gender, education, we used the experience as a control variable. The Appendix shows all the survey items.

B. DATA COLLECTION PROCEDURES

The survey questionnaire was used to collect the data and to analyze the research model to accomplish the goal of this study. The survey was conducted in China due to the increasing popularity of the ESM technology in the country. Chinese employees use the ESM technology in the workplace for collaboration and work-related communication because most of the public social network is blocked in China. The target population of this study comprised Chinese employees of different companies, and the developed instrument and scale then underwent the process of standard back-translation. The first survey item was translated into Chinese using translation software and proofread by three Chinese professors, after which back-translated the Chinese questionnaire into English and proofread the issues caused by translation software. Hence, the Chinese questionnaire was used for data collection procedures. The authors initially visited several companies in East China to ensure the ESM environment and then found that employees use the different platforms of the ESM technology. Some organizations use public social media platforms, while others employ private ESM platforms. A total seven Companies are included in the survey that are manufacturing, financial, food processing, chemical fertilizers, and transportation equipment manufacturing. Before conducting the survey, first, the authors contacted the managers of the companies and discussed ESM usage and employee agility. Second, the authors ensured the managers and employees that their feedback was kept secret and that could withdraw from the survey any time. Third, during the period of May 2018 to June 2018, the authors conducted the pilot study on 45 respondents, and the results were satisfactory such that the reliability and validity values were higher than 0.70. The results confirmed that the adopted questionnaire is adequate for this study. We also adopted the convenient sampling procedure and sent questionnaires to 400 employees who used ESM in the workplace from

TABLE 2. Results of confirmatory factor analysis.

Construct	Items	Loading	CA	CR	AVE
Enterprise Social Media Usage	6	0.780-0.927	0.92	0.94	0.72
Digital Fluency	4	0.756-0.911	0.90	0.91	0.72
Meta-Knowledge	6	0.714-0.906	0.91	0.93	0.69
Employee agility	17	0.734-0.900	0.82	0.91	0.69

TABLE 3. Means, standard deviation, and correlations.

Variable	M	SD	AVE Square Root	1	2	3	4
1. ESM Usage	3.70	0.82	0.84	1			
2. Digital Fluency	3.68	1.02	0.84	0.57	.1		
3. Meta-Knowledge	3.66	0.74	0.83	0.40	0.42	1	
4. Employee Agility	3.88	0.41	0.83	0.22	0.25	0.29	.1

TABLE 4. Bootstrapping results.

	B	SE	t	R^2
Outcome Variable: Meta-Knowledge				**0.20**
Constant	0.18	0.10	2.10*	
Gender	0.07	0.04	1.58	
Age	-0.06	0.05	-1.23	
Education	0.03	0.05	0.61	
Daily Hours Usage	-0.17	0.06	-2.95	
ESM Usage	0.38	0.07	5.17**	
Outcome Variable: Employee Agility				**0.39**
Constant	0.46	0.15	3.03**	
Gender	-0.08	0.02	-3.14	
Age	0.04	0.02	-0.90	
Education	-0.02	0.02	-0.90	
Daily Hours Usage	-0.04	0.04	-1.05	
ESM usage	0.10	0.35	1.99*	
Meta-knowledge	0.14	0.03	4.38**	
	Effect	SE	LL95% CI	UL95% CI
Indirect effect of ESM usage on Employee agility	0.10	0.36	0.2191	0.9196
	Effect	SE	z	
Normal theory tests for indirect Effect	0.056	0.10	3.30**	

*Note: *p<0.50, **p<0.01*

August to October 2018. Author used convenient sampling method for several reasons. First, it is easiest method of data collection. Second, this method saves author time and money. Third, convent sampling procedure is useful for pilot studies.

To increase the response rate, the authors followed up by via phone calls and e-mails. A total of 400 questionnaires were personally circulated, and 305 replies were obtained within 6 weeks. Some questionnaires were discarded because they were incorrectly filled in or consisted of incomplete information. Finally, after assessing the questionnaires, we identified 263 responses to be appropriate for the final analysis. A non-response bias was conducted using the method proposed by White [65]. We compared the

first 25% of the responses and then the last 25% of all the constructs. The results corroborated that the t-statistics of all the constructs were insignificant. Hence, the non-response bias was not considered a serious problem of this study. Table 1 specifies the sample information of the samples.

V. DATA ANALYSIS AND RESULTS
A. MEASUREMENT MODEL

We used the SPSS version 21.0 for the data analysis. Additionally, to ensure whether the items show requisite effects on their corresponding factors, we examined the convergent and discriminant validities of the items [66]. Table 2 exhibits the

TABLE 5. Moderation effect.

	B	SE	t	R²
Outcome Variable: Meta-Knowledge				**0.54**
Gender	0.07	0.04	1.73	
Age	-0.06	0.05	-1.20	
Education	0.006	0.05	0.11	
Daily Hours Usage	-0.15	0.06	-2.41	
ESM Usage	0.37	0.07	4.87**	
Digital Fluency	0.25	0.06	4.14**	
ESM Usage* Digital Fluency	0.19	0.05	3.91**	

Note: *$p<0.50$, **$p<0.01$

TABLE 6. Regression results of moderated mediation test for conditional effect.

DF on Employee Agility	Boot indirect effects	Boot SE	Boot Lower limit 95% CI	Boot Upper limit 95% CI
-1 (Low)	0.02	0.011	-0.092	0.054
Mean	0.048	0.015	0.023	0.085
+1 (High)	0.069	0.022	0.033	0.121

Note: CI= Confidence Interval; Bootstrap sample size= 5000

results of all the analyses and that the scores of Cronbach's alpha (CA), composite reliability (CR), and average variance extracted (AVE)are within the standard range as suggested by [67], [68]. range as suggested by [67], [68]. Specifically, Table 2 indicates that the loadings of all the items are higher than 0.70 [69]. The values of CA and CR are also higher than 0.70 (Table 2), and the AVE values of all the constructs are also higher than 0.50 as suggested by [67].

For discernment validity, we employed the procedure that is suggested by the Ou and Davison [66]. On the basis of this procedure, we compared the AVE square root with the inter co-relation of all the constructs. Table 3 specifies the results of the AVE square roots of each construct, indicating that all the square roots of the AVE are higher than the co-relation of all the constructs that conformed to the discernment validity of the research model [66]. Therefore, these findings reflected that the proposed model possesses good convergent validity and discernment validity.

Furthermore, scholars have suggested a common method variance (CMV) assessment for self-reported study methods. Hence, this research used two distinct methods to evaluate the CMV problems. The first method is the proper use of procedural remedies to reduce the CMV problems. Accordingly, all the respondents have informed the fact that there are no right and wrong answers, confirming the secrecy, enhancing survey questionnaire by pre-testing with actual respondents, and by selecting the more common language of survey scales. The second method is the analysis of the possible threat of CMV. The appropriate statistical tests were used. First, the Herman single-factor approach was used on all the items of

all the constructs [70]. The four factors were generated with eigenvalues >1 and account for 73.31%. The first factors have a variance of 25%, which is less than 50. The results validated that CMV is not a serious concern in the current dataset. Second, we used the procedure for CMV proposed by Nunnally and Bernstein [71].

The results verified that the average of substantive factors is 0.71% and that the average method factor is only 0.20% of the variance, implying the nonexistence of a CMV issue in this research. Therefore, all the results authenticated that CMV is not a serious problem of this study. Moreover, we analyzed the multicollinearity by calculating the variance inflation factor (VIF). The results validated that the VIF values are less than five as suggested by [72]. In addition, highest inter-construct correlation (0.57) is lower than a standard value of 0.710 [73]. Therefore, multicollinearity poses no serious threat to this research.

B. MEDIATION

To test the mediating effect of meta-knowledge, we employed the bootstrapping method (sample size = 5000) using the SPSS version 21.0 macro tool. Scholars have suggested the bootstrapping method because it provides more accurate estimation compared with other methods (i.e., Sobel test) when producing the asymmetric level of confidence (CL) [74]. Results in Table 4 specify that ESM usage is significantly related to meta-knowledge (B = 0.38, t = 5.17, p < 0.01), which supports H1. Table 4 findings affirm that meta-knowledge is positively related to employee agility with

B = 0.14, t = 4.38, p < 0.01; thus, H2 is validated. In addition, Table 4 indicates that the relationship between ESM usage and employee agility is mediated by meta-knowledge because the upper confidence (ULI) and the lower confidence (LCI) do not contain zero (LCI = 0.2191, UCI = 0.9196); hence, H3 is validated. We found the insignificant effects of all the control variables (Table 4).

C. MODERATION

To test the moderation effect of digital fluency, the SPSS tool PROCESS macro created by Khan *et al.* [75]. We used model 1 of the PROCESS macro to test the moderation role of digital fluency with the relationship of ESM usage and meta-knowledge. Table 5 specifies the results of H4. The results in Table 5 corroborate that digital fluency positively moderates the relationship between ESM usage and meta-knowledge with B = 0.19, t = 3.91, p < 0.01; hence, H4 is validated by the current dataset. To provide the additional evidence of the moderating effect of digital fluency, we also employed the graphical procedure as suggested by [62]. Figure 1 indicates that digital fluency strengthens the relationship between ESM usage and meta-knowledge.

D. MODERATED MEDIATION ANALYSIS

To analyze the moderated mediation, we used the SPSS PRO-CESS macro as recommended by Podsakoff *et al.* [76], and we also employed model 7 of the macro. Digital fluency was examined across all the three levels (at 1 SD above the mean, at the mean, and at 1 SD below the mean) to examine the conditional indirect effect of ESM usage on employee agility via meta-knowledge. Table 6 indicated the results of analysis, as proposed that indirect effect of ESM usage on employee agility via meta-knowledge, when digital fluency values are one SD above mean (ULC= 0.121 to LLC=0.033), mean (ULC=0.085 to LLC=0.023), and one SD below the mean (ULC= 0.054 to LLC=0.092), a significant mediating indirect influence of ESM usage on employee agility via meta-knowledge was observed because the result did not contain zero and thus, H5 is supported.

VI. DISCUSSION, IMPLICATION, AND LIMITATION
A. DISCUSSION

This research aims to address the role of meta-knowledge in enhancing employee agility in the ESM environment. Several scholars have reported the benefits of ESM usage in the workplace [29], [30]. Their studies have investigated the role of knowledge sharing, collaboration, and work performance, but they have hardly focused on the specific functionalities of the ESM technology. To address this research gap, the present study examined employee agility through the mediating function of meta-knowledge. The findings validated that ESM usage considerably improve the meta-knowledge of individuals. Previous scholars have found that ESM usage is positively related to knowledge sharing [1], [77], [78]. Our findings also authenticated that the meta-knowledge generated by ESM usage is strongly related to employee agility.

These results explained that meta-knowledge allows individuals to respond to unexpected changes efficiently and quickly, which is according to our supposition. Similarly, scholars have reported that knowledge sharing in the ESM environment is positively related to work performance [5], [77].

Furthermore, we examined the role of digital fluency as a moderator. The results affirmed that digital fluency positively moderates the relationship between ESM usage and meta-knowledge, which is according to our assumptions. Nonetheless, previous studies have overlooked the user capabilities related to ESM usage [20]. The ESM technology has evolved quickly with several functionalities, and its proper usage in the workplace remains a challenge. Hence, scholars also stressed that the efficient use of technology is based on human abilities [6], [20]. In this research, we therefore explored the moderating functionalities of digital fluency and discovered that individual digital fluency, together with meta-knowledge, is also a significant predictor of employee agility.

The results of the current research confirmed that employee agility can be enhanced by using the ESM technology in the workplace. The findings supported the hypothesis that the frequent usage of the ESM technology in the workplace improves employee agility through meta-knowledge. The results also implied that viewing the information of other co-workers, which is available on the ESM technology, makes communication rich and increases the knowledge and expertise of individuals and thus helps them respond to market changes properly. In this view, our results supported the hypothesis related to meta-knowledge and employee agility. ESM usage is rapidly increasing in the workplace, and its proper implication remains a challenge for managers. We proposed the moderating role of digital fluency, and our results indicated that individual digital fluency is related to the ESM technology as a significant moderator.

B. THEORETICAL IMPLICATION

This study provides a useful contribution to the existing literature. First, the current study elucidates employee agility through meta-knowledge. The findings of previous research are controversial in the contexts of ESM use and meta-knowledge. For instance, Chen and Wei [18] suggested that visible information on ESM usage would create overload, which results in ESM-related strains in employees. By contrast, our results ensured that individuals with digital fluency can efficiently use the several functionalities of the ESM technology and reformulate meta-knowledge. Moreover, this research extends past theories on ESM usage by incorporating digital fluency with efficient ESM usage among employees.

Second, this research also contributes to the current literature on how employee agility can be enhanced by exploring the functions of meta-knowledge and ESM usage. Furthermore, notable studies related to organizational agility [42], [79] have stressed that employee agility is necessary for organizational agility. Similarly, our results confirmed that ESM and the efficient use of meta-knowledge are crucial to improve employee agility.

TABLE 7. Survey questionnaire.

Constructs and measurement	Scale	Source
Enterprise Social Media Usage 1. I often use ESM to contact other people for my work. (CA = 0.805) 2. I regularly use ESM to communicate with colleagues or customers in my daily work. (CA= 0.853) 3. The frequency of usage of ESM to do the following things in my daily work is ask questions. (CA= 0.927) 4. The frequency of usage of ESM to do the following things in my daily work is answer. questions.(CA=0.848) 5. The frequency of usage of ESM to do the following things in my daily work is share files. (CA = 0.780) 6. The frequency of usage of ESM to do the following things in my daily work is work-related socialization. (CA = 0.857).	Likert 1-5	Ou and Davison (2011)
Meta-Knowledge 1 With regard to the colleagues whose posts are displayed to me within the ESM, I have a good "map" of their talents and skills. (CA =0.890) 2 With regard to the colleagues whose posts are displayed to me within the ESM, I know which task-related skills and knowledge they possess. (CA = 0.824) 3 With regard to the colleagues whose posts are displayed to me within the ESM, I know who of them have specialized skills and knowledge that is relevant to my work. (CA = 0.861) 4 With regard to the colleagues whose posts are displayed to me within the ESM, I have a good "map" of their contacts to other colleagues. (CA = 0.906) 5 With regard to the colleagues whose posts are displayed to me within the ESM, I know which contacts they have to other colleagues.(CA =0.780) 6 With regard to the colleagues whose posts are displayed to me within the ESM, I know with which other colleagues they are in contact. (CA =0.714	1-5 Scale	Kanawattanachai and Yoo, 2007
Digital Fluency: 1. I am able to quickly pick up new features of ESM technology. (CA =0.911) 2. I am able to use ESM function to articulate my ideas.(CA =0.800) 3. I often explore the new features of ESM.(CA = 0.911) 4. I am able to broadcast my ideas via ESM and other technologies.(CA = 0.756)	1-5 Scale	Wang et al. (2013)
Employees Agility: 1. I adapt my behavior to show respect for others' customs and values. (CA = 0.823) 2. I accept critical feedback. (CA = 0.817) 3. I adjust to new work procedures.(CA = 0.823) 4. I use new equipment at work. (CA = 0.803) 5. I can quickly adapt to switch from 1 project to another.(CA = 0.900) 6. When I see something that I do not like, I am trying to fix it.(CA = 0.840) 7. I am trying to find out more effective ways to perform my job.(CA = 0.856) 8. I let time take care of things that I have to do. (CA = 0.895) 9. At work, I stick to what I am told or required to do. (CA = 0.687) 10. I find new ways to obtain or utilize resources when resources are insufficient to do my job. (CA = 0.734) 11. I am reluctant to accommodate and incorporate changes into my work. (CA = 0.757) 12. I am able to perform my job without knowing the total picture. (CA = 0.877) 13. I remain calm and composed when faced with difficult circumstances. (CA = 0.828) 14. I am able to perform my job efficiently in difficult or stressful situations. (CA = 0.991) 15. I am able to work well when faced with a demanding workload or schedule. (CA = 0.859) 16. When a different situation occurs, I react by trying to manage the problem. (CA = 0.884) 17. I drop everything and take an alternate course of action to deal with an urgent problem. (CA = 0.843)	Likert 1-5 Scale	Alavi et al. (2014)

Third, in addition to ESM usage, this study introduced digital fluency related to the ESM technology that can organize and improve the proper use of meta-knowledge and ESM. The moderation role of digital fluency is significant, which shows the crucial role of individual digital fluency. Existing studies only focus on ESM usage and work performance [80], [81]. By contrast, we theorized the mechanism through which

ESM and meta-knowledge jointly contribute to enhance individual agility.

Finally, previous scholars have suggested that the communication visibility feature of the ESM technology improves individual meta-knowledge as every individual is directly or indirectly part of the communication. The findings of the present study confirmed that ESM usage

directly increases individual meta-knowledge. Leonardi [36] proposed that the meta-knowledge of employees can be developed with ESM usage due to communication awareness. By contrast, this study suggested that meta-knowledge can be developed by the frequent use of the ESM technology.

C. MANAGERIAL IMPLICATION

The results of this study provided several suggestions and guidance to managers in terms of ESM usage and meta-knowledge. The findings also suggested that managers assess and govern individual meta-knowledge by developing individual digital fluency related to ESM usage.

First, the current study investigated the role of the digital fluency of employees and conformed that digital fluency facilitates individuals to utilize ESM functionalities and reorganize meta-knowledge [37]. Hence, we suggested that managers pay substantial attention to developing employee digital fluency related to ESM usage.

Second, managers always need a wide range of task-related information, which requires that they view and access the domain-specific knowledge of other employees. Hence, meta-knowledge facilitates managers to locate and use the domain-specific knowledge of others for firm performance. Additionally, when managers understand the role of meta-knowledge, they are likely to encourage their co-workers to communicate and exchange information using the ESM technology.

Third, the results of this study recommended that managers develop a prime procedure to manage the domain-specific knowledge of employees for enhanced performances as employee agility is based on considerable market or individual information. Managers should also improve the digital fluency of their co-workers by arranging some workshops related to ESM usage. In addition, they should deploy flexible IT infrastructures in organizations that support the rapid growth of the ESM technology in the workplace.

Finally, mangers should arrange some group tasks on the ESM platform and engage their coworkers in an online discussion to allow other individuals to learn from them. In addition, when managers understand the benefits of ESM usage and meta-knowledge, they are likely to recommend ESM usage by promoting its use to their subordinates. Companies should arrange some workshops and trainings for their employees to provide advance knowledge related to ESM usage functionalities. Nonetheless, the excessive use of the ESM technology in the workplace must be controlled. Some control policies should be implemented to efficiently utilize ESM for work-related communication while avoiding some unfavorable consequences.

D. LIMITATION

Despite various contributions to the literature, this research has some limitations that scholars should recognize when assessing the results. First, we used convenient sampling procedure to collect data for this study. Convent sampling indicated some specific group not whole population. Although,

our analysis do not indicate the bias problem in the current study. Hence, future scholars are suggested to use another efficient method for data collection. Second, the current study investigated the positive effect of meta-knowledge, and future scholars can explore the negative effect of meta-knowledge on employee work performance. We discussed the role of meta-knowledge in general and suggested that scholars investigate the role of domain-specific knowledge and its effect on work performance or employee agility.

Third, we employed the scale of ESM usage in general, which measures the frequency of ESM usage in the workplace for knowledge sharing and work-related communication. However, Chinese employees use specific ESM applications in the workplace (e.g., DingTalk) as most of the public social media applications are blocked in China. Scholars must explore the specific ESM platform and its functionalities.

Fourth, employee agility is based on motivation and management support as has also been reported by previous scholars [8]. We conducted the survey to measure the scale of employee agility, but the feedback and evaluation of managers are also necessary for measuring the employee agility. Hence, future scholars must also investigate employee agility in this context.

Fifth, the samples of this study are individual respondents, however, modern organizations and employees working in the organizations in a team level. The ESM technology is also used in social communications in organizations, as well as for collaboration and information sharing. Future scholars must investigate employee agility using the same conceptual model on a team level.

Finally, further research on employee agility and ESM usage in the workplace is required. Organizations should highly invest in IT infrastructures and employee trainings for properly using and benefiting from the ESM technology. This research study has important guidelines for managers and business leaders in terms of employee agility.

APPENDIX
See Table 7.

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