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Does IT matter for work meaningfulness?: Exploring the mediating role of job crafting

The mediating
role of job
crafting

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Abstract

Purpose – This study aims to investigate how technology characteristics facilitate employees' work meaningfulness through job crafting.

Design/methodology/approach – This study applies the survey method and collects data from 357 Chinese participants with the experience of using information technology (IT) at work.

Findings – Technology characteristics (i.e. technology reconfigurability and technology customization) enable employees to craft their jobs, contributing to work meaningfulness.

Research limitations/implications – It remains to be seen whether the findings can be generalized to other cultural contexts. This study justifies the positive effects of IT but does not take into consideration the IT factors that might thwart job crafting.

Practical implications – IT is not merely a work tool. It is a contextual component strongly conducive to cultivating work meaningfulness. However, IT itself cannot directly lead to work meaningfulness. Instead, its contribution to job crafting matters.

Originality/value – The literature on the downstream impact of IT has yet to consider the value of IT for job crafting and work meaningfulness. This study verifies that job crafting is the linking mechanism between IT and work meaningfulness.

Keywords Technology characteristics, Work meaningfulness, Job crafting, Person-job fit

Paper type Research paper

1. Introduction

Work, which consumes almost half of an individual's waking life, is a major source of meaningfulness. Work meaningfulness has drawn considerable attention from academics across various disciplines (Rosso *et al.*, 2010). Interest in this area has been fueled by the assumption that work meaningfulness, as a typical component of human well-being, would spur not only general well-being like life satisfaction and mental health (e.g. decreased anxiety and stress) (Steger *et al.*, 2012; Allan *et al.*, 2018), but also work-related well-being such as job engagement and job satisfaction (Lavy and Bocker, 2018; Demirtas *et al.*, 2017).



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Although how people define the meaning of work varies greatly, they seem to share a desire to seek work meaningfulness (Weeks and Schaffert, 2019).

Stress, sadness and worry among employees have reached nearly epidemic levels. According to a report from Gallup [1], in 2020, employee stress (43%) reached a record high, and experiences of sadness and worry increased by 4 and 6%, respectively, from 2009 to 2020. In contrast, employee engagement decreased by 2% from 2019 to 2020. Because work meaningfulness can be the prescription for these increasingly common problems, many companies are attempting to foster the work meaningfulness experienced by their employees.

Given the role of work meaningfulness in employee human life, scholars have been devoted to examining what makes work meaningful. It has been found that work meaningfulness stems from three kinds of factors: (a) worker-centered factors, such as values, motivation and work orientations (e.g. Wrzesniewski *et al.*, 2003; Rosso *et al.*, 2010); (b) work-centered factors, such as job design and job crafting (Pratt and Ashforth, 2003; Michaelson *et al.*, 2014); and (c) context-centered factors, such as leadership and organizational culture (Rosso *et al.*, 2010; Demirtas *et al.*, 2017). It is also noted that a specific context provides employees with the occasion to assign meaningfulness to the work (Demirtas *et al.*, 2017). However, previous studies discussed the effects of work-centered and context-centered factors on work meaningfulness separately. Therefore, it is important to take account of *work-centered* and *context-centered factors* when discussing the cultivation of work meaningfulness.

Job crafting, as a work-centered factor, opens up new possibilities to extract meaningfulness from work (Petrou *et al.*, 2017). Traditionally, job design is assumed as a “top-down” approach through which managers create job descriptions for their subordinates. In contrast, the emerging job crafting refers to the “bottom-up” approach whereby people shape, redesign and redefine their jobs individually or collectively (Wrzesniewski and Dutton, 2001). Crafting the job empowers individuals to spontaneously reconfigure their task and relational boundaries, subsequently giving rise to a sense of meaningfulness (Wrzesniewski *et al.*, 2010). Meanwhile, academic research has provided some evidence that information technology (IT) has created room for job incumbents to craft jobs individually and collaboratively (Tams *et al.*, 2018). For instance, with customer category information from the customer relationship management (CRM) system projected on the screen, the department manager and team members can discuss and analyze how to modify the marketing program to produce high customer equity in the sales meetings. Hence, it is essential to theorize which IT-related context-centered factors advance job crafting, subsequently leading to work meaningfulness.

To summarize, this study aims to address two questions: (a) How do IT characteristics enable job crafting individually and collectively? (b) How can such job crafting behaviors stimulate work meaningfulness? We apply job crafting theory (Wrzesniewski and Dutton, 2001) as the theoretical lens to answer these questions. It suggests that motivations and perceived opportunities act in concert to inspire job crafting, and that people who perform job crafting will regain a sense of meaningfulness toward the job. We argue that specific IT features would satisfy the need for control and job autonomy (Bala and Venkatesh, 2016), thereby fulfilling the motivation and providing an occasion for job crafting. The job crafting model also suggests that job crafting has a positive impact on work meaningfulness.

Based on job crafting theory, we propose two IT characteristics – technology reconfigurability and technology customization – that have the ability to empower employees by giving them discretion over their work (Bala and Venkatesh, 2013). As IT-related context-centered factors, these IT characteristics invigorate work-centered factors such as individual and collaborative job crafting, and subsequently boost work meaningfulness.

This study makes the following contributions. First, we point out that work-centered and context-centered factors are both essential in fostering the feeling of work meaningfulness. In particular, different from previous work meaningfulness literature, this study pays attention

to the underestimated role of IT-related context-centered factors in cultivating experienced work meaningfulness. It suggests that the achievement of work meaningfulness requires a more profound understanding of the role of the IT-related factors of technology reconfigurability and technology customization. Second, our study establishes a synthesized model that integrates IT characteristics with work meaningfulness by considering job crafting and person-job fit as the linking mechanism. Through this, we expand the information system (IS) literature that directly associates IT factors with downstream consequences. Finally, our study examines the role of IT in empowering job crafting behavior, augmenting the growing body of literature on job crafting.

This study proceeds as follows. We first review the literature in the relevant research field and then introduce the theoretical justifications for the hypotheses. After that, we present the survey method, data analysis and results. Finally, we conclude this study with implications and contributions.

2. Literature review

2.1 *IT and work-related well-being*

Work-related well-being refers to the subjective, psychological states arising from work settings, including job satisfaction, work engagement, burnout, anxiety and stress (Häusser *et al.*, 2010). Changes in the nature of tasks, workflows and job characteristics accompany changes in the configuration of IT, thereby altering an individual's feelings about work (Morris and Venkatesh, 2010). There exist some studies delving into the relationship between IT and employees' work-related well-being. One stream of research suggests that IT implementation fuels changes in employees' work-related well-being. For instance, given the complexity of enterprise resource planning (ERP) systems, knowledge workers may feel overwhelmed by job stress arising from job autonomy, skill variety and feedback, leading to a lower level of job satisfaction. Employees can deal with the stress by adapting technology features. During the implementation, employees' technology adaptation behavior may translate the monotonous work into interesting activities, leading to increased job satisfaction (Bala and Venkatesh, 2016).

Another stream of research has shifted from the focus on IT implementation to post-implementation, exploring the well-being changes induced by IT at the post-implementation stages. For instance, technostress, which is stress arisen from inadequacy to meet the demands of IT usage, has been found to bring about role stress, which detracts from individual productivity (Tarafdar *et al.*, 2007). It is further corroborated that failure to cope with technostress would cancel out the prescribed rise in satisfaction from the information and communication technologies (ICT) that employees use (Tarafdar *et al.*, 2010). In addition, some work has shed light on the emotional changes due to IT usage. Based on appraising IT as an opportunity or a threat, individuals will develop four disparate types of emotion: challenge, achievement, loss and deterrence (Beaudry and Pinsonneault, 2010). Contingent on the way that the characteristics of a specific IT stimulus event interact, the IT stimulus event will elicit a particular set of emotions or mixed emotions (Stein *et al.*, 2015). Work-family technology use improves the perceived ability to control the transition between work and family, thus alleviating emotional exhaustion (Piszczek, 2017). It is also verified that perceived IT compatibility with values influences individuals' perceived burnout (Hemington *et al.*, 2011).

When investigating the relationship between IT and work-related well-being, prior literature considers such well-being factors as job satisfaction, IT satisfaction and emotion, but fails to pay sufficient attention to the more basic factor: work meaningfulness. As a work-oriented element, job crafting is a determinant of work meaningfulness (Wrzesniewski and Dutton, 2001). When frustrated by a lack of internal resources, employees may turn to

external resources like IT to administer job crafting. Thus, IT may be the context-oriented element that enables job crafting, causing improved work meaningfulness.

2.2 Job crafting model and work meaningfulness

Work is about the search for daily meaning as well as daily bread (Seiling, 1999). Work meaningfulness is defined as the amount of weight individuals ascribe to their work (Rosso *et al.*, 2010). Specific work may be viewed as extraordinarily meaningful by one but completely meaningless by another because the sources from which individuals extract meaning vary greatly. In general, work meaningfulness is derived from three major sources: (1) work environment regarding job design and reward structure (Grant, 2008; Hackman and Oldham, 1976), (2) individual factors involving psychological attributes and personal characteristics (Baumeister and Vohs, 2002; Gandal *et al.*, 2005) and (3) social environment, including interpersonal relationships with coworkers and leaders (Podolny *et al.*, 2005; Wrzesniewski *et al.*, 2003).

Job crafting theory has offered a conceptual cornerstone for examining job crafting as the route to work meaningfulness. Job crafting refers to the degree to which one alters the work by himself/herself. According to Wrzesniewski and Dutton (2001), employees can execute job crafting through the techniques of changing task boundaries and changing relational boundaries. Changing task boundaries captures the behaviors of modifying the form, type, or the number of tasks against a formal job description. It takes the forms of adding or ruling out tasks, altering the nature of tasks by burdening oneself with time pressure, or making tradeoffs among various tasks in terms of time, energy and attention allocation. Changing relational boundaries refers to exercising discretion over the amount or quality of reciprocal actions with others while performing the job. For example, a cleaner in a hospital might change task and relational boundaries by caring for patients and families, showing visitors around and helping the nurses with some grunt work, which integrates that person into the care delivery system. Consequently, employees who craft their jobs would reframe the job design and social environment, regaining work meaningfulness. The job crafting model (Wrzesniewski and Dutton, 2001) also posits that individuals can take agency in yielding work meaningfulness by acting as the “crafter” of their job.

Meaningfulness is a vital component of well-being in the workplace. The literature on the antecedents of work meaningfulness has been gaining momentum in the past decade. On the individual level, job crafting (Tims *et al.*, 2016), character strength (Allan, 2015) and satisfying psychological needs (Allan *et al.*, 2016) have proved to be precursors of work meaningfulness. On the organizational level, it is argued that ethical leadership predicts greater experienced work meaningfulness of followers, which subsequently affects followers’ organizational identification and work engagement (Demirtas *et al.*, 2017).

As a contextual factor, IT unlocks significant opportunities for job crafting, which is a well-established antecedent of work meaningfulness. For example, IT empowers employees to enrich the work by streamlining inefficient and mundane work processes. IT-enabled job enrichment then boosts work meaningfulness (Pratt and Ashforth, 2003). Nevertheless, to date, there has been little comprehensive study concerning how and why IT impacts work meaningfulness through job crafting. Additionally, in organizational research, scholars have tended to underplay IT-related components by taking them for granted (Orlikowski, 2007), camouflaging the fact that IT-enabled work systems have entered many aspects of organizational operation. Accordingly, our study aims to put forward and verify a synthesized model that portrays the effect of specific IT characteristics on work meaningfulness through job crafting, answering the call for integrating IS and organization literature (Orlikowski, 2007) and expanding the literature on the antecedents of work meaningfulness.

3. Research hypotheses

To elaborate on convincing arguments for revealing the effects of technology characteristics on job crafting and the downstream impacts of job crafting on work meaningfulness, we derive the justifications from the literature on IT characteristics, job crafting and work meaningfulness. Specifically, we draw on IT characteristics theory (Bala and Venkatesh, 2013) and job crafting theory (Wrzesniewski and Dutton, 2001) to illuminate how technology reconfigurability and technology customization enable individual and collaborative job crafting. Based on job crafting theory (Wrzesniewski and Dutton, 2001), we demonstrate that individual job crafting and collaborative job crafting facilitate person-job fit and work meaningfulness. Figure 1 presents the research model. Table 1 expounds on the definition of every relevant construct.

3.1 Person-job fit and work meaningfulness

Person-job fit plays a pivotal role in employee attitudes, behaviors and performance. Person-job fit is defined as the degree to which one's abilities align with job requirements or the degree to which one's needs are satisfied by what the job supplies (Edwards, 2008).

Person-job fit is conducive to work meaningfulness (Wrzesniewski and Dutton, 2001). In line with the self-verification theory (Swann, 1990), human beings are self-expressive, not just goal-oriented and intrinsically motivated to seek self-consistency (Shamir, 1991). Seeking feedback from the environment is an essential avenue to verifying and sustaining existing self-consistency. Further, self-consistency uplifts the sense of discretion over circumstances, from which work meaningfulness is derived (Wu *et al.*, 2018). It follows that, if the job provides such self-verification feedback, employees will take the job seriously and ascribe higher significance to it. Based on this rationale, employees with high person-job fit would receive positive feedback about performance from their supervisors or coworkers, further strengthening their self-consistency and the sense of work meaning in return. Furthermore, work meaningfulness emanates from person-job fit since employees can get feedback from the organization that the job is providing them with something they are seeking. Such positive feedback may seed the ground for the fulfillment of self-consistency, which further sparks work meaningfulness. Therefore, we propose the following hypothesis:

H1. Person-job fit is positively related to work meaningfulness.

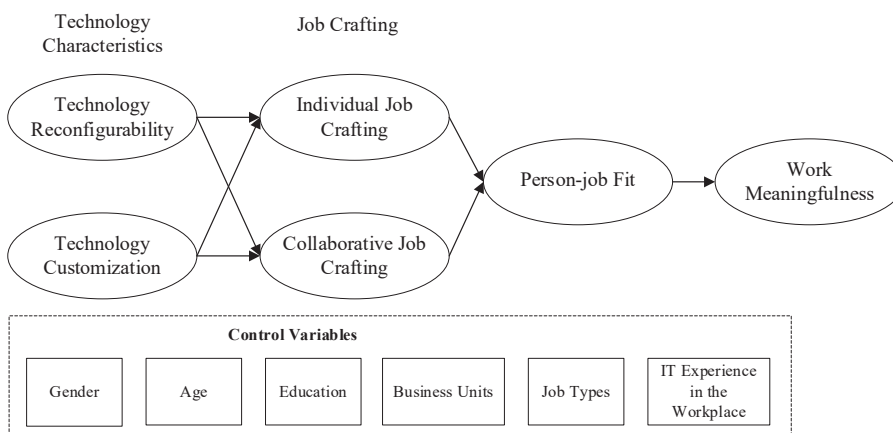


Figure 1.
Proposed research model

Constructs	Definitions	References
Technology reconfigurability	The extent to which one perceives that IT is implemented in the manner that facilitates the adaptation of IT features over the usage	Bala and Venkatesh (2013)
Technology customization	The extent to which one perceives that IT is customized in a manner that meets the needs for functionality, data, and outputs to complete his or her tasks	Bala and Venkatesh (2013)
Individual job crafting	The extent that one decides how to alter, mold and redefine the work by himself/herself	Leana <i>et al.</i> (2009), Wrzesniewski and Dutton (2001)
Collaborative job crafting	The degree to which individuals collectively decide how to tailor, mold and redefine the work to satisfy joint objectives with their coworkers	Leana <i>et al.</i> (2009), Wrzesniewski and Dutton (2001)
Person-job fit	The extent to which one's attributes are commensurate with those of the job	Cable and DeRue (2002), Cable and Judge (1996)
Work meaningfulness	The amount of weight one ascribes to the work	Pratt and Ashforth (2003)

Table 1.
Construct definitions
and references

3.2 Job crafting and person-job fit

Job characteristics such as autonomy, development opportunities and challenging work are empirically verified to lay the groundwork for person-job fit (Boon *et al.*, 2011; Tims *et al.*, 2016). The above argument suggests that job crafting fosters person-job fit because job crafting is a practical approach to changing job characteristics in the way employees desire (Federici *et al.*, 2019). By altering task and relational boundaries individually and collaboratively, employees can steer the job toward a better fit with their aptitude, knowledge, social and psychological needs. For instance, an English teacher interested in artificial intelligence could add a related teaching scheme into the curriculum (individual job crafting). In addition, from the person-environment fit perspective, employees who experience undesirable person-job fit are likely to leave the organization unless they manage to align themselves and the work environment by engaging in job crafting (Edwards, 2008).

Existing literature has empirically validated the relationship between individual job crafting and person-job fit (Chen *et al.*, 2014; Tims *et al.*, 2016), while little light has been shed on collaborative job crafting. At present, collaborative job crafting is becoming increasingly prevalent in the contemporary workplace, hallmarked with task interdependence. Collaborative job crafting occurs when employees determine how to jointly mold and redefine the work to fulfill a common objective with their coworkers (Leana *et al.*, 2009). On the one hand, employees need to collectively work out arrangements ranging from setting work schedules, budgeting to ordering production materials and monitoring product quality, which increases task interdependence among employees. Task interdependence coupled with shared end goals means that one's behavioral pathway is contingent upon and constrained by other people's responses, but still malleable since all the parties can influence the decision by tapping into their unique expertise. In this case, employees have room to steer the collaborative job crafting in the direction of person-job fit in order to reach a compromise between the shared goal and personal needs and ability. On the other hand, by participating in shared-goal-oriented job crafting with coworkers, employees might infer that job crafting is appropriate and encouraged in the workplace (Zhou, 2003). This inference stimulates them to fully stretch themselves by executing job crafting individually as well in a manner that work task is congruent with their needs and ability (Tims *et al.*, 2013). Given the above evidence, we propose the following hypotheses:

H2a. Individual job crafting is positively related to person-job fit.

H2b. Collaborative job crafting is positively related to person-job fit.

The above arguments suggest that employees who engage in job crafting are likely to experience a high level of person-job fit, which subsequently cultivates work meaningfulness. Thus, person-job fit acts as a mediating mechanism in the link between job crafting and work meaningfulness. For example, employees who reshape the work to stretch their knowledge, skill and abilities are likely to experience person-job fit, which in turn fosters work meaningfulness. Similarly, when crafting the work with coworkers to achieve a common objective, employees may incorporate their unique experience and expertise into the decisions, which boosts their evaluation of person-job fit. Employees who experience person-job fit are likely to see the work as meaningful. Therefore, we predict the following hypothesis:

H3. Person-job fit mediates the relationship between job crafting and work meaningfulness.

3.3 Technology characteristics and job crafting

Organizations have been investing massively in IT, with the premise that IT would reinforce the flexibility to accommodate the current fast-changing environment (Tan *et al.*, 2019). The fast-changing environment implies that a decision-maker lacks a formal, well-defined procedure to address a situation saturated with complexity and ambiguity. In this case, individual performance counts on how efficiently and swiftly employees deal with the unpredictable nature of these situations, how smoothly they straighten their orientation or focus and to what extent they would resort to emergency actions to grapple with ambiguity. Given that the task process is usually interwoven with IT, employees' attempts to tweak or adapt certain IT aspects to reconcile IT function and vague task requirements matter a great deal (Schmitz *et al.*, 2016).

If employees view IT characteristics as reconfigurable, they are more likely to engage in job crafting by modulating IT features. First, employees might assume agency in IT workarounds to help themselves target the work focus more accurately (Azad and King, 2012). For instance, by reconfiguring the filter feature of the CRM system, team members can collectively build up an entire picture of the customers that identifies their varying yield. Accordingly, team members could discuss and analyze how to go a step further by reframing the timetable and prioritizing high-yield customers or highly important and urgent tasks. Additionally, by revising IT features, employees would optimize the work process and even find some shortcuts, completing tasks in a more desirable and efficient way (Bala and Venkatesh, 2013; Thatcher *et al.*, 2018). For example, Ding Talk, a popular mobile enterprise system in China, allows managers to modulate the roster features to meet their *ad-hoc* preferences, which fashions the way they communicate, supervise and mentor subordinates. Thus, we put forward the following hypotheses:

H4a. Technology reconfigurability is positively related to individual job crafting.

H4b. Technology reconfigurability is positively related to collaborative job crafting.

Technology customization captures one's perception about the degree to which IT is open to be adapted to closely fit with his or her particular, even unique needs. Customized IT would provide employees with modules, table configuration, screen masks and interfaces to bridge the gap between IT features and individual requirements for data, functionality and outputs (Bala and Venkatesh, 2013; Barki *et al.*, 2007). For example, a work team, which intends to attract more customers online by exercising a new promotion strategy, would solicit the IT department's support concerning customized IT features on a mobile app. With congruence between IT and work needs, technology customization, which typifies user-oriented IT characteristics, is likely to uplift employees' feelings of task autonomy (Bygstad *et al.*, 2016).

In light of job crafting literature, task autonomy plays a prominent part in inspiring employees to modify work boundaries (Wrzesniewski and Dutton, 2001). This evidence suggests that technology customization gives a boost to individual and collaborative job crafting by strengthening the sense of taking charge of how to do the job. Accordingly, we hypothesize the following:

H5a. Technology customization is positively related to individual job crafting.

H5b. Technology customization is positively related to collaborative job crafting.

The arguments so far suggest that technology characteristics empower employees to alter the work individually and collaboratively, facilitating the development of person-job fit. Hence, job crafting serves as a mediating mechanism between technology characteristics and person-job fit. For example, an employee would use a CRM system to group customers with varying needs, characteristics or behaviors, then respond to customers faster and more precisely, which helps the employee meet the work goals. Based on such customer information, employees would cooperate closely in designing a customer-oriented marketing program to achieve the common objective of customer retention. Furthermore, they might customize IT features on a mobile app to support the marketing program. Hence, we propose the following hypotheses:

H6a. Job crafting mediates the relationship between technology reconfigurability and person-job fit.

H6b. Job crafting mediates the relationship between technology customization and person-job fit.

4. Methodology

4.1 Measures

Items for constructs in the proposed model were adapted from the existing scales (Appendix 1). Specifically, items for technology reconfigurability and technology customization were adapted from Bala and Venkatesh (2013). Items for individual job crafting and collaborative job crafting were derived from Leana *et al.* (2009) and Wrzesniewski and Dutton (2001). Person-job fit was adapted from Cable and DeRue (2002) and Cable and Judge (1996). Work meaningfulness was adapted from Spreitzer (1995) and May *et al.* (2004). All constructs were measured with the scales of 1 (Strongly disagree) to 7 (Strongly agree). For testing the possible effects, demographic data were considered as control variables.

4.2 Data collection

We collected data in China. Three PhD students translated the English version questionnaire back and forth to ensure the reliability of the translation. We then conducted a pilot data collection with 35 respondents to examine the questionnaire's face validity. We revised the questions to reduce ambiguity according to the feedback from the pilot study.

The research context of this study is IT used for work, which consists of enterprise systems (e.g. ERP, CRM) and mobile IT (e.g. DingTalk, Enterprise WeChat). In China, mobile IT has become a widespread application in enterprises. According to the recent report (The 47th Statistical Report on China's Internet Development), the number of users of Enterprise WeChat increased from 60 million in 2019 to 400 million in 2020; the number of enterprises using DingTalk exceeded 17 million in 2020. Employees use both enterprise systems and mobile technologies to accomplish their work. This study aims to investigate work meaningfulness in the contemporary workplace. Therefore, the target respondents are individuals who depend on various IT applications to achieve their work goals.

We conducted an online survey through WeChat. To generalize the research findings, we invited working adults from a range of business units with different job types to participate in the survey. With the pervasive implementation of IT, managers and operational-level employees are experienced in using IT for business purposes. In this sense, they are qualified to be our respondents. We distributed 468 anonymous online questionnaires to MBA and DBA students at a major university in Guangzhou, China. They were full-time employees in companies on working days, and on weekends, they were part-time students in MBA or DBA programs in the university. In addition, students enrolled in MBA programs needed to have a minimum of two years of work experience, and students in DBA programs needed to have at least five years of work experience. Over a period of three weeks, 357 qualified responses were returned, with a valid response rate of 76.28%. Of the respondents, 95.2% listed more than two IT applications that they often used at work.

The demographic information of the survey respondents is exhibited in [Appendix 2](#).

5. Data analysis

We applied structural equation modeling (SEM) to test the proposed model by AMOS version 24. A two-step data approach was enacted to evaluate measurement and structural models ([Anderson and Gerbing, 1988](#)).

5.1 Measurement model

We first estimated construct reliability, convergent validity and discriminant validity by the measurement model. Item TCM4 (“The system was configured during implementation to align with my needs.”) for technology customization was deleted because the factor loading (0.61) was less than 0.7. The Cronbach’s α for each construct ranged from 0.86 to 0.94, while all composite reliability (CR) estimates were greater than 0.87 ([Table 2](#)), indicating that all constructs were of good internal consistency. Concerning convergent validity, all the factor loading scores were significant ($p < 0.01$), with the estimates greater than the threshold of 0.70 ([Appendix 3](#)). In addition, the average variance extracted (AVE) estimates of all constructs were above 0.50, demonstrating that observed items accounted for more variance than error terms ([Fornell and Larcker, 1981](#)). To summarize, the confirmatory factor analysis revealed favorable convergent validity and reliability of measures.

Discriminant validity is the degree to which every single construct in this model can be significantly distinguished from others. Discriminant validity can be evaluated by comparing

Constructs	Mean	S.D.	Cronbach's α	CR	AVE	1	2	3	4	5	6
1. Technology reconfigurability	4.91	1.33	0.86	0.87	0.62	0.79					
2. Technology customization	5.57	1.17	0.92	0.91	0.78	0.52	0.88				
3. Individual job crafting	5.59	1.02	0.92	0.93	0.73	0.39	0.55	0.85			
4. Collaborative job crafting	5.63	1.01	0.94	0.95	0.81	0.41	0.53	0.31	0.90		
5. Person-job fit	5.54	1.05	0.90	0.91	0.62	0.38	0.51	0.57	0.66	0.79	
6. Work meaningfulness	5.56	1.15	0.93	0.92	0.79	0.29	0.40	0.45	0.52	0.77	0.89

Note(s): Diagonal elements are the square root of AVEs. Off-diagonal elements are construct correlations

Table 2.
Descriptive, internal consistency, convergent and discriminant validity

the square root of the AVE scores and the correlations between constructs. It is shown in Table 2 that the square root of AVE of each construct was higher than its correlations with other constructs, signaling favorable discriminant validity.

We also tested for common method bias. First, we conducted Harman's single-factor analysis to discern whether the variance is primarily attributed to the common method (Podsakoff *et al.*, 2003). The analysis shows that no single factor explains the majority of the variance ($48.71\% < 50\%$) (Teo *et al.*, 2015). Second, the correlation matrix (Table 2) indicates that the highest inter-construct correlation is below 0.77, while common method bias is evidenced by high correlations ($r > 0.90$). To summarize, common method bias is not our concern.

5.2 Structural model

The structural model fit examination accompanied the measurement model verification. The overall goodness-of-fit was validated by six model fit estimates. Most indices met the related criteria ($\chi^2/df = 2.4$, AGFI = 0.81, CFI = 0.93, TLI = 0.92, RMSEA = 0.064, Standardized RMR = 0.055), except that GFI (0.86) was slightly lower than the well-accepted limitation. In summary, the proposed model fits well with the empirical data (Fornell and Larcker, 1981).

Regarding the hypotheses tests, on the whole, the data supported the proposed research model (Figure 2). Specifically, person-job fit contributed significantly to work meaningfulness ($\beta = 0.80, p < 0.01$), validating H1. Person-job fit was influenced significantly by both individual job crafting ($\beta = 0.39, p < 0.01$) and collaborative job crafting ($\beta = 0.46, p < 0.01$), verifying H2a and H2b. As proposed, technology reconfigurability had a significant impact on both individual job crafting ($\beta = 0.15, 0.01 < p < 0.05$) and collaborative job crafting ($\beta = 0.19, p < 0.01$), supporting H4a and H4b. Technology customization contributed significantly to individual job crafting ($\beta = 0.44, p < 0.01$) and collaborative job crafting ($\beta = 0.39, p < 0.01$), verifying H5a and H5b. The business unit was the only control variable that significantly affected work meaningfulness ($\beta = 0.14, p < 0.01$). The variances for the individual job crafting, collaborative job crafting, person-job fit and work meaningfulness were 28.1%, 26.7%, 66.6% and 67.1%, respectively, suggesting a favorable goodness-of-fit for the entire proposed model (Wynne, 1998).

5.3 Robustness check

The research model is proposed with the premise that technology reconfigurability and technology customization contribute to work meaningfulness through job crafting and person-job fit. We verified the mediating roles of job crafting and person-job fit by applying the bootstrap analysis feature of AMOS (MacKinnon *et al.*, 2007).

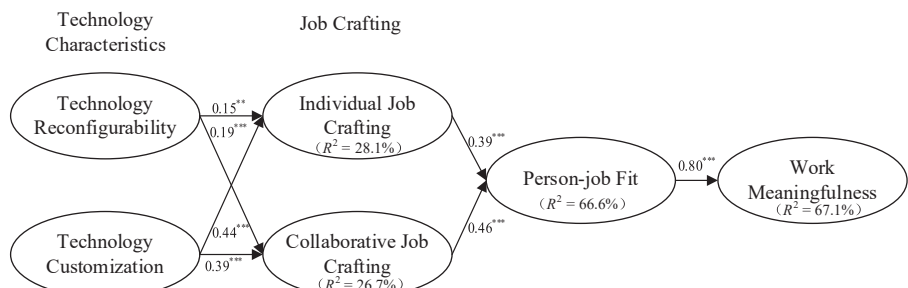


Figure 2.
Research model

Note(s): ** $0.01 < p < 0.05$, *** $p < 0.01$; Solid lines represent significant paths; dotted lines represent insignificant paths

In H3, it was proposed that person-job fit mediates the relationship between job crafting and work meaningfulness. The bootstrap analysis results in Table 3 show that the indirect effect of job crafting on work meaningfulness via person-job fit was significant (IJC-PJF-WM: estimate = 0.469, $p < 0.01$, $0.255 \leq BCC \leq 0.682$; CJC-PJF-WM: estimate = 0.465, $p < 0.01$, $0.259 \leq BCC \leq 0.663$). Work meaningfulness was influenced by both individual job crafting ($\beta = 0.24$, $p < 0.01$) and collaborative job crafting ($\beta = 0.25$, $p < 0.01$), indicating partial mediation. In H6a, it was proposed that job crafting mediates the relationship between technology reconfigurability and person-job fit. As shown in Table 3, the indirect effect of technology reconfigurability on person-job fit via job crafting was significant (TR-IJC-PJF: estimate = 0.178, $p < 0.01$, $0.259 \leq BCC \leq 0.356$; TR-CJC-PJF: estimate = 0.200, $p < 0.01$, $0.281 \leq BCC \leq 0.385$). The direct relationship between technology reconfigurability and person-job fit was significant ($\beta = 0.13$, $p < 0.01$), indicating partial mediation. In H6b, it was expected that job crafting mediates the relationship between technology customization and person-job fit. The bootstrap analysis results showed that the indirect effect of technology customization on person-job fit via job crafting was significant (TCM-IJC-PJF: estimate = 0.258, $p < 0.01$, $0.356 \leq BCC \leq 0.488$; TCM-CJC-PJF: estimate = 0.207, $p < 0.01$, $0.348 \leq BCC \leq 0.516$). The direct relationship between technology customization and person-job fit was significant ($\beta = 0.12$, $p < 0.01$), indicating partial mediation.

6. Discussion

We conducted this study with the principal objective of contributing to IT performance literature by focusing on individuals' work-related well-being, which is more closely associated with organizational performance. Given that employees prefer to pursue work that is satisfying both economic and psychological needs, this study aims to investigate how employees spontaneously achieve work meaningfulness by using IT. To achieve this objective, we developed a synthesized model to reveal the mechanism through which IT facilitates employees' sense of work meaningfulness. We found that both technology reconfigurability and technology customization have significant positive effects on individual and collaborative job crafting. Furthermore, individual and collaborative job crafting contribute to person-job fit, which subsequently increases subjective work meaningfulness.

6.1 Theoretical implications

The current study offers some theoretical contributions. First, it proposes a synthesized model to respond to the call for investigating downstream impacts of IT usage (e.g. Morris and Venkatesh, 2010; Wei *et al.*, 2020). A host of IT implications empower employees to redesign their job. For example, a human resource recruiter would engage in the first attempt to attract and communicate with candidates using social media, which allows them to more

	IV	M	DV	Bootstrap estimate	p	Lower boundary BCC	Upper boundary BCC
1	IJC	PJF	WM	0.469	0.001	0.255	0.682
2	CJC	PJF	WM	0.465	0.001	0.259	0.663
3	TR	IJC	PJF	0.178	0.001	0.259	0.356
4	TR	CJC	PJF	0.200	<0.001	0.281	0.385
5	TCM	IJC	PJF	0.258	<0.001	0.356	0.488
6	TCM	CJC	PJF	0.207	0.001	0.348	0.516

Note(s): IV: independent variable; M: mediator; DV: dependent variable

Table 3.
Results of bootstrap
analysis

easily track how such efforts influence recruiting results over time. However, existing literature has not validated and qualified the mechanism through which IT affects employees' spontaneous job design behavior and job outcomes. To address this situation, we identified key technology characteristics that empower employees' individual and collaborative job crafting and, subsequently, perception of person-job fit and work meaningfulness. In addition, we paid attention to IT-empowered proactive behavior (i.e. job crafting) rather than straightforwardly linking technology characteristics to distal consequence. As a result, our work is a good complement to previous work that examined the downstream impact of IT (Davidson and Chismar, 2007; Venkatesh *et al.*, 2010).

Second, this study furthers the literature on IT's effects on job characteristics, which is based upon traditional top-down job design theory, by adopting the proactive bottom-up job design approach. Bala and Venkatesh (2013) focused on job characteristics regarding job demand and job control, positing that individuals would undergo substantial job characteristic changes during the enterprise system implementation shakedown phase. Morris and Venkatesh (2010) turned their attention to five job characteristics—autonomy, task identity, skill variety, task significance and feedback—from the job characteristics model (Hackman and Oldham, 1976), revealing that ERP would alter the well-established relationship between these job characteristics and job satisfaction. Therefore, this study extends IS literature by shifting the focus of job design from top-down manner to understudied bottom-up manner. Furthermore, in contrast to previous work, which attempts to understand employees' perceptions of job characteristics following enterprise system implementation, this study provides insights into job redesign behavior in the post-implementation phase.

Third, this study solidifies the beliefs that job crafting gives rise to person-job fit and job crafting contributes to work meaningfulness, which have been proposed or validated by a handful of studies. For example, Lu *et al.* (2014) maintained that relational job crafting facilitates needs-supplies fit, while physical job crafting positively influences demands-abilities fit. Tims *et al.* (2016) designed a three-wave study and suggested that one who executes job crafting through the techniques of decreasing hindering job demands, increasing job resources and challenging job demands reports increased person-job fit afterward. Although prior research (Wrzesniewski and Dutton, 2001; Berg *et al.*, 2010) assumed work meaningfulness to be an essential outcome of job crafting, existing studies shed more light on outcomes like job satisfaction, job performance and work engagement (Bakker *et al.*, 2016; Leana *et al.*, 2009). Our study found that job crafting is indeed a feasible approach to achieving work meaningfulness, empirically validating the assumption of Wrzesniewski and Dutton (2001). Therefore, the present study provides new faith in the understanding that job crafting predicts person-job fit even in the context of using IT for tasks.

6.2 Practical implications

This study not only expounds on job crafting and work meaningfulness but also offers insights into IT design guidelines. Although previous studies have supported the idea that IT should not be open to customization and reconfigurability for the sake of stability and security, our study found that system designers and implementation teams are supposed to regard technology reconfigurability and technology customization as crucial technology characteristics that facilitate employees' job crafting behavior. This key finding resonates with Bala and Venkatesh (2013), who found that employees are likely to perceive decreased job control and increased job demand if IT is too rigid to be customized and tweaked. Therefore, we suggest that organizations should opt for reconfigurability and customization over rigidity. More importantly, organizations should develop or enhance the employees' perceived technology reconfigurability and technology customization via interventions such as training, help desk support and online support (Sykes, 2015).

Managers should also encourage employees to pursue work meaningfulness through job crafting. Job design studies proposed that it is managers who assume the responsibility of designing employees' job content (Hackman and Oldham, 1976). Studies on work meaningfulness also maintained that work meaningfulness emanates from job content that managers prescribe (Pratt and Ashforth, 2003). However, our study suggests that it is not easy for managers to propose a perfect and one-size-fits-all job design because employees should at any time be ready to grapple with uncertain and ambiguous tasks in an ever-changing environment. Instead of expecting employees to perform predefined tasks, managers should position themselves as opportunity providers or instructors who seed the ground for job crafting. As far as employees are concerned, it is the right time for them to mobilize their creativity and personal resources to optimize the work environment to obtain person-job fit and work meaningfulness rather than count on managers to make such changes.

6.3 Limitations and future research

This paper suffers from several limitations, which suggest future avenues of research. First, this study collected self-rated and cross-sectional data to examine the proposed model, which might lead to bias in the respondents' responses and common method bias (Podsakoff *et al.*, 2003). Even though supervisors or coworkers may find it challenging to report personal behavior and feelings regarding job crafting, person-job fit and work meaningfulness, we look forward to future studies that address such limitations. Otherwise, longitudinal studies and experiments can be expected in the future to avoid the limitation of the cross-sectional research design. Moreover, although IT applications that employees use evolve rapidly, our study did not consider the potential differences between employees' perception of technology characteristics about traditional IT and emerging IT. Future research would concentrate on particular technologies, such as cloud computing, to examine the impacts of new IT on job crafting. In addition, we conducted data collection in a single cultural context. Chinese users and their counterparts abroad are likely to vary in their perspectives on IT and work. We look forward to cross-cultural research that examines the varying influences of different technology characteristics on job crafting and work meaningfulness in different countries. Finally, although we examined the relationship between technology characteristics and work meaningfulness through job crafting and person-job fit, other contexts may influence the results. Future work could enrich the understanding of these relationships by verifying moderators or underlying mechanisms.

7. Conclusion

This study demonstrates how technology characteristics facilitate work meaningfulness by empowering employees to craft their jobs. IT is effective in boosting work meaningfulness, but this benefit is neither self-evident nor direct. On the contrary, it rests on desirable technology characteristics, leaving room for employees to execute job crafting behaviors. In IT-enabled workplaces, IT applications open to reconfiguration and customization can empower employees to redesign their jobs individually and collectively, leading to person-job fit and meaningful work. Our findings offer insights into what characteristics empower employees to conduct bottom-up job redesign and how that occurs, which are instrumental in fostering psychological well-being, namely, work meaningfulness.

Note

1. <https://www.gallup.com/workplace/349484/state-of-the-global-workplace.aspx>

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Appendix 1

Construct	Measure	Source
Technology reconfigurability (TR)	TR1: Some system features can be adjusted during use to carry out certain tasks TR2: Some system features can be changed during the course of use TR3: Some system settings can be altered during use to accomplish some tasks TR4: The system allows the users to modify some settings to perform certain tasks	Bala and Venkatesh (2013)
Technology customization (TCM)	TCM1: IT package can be changed to better meet the local needs, including mine TCM2: IT can be altered to improve its fit with the local needs, including mine TCM3: Specific changes can be made to IT to fit my requirements TCM4: The system was configured during implementation to align with my needs	Bala and Venkatesh (2013)
Individual job crafting (IJC)	IJC1: I introduce new approaches on my own to improve my work IJC2: I change minor work procedures that I think are not productive on my own IJC3: On my own, I change the way I do my job to make it easier to myself IJC4: I rearrange equipment or bring in other materials in workplace on your own IJC5: I organize special events (e.g. brain storm) in workplace on my own	Leana <i>et al.</i> (2009), Wrzesniewski and Dutton (2001)

(continued) **Table A1.**
Measurement items

ITP

Construct	Measure	Source
Collaborative job crafting (CJC)	CJC1: I work together with my coworkers to introduce new approaches to improve our work CJC2: I decide together with my coworkers to change minor work procedures that I think are not productive CJC3: I decide together with my coworkers to change the way I do my job to make it easier to myself CJC4: I decide together with my coworkers to rearrange equipment or bring in other materials in workplace to facilitate our work CJC5: Decide together with your coworkers to organize special events (e.g. brain storm)	Leana et al. (2009) , Wrzesniewski and Dutton (2001)
Person-job fit (PJF)	PJF1: The match is very good between the demands of my job and my personal skills PJF2: My abilities and training are a good fit with the requirements of my job PJF3: My personal abilities and education provide a good match with the demands that my job places on me PJF4: There is a good fit between what my job offers me and what I am looking for in a job PJF5: The attributes that I look for in a job are fulfilled very well by my present job PJF6: The job that I currently hold gives me just about everything that I want from a job	Cable and DeRue (2002) , Cable and Judge (1996)
Work meaningfulness (WM)	WM1: The work I do on this job is very important to me WM2: My job activities are personally meaningful to me WM3: The work I do on this job is worthwhile	Spreitzer (1995) , May et al. (2004)

Table A1.

Appendix 2

Dimensions	Category	%	Dimensions	Category	%	
Age	25 or below	27.9	Education	College or lower	27.3	
	26–30	44.3		Bachelor	40.2	
	31–35	14.8		Master or above	32.5	
	36–40	8.2		IT experience in the workplace	Less than 1 year	18.6
	41–45	3.6			1–3 year	35
	46 or above	1.2			4–6 year	22.7
Gender	Male	39.6	7–9 year		12.8	
	Female	60.4	More than 10 year	10.9		
Business units	Finance or accounting	19.89	Job types	Clerical	27.3	
	Marketing or sales	26.33		Administrative	26.7	
	Human resources	11.20		Knowledge worker	38.2	
	Engineering	24.37		Others	7.8	
	Administration	15.12				
	Other	3.09				

Table A2.
Demographics of the survey respondents ($n = 357$)

Appendix 3

The mediating
role of job
crafting

	TR	TCM	IJC	CJC	PJF	WM
TR1	<i>0.75</i>	0.40	0.30	0.31	0.29	0.22
TR2	<i>0.86</i>	0.45	0.34	0.35	0.33	0.25
TR3	<i>0.82</i>	0.43	0.32	0.33	0.31	0.24
TR4	<i>0.71</i>	0.37	0.28	0.29	0.27	0.21
TCM1	0.47	<i>0.90</i>	0.49	0.47	0.45	0.36
TCM2	0.44	<i>0.85</i>	0.46	0.44	0.43	0.34
TCM3	0.47	<i>0.90</i>	0.49	0.47	0.45	0.36
IJC1	0.35	0.49	<i>0.90</i>	0.27	0.52	0.40
IJC2	0.35	0.49	<i>0.90</i>	0.28	0.52	0.41
IJC3	0.34	0.47	<i>0.86</i>	0.26	0.49	0.39
IJC4	0.32	0.45	<i>0.82</i>	0.25	0.47	0.37
IJC5	0.31	0.43	<i>0.79</i>	0.24	0.46	0.36
CJC1	0.37	0.47	0.28	<i>0.90</i>	0.60	0.47
CJC2	0.38	0.49	0.29	<i>0.94</i>	0.62	0.48
CJC3	0.37	0.48	0.28	<i>0.91</i>	0.60	0.47
CJC4	0.35	0.46	0.27	<i>0.87</i>	0.57	0.45
CJC5	0.36	0.46	0.27	<i>0.87</i>	0.57	0.45
PJF1	0.32	0.42	0.48	0.55	<i>0.84</i>	0.65
PJF2	0.31	0.41	0.47	0.54	<i>0.82</i>	0.64
PJF3	0.29	0.38	0.43	0.50	<i>0.75</i>	0.59
PJF4	0.28	0.37	0.42	0.48	<i>0.73</i>	0.57
PJF5	0.30	0.40	0.46	0.52	<i>0.80</i>	0.62
PJF6	0.30	0.40	0.45	0.52	<i>0.79</i>	0.62
WM1	0.26	0.36	0.40	0.46	0.69	<i>0.89</i>
WM2	0.26	0.36	0.40	0.46	0.69	<i>0.89</i>
WM3	0.26	0.36	0.40	0.46	0.69	<i>0.89</i>

Note(s): Italic represents the factor loading scores of each construct

Table A3.
Confirmatory factor
analysis

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