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## **Achieving employee efficiency–flexibility ambidexterity**

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## **Achieving Employee Efficiency–Flexibility Ambidexterity**

### **Abstract**

This study addresses a significant human resource management challenge, namely, the requirement that frontline service employees act ambidextrously to be efficient and flexible when delivering services. With a multilevel sample of 770 nurses in 48 units of one large hospital, this study demonstrates that individual characteristics—frontline service employee attitudes, perceptions of others’ expectations of their behaviors, and self-efficacy—directly affect frontline employees’ efficiency–flexibility ambidexterity. Work unit–level leadership partially moderates the impacts of these individual motivational factors. A significant positive relationship also is evident between employees’ efficient–flexibility ambidexterity and their overall performance. This study is the first to clarify the motivational factors that drive frontline employees to behave in ways that enable them to meet efficiency and flexibility demands simultaneously.

## **Introduction**

Understanding the motivational factors that lead individual frontline employees to behave efficiently and flexibly at the same time is a critical question, especially as they relate to or are conditioned by the leadership that employees experience. To improve efficiency and cut operating costs, service firms often insist on standardized procedures, applicable to all customers, leaving little room for flexibility or customization (de Smet, McGurk, & Vinson, 2009). Seeking enhanced quality, customers instead prefer that service providers respond to their unique demands with customized, flexible services. Frontline employees often wind up caught in the middle (Gracia, Cifre, & Grau, 2010), trying to meet organizational demands to be operationally efficient and customer requirements for service flexibility simultaneously (Singh, 2000). The resulting struggle can have harmful effects, including employee burnout and reduced employee productivity (Bakker, Demerouti, & Verbeke, 2004), so understanding how individual employees handle this tension in frontline service settings represents a fundamental issue for service organizations (Banks & Roodt, 2011).

Literature on organizational ambidexterity acknowledges the frequent need to pursue seemingly conflicting goals, such as efficiency and flexibility (Adler, Goldoftas, & Levine, 1999; Garaus, Güttel, Konlechner, Koprax, Lackner, Link, & Müller, 2015), and implies that if organizations can leverage their ambidextrous ability, employees can contribute to organizational performance. Gibson and Birkinshaw (2004) argue that such dual goals can co-exist, are interdependent, and are non-substitutable. Most studies highlight structural and procedural mechanisms to address ambidexterity issues, with the apparent assumption that a suitable organizational structure and systems provide service employees with sufficient space and support to achieve ambidexterity at either the work unit or firm level (e.g., Huang & Kim, 2013; Prieto & Pilar Pérez Santana, 2012). Yet the pursuit of ambidexterity spans multiple organizational levels, and even managers and individual frontline employees must

act ambidextrously, which demands a clearer view of the antecedents and consequences of ambidexterity at the individual level (e.g., Burgess, Strauss, Currie, & Wood, 2015; Prieto-Pastor & Martin-Perez, 2015). A few studies focus on the ambidexterity exhibited by senior management (e.g., Jansen, George, van den Bosch, & Volberda, 2008; Mom, Fourné, & Jansen, 2015), middle management (e.g., Burgess et al., 2015; Stokes, Moore, Moss, Mathews, Smith, & Liu, 2015), or frontline employees (e.g., Ahammad, Lee, Malul, & Shoham, 2015; Jasmand, Blazevic, & de Ruyter, 2012), yet existing research does not outline the motivational process that explains individual frontline employees' engagement in ambidextrous behavior or why some employees act more or less ambidextrously, even within the same organizational structure and systems.

Sok, Sok, and De Luca (2016) emphasize the need to understand motivational factors related to ambidextrous behavior; empirical studies do not specify what constitutes these factors though. For example, Ahammad et al. (2015) suggest that motivational human resource practices, such as financial incentives, influence individual employees' productivity and performance by affecting their attitudes, but they do not explain how such attitudes affect ambidextrous behaviors. Stokes et al. (2015) stress the influences of values, attitudes, and beliefs on individual-level ambidextrous behaviors but do not explain the underlying process. Some studies focus on attitudes (Ahammad et al., 2015; Prieto-Pastor & Martin-Perez, 2015; Sok et al., 2016; Stokes et al., 2015); others highlight beliefs, such as self-efficacy (Kauppila & Tempelaar, 2016; Patterson, Yu, & Kimpakorn, 2014; Snell, Sok, & Danaher, 2015; Sok & O'Cass, 2015). The relations of these motivational factors and their capacity to explain ambidextrous behavior remain unclear though, and with this study, we seek to determine specifically how individual beliefs and attitudes, as motivational factors, affect people's ambidextrous behavior and performance.

To specify this motivational process, we turn to a refined version of the theory of planned behavior (TPB; Ajzen, 1991; Ajzen & Fishbein, 2000; Fishbein & Ajzen, 2010), in which beliefs and attitudes directly affect actual behaviors, rather than being mediated by intended behaviors. In studies of the role of intentions (e.g., Sutton, 1998), conceptualizations that prioritize direct effects have received empirical support (Bagozzi, Gürhan-Canli, & Priester, 2007; Fu, Richards, Hughes, & Jones, 2010). Therefore, we anticipate that individual behaviors result from individual attitudes toward that behavior, norms for how others expect them to behave, and self-perceptions of their abilities. For example, to pursue operational efficiency and service flexibility simultaneously, employees need to develop attitudes that engaging in the effort required to handle such ambidextrous demands is viable or appealing (March, 1991). In addition to these attitudes, perceived pressures from others, including supervisors or leaders, can influence whether employees engage in these behaviors. Finally, because it is taxing to pursue conflicting goals, employees must believe that they possess the competencies to do so.

If these efforts took place in a vacuum, individual-level ambidexterity might be sufficient to explain the process. But employees are embedded within organizations, so the organizational environment influences the extent to which their individual characteristics determine their behaviors. For example, empowering leadership can encourage service-oriented behaviors (Auh, Menguc, & Jung, 2014), and service leadership influences team performance, through the behaviors of the individual team members (Benlian, 2014). Leadership also determines what effects employees' attitudes have, such that it influences behavior (Lee, Martin, Thomas, Guillaume, & Maio, 2015). The leadership of a work unit thus should influence individual ambidextrous behaviors; Rosing, Frese, and Bausch (2011) even suggest that transformational leadership can influence followers' explorative and exploitative dynamics. In a work group, leadership largely shapes group dynamics and affects

ambidexterity, as well as the extent to which team characteristics affect ambidexterity at higher organizational levels (Havermans, Den Hartog, Keegan, & Uhl-Bien, 2015; Jansen et al., 2008). Yet we do not understand precisely how this influence materializes, nor do we know whether work unit leadership weakens or strengthens the influences of individual motivational factors on ambidexterity behaviors and, if so, how.

Because motivational factors might explain how individual-level efficiency–flexibility ambidexterity unfolds, we predict that the extent to which employees engage simultaneously in efficient and flexible work-related behavior may be subject to the salience of the beliefs that shape their instrumental attitudes (Fishbein, 1967a, 1967b) and the specificity with which they are taken into account (Ajzen & Fishbein, 1977; Jaccard, King, & Pomazal, 1977). According to expectancy value perspectives on motivation, cognitive demands can constrain how employees process their own beliefs (van der Pligt & Eiser, 1984). The cognitive demands on employees are substantial when they must deal with seemingly conflicting beliefs, but leadership can reduce employees’ cognitive burden by providing greater salience and specificity with regard to their ambidextrous role. In line with our refined perspective on the TPB, we examine how individual motivational factors affect employees’ ambidextrous behavior when they also experience transformational leadership, a prevalent and important leadership style that has attracted substantial research attention (e.g., Mhatre & Riggio, 2014).

With these contributions, the current study advances understanding about contextual ambidexterity by accounting for the joint roles of individual motivational factors and contextual elements. We substantiate the impact of individual ambidexterity on performance as an objective performance indicator, such that our study offers a basis that organizations can draw on when they seek to implement leadership and human resource management practices that enhance efficiency–flexibility ambidexterity at the individual employee level.

## **Background**

Ambidexterity literature deals with organizations' simultaneous pursuits of seemingly conflicting goals, such as exploration and exploitation, efficiency and flexibility, or service and sales (Ahammad et al., 2015; Jasmand et al., 2012; Yu, Patterson, & de Ruyter, 2013). Exploration- and exploitation-related issues are widely addressed; relatively less attention has focused on clarifying efficiency- and flexibility-related issues. Yet pursuing efficiency and flexibility simultaneously can entail conflicting demands (Adler et al., 1999). When studies examine the simultaneous pursuit of efficiency and flexibility, they generally seek to provide recommendations for minimizing the tension. For example, organizational ambidexterity may require designs that establish structures, processes, and systems to support and improve the outcomes of these simultaneous pursuits (Raisch & Birkinshaw, 2008).

Achieving efficiency and flexibility simultaneously also requires the organization as a whole to work toward the dual goals across its various levels (individual, work unit, organization). Organizations require appropriate systems; functional units at the operational level must provide an appropriate work environment to facilitate members' ability to act efficiently and flexibly; and each individual frontline employee must be efficient to improve his or her own productivity while behaving flexibly to cater to different customers' demands. In this sense, the importance of individual employees in the pursuit of ambidexterity is clear but rarely explored (Stokes et al., 2015; Turner, Swart, & Maylor, 2013).

For example, previous ambidexterity studies tend to focus on the direct impact of organizational structures, processes, and systems on ambidexterity at the business level (Gibson & Birkinshaw, 2004). Structural ambidexterity reflects a more traditional view, in which an organization achieves ambidexterity through its structural design (Gupta, Smith, & Shalley, 2006), such as by assigning one business unit to focus on exploring new business



opportunities and another to focus on exploiting existing capabilities or else requiring a single business unit to switch between exploring business opportunities and exploiting existing capabilities (O'Reilly & Tushman, 2004). Structural ambidexterity thus defines employee behaviors relatively clearly (Birkinshaw & Gibson, 2004). Contextual ambidexterity instead functions through sets of systems and processes, rather than formal organizational structures (Gibson & Birkinshaw, 2004), that help the members of a business unit handle seemingly conflicting demands on their own, such as by dividing their time flexibly to deal with customer demands or exploiting existing operations to improve efficiency. These contextual characteristics presumably facilitate employees' ability to behave ambidextrously, but understanding of ambidexterity at the individual employee level remains sparse.

Kauppila and Tempelaar (2016) thus call for research on the determinants of individual-level ambidexterity. As the summary of empirical studies on individual ambidexterity in Table 1 indicates, most focus on frontline sales employees (Jasmand et al., 2012; Patterson et al., 2014; Sok et al., 2016; Van der Borgh, de Jong, & Nijssen, 2015; Van der Borgh & Schepers, 2014) or on exploration and exploitation more generally (Burgess et al., 2015; Kauppila & Tempelaar, 2016; Mom et al., 2015; Mom, van den Bosch, & Volberda, 2009). Current literature has not examined how individual employees handle this challenge, especially in professional service settings.

In professional service industries, frontline employees produce and deliver the service, so their work behaviors have direct impacts on the organization's ability to achieve ambidexterity (Jasmand et al., 2012). In turn, we know that motivation-enhancing human resource practices influence individual employees' productivity and performance by affecting their attitudes (Ahammad et al., 2015), norms (Garaus et al., 2015), values, and beliefs (Stokes et al., 2015), which then shape ambidextrous behaviors. We also can assume that attitudes affect ambidextrous behavior (Ahammad et al., 2015; Prieto-Pastor & Martin-Perez,

2015; Sok et al., 2016; Stokes et al., 2015) and that beliefs about self-efficacy matter (Kauppila & Tempelaar, 2016; Patterson et al., 2014; Snell et al., 2015; Sok & O’Cass, 2015). But the precise ways in which these motivational factors encourage employees to behave more or less ambidextrously remains unclear.

Motivation is a key determinant of behavior (McClelland, 1987); for this study, we focus on purposive behavior and, in line with the refined version of the TPB (Ajzen, 1991; Ajzen & Fishbein, 2000; Fishbein & Ajzen, 2010), suggest that beliefs and attitudes directly affect actual behaviors rather than assuming that their impact is mediated through intended behaviors, as we noted previously. However, inconsistent prior findings have prompted scholars to question if the effects of attitudes, beliefs, and norms may be more pronounced in certain conditions (Bay & Daniel, 2003), such that the relationship between individual motivational factors and work outcomes may be moderated by the context (Hofmann & Gavin, 1998). Stock and Hoyer (2005) argue that contextual characteristics moderate the relationship between customer-oriented attitudes expressed by employees and their behaviors. Thus, employees’ unique motivations directly affect their behaviors, but a contextual moderator, such as the leadership style of an immediate supervisor, might influence these effects. With this study, we seek to advance understanding of contextual ambidexterity by accounting for two contextual factors—perceived norms with regard to how others expect employees to behave and work unit leadership (Asch, 1951)—that affect motivations to behave ambidextrously. We also capture the impact of two individual motivational factors—attitudes toward efficiency–flexibility ambidexterity and self-efficacy—on employee ambidextrous behavior and performance. By incorporating individual motivational factors, we seek to understand contextual ambidexterity at the individual level.

Although some studies note the significance of leadership for individual ambidexterity (e.g., Prieto-Pastor & Martin-Perez, 2015; Rosing et al., 2011) and as a moderator of

ambidexterity formation (e.g., Jansen, Kostopoulos, Mihalache, & Papalexandris, 2016), we know of few studies that explore its moderating effect on the formation of individual ambidexterity; only Kauppila and Tempelaar (2016) consider the moderating effect of leadership on the link between individual determinants and individual-level ambidexterity. Furthermore, we know of no studies that address the moderating role of transformational leadership in the context of efficient–flexible ambidextrous behavior.

With their multilevel nature, organizations feature leadership at different levels, which may yield distinct impacts at each level. Leadership at the work unit level determines the shared beliefs of that unit and thus constitutes an ambient stimulus in a business context (Yu et al., 2013). Individual employees' considerations of leadership reproduce these impacts on individual outcomes (DeChurch, Hiller, Murase, Doty, & Salas, 2010; Li, Mitchell, & Boyle, 2016). With the exception of recent conceptual work by Lee et al. (2015), the impact of leadership as a potential ambient stimulus of employee motivation is relatively less explored. For example, the individual-level employee motivation to behave ambidextrously likely varies under specific leadership conditions, and studying these connections can further understanding of how the interaction of the employee-level individual process and unit-level environment influences the achievement of individual employee ambidexterity.

Transformational leadership at the work unit level should exert an influence that pervades the unit (Liao & Chuang, 2007). That is, the motivational process underlying individual-level efficiency–flexibility ambidexterity is contingent on the salience of held beliefs (Fishbein, 1967a, 1967b) and the specificity with which they are taken into account (Ajzen & Fishbein, 1977; Jaccard et al., 1977), so leaders can influence such behavior when they offer strong salience with specificity. Lord and Brown (2001) suggest that leaders influence followers by making certain values and motivations salient. We use this reasoning to consider how leadership influences an employee's motivation, moving beyond a single-

level conceptualization of the impact of leadership to one that accounts for both the work unit and the individual employee levels.

/Table 1 about here/

## **Hypotheses**

Individual behaviors can be explained by intrinsic and extrinsic motivators (Chatzisarantis & Biddle, 1998), such that attitudes are intrinsic motivations, and pressure from important others offers a form of extrinsic motivation. Attitudes are learned predispositions to respond to some object in a favorable or unfavorable way (Allport, 1935), are central motivations in the TPB, and have been operationalized in various ways (Bagozzi et al., 2007). We focus on *attitudes toward efficiency–flexibility ambidexterity*. As Low, Gravens, Grant, and Moncrief (2001, p. 590) argue, ‘intrinsically motivated individuals are better able to cope with work situations requiring interpreting conflicting or ambiguous demands as challenging and stimulating aspects of their job responsibilities.’ Efficiency–flexibility ambidexterity requires extra effort and can be stressful, with considerable chances of failure. Employees who have negative attitudes toward the need to behave ambidextrously are less motivated to invest the effort to meet this challenge, compared with employees who have positive attitudes (for similar arguments, see Prieto-Pastor & Martin-Perez, 2015; Sok et al., 2016). Thus, the willingness to invest effort to be efficiency–flexibility ambidextrous should relate to an employee’s efficiency–flexibility ambidextrous behaviors.

*H<sub>1</sub>*: Frontline employees’ attitudes toward efficiency–flexibility ambidexterity relate positively to their efficiency–flexibility ambidexterity behavior.

*Subjective norms* are social influences or perceived pressures to (not) perform certain behaviors (Bagozzi et al., 2007), ‘pressures that are generated by “important others” with respect to the behaviour in question’ (Chatzisarantis & Biddle, 1998, p. 304). For example, group norms generate group pressure that shapes individual behaviors (Asch, 1951).

Frontline employees often work closely with their colleagues to provide a service, so the normative pressure represented by supervisors or colleagues influences their work behavior, including employees' efficiency–flexibility ambidexterity. When employees experience efficiency–flexibility challenges, they likely look to their immediate supervisor and peers to determine what is expected of them. The expectations generate pressure, serving as an extrinsic motivator for employees to behave accordingly.

*H<sub>2</sub>*: Subjective norms induced through the immediate supervisor and colleagues relate positively to frontline employees' efficiency–flexibility ambidexterity behavior.

Perceived behavioral control, defined as the perceived ease or difficulty of executing a behavior, also likely relates to an individual ability to perform certain behaviors. For example, *self-efficacy* refers to subjective assessments of the probability of succeeding or failing in a particular action and the 'belief in one's capabilities to organize and execute the courses of action required to produce given attainments' (Bandura, 1986, p. 3). It can improve behavioral predictions (Bay & Daniel, 2003), because self-efficacy influences behavior, either through intentions or directly (Parker, Williams, & Turner, 2006). Because undertaking ambidextrous tasks creates substantial challenges, employees might be more inclined to do so if they believe they can. Prior studies already have established the beneficial impacts of self-efficacy in other individual-level ambidexterity settings (Kauppila & Tempelaar, 2016; Patterson et al., 2014; Snell et al., 2015).

*H<sub>3</sub>*: Self-efficacy relates positively to frontline employees' efficiency–flexibility ambidexterity behavior.

Although attitudes, subjective norms, and self-efficacy should have significant impacts on efficiency–flexibility ambidexterity, we also predict that these impacts vary in different conditions. Employees inherently interact with their immediate work environment, which is largely defined by leadership. At the work unit level for example, transformational leaders

are known for their ability to communicate their vision, increase followers' awareness of task importance, and lead by example (Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Yukl, 2006). Liao and Chuang (2007, p. 1007) define such *transformational leadership* as 'the overall pattern of leadership behaviours displayed to the entire work unit; it can be viewed as a type of "ambient stimulus" that pervades the work unit and is shared among unit members.' As a contextual factor (Havermans et al., 2015; Yu et al., 2013), transformational leadership at the work unit level likely encourages employees to develop their own competencies and critically evaluate their assumptions (Kark & Shamir, 2002), while also creating a positive environment that allows for greater discretion (Kark, Shamir, & Chen, 2003). The influence of the individual motivational factors on efficiency–flexibility ambidexterity thus should grow stronger under transformational leaders. Leadership aims to mobilize and motivate followers (Yukl, 2006); work unit transformational leadership may bolster employees' individual-level efficiency–flexibility ambidexterity by enhancing the salience and specificity of the underlying motivational process, which then affects their behavior.

In particular, transformational unit managers communicate their vision and key tasks; unit employees thus gain a clear, specific understanding of what tasks are most salient. Internalizing this salient, inspiring vision helps employees perceive their individual effort and work roles in the context of the unit's goals (Avolio, Bass, & Jung, 1999), which should reinforce their ambidextrous behaviors. For example, unit managers who lead by example demonstrate specific behaviors to model what it means to be ambidextrous, so frontline employees can learn what is required and how to act. Transformational leaders also encourage employees to look beyond their own self-interests to consider the benefit of the work unit, so they should be more willing to work as a team and make positive contributions (Bass, 1999). This willingness then should reinforce the influence of attitudes on efficiency–flexibility ambidexterity. Thus, role modeling, or setting an example for employees to follow

that is consistent with the values the leader espouses, and articulating a vision, defined as inspiring others with a vision of the future (Podsakoff et al., 1990), both should affect how an employee's ambidexterity motivations translate into ambidextrous behaviors. We address both elements of transformational leadership separately, because role modeling entails actual behaviors and has a focus on the present, whereas articulating a vision involves communication aspects with a focus that is future-oriented.

*H<sub>4aii</sub>*: The relation between employee attitudes toward ambidexterity and efficiency–flexibility ambidexterity behavior is moderated by perceived leader vision articulation, such that when perceived leader vision articulation is high, the relationship is stronger compared with when perceived leader vision articulation is low.

*H<sub>4aii</sub>*: The relation between employee perceived subjective norms and efficiency–flexibility ambidexterity behavior is moderated by perceived leader vision articulation, such that when perceived leader vision articulation is high, the relationship is stronger compared with when perceived leader vision articulation is low.

*H<sub>4aiii</sub>*: The relation between employee self-efficacy and efficiency–flexibility ambidexterity behavior is moderated by perceived leader vision articulation, such that when perceived leader vision articulation is high, the relationship is stronger compared with when perceived leader vision articulation is low.

*H<sub>4bii</sub>*: The relation between employee attitude toward ambidexterity and efficiency–flexibility ambidexterity behavior is moderated by perceptions of the leader's provision of appropriate role modeling, such that when this provision of appropriate role modeling is high, the relationship is stronger compared with when this provision of appropriate role modeling is low.

*H<sub>4bii</sub>*: The relation between employee perceived subjective norms and efficiency–flexibility ambidexterity behavior is moderated by perceptions of the leader's provision

of appropriate role modeling, such that when this provision of appropriate role modeling is high, the relationship is stronger compared with when this provision of appropriate role modeling is low.

*H<sub>4biii</sub>*: The relation between employee self-efficacy and efficiency–flexibility ambidexterity behavior is moderated by perceptions of the leader’s provision of appropriate role modeling, such that when this provision of appropriate role modeling is high, the relationship is stronger compared with when this provision of appropriate role modeling is low.

Finally, employee performance relates to how well an individual employee executes her or his job duties and responsibilities. Service firms seek efficiency and reduced operating costs through standardized service procedures; customers demand flexible, customized services. If frontline employees can meet both demands simultaneously, their performance improves. That is, efficiency–flexibility ambidexterity behaviors should yield positive performance outcomes. However, rare prior research into the link between ambidexterity and performance offers inconsistent results, with a generally implied positive relationship (Ahammad et al., 2015; Ebben & Johnson, 2005; Jasmand et al., 2012; Yu et al., 2013). We predict that employees who behave ambidextrously are likely to achieve better performance.

*H<sub>5</sub>*: Frontline employees’ efficiency–flexibility ambidexterity behavior relates positively to their performance.

## **Method**

### ***Sample and data collection***

The struggle to achieve operational efficiency and service flexibility remains a challenge in service sectors. For example, hospitals must achieve operational efficiency to contain the costs of healthcare for patients, but they also must provide high quality services and meet the unique demands of a diverse range of patients (Bartram & Dowling, 2013). Various attempts



to improve operational efficiency and service quality rely on systems, but personal care remains a key service delivery route, and the services provided by nurses represent a major component of the overall service provision (Pronovost et al., 2006). Patients rely on nurses to provide personalized assistance; hospital management encourages nurses to achieve operational efficiency and minimize inpatient care costs. Noting that nurses are nearly inevitably caught in the efficiency–flexibility dilemma, we collected data from almost 800 nurses working at a large hospital that has been in operation for more than 20 years and hosts about 1,200 beds, organized into 26 medical care departments (e.g., Anesthesiology, Neurology). We distributed questionnaires to all nurses who dealt with patients. To encourage participation, we provided gift vouchers to every nurse who returned the questionnaire, worth the equivalent of approximately one hour's pay. In addition, senior and direct supervisors sent email reminders to encourage participation; in these reminders they stressed that they would have no access to the data and confirmed the confidentiality of the responses. Prior to the data collection, in face-to-face communication with several nurses, we refined the questionnaire, to ensure that the item wording was easy to understand. To test our hypotheses, we needed multilevel (individual and work unit) data (Shen, 2015), so to obtain sufficient samples from each nursing unit (Lüdtke, Marsh, Robitzsch, Trautwein, Asparouhov, & Muthén, 2008), we examined response rates for each unit. If less than 50% of the nurses within a unit responded, we excluded it from further analysis. We thus obtained data from 770 nurses working in 48 units; we did not find any significant differences across responsive and nonresponsive units.

### ***Measurement***

If possible, we adapted measurement scales from previous measures with good content validity. There are two main approaches to operationalizing ambidexterity: as a continuum or as separate orthogonal dimensions. Rogan and Mors (2014) use a continuum, so on their

scale, 1 indicates ‘much better at implementing existing business’ and 5 represents ‘much better at new business development,’ in line with March’s (1991) trade-off view of ambidextrous orientations. However, as Table 1 reveals, most ambidexterity research relies on separate orthogonal dimensions, in accordance with Gibson and Birkinshaw’s (2004) view that ambidexterity is not necessarily one or the other. Here, because ambidextrous behaviors are interdependent and non-substitutable, a two-stage approach is required: Measure two ambidextrous orientations or behaviors separately, then create an interaction term to indicate the ambidexterity level (Jasmand et al., 2012). We adopted this two-stage procedure to capture self-reported ambidextrous behavior, such that we measured each ambidextrous orientation using separate orthogonal scales, then computed their multiplicative interaction, which is an appropriate measurement approach (Kauppila & Tempelaar, 2016).

Organizational ambidexterity measures also are context specific, so different ambidextrous foci (e.g., alignment versus adaptability; exploration versus exploitation; service versus sales; efficiency versus flexibility) require different measures (e.g., Gibson & Birkinshaw, 2004; Jasmand et al., 2012). We know of no publicly available efficiency–flexibility ambidexterity measurement scale for nurses. Therefore, we started with Marinova, Ye, and Singh’s (2008) measures of perceptions of management’s focus on productivity and patient care quality as dual orientations in a healthcare setting; here, productivity corresponds with service efficiency, and quality correlates with service flexibility. For nursing staff, providing high quality service means being flexible enough to cater to the unique needs of patients, according to their personal characteristics (e.g., illness, seriousness of condition, personality). This meaning arose in our informal interviews with nurses too, who stated that they must be flexible and customize services to provide quality care to individual patients.

In addition to these interviews with 10 nurses, we interviewed the nursing director of the study site, to clarify the activities in which nurses engaged. The insights helped us modify

Marinova et al.'s (2008) items appropriately. For example, the interview participants indicated that items referring to medical errors or patient complaints would be sensitive and not well received by nurses or hospital management. Instead, we used measures of efficiency and cost as indicators of a service efficiency orientation; items related to quality care and satisfaction represented the service flexibility orientation. The wording of the items also was adjusted to ensure that they accurately described the nurses' work activities, rather than their perception of management's focus. That is, we made sure to assess employees' efficiency–flexibility ambidexterity, rather than management's efficiency–flexibility ambidexterity, by asking participants to indicate the proportion of their individual activities, in the past 12 months, that were devoted to efficiency- and flexibility-related activities. Follow-up pilot and post-pilot tests confirmed that the nurses interpreted the meaning of the individual items appropriately and that the items measured flexibility and efficiency. All items loaded significantly ( $>.70$ ) on either the efficiency or flexibility orientation. The scale also had good reliability (efficiency  $\alpha = .73$ ; flexibility  $\alpha = .92$ ). The correlation of efficiency and flexibility indicates their significant association (.74 significance, .01 level), such that employee efficiency and flexibility orientations significantly correlate but also are distinctive, in indirect support of the interdependent, non-substitutable nature of these elements of an ambidextrous orientation. Using a method common to previous studies, we computed a multiplicative interaction of efficiency and flexibility to indicate the overall efficiency–flexibility ambidexterity level for each nurse (Atuahene-Gima, 2005; He & Wong, 2004).

To measure the constructs embedded in our hypotheses (i.e., attitudes toward efficiency–flexibility ambidexterity, subjective norms, self-efficacy), we adapted Xie, Bagozzi, and Troye's (2008) measurement scales to our research setting. The transformational leadership measures draw on scales developed by Podsakoff et al. (1990). All constructs used seven-point Likert scales. The confirmatory factor analysis results showed that all items loaded on

their respective factors and achieved good reliability (attitudes .96; subjective norms .80; self-efficacy .92; two dimensions of transformational leadership .95 and .94). A complete list of the items appears in Table 2.

/Table 2 about here/

To assess the discriminant validity of two or more variables, we used Fornell and Larcker's (1981) criterion. The average variance extracted (AVE) for each construct was greater than .50 (attitudes toward efficiency–flexibility ambidexterity .89; subjective norms .67; self-efficacy .74; articulating a vision .77; role modeling .88; ambidexterity–efficiency .59; ambidexterity–flexibility .85). We also compared the AVE of every pair of constructs with the square of their correlation; in all cases, the AVE for any two constructs exceeded the square of the correlations. We established convergent and discriminant validity with a confirmatory factor analysis, using AMOS. The values for the chi-square/degrees of freedom (4.87), goodness-of-fit index (.91), adjusted goodness-of-fit index (.87), root mean square error of approximation (.07), standardized root mean square residual (.03), normed fit index (.95), and comparative fit index (.96) all were acceptable (Byrne, 2001).

We obtained an objective performance evaluation of each nurse. The broad metric that the hospital used to evaluate nurses' performance provided a composite measure of patient care, administration, communication, and personal training and development, ranging from 9 to 100. We obtained these evaluations from the participating hospital; higher scores indicated better overall performance. This objective performance measure enabled us to mitigate the possible threat of common method variance, because we collected the other data through a survey procedure. In addition, it enabled us to investigate whether nurses' efficiency–flexibility ambidexterity affected their overall performance.

In addition to these predictive variables and moderators, we identified several factors that could influence frontline employees' efficiency–flexibility ambidexterity and performance.

Sociodemographic differences might relate to people's abilities to process complex information and often serve as control variables in studies of ambidexterity (Mom et al., 2015). We control for work tenure and experience, which may mitigate creativity (Kauppila & Tempelaar, 2016; Mom et al., 2009). We also include age as a control variable (Kauppila & Tempelaar, 2016; Mom et al., 2015). That is, we control for age, tenure (length of time in the current unit), and experience (in the healthcare industry) (Figure 1), to provide a more robust test of our hypotheses.

/Figure 1 about here/

### ***Common method assessment***

Data collected from a single source may lead to single-source bias (Avolio, Yammarino, & Bass, 1991). Despite some debate about the actual impact of such biases (Spector, 2006), we sought to address this concern with ex ante and ex post approaches. Specifically, we guaranteed the respondents' confidentiality, reduced the items' ambiguity by pilot testing the questionnaire within the target population, and randomized the order of the items in the questionnaire. Then, this study relied on two data sources (self-reported data by nurses and objective performance data). These procedures minimize the threat of common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Using multiple tests, we investigated the potential impact statistically. With Harman's single-factor test, we examine common method variance for the TPB constructs, transformational leadership, and efficiency–flexibility ambidexterity. We estimated a model with all items from all constructs and constrained the number of factors extracted in the exploratory factor analysis to 1 (rather than using eigenvalues). The single factor accounted for 38.74% of the variance in the model, which is acceptable. Applying a marker variable approach, we collected a latent variable (perception of effort–reward fairness) and added it to the model. The TPB offers no reason to expect that the perception of effort–reward fairness

should correlate with TPB constructs or with transformational leadership. The results from both Harman's single-factor test and the marker variable approach indicated that common method variance does not pose a threat to the validity of our study findings (Podsakoff et al., 2003).

### *Aggregation statistics*

The measurement level for transformational leadership (nurses) differs from the level of analysis (work unit). To justify a data aggregation for transformational leadership as a unit-level construct, we performed several tests of within-group agreement and between-branch differences (James, 1982; Lüdtke & Trautwein, 2007). Nunnally and Bernstein (1994) cite the need to take error into account when calculating intraclass correlation coefficients (ICC). The values of the ICC(1) for the two transformational leadership dimensions were greater than or close to .12 (articulating a vision .10; role modeling .16) and produced significant test statistics ( $F$ ) in the analysis of variance (James, 1982; Kenny & La Voie, 1985), indicating acceptable convergence within the units. The ICC(2) coefficients for the two transformational leadership factors were .65 and .76, in support of the acceptable reliability of the mean (Glick, 1985). Finally, the  $Rwg(j)$  coefficients for the two transformational leadership measures were .93 for articulating a vision and .82 for role modeling. The results demonstrate highly consistent ratings among employees within units (James, 1982), so it is appropriate to aggregate transformational leadership to the unit level.

### **Results**

A series of confirmative factor analyses (CFA) were conducted to compare the fit statistics for seven models, in which we combined various factors to create models that spanned one-through seven-factor versions. We detail all the combinations and their fit statistics in Table 3. As the results in Table 3 reveal, the model with seven factors (i.e., Model 1) has the best fit statistics, compared with Models 2–7. Because the seven CFA models are nested, we

conducted chi-square difference tests; this result indicates significant differences between Model 1 and the alternative models that combine the factors to varying extents ( $p < .01$ ). That is, Model 1 offers significantly superior fit to the data, compared with the alternative (Rust, Lee, & Valente, 1995). In addition, the Akaike information criterion is the lowest for Model 1, suggesting its significantly better fit relative to the alternative models (Marinova et al., 2008).

/Table 3 about here/

Table 4 contains the descriptive statistics and bivariate correlations for all variables. For the test of our first four hypotheses in this multilevel study, hierarchical linear modeling (HLM) is appropriate (Hofmann, 1997; Shen, 2015).

/Table 4 about here/

We used group mean-centering for all individual-level independent variables (attitudes toward efficiency–flexibility ambidexterity, subjective norms, and self-efficacy) and grand mean-centering for the two unit-level transformational leadership factors, in line with previous studies (Aguinis, Gottfredson, & Culpepper, 2013; Epstein, Marler, & Taber, 2015; Hofmann & Gavin, 1998). We also followed Davison, Kwak, Seo, and Choi (2002) to test for the HLM estimation and moderator effects. We used full (rather than restricted) maximum likelihood to estimate the model. To test H<sub>5</sub>, we performed an ordinary least squares (OLS) regression with clustered standard errors, because our data violate the assumption of independence.

To examine variance between units in the dependent variable, we again use the ICC(1). The value for efficiency–flexibility ambidexterity is .039, which is low but still produces significant test statistics (F) in the analysis of variance ( $F = 1.664, p < .01$ ) (James, 1982; Kenny & La Voie, 1985). That is, 3.9% of the variance in employees' efficiency–flexibility ambidexterity resides between groups, and 96.1% resides within groups. To check for

significant between-unit differences for the dependent variables of interest (Hofmann, 1997), we ran a null model (Model 1) without specifying any predictors (see Table 5:  $\gamma = 30.838, p < .01$ ) and confirmed that the variance of unit-level efficiency–flexibility ambidexterity ( $t_{00}$ ) is significantly different from 0, such that significant between-unit variance exists in efficiency–flexibility ambidexterity (Raudenbush & Bryk, 2002). We then added the four individual-level antecedents and control variables (Model 2). Model 2 provides the results for the HLM analysis tests for H<sub>1</sub>–H<sub>3</sub>. Attitudes toward efficiency–flexibility ambidexterity ( $\gamma = 1.445, p < .01$ ), subjective norms ( $\gamma = 2.365, p < .01$ ), and self-efficacy ( $\gamma = 3.458, p < .01$ ) at the individual level all exhibited positive associations with each nurse’s efficiency–flexibility ambidexterity, in support of our hypotheses. To test the moderating effect of transformational leadership in Model 4, we added the cross-level interaction terms and find partial support for H<sub>4</sub> (H<sub>4a</sub>:  $\gamma = 5.569, p < .05$ ; H<sub>4b</sub>:  $\gamma = 2.691, p < .05$ ). But rather than the expected positive moderating effects, our results reveal some negative moderating effects of transformational leadership (H<sub>4b</sub>:  $\gamma = -3.830, p < .05$ ). An additional 42% of the variance is explained by Model 2, and an additional 48% of variance can be explained by Model 4. The model deviation also decreases from Models 1 to 4, suggesting progressively better model fit (Aguinis et al., 2013). To facilitate the interpretation of the significant moderation results, we used HLM to generate Figure 2, Panels a–c, to illustrate the moderating effect of transformational leadership, in relation to H<sub>4a</sub>, H<sub>4b</sub>, and H<sub>4c</sub>.

Finally, to test H<sub>5</sub>, we performed an OLS regression with clustered standard errors, because our data violate the assumption of independence. This robust regression analysis also allows for intragroup correlations among errors, so it provides a more accurate estimation of the relationship between efficiency–flexibility ambidexterity and an employee’s overall performance. We include age, tenure, and experience as control variables. The results indicate a significant positive relationship between efficiency–flexibility ambidexterity and



an employee's overall performance ( $\beta = .08, p < .01$ ), and the overall model explains 14% of the variance in employee performance ( $F = 31.19, R^2 = .14, p < .01$ ), in support of H5.

/Table 5 about here//Figure 2 about here/

### **Supplemental analysis: Combined effects on employee performance**

Rosing and Zacher (2016) suggest operationalizing individual ambidexterity using polynomial regression and a response surface method; accordingly, we conducted a polynomial regression with response surface plots using a mean-centered approach (Shanock, Baran, Gentry, Pattison, & Heggstad, 2010). The results, summarized in Table 5 and Figure 3, indicate a significant positive  $a_1$  value with a non-significant  $a_2$  value, indicating that employee efficiency and flexibility concur, and employee performance increases as employee efficiency and flexibility increase. It also indicates a linear relationship between this form of employee ambidexterity and employee performance (Shanock et al., 2010). However, this analysis does not acknowledge the non-independent nature of the data, so these supplemental results must be interpreted with caution.

/Table 6 and Figure 3 about here/

### **Discussion and implications**

Many studies address organizational ambidexterity. We move beyond the early focus on business unit- or firm-level ambidexterity (e.g., Gibson & Birkinshaw, 2004; Gupta et al., 2006) to address individual-level ambidexterity, particularly as it involves efficiency and flexibility. As professional service firms, hospitals possess a professionalized workforce, and efficiency is a significant managerial challenge for them (von Nordenflycht, 2010). Our study addresses an important challenge for hospitals, namely, achieving efficiency while also dealing with customer (patient) demands for flexible service provision. These efficiency and flexibility demands are critical to professional service firms with professionalized workforces but are rarely addressed in prior ambidexterity literature, a factor that distinguishes our

research from other individual-level ambidexterity studies. In this sense, the challenge of maximizing efficiency while meeting demands to be flexible is not unique to hospitals. Law, accounting, and architecture professional service firms similarly feature professionalized workforces that must deal with such challenges. Our findings thus may have implications for professional service firms in various sectors.

With these unique foundations, we draw on a refined version of the TPB to identify influential individual and contextual elements (attitudes toward efficiency–flexibility ambidexterity, subjective norms, and self-efficacy) that have direct, positive effects on nurses’ efficiency–flexibility ambidexterity, as well as their moderation by transformational leadership. As a significant contribution to individual-level ambidexterity literature, we demonstrate the relative importance of individual motivational and contextual elements, conditional on transformational leadership. As hypothesized, we find a significant relationship between employee attitudes and efficiency–flexibility ambidexterity behavior. A general assumption suggests that attitudes affect employees’ behaviors, but our study is the first to examine the relationship with ambidextrous behaviors. Attitudes represent an intrinsic motivation, so our study aligns with Sok et al.’s (2016) findings that motivation has a direct impact on service–sales ambidexterity. The significant relationship between subjective norms and efficiency–flexibility ambidexterity behavior also suggests that employees’ perception of their work unit shapes their ambidextrous behaviors, consistent with previous research (Asch, 1951; Burgess et al., 2015). Contextual elements also significantly influence frontline employees’ ambidextrous behavior. Finally, the finding of a significant relationship between self-efficacy and efficiency–flexibility ambidexterity is consistent with previous studies that examine the direct and indirect impacts of self-efficacy on service–sales or exploration–exploitation ambidexterity (Kauppila & Tempelaar, 2016; Patterson et al., 2014). Self-

efficacy thus is critical for achieving individual ambidexterity in different contexts and for pursuing different types of ambidextrous goals.

Our study also offers an initial exploration of how unit leadership influences the impact of the predictors identified in the TPB. By introducing transformational leadership as a moderator, we integrate attitude literature with research into situational constraints, such that we introduce transformational leadership as a unit-level contextual (i.e., ambient stimulus) moderator of the relationship between motivational factors and efficiency–flexibility ambidexterity behavior. Our multilevel data also provide mixed support for this moderating effect of transformational leadership. Role modeling appears to weaken the impact of self-efficacy, but it amplifies the impact of attitudes toward efficiency–flexibility ambidexterity. Articulating a vision instead amplifies the impact of self-efficacy, in support of our theoretical reasoning. By articulating a clear vision, a unit leader can enhance the impact of self-efficacy; by providing an appropriate role model, she or he can enhance the impact of positive employee attitudes.

However, the negative moderating effect of role modeling on the relationship between self-efficacy and efficiency–flexibility ambidexterity is unexpected. We turn to proxy efficacy literature for possible explanations. People with high self-efficacy likely act ambidextrously, because they are confident that they have the ability to do so. When nurses perceive that their unit manager can help them achieve efficiency–flexibility ambidexterity though, they might rely less on their own abilities. In another health care setting, patients who have greater confidence in their doctors tend to shift control to their doctors. Thus, self-efficacy might have a direct impact, but greater confidence in doctors overtakes this impact of self-efficacy (Bray, Gyuresik, Culos-Reed, Dawson, & Martin, 2001). Similarly, nursing staff may have confidence in their ambidextrous ability, but confidence in their unit manager who offers a great role model may lead them to rely on his or her guidance, rather than their

own self-belief, which diminishes the impact of their self-efficacy. That is, proxy efficacy may weaken the impact of self-efficacy on ambidexterity (Yu, Patterson, & de Ruyter, 2015).

Alternatively, non-specificity might characterize transformational leadership behavior, in that the supervisor could articulate a vision and provide a role model, yet these behaviors might not align fully with efficiency–flexibility ambidexterity. Employees hold many beliefs related, to a greater or lesser extent, to the simultaneous pursuit of efficiency and flexibility in the delivery of services, and the level of alignment between transformational leadership and efficiency and flexibility demands might affect whether the influence yields real salience or specificity. Sosik and Dinger (2007) similarly highlight the issue of vision content in understanding the effectiveness of leadership; if the expectations created by a leader who articulates a vision and role models the behavior seem unattainable, employees might suffer reduced self-confidence about being able to behave in an ambidextrous manner too.

Finally, ambidexterity is both context and level specific. According to Junni, Sarala, Taras, and Tarba (2013), the effect of organizational ambidexterity could be industry specific. As illustrated by Table 1, we focus on individual-level, efficiency–flexibility ambidexterity and its effects on performance in a healthcare context. This linkage rarely has been studied, and the few extant studies of the relationship between ambidexterity and performance tend to offer inconsistent results (e.g., Ebben & Johnson, 2005). Thus, by considering the connection between efficient–flexibility ambidexterity and performance at an individual level, we complement existing ambidexterity literature and extend and confirm prior studies in service settings, with our finding of a positive performance impact of efficiency–flexibility ambidexterity (e.g., Ahammad et al., 2015; Jasmand et al., 2012; Yu et al., 2013).

### ***Managerial implications***

In addition to advancing understanding of the motivational process of individual efficiency–flexibility ambidexterity at the operational level, our study yields several important

managerial implications. The significant positive correlation between efficiency–flexibility ambidexterity and employee performance suggests that human resource management practices should seek to motivate employees to act efficiently and flexibly. Incentive mechanisms certainly can be effective (Ahammad et al., 2015). Professional service organizations should strategically work to influence employees’ attitudes toward efficiency–flexibility ambidexterity too, to increase the possibility that frontline employees sense intrinsic motivations to act ambidextrously. In addition, if unit managers are appropriate role models and demonstrate how to act ambidextrously, employees will be even more likely to translate their positive attitudes into ambidexterity actions. In work units, it may be useful to develop shared goals to create a positive efficiency climate while still delivering high quality services. The immediate influence of the unit supervisor is crucial here, because frontline employees take direct orders, goals, and behaviors from immediate supervisors. The supervisor’s expectation that employees exhibit ambidextrous behaviors must be clear.

Our findings suggest employee confidence also is crucial. Frontline employees need to believe that they possess the necessary skills and are capable. They also need to be clear about what is expected of them. To improve self-efficacy, training and feedback can be useful (Logan & Ganster, 2007). Greater employee confidence should lead them to behave in a more ambidextrous manner, and unit managers can help by articulating a vision. They should not necessarily role model the behavior though. Still, carrying out ambidextrous behaviors requires additional effort, so appropriate incentives should be put in place, especially initially, to encourage employees (Ahammad et al., 2015).

### ***Further research***

Ambidexterity is context specific. This study focuses on efficiency–flexibility ambidexterity at the individual employee level, so further studies should examine other tensions, such as exploration–exploitation (March, 1991) or service–sales (Jasmand et al., 2012), as well as

investigate the joint impacts of individual motivational and contextual factors on employee-level ambidexterity in these contexts. We include limited contextual elements in this study; continued investigations might explore the direct effects of multifaceted organizational structures, processes, or systems on individual ambidexterity.

The procedures we adopted minimize the limitations of survey-based data, though our study still features some of these challenges. For example, to motivate the nurses to complete the survey, despite their busy schedules, we had to develop a relatively focused and short survey, without any open-ended questions. Thus we did not obtain any additional in-depth responses. We conducted a few interviews, though this sample was limited in size. Using open-ended questions and a larger sample of interviews might help clarify the formation of employee efficiency–flexibility ambidexterity, or other ambidextrous pursuits, such as flexibility and patient safety. Ambidexterity studies rarely address safety (cf. Kostopoulos & Bozionelos, 2011), though a potential conflict exists between psychological safety and production goals (Dollard & McTernan, 2011). The pursuit of patient safety and flexibility may cause potential conflicts if nursing staff seeks to customize services (Jha, Prasopa-Plaizier, Larizgoitia, & Bates, 2010), such as by changing the medication times determined by doctors to satisfy patients. Our focused questionnaire design also limits our ability to explore various types of leadership. We chose transformational leadership, which is prevalent and widely studied, but other styles also might be pertinent (Rosing et al., 2011). Research that compares the moderating effects of different types of leadership or offers empirical evidence of the impacts of transformational and transactional leadership and related ambidextrous elements could help clarify the role of leadership for ambidexterity pursuits.

Although this study complements previous organizational ambidexterity literature by focusing on the individual level (Ahammad et al., 2015), the sample prevents us from exploring organizational ambidexterity at various levels or comparing the effects on overall

organizational performance. To integrate our findings pertaining to individual ambidexterity with previous results at organizational levels, additional studies could examine the simultaneous effects of organizational ambidexterity at different levels on overall performance. This study also focuses on one large hospital, which may face different issues and challenges than other organizations, such as small clinics, for which the ambidexterity tensions may differ. Health care represents a professional service industry, and similar to other industries, frontline employees often have to deal with customer demands to provide quality service while also meeting the firm's productivity requirements. Yet the unique characteristics of each sector likely affect how employees deal with the tension of pursuing seemingly conflict goals. We encourage further studies to replicate our studies in different professional service sectors to enhance the generalizability of the findings.

Our conceptual model reflects a refined version of the TPB (Ajzen, 1991), but we linked individual and contextual elements to behaviors, without exploring the impact of motivational factors on employees' intentions to act ambidextrously. That is, we cannot depict the relationship between behavioral intentions and actual behavior. Additional studies that include the intention-behavior link could explore potential moderators that may strengthen the impact of behavioral intentions on actual behavior. These insights would be useful for practitioners, to help them manage their teams and achieve higher levels of ambidexterity.

We relied on self-reported measures to gauge employees' ambidextrous behaviors, which carries a risk of errors. A better approach would draw on data from other sources, such as patients' perceptions of the care provided by the nursing staff, but privacy concerns and the sensitivity of the issues prevented us from making any direct contact with patients. Perhaps researchers could find more objective data to measure employees' ambidextrous behaviors though. Examining longitudinal performance data might shed light on the potential reverse loop of efficiency-flexibility ambidexterity and performance.

Finally, it is worth noting that, despite the significant between-unit variance in terms of efficiency–flexibility ambidexterity, only 3.9% of the total variance is at the group level. That is, most variance occurs at the individual nurse level. Therefore, the results need to be interpreted with caution.

## **Conclusion**

In this manuscript we have identified important motivational factors that explain the extent to which frontline employees behave in efficiency–flexibility ambidextrous manners, as well as the impact of such ambidexterity on employee performance. Accordingly, this study goes beyond examining organizational structures, processes, and system solutions to address organizational ambidexterity issues at the employee level. We respond to a call for research into individual-level ambidexterity (Kauppila & Tempelaar, 2016). To the best of our knowledge, this study is the first to investigate motivational factors that underpin individual efficiency–flexibility ambidexterity rather than business unit or organizational ambidexterity (Gibson & Birkinshaw, 2004). Furthermore, we offer the first consideration of this tension for employees in a health care context. Our findings demonstrate that frontline service employee attitudes, perceptions of others’ expectations of their behaviors, and self-efficacy significantly impact on frontline employees’ efficiency–flexibility ambidexterity. Work unit–level leadership partially moderates the impacts of these factors. We also reveal that there is a significant positive relationship between employees’ efficiency–flexibility ambidexterity and their overall performance.



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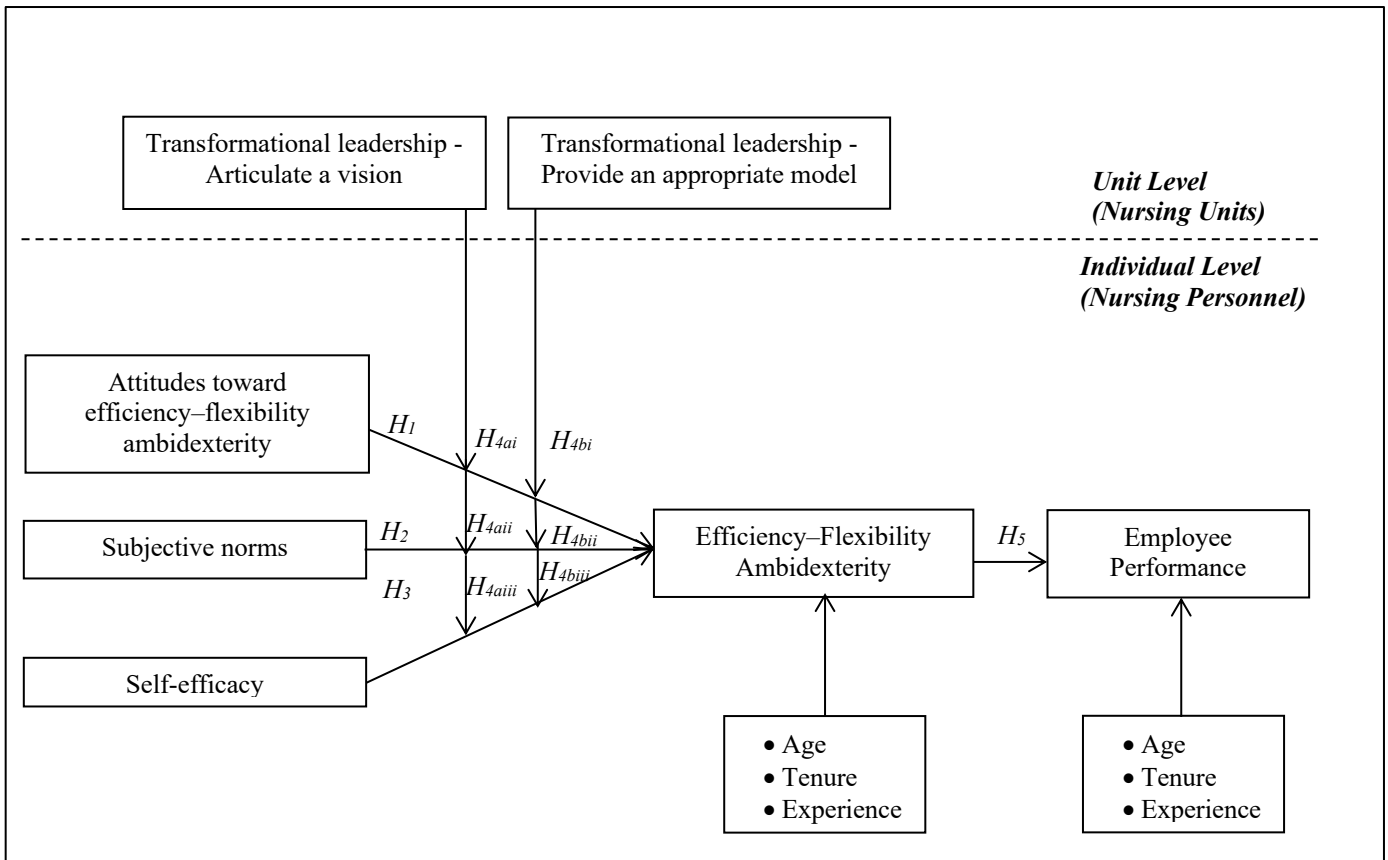
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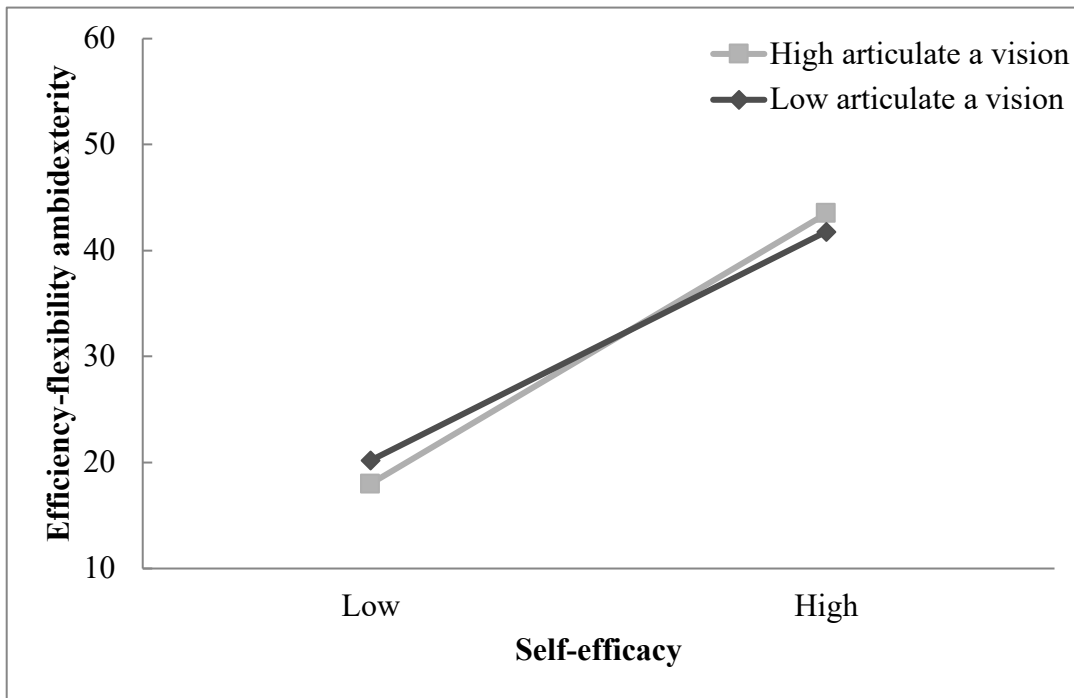
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**FIGURE 1**  
**Conceptual model**

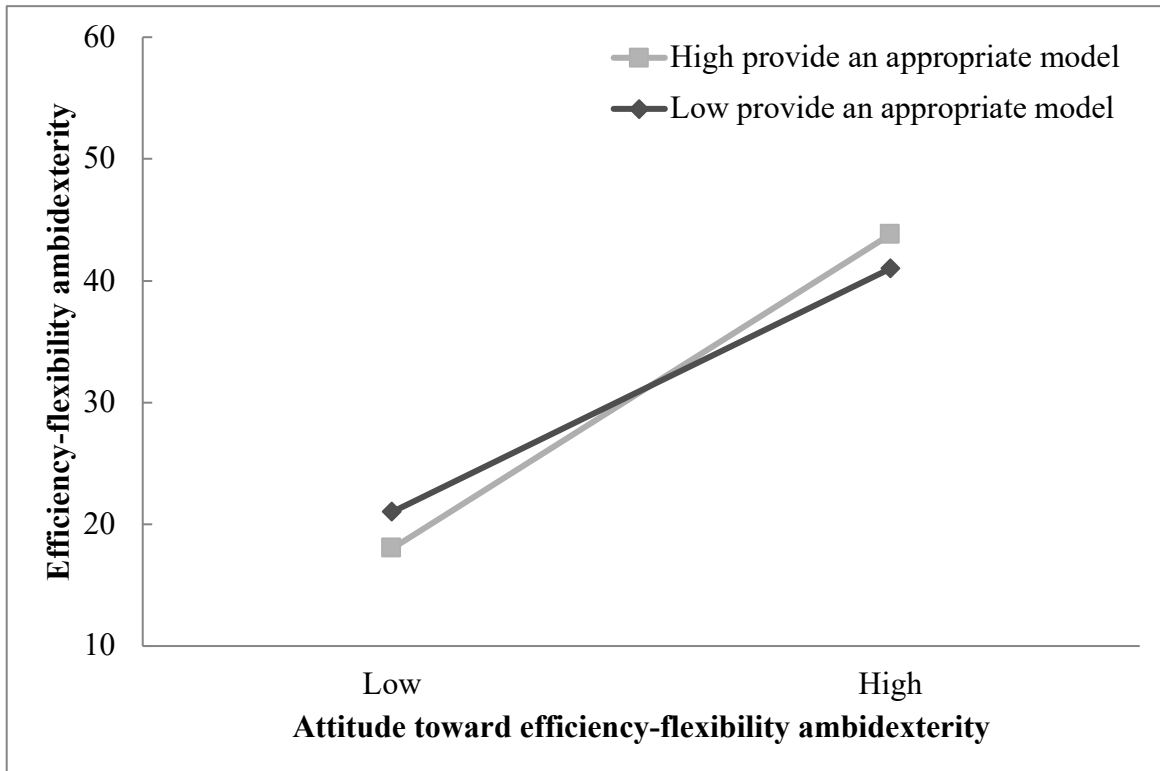


**FIGURE 2**  
**Moderating effects**

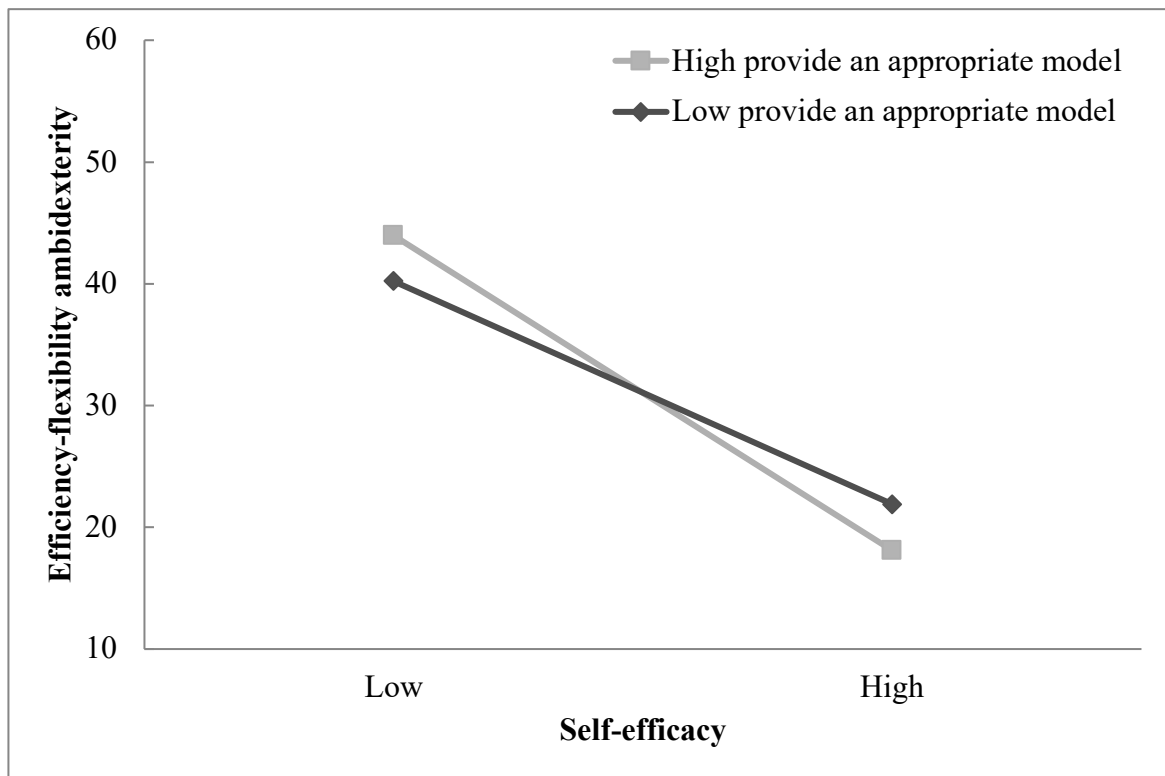
**a. Articulating a vision on relationship of self-efficacy and efficiency–flexibility ambidexterity**



**b. Role modeling on relationship of attitude toward efficiency–flexibility ambidexterity and efficiency–flexibility ambidexterity**



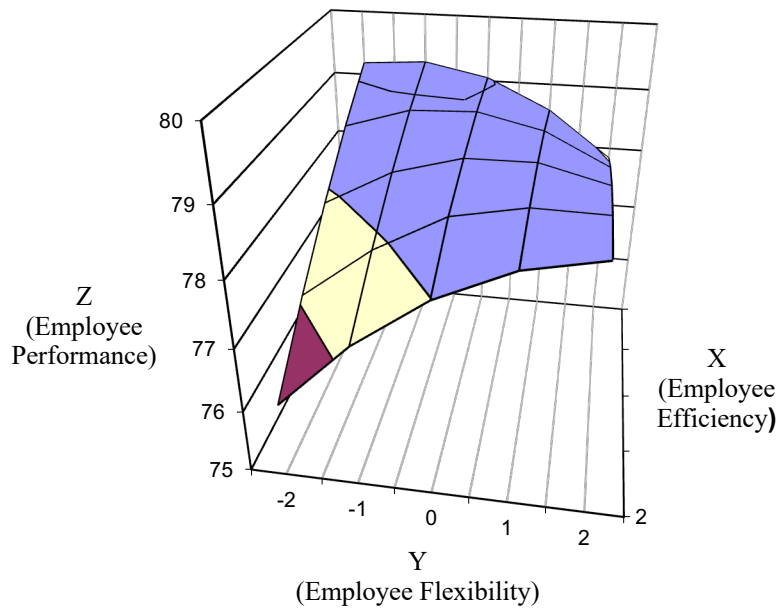
**c. Role modeling on relationship of self-efficacy and efficiency–flexibility ambidexterity**



**Notes:** Low (high) moderation refers to one standard deviation below (above) the mean of the level-2 moderator (Raub & Liao, 2012).



**FIGURE 3**  
**Employee performance predicted by employee efficiency–flexibility discrepancy**



**TABLE 1**  
**Overview of empirical research on individual ambidexterity**

| <b>Author name(s),<br/>Year</b>       | <b>Ambidextrous<br/>Focus</b>                | <b>Ambidexterity<br/>Operationalization</b>  | <b>Ambidexterity<br/>Level</b> | <b>Constructs Related to the Formation of<br/>Ambidexterity</b>   | <b>Research Context</b>   |
|---------------------------------------|--|--|--------------------------------|---|---|
| Current research                      | Efficiency vs. flexibility                   | <i>Efficiency x flexibility</i>  | Nursing staff                  | Attitudes toward efficiency–flexibility ambidexterity, subjective norms, self-efficacy, transformational leadership | Large hospital  |
| Burgess et al. (2015)                 | Exploration vs. exploitation                 | <i>Hybrid middle manager vs. non-hybrid middle manager</i>   | Middle manager                 | Contextual and personal circumstances   | UK hospitals  |
| DeCarlo and Lam (2016)                | Hunting vs. farming orientation              | <i>Hunting orientation x farming orientation</i>   | Salesperson                    | Promotion focus, prevention focus, situational factors  | B2B industrial distribution firm, national sales people panel   |
| Kauppila and Tempelaar (2016)         | Exploration vs. exploitation                 | <i>Exploration x exploitation</i>  | Employee                       | Self-efficacy, learning orientation, paradoxical leadership   | Finnish organizations competing in various industries.  |
| Rosing and Zacher (2016)              | Exploration vs. exploitation                 | <i>Polynomial regression and response surface methodology to operationalize exploration and exploitation</i> | Employee                       | -   | A broad range of industries   |
| Sok et al. (2016)                     | Service vs. sales                            | <i>Service x sales</i>   | Salesperson                    | ‘Can do’ motivations, ‘reason to’ motivation  | B2B firms in the pharmaceutical industry.   |
| Hall et al. (2015)                    | Intuitive vs. deliberative accuracy          | <i>Intuitive accuracy x deliberative accuracy</i>  | Salesperson                    | Customer needs change   | Mid-sized specialty retailer  |
| Mom et al. (2015)                     | Exploration vs. exploitation                 | <i>Exploration x exploitation</i>  | Manager                        | Organizational and functional tenure  | One accountancy and professional services firm and one chemicals and life-sciences firm.  |
| Prieto-Pastor and Martin-Perez (2015) | Innovative vs. cooperative behavior          | <i>Innovative behavior x cooperative behavior</i>  | Employee                       | High-involvement HR systems, management support   | Innovative companies across a broad range of industries such as food and beverage, manufacturing, chemistry, metallurgy, automotive industries. |
| Snell et al. (2015)                   | Growth of work life vs. quality of work life | <i>Growth of work life x quality of work life</i>  | Small service firm owners      | Marketing capability, entrepreneurial self-efficacy, passion for work   | Small service firms   |

|                                   |  |   |                                  |  |  |
|-----------------------------------|--|---|----------------------------------|--|--|
| Sok and O’Cass (2015)             | Individual creativity vs. attention to detail                | <i>a) Combined: Individual creativity x attention to detail<br/>b) Balanced: absolute difference between the composite scores of creativity and attention to detail</i> | Head of R&D                      | Individual ambidexterity as a moderator  | Advanced manufacturing firms in the Indian technology and chemical sectors   |
| Van der Borgh et al. (2015)       | Sale of existing vs. new products                            | <i>Sale of existing products x sale of new products</i>   | Salesperson, manager             | Organizational identification  | Information and communication technology company   |
| Patterson et al. (2014)           | Service vs. sales performance                                | <i>Service performance x sales Performance</i>  | Frontline service employees      | Self-efficacy, sales/service climate, leader-member exchange, environmental dynamism, job experience   | Life insurance, telecommunication, cosmetics, retail banking, and retailing  |
| Rogan and Mors (2014)             | Exploring for new business vs. exploiting existing business. | Continuum (1 = much better at implementing existing business, 5 = much better at new business development)  | Senior manager                   | Network  | Professional services firm   |
| Van der Borgh and Schepers (2014) | Sale of existing vs. new products                            | <i>Sale of existing products x sale of new products</i>   | Sales person, manager            | Task autonomy, manager performance feedback, sales person age  | Consumer electronics retailer  |
| Jasmand et al. (2012)             | Customer service provision vs. ross-/up-selling              | <i>Customer service provision x cross-/up-selling</i>   | Customer service representatives | Team identification, Bounded discretion, Locomotion orientation, Assessment orientation  | Call center  |
| Mom et al. (2009)                 | Exploration vs. exploitation activities                      | <i>Exploration activities x exploitation activities</i>   | Business unit level manager      | Decision-making authority, formalization of manager’s tasks, participation in cross-functional interfaces by a manager, connectedness of manager to other organization members | Five of top 25 on the <i>Fortune</i> Global 500 (2007) in terms of total revenues in manufacturing and service industries industry |

**TABLE 2**  
**Measures and Measurement Criteria**

| Measures   | Loadings | t-Value | $\alpha$ | AVE |
|--|----------|---------|----------|-----|
| <b>Attitudes toward Efficiency–Flexibility Ambidexterity</b>   |          |         | .96      | .89 |
| My trying to be efficient and delivering the best quality care would make me feel:   |          |         |          |     |
| • Pleasant   | .95      | 51.96   |          |     |
| • Enjoyable  | .95      | 51.96   |          |     |
| • Satisfied  | .94      |         |          |     |
| <b>Subjective Norms</b>  |          |         | .80      | .67 |
| 1. Most colleagues who are important in my work life would like me to be both efficient and deliver the best quality care. | .85      | 18.01   |          |     |
| 2. My immediate supervisor thinks that I should be both efficient and deliver the best quality care.                       | .79      |         |          |     |
| <b>Self-Efficacy</b>   |          |         | .92      | .74 |
| 1. I feel capable to be efficient and deliver the best quality care at the same time.                                      | .85      | 31.46   |          |     |
| 2. I know what to do when I am required to be efficient and deliver the best quality care at the same time.                | .88      | 34.04   |          |     |
| 3. I think that I am good at being efficient and delivering the best quality care at the same time.                        | .85      | 31.65   |          |     |
| 4. I feel that I possess the necessary skills to be efficient and deliver the best quality care at the same time.          | .88      |         |          |     |
| <b>Transformational Leadership</b>   |          |         |          |     |
| <i>Articulate a vision</i>   |          |         | .95      | .77 |
| My direct supervisor...  |          |         |          |     |
| • has a clear understanding of where we are going.   | .79      | 28.99   |          |     |
| • paints an interesting picture of the future for our group.   | .83      | 32.62   |          |     |
| • is always seeking new opportunities for the organization.  | .90      | 39.12   |          |     |
| • inspires others with his/her plans for the future.   | .93      | 41.60   |          |     |
| • is able to get others committed to his/her dream.  | .90      |         |          |     |
| <i>Provide an appropriate model</i>  |          |         | .94      | .88 |
| My direct supervisor...  |          |         |          |     |
| • provides a good model for me to follow.  | .97      |         |          |     |
| • leads by example.  | .91      | 47.35   |          |     |
| <b>Efficiency–Flexibility Ambidexterity</b>  |          |         |          |     |
| <i>Efficiency</i>  |          |         | .73      | .59 |
| To what extent did you, in the last 12 months, engage in work-related activities that can be characterized as follows:     |          |         |          |     |
| • improving efficiency   | .81      |         |          |     |
| • cutting costs  | .71      | 20.28   |          |     |
| <i>Flexibility</i>   |          |         | .92      | .85 |
| To what extent did you, in the last 12 months, engage in work-related activities that can be characterized as follows:     |          |         |          |     |
| • delivering the best quality care   | .95      |         |          |     |
| • ensuring the highest levels of patient satisfaction  | .90      | 38.88   |          |     |

Notes: AVE = average variance extracted.

**TABLE 3**  
**Results of alternative-model comparisons for CFA**

| Model | Model Description  | CMIN (DF)     | CMIN/DF | $\Delta\chi^2$ | <i>p</i> | RMSEA | RMR | SRMR | GFI | AGFI | NFI | CFI | AIC     |
|-------|--|---------------|---------|----------------|----------|-------|-----|------|-----|------|-----|-----|---------|
| 1     | Seven-factor model: AME; AMF; ATA; SE; SN; TLA; TLP.     | 726.28 (149)  | 4.87    |                | .00      | .07   | .04 | .03  | .91 | .87  | .95 | .96 | 848.28  |
| 2     | Six-factor model: AME; AMF; ATA; SE; SN; TLA + TLP.      | 1046.42 (155) | 6.75    | 320.14*        | .00      | .09   | .05 | .04  | .88 | .83  | .93 | .94 | 1156.42 |
| 3     | Five-factor model: AME; AMF; ATA; SE + SN; TLA + TLP.    | 1403.01 (160) | 8.77    | 676.73*        | .00      | .10   | .07 | .06  | .84 | .79  | .91 | .92 | 1503.01 |
| 4     | Four-factor model: AME; AMF; ATA + SE + SN; TLA + TLP.   | 3358.03 (164) | 20.48   | 2631.75*       | .00      | .16   | .10 | .08  | .68 | .59  | .77 | .78 | 3450.03 |
| 5     | Three-factor model: AME + AMF; ATA + SE + SN; TLA + TLP. | 3393.51 (167) | 20.32   | 2667.23*       | .00      | .16   | .10 | .08  | .68 | .59  | .77 | .78 | 3479.51 |
| 6     | Two-factor model: AME + AMF; ATA + SE + SN + TLA + TLP.  | 6988.42 (169) | 41.35   | 6262.14*       | .00      | .23   | .27 | .26  | .42 | .28  | .53 | .53 | 7070.42 |
| 7     | One-factor model: All factors loaded on a single factor. | 9115.28 (170) | 53.61   | 8389*          | .00      | .26   | .32 | .22  | .36 | .21  | .38 | .39 | 9195.27 |

Notes: AME: ambidexterity–efficiency; AMF: ambidexterity–flexibility; ATA: attitudes toward efficiency–flexibility ambidexterity; SE: self-efficacy; SN: subjective norms; TLA: transformational leadership–articulate a vision; TLP: transformational leadership–provide an appropriate model. The chi-square differences ( $\Delta\chi^2$ ) reflect the comparison of the seven-factor model with alternative models. The chi-square for the seven-factor model serves as the baseline.

\*  $p < .01$ . At this level, the chi-square differences between the seven-factor model and alternative models are significant. The seven-factor model offers the best fit.

**TABLE 4**  
**Means, Standard Deviations, and Correlations<sup>a</sup>**

|     | Variable  | Employee-Level |      | Branch-Level |      | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9     | 10 |  |
|-----|---|----------------|------|--------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|--|
|     |   | Mean           | SD   | Mean         | SD   |       |       |       |       |       |       |       |       |       |    |  |
| 1.  | Attitudes toward efficiency–flexibility ambidexterity | 5.32           | 1.08 | 5.39         | 0.37 |       |       |       |       |       |       |       |       |       |    |  |
| 2.  | Subjective norms                                      | 5.33           | 0.97 | 5.41         | 0.33 | .38** |       |       |       |       |       |       |       |       |    |  |
| 3.  | Self-efficacy   | 5.16           | 0.90 | 5.21         | 0.33 | .54** | .49** |       |       |       |       |       |       |       |    |  |
| 4.  | TL-Articulate a vision                                | 4.55           | 1.14 | 4.64         | 0.45 | .26** | .23** | .24** |       |       |       |       |       |       |    |  |
| 5.  | TL-Provide an appropriate model                       | 4.66           | 1.31 | 4.74         | 0.60 | .26** | .24** | .20** | .83** |       |       |       |       |       |    |  |
| 6.  | Efficiency–flexibility ambidexterity                  | 30.61          | 9.35 | 31.11        | 3.29 | .48** | .51** | .59** | .28** | .25** |       |       |       |       |    |  |
| 7.  | Employee performance                                  | 80.37          | 2.43 | 80.59        | 1.24 | .08*  | .12** | .18** | .09*  | .07*  | .20** |       |       |       |    |  |
| 8.  | Age   | 2.17           | 0.86 | 2.18         | 0.39 | .22** | .24** | .37** | .15** | .09*  | .32** | .33** |       |       |    |  |
| 9.  | Tenure  | 1.88           | 1.11 | 1.82         | 0.43 | .13** | .09** | .25** | .07   | .02   | .18** | .28** | .53** |       |    |  |
| 10. | Experience  | 2.77           | 1.44 | 2.78         | 0.66 | .24** | .22** | .38** | .13** | .08*  | .35** | .36** | .87** | .61** |    |  |

<sup>a</sup> Correlations are based on employee-level data (n = 770).

Notes: TL = transformational leadership. Age consists of four categories and is coded as 1 = '25 and below,' 2 = '26–35,' 3 = '36–45,' and 4 = '46 and above.' Tenure and experience are calculated in years.

\*  $p < .05$ .

\*\*  $p < .01$ .

**TABLE 5**  
**Results of Hierarchical Linear Modelling of Employee Efficiency-Flexibility Ambidexterity**

| Level and Variable  | Null, Model 1 |           | Random Intercept and Fixed Slope, Model 2 |           | Random Intercept and Random Slope, Model 3 |           | Cross-Level Interaction (Random Slope), Model 4 |           |
|---|---------------|-----------|---|-----------|--|-----------|---|-----------|
|   | Robust SE     | Robust SE | Robust SE                                 | Robust SE | Robust SE                                  | Robust SE | Robust SE                                       | Robust SE |
| <b>Level 1</b>  |               |           |   |           |  |           |   |           |
| Intercept $\gamma_{00}$   | 30.838**      | 0.439     | 30.949**                                  | 0.443     | 30.964**                                   | 0.446     | 31.021**  | 0.428     |
| <b>Control Variable</b>   |               |           |   |           |  |           |   |           |
| Tenure ( $\beta_1$ )  |               |           | -0.272                                    | 0.350     | -0.272                                     | 0.376     | -0.305  | 0.386     |
| Experience ( $\beta_2$ )  |               |           | 1.095**                                   | 0.399     | 1.214**                                    | 0.378     | 1.272**   | 0.385     |
| Age ( $\beta_3$ )   |               |           | -0.342                                    | 0.568     | -0.626                                     | 0.541     | -0.692  | 0.555     |
| <b>Antecedents–Level 1</b>  |               |           |   |           |  |           |   |           |
| Attitudes toward efficiency–flexibility ambidexterity ( $\beta_4$ )                                       |               |           | 1.445**<br>(H1)                           | 0.394     | 1.326**                                    | 0.379     | 1.199**   | 0.358     |
| Subjective norms ( $\beta_5$ )  |               |           | 2.365**<br>(H2)                           | 0.340     | 2.394**                                    | 0.305     | 2.378**   | 0.324     |
| Self-efficacy ( $\beta_6$ )   |               |           | 3.458**<br>(H3)                           | 0.507     | 3.721**                                    | 0.483     | 3.940**   | 0.522     |
| <b>Antecedents–Level 2</b>  |               |           |   |           |  |           |   |           |
| Articulate a vision $\gamma_{01}$   |               |           |   |           |  |           | 2.491   | 2.438     |
| Provide an appropriate model $\gamma_{02}$  |               |           |   |           |  |           | -0.258  | 1.567     |
| <b>Cross-Level Interactions</b>   |               |           |   |           |  |           |   |           |
| Attitudes toward efficiency–flexibility ambidexterity $\times$ articulate a vision $\gamma_{41}$          |               |           |   |           |  |           | -3.188<br>(H4ai)                                | 2.020     |
| Subjective norms $\times$ articulate a vision $\gamma_{51}$   |               |           |   |           |  |           | -0.650<br>(H4aii)                               | 2.107     |
| Self-efficacy $\times$ articulate vision $\gamma_{61}$  |               |           |   |           |  |           | 5.569*<br>(H4aiii)                              | 2.489     |
| Attitudes toward efficiency–flexibility ambidexterity $\times$ provide an appropriate model $\gamma_{42}$ |               |           |   |           |  |           | 2.691*<br>(H4bi)                                | 1.423     |
| Subjective norms $\times$ provide an appropriate model $\gamma_{52}$                                      |               |           |   |           |  |           | -0.155<br>(H4bii)                               | 1.537     |
| Self-efficacy $\times$ provide an appropriate model $\gamma_{62}$   |               |           |   |           |  |           | -3.830*<br>(H4biii)                             | 1.880     |
| <b>Variance Components</b>  |               |           |   |           |  |           |   |           |
| Within-team (L1) variance ( $\sigma^2$ )  | 83.913        |           | 48.313                                    |           | 43.548                                     |           | 43.810  |           |
| Intercept (L2) variance ( $\tau_{00}$ )   | 3.296         |           | 5.688                                     |           | 6.191                                      |           | 5.706   |           |
| <b>Additional Information</b>   |               |           |   |           |  |           |   |           |
| n (Individual-level)  | 770           |           | 770                                       |           | 770  |           | 770   |           |
| n (Branch-level)  | 48            |           | 48  |           | 48   |           | 48  |           |
| Model deviance <sup>a</sup>   | 5,618.251     |           | 5,218.422                                 |           | 5,198.083                                  |           | 5,169.741                                       |           |
| Number of estimated parameters  | 3             |           | 9   |           | 36   |           | 29  |           |
| Pseudo R <sup>2</sup>   |               |           | 0.42                                      |           | 0.48                                       |           | 0.48  |           |
| Percent within variance explained   |               |           | 38%                                       |           | 43%  |           |   |           |
| Percent between variance explained-intercept  |               |           |   |           |  |           | 1%  |           |

\*  $p < .05$ .

\*\*  $p < .01$  (one-tailed tests).

<sup>a</sup> Deviance can be used as a measure of model fit; the smaller the deviance, the better the model fits (Aguinis et al., 2013; Liao & Chuang, 2007).

Notes: SE = standard error.

**TABLE 6**  
**Regression Analysis of Employee Efficiency-Flexibility Predicting Employee Performance**

| Variable                                   | Employee Performance |           |
|--|----------------------|-----------|
|  | <i>b</i>             | <i>se</i> |
| Constant                                   | 80.37**              |           |
| Employee efficiency                        | 0.08                 | 0.15      |
| Employee flexibility                       | 0.47 **              | 0.16      |
| Employee efficiency squared                | -0.14                | 0.13      |
| Employee efficiency × Employee flexibility | 0.24                 | 0.20      |
| Employee flexibility squared               | -0.05                | 0.13      |
| R <sup>2</sup>                             | .04**                |           |
| <i>Surface tests</i>                       |                      |           |
| <i>a</i> <sub>1</sub>                      | 0.55**               |           |
| <i>a</i> <sub>2</sub>                      | 0.50                 |           |
| <i>a</i> <sub>3</sub>                      | 0.17                 |           |
| <i>a</i> <sub>4</sub>                      | 0.09                 |           |

Notes: N = 770. *b* indicates an unstandardized regression coefficient, *se* is standard error. Significance depends in part on standard errors, so values of equivalent magnitude may not both be significant. Furthermore,  $a_1 = (b_1 + b_2)$ , where  $b_1$  is the beta coefficient for employee efficiency and  $b_2$  is employee flexibility;  $a_2 = (b_3 + b_4 + b_5)$ , where  $b_3$  is the beta coefficient for employee efficiency squared,  $b_4$  is the beta coefficient for the cross-product of employee efficiency and employee flexibility, and  $b_5$  is the beta coefficient for employee flexibility squared; and  $a_3 = (b_1 - b_2)$ .  $a_4 = (b_3 - b_4 + b_5)$ .

\*  $p < .05$ .

\*\*  $p < .01$  (one-tailed tests).