

Green talent management and turnover intention: the roles of leader STARA competence and digital task interdependence

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Abstract

Purpose – Congruent with the world-wide call to combat global warming concerns within the context of advancements in smart technology, artificial intelligence, robotics, algorithms (STARA), and digitalisation, organisational leaders are being pressured to ensure that talented employees are effectively managed (nurtured and retained) to curb the potential risk of staff turnover. By managing such talent(s), organisations may be able to not only retain them, but consequently foster environmental sustainability too. Equally, recent debates encourage the need for teams to work digitally and interdependently on set tasks, and for leaders to cultivate competencies fundamental to STARA, as this may further help reduce staff turnover intention and catalyse green initiatives. However, it is unclear how such turnover intention may be impacted by these actions. This paper therefore, seeks to investigate the predictive roles of green hard and soft talent management (TM), leader STARA competence (LSC) and digital task interdependence (DTI) on turnover intention.

Design/methodology/approach – The authors used a cross-sectional data collection technique to obtain 372 useable samples from 49 manufacturing organisations in Nigeria.

Findings – Findings indicate that green hard and soft TM and LSC positively predict turnover intention. While LSC amplifies the negative influence of green soft TM on turnover intention, LSC and DTI dampen the positive influence of green hard TM on turnover intention.

Originality/value – Our study offers novel insights into how emerging concepts like LSC, DTI, and green hard and soft TM simultaneously act to predict turnover intention.

Keywords Green talent management, Turnover intention, Leader STARA competence, Digital task interdependence, Environmental sustainability and green human resource management

Paper type Research paper

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Introduction

Challenged by the pressures of government programmes to address global warming concerns amid the rising volatility of the fourth industrial revolution's (4IR) advances in *smart technology, artificial intelligence, robotics, algorithms* (STARA), and *digitalisation*, organisational leaders face an imperative to develop and retain staff talent to address global climate change and organisational sustainability (Brougham and Haar, 2018; Li *et al.*, 2020; Nirino *et al.*, 2020; Pinto, 2017). The global war for talent and how to manage talent remain major challenges for organisations, especially given that talent familiar with 4IR technologies is needed to help organisations respond to the United Nations Global Compact (UNGC) to foster environmental sustainability (Ariss *et al.*, 2014; Bamel *et al.*, 2020; Farndale *et al.*, 2020; Gardas *et al.*, 2019; John *et al.*, 2009). Likewise, previous conceptualisations of talent management (TM) require updating to recognise the contemporary environmental sustainability context and the need for TM practices to focus on green human capital development programmes (green TM) in order to attract, nurture, retain and deploy the right talent to advance workplace green initiatives forward (Gardas *et al.*, 2019; John *et al.*, 2009). As an emerging concept, green TM in organisations is argued to be a strategy by which organisational leaders attempt to ensure the right talent is systematically attracted, nurtured and retained (Bui and Chang, 2018; Gardas *et al.*, 2019). Green TM, which consists of green soft and hard TM, entails the attraction, identification, selection, nurturing, retention and positioning of team members with green centred skills and values together with the potential to drive green initiatives in an organisation (Bui and Chang, 2018; John *et al.*, 2009).

Turnover intention refers to team members' deliberate and conscious desire, and behavioural intent to leave an organisation in the near future (Mahlasela and Chinyamurindi, 2020); however, little is known as to how developments in STARA and digitalisation within the workforce influence staff turnover intention (Abdul *et al.*, 2019; Oosthuizen, 2019). Studies suggest that STARA and digitalisation pose challenges and benefits that significantly impact the future of work, and it is important for organisations to ensure their human capital is consistently equipped with relative competencies fundamental to helping organisations stay relevant over time (Antikainen *et al.*, 2018; Brougham and Haar, 2018; Nerdrum and Erikson, 2001). Consequently, recent debates opine the need for team leaders in today's digitalised world to be competent in managing and deploying radical innovations grounded in STARA (Brougham and Haar, 2018; Ogbeibu *et al.*, 2021a; Oosthuizen, 2019). Team leaders that are STARA competent can play major roles to further drive work operations, reduce complexities of cumbersome tasks and share related knowledge that may improve team productivity (Oosthuizen, 2019). The demonstration of *leader STARA competence* (LSC) can consequently help to reduce the weight of task demands of team members involved in green initiatives and aid quicker milestones' completion (Ogbeibu *et al.*, 2021a). When LSC is deployed, team leaders' transfer and cultivation of STARA-related knowledge in their team members could reduce turnover intention in team members who may be overwhelmed with complex task-related pressures driven by technological change (Mahlasela and Chinyamurindi, 2020; Oosthuizen, 2019). While LSC can support organisational long-term survival, it could also help bolster the implementation of green initiatives required to engender environmental sustainability (Ogbeibu *et al.*, 2020a).

LSC can be conceptualised as the ability of a leader to typify expertise in STARA so as to more effectively and efficiently foster organisational objectives essential to defined task processes (Brougham and Haar, 2018; Ogbeibu *et al.*, 2020a, 2021a). By demonstrating STARA-related competencies via an application of one or more of the STARA components, leaders can effectively catalyse initiatives relevant for achieving organisational green objectives (Oosthuizen, 2019). Given technological change, it is important for leaders to go beyond just possessing basic skills and competencies as they may not be sufficient to combat future challenges provoked by the 4IR (Li *et al.*, 2020). For organisations to win in the short run, bolster competitive edge and survive in the long run, leaders must cultivate

competencies fundamental to STARA (Masood and Egger, 2020). Organisations will require a leader who is competent in developing, managing, and or deploying sensors, actuators and the Internet of Things (IoT) (smart technology) to fully support technical processes supporting green initiatives (Haenlein and Kaplan, 2021; Li *et al.*, 2020). Additionally, the use of robotics, bots and or chatbots is also relevant for boosting digital operations, and a leader with the technical knowhow could prove essential for managing operations not limited to robotic process automation (Haenlein and Kaplan, 2021; Li *et al.*, 2020). Likewise, studies advocate that possessing knowledge of artificial intelligence and algorithms, and the ability to implement them is fundamental to organisational growth in today's rapidly transforming digitalised world (Sarc *et al.*, 2019). Similarly, several task processes can also be initiated, driven and completed digitally by teams working interdependently to foster related environmental sustainability goals and objectives (Salvi *et al.*, 2020; Stoldt *et al.*, 2018).

As organisations pursue strategies that may aid their response to, support the achievement of the United Nations (UN) Sustainable Development Goals (SDGs) on environmental sustainability, studies advocate that green initiatives may be further engendered when set tasks are executed via defined digital platforms (Ogbeibu *et al.*, 2021b; Salvi *et al.*, 2021). Extant debates espouse that organisations continuing to overlook the relevance of digitisation for the nature of work may lose relevance in the long term (Li *et al.*, 2020). Salvi *et al.* (2021) accentuate that digitisation has become a widespread global phenomenon that continues to drive changing job demands. Notably, with the aid of artificial intelligence (AI) and augmented reality systems, organisations are able to digitally advance several otherwise complex tasks, and core digital tasks that are managed by distinct interdependent teams can be more efficiently and effectively fostered to fruition (Masood and Egger, 2020). Digitalisation does not only challenge how jobs are implemented but also commands the possibility of teams working interdependently via set digital platforms to further expediate organisational objectives (Stoldt *et al.*, 2018). Existing research suggests that organisational productivity may be enhanced and turnover intention reduced as digital tasks are initiated, driven and completed by team members working interdependently via defined digital platforms (Mahlasela and Chinyamurindi, 2020; Ogbeibu *et al.*, 2021b). With the help of smart technologies and artificial intelligence, team interdependence on digital tasks could promote job satisfaction and reduce task-related burdens in team members who may have otherwise intended to leave the organisation (Antikainen *et al.*, 2018; Barnewold and Lottermoser, 2020; Sarc *et al.*, 2019).

Studies debate that the impact of digitalisation has continued to alter the way teams address defined tasks digitally and the way team members depend on each other whilst collectively executing their job roles via distinct digital platforms (Antikainen *et al.*, 2018; Masood and Egger, 2020). Ogbeibu *et al.* (2021b) define *digital task interdependence* (DTI) as the coordination and interconnectedness of two or more teams in such a way that a team relies on the digital assistance and contributions of other teams, and their collective digital tasks are highly dependent on software interactive services, the Internet and cloud computing systems to achieve anticipated organisational outcomes. Congruent with rising advances in digitalisation, DTI becomes more relevant as it captures the degree to which distinct teams digitally interact and drive individual tasks based on collective contributions of data from all teams involved in a defined overarching project (Salvi *et al.*, 2021; Sarc *et al.*, 2019). As a predominant digital strategy, DTI reflects new avenues by which distinct teams regardless of their geographical locations may examine, exchange, exploit and implement defined initiatives digitally in order to achieve predetermined objectives and goals of the organisation (Stoldt *et al.*, 2018). By encouraging task interdependence of teams across digital platforms, existing research contends that this could lead to increased performance, speed and less complexity of defined challenging tasks (Antikainen *et al.*, 2018; Stoldt *et al.*, 2018).

As distinct emerging concepts, DTI, green TM and LSC can play important roles in helping organisations positively contribute towards environmental sustainability (John *et al.*, 2009; Oosthuizen, 2019; Wong and Berntzen, 2019). Although, green TM, DTI and LSC are beginning to garner increasing attention across disparate contexts in developed and emerging economies, extant research is inconclusive regarding how to capture their respective conceptualisations (Ariss *et al.*, 2014; Brougham and Haar, 2018; Wong and Berntzen, 2019). Moreover, existing research has continued to overlook the plausible simultaneous influence of green TM, DTI and LSC on staff turnover intention (Abdul *et al.*, 2019; Bui and Chang, 2018; Mahlasela and Chinyamurindi, 2020). While the relevant literature continues to build on research from several developed economies, there is a lack of empirical evidence from emerging economies that inform how green TM, DTI and LSC may collectively act to engender environmental sustainability from a human capital development and retention perspective (Baima *et al.*, 2020; Brougham and Haar, 2018; Gardas *et al.*, 2019; Ogbeibu *et al.*, 2021b; Temouri *et al.*, 2021).

Though generic TM practices and turnover intention have been researched in diverse emerging economies like Vietnam (Bui and Chang, 2018), India (Tymon *et al.*, 2010), Malaysia (Tajuddin *et al.*, 2015), Botswana (Bui and Chang, 2018), Pakistan (Rana and Abbasi, 2013) and South Africa (Plessis *et al.*, 2015), it is yet unclear what role *green* TM may play and how it might act via its dimensions – *green* hard and soft TM – to influence turnover intention in an emerging economy context, such as Nigeria (Oludayo *et al.*, 2018; Salau *et al.*, 2018). This gap is further emphasised by Anlesinya *et al.* (2019), Nwosu and Ward (2016) and Okpara and Wynn (2008) who lament that TM in Nigeria is in its embryonic phase of development and should be given attention if problems such as poor human capital development, and the nurturing and retention of talents are to be addressed. As one of the strongest emerging economies in Africa, Nigeria represents an interesting case for obtaining insights into how green TM, DTI and LSC act to predict turnover intention (Ogbeibu *et al.*, 2021b; Oludayo *et al.*, 2018; Salau *et al.*, 2018). Moreover, given the growing uncertainty endemic in the volatility of STARA and digitalisation, debates of recent research continue to overlook the plausible roles of LSC and DTI in turnover intention and how they may also impede or reinforce the association of green soft and hard TM with turnover intention (Abdul *et al.*, 2019; Bui and Chang, 2018; Ogbeibu *et al.*, 2021b; Wong and Berntzen, 2019). This study aims to address these gaps in the literature and consequently provide new empirical evidence that may provoke significant development of insights that are of relevance to policymakers and practitioners.

Our study contributes to the relevant literature and body of knowledge on green human resource management (HRM) and environmental sustainability (Bui and Chang, 2018; Gardas *et al.*, 2019; John *et al.*, 2009; Renwick, 2020; Renwick *et al.*, 2016) via three core objectives which are; first, to empirically investigate the distinct predictive roles of green hard TM and green soft TM on turnover intention. Second, to advance prior conceptualisations associated with STARA and digitalisation by investigating how LSC and DTI respectively predict staff turnover intention. Third, to deepen insights into how LSC and DTI may respectively act to influence associations between green soft and hard TM and turnover intention within the manufacturing industry context of a developing economy (Nigeria). In the succeeding sections, we provide an extensive literature review of the distinct concepts examined and their relative nexus. Next, we discuss the method of empirical analysis employed to test and validate the constructs evidenced in our theoretical framework. We further provide a detailed presentation and discussion of our results. Finally, we conclude with timely and relevant implications for theory and practice whilst taking into consideration some limitations and core recommendations for future research.

Literature review

Contextual and theoretical underpinning and hypothesis development

Though the need to engender environmental sustainability in Nigeria has been advocated by recent research (Ogbeibu *et al.*, 2020b; Sanni, 2018), the peculiar role(s) that talent could have otherwise played to foster the achievement of the UN SDGs is largely overlooked (Gardas *et al.*, 2019). While Adeosun and Ohiani (2020) argue that the effective management of talent is key to not only boosting organisational performance and shareholders' profitability, Gardas *et al.* (2019) detail that effective TM practices in Nigeria are relevant for facilitating the pursuit of environmental sustainability. However, evidence suggests that by overlooking the significant influence of effective TM in Nigeria, organisations continue to struggle to capture, nurture and retain staff talent (Oludayo *et al.*, 2018; Salau *et al.*, 2018). Nwosu and Ward (2016) espouse that there is poor human capital development in manufacturing organisations, and this has led to a rise in turnover rate of talent. The authors lament that management's TM practices, employers' maltreatment of organisational members and unrealistic expectations reinforce negative service attitudes of talented employees. Concerns have also been highlighted by existing research on how several organisational leaders in Nigeria give little or no considerations towards effectively investing significant efforts to nurture their human capital (Okpara and Wynn, 2008).

Recent evidence also suggests that organisational members are overwhelmed with unrealistic deadlines and milestones that they are expected to complete, and this often provokes organisational members' intention to leave (Nwosu and Ward, 2016; Oludayo *et al.*, 2018). Equally, while advances in digitalisation and innovation continue to influence existing business models, research espouses how organisational member commitment and satisfaction in their jobs continues to decline due to a constant push to adopt or adapt to constantly changing technological innovations (Antikainen *et al.*, 2018; Salau *et al.*, 2018). Existing evolving digitalisation and innovations can hamper work–life balance and task engagement of staff members and drive talented employees to leave their current organisations (Deery and Jago, 2015). Likewise, with respect to intellectual capital development (Temouri *et al.*, 2021), studies lament that the ineffective management of talent with needed competencies and poor retention strategies in several organisations suggests ineffective and outdated TM practices in Nigerian organisations (Nwosu and Ward, 2016; Okpara and Wynn, 2008; Oludayo *et al.*, 2018). Such findings place an imperative on organisational leaders to not only focus on target-oriented business models but also to develop TM strategies that adequately and effectively consider constant talent development and retention (Anlesinya *et al.*, 2019). Consequently, this study builds on the overarching theoretical tenets of the VRIO concept (of valuable, rare, imperfectly imitable and organised for value capture) and the stakeholder theory (Clarkson, 1995; Freeman *et al.*, 2020) towards effective TM development (Macfarlane *et al.*, 2012).

The VRIO concept presents a theoretical support for organisations' internal human capital capabilities towards determining resources that could aid organisations to sustain competitive advantage (Ogbeibu *et al.*, 2021b). The VRIO consists of tangible and intangible resources (Coley *et al.*, 2012), where the former deals with an organisation's physical assets such as land, machineries and computers (Dodd, 2016), and the latter incorporates and stretches beyond organisational culture, intellectual capital, values of human behaviour evidenced in an organisation's trademark or brand, or training and development initiatives an organisation adopts and executes in ways that are difficult to be replicated by competitors (Hinterhuber, 2013; Knott, 2015; Nirino *et al.*, 2020). VRIO theorisations have yielded several meaningful insights from findings of prior research, but have been criticised for their definitions and conceptualisations (Knott, 2015; Lee *et al.*, 2017; Perez and de Pablos, 2003) as it has been suggested that VRIO has overlooked the capability of LSC – a timely intangible resource which is rare, valuable, not overly complex to organise

and difficult to imitate (Knott, 2015). To date, research on VRIO has ignored the relevance of evaluating DTI's influence on turnover intention (Hinterhuber, 2013; Ogbeibu *et al.*, 2021b). Ogbeibu *et al.* (2021b) suggest that DTI's conceptualisation and processes incorporate distinct intangible resources such as data, software, and unique task interdependence behaviours of teams, and hardware (tangible) resources alike.

How green TM practices impact on turnover intentions is yet to be given significant attention in prior debates that espouse the tenets of the VRIO (Knott, 2015; Ogbeibu *et al.*, 2021b). This limitation might have otherwise closed the gap on how talent may be further effectively developed and retained to help organisations foster environmental sustainability (Anlesinya *et al.*, 2019; Macfarlane *et al.*, 2012). Further research is required to examine how organisational resources may be effectively managed to not just maximise profits, but also to ensure resources and capabilities are tailored and engineered in ways that help bolster environmental sustainability (Barney and Harrison, 2020). Here, Ogbeibu *et al.* (2021c) and Freeman *et al.* (2020) advocate a need for organisations to imbibe tenets of stakeholder theory that advocate shifts beyond short-term profit objectives towards a more stakeholder-centred model that considers the quadruple bottom line – people, planet, profit and purpose. While the VRIO aids organisations to increase competitive advantages and maximise profits, stakeholder theory consequently helps guide organisations in aligning and deploying their resources and capabilities in ways that helps them advance the achievement of the UN SDGs on environmental sustainability (Ogbeibu *et al.*, 2021c; Wu, 2016).

Green talent management and turnover intentions

While prior research has examined the concept of TM and turnover intention (Abdul *et al.*, 2019; Deery and Jago, 2015), and despite meaningful findings obtained by such previous research, it is yet unclear how TM really acts to predict staff turnover intention (Anlesinya *et al.*, 2019). Equally, the concept and role of green TM and how it acts via its dimensions – green hard and soft TM – to predict staff turnover intention is yet to be given significant empirical attention (Gardas *et al.*, 2019; John *et al.*, 2009). *Green soft TM* is defined as a humanistic aspect of TM that actively supports, and is committed towards, the development and retention of green talent by boosting talents' commitment via effective communication, talent inclusiveness in decision-making process, organisational support for talent wellbeing and welfare, and effective and efficient leadership practices that inspire green talented team members to engender defined ecological initiatives for fostering environmental sustainability (Gardas *et al.*, 2019; John *et al.*, 2009). In green soft TM, climate action initiatives tend to be driven via a conducive work environment, adhocracy organisational culture and effective provision of relevant resources (Berraies *et al.*, 2020; Bui and Chang, 2018; Lee *et al.*, 2017). Conversely, *green hard TM* is defined as a mechanistic, target market-oriented aspect of TM that perceives green talent as a vital resource that needs to be effectively and efficiently managed and controlled via stringent performance appraisal systems, hierarchical organisational culture and bureaucratic work structures to boost competitive advantages and also foster environmental sustainability initiatives (Adeosun and Ohiani, 2020; Bui and Chang, 2018; John *et al.*, 2009).

Likewise, the literature on TM and staff turnover intention is inconclusive due to the mixed findings of extant research (Abdul *et al.*, 2019; Deery and Jago, 2015). The works of Barkhuizen and Schutte (2017), Abdul *et al.* (2019), and Plessis *et al.* (2015) indicate that green TM is negatively associated with turnover intention. Bui and Chang (2018) found that hard TM is negatively associated with turnover intention, while Rana and Abbasi (2013) found that TM and turnover intention are not significantly associated. Moreover, Abdul *et al.* (2019) found that TM is positively associated with staff turnover intention. These findings are based on the conventional conceptualisation of TM as a whole, without

examining the association between green hard and soft TM with staff turnover intention (Ariss *et al.*, 2014; Anlesinya *et al.*, 2019). The paucity of research on how green soft and hard TM influence turnover intention guides this research, and the works of Bui and Chang (2018) and Gardas *et al.* (2019) advocate the need for further empirical investigations to be initiated on how green soft and hard TM may influence turnover intention. We therefore, hypothesise that given the definitive conceptualisations of green and hard TM, green soft TM would negatively predict turnover intention and green hard TM would positively predict turnover intention, thus,

H1. Green hard TM positively predicts staff turnover intention

H2. Green soft TM negatively predicts staff turnover intention.

Leader STARA competence (LSC) and turnover intention

It is evident in recent debates that the tenets undergirding LSC can be positively or negatively associated with staff turnover intention (Mahlasela and Chinyamurindi, 2020; Ogbeibu *et al.*, 2021a), and that this finding is linked to research connected with the future of work (Brougham and Haar, 2018; Santana and Cobo-Martín, 2020). By allowing for an opportunity in which leaders are able to develop and deploy their STARA-related competencies, Oosthuizen (2019) espouse the possibility of having a more productive workforce. Here, prior research argues that complex tasks could be embraced and addressed with less difficulty as STARA competent leaders deploy their relative competencies to execute and manage set complex tasks (Vishwanath *et al.*, 2019), and studies emphasise that complex tasks could be replicated via use of simulations supported by artificial intelligence and augmented reality to drive their implementations (Li *et al.*, 2020; Masood and Egger, 2020; Sarc *et al.*, 2019). Execution of complex tasks may often require huge financial resources to acquire and maintain physical locations that could accommodate relative large-scale capital equipment and involve risk of life and health of human capital due to direct physical engagement with hazardous large-scale machinery and adverse consequences for the external environment (Haenlein and Kaplan, 2021; Li *et al.*, 2020). Equally, in cases of trainings and developments involving delicate processes that aid tasks completion and project delivery, probable operations and financial costs and health risks could be averted or curbed when initiated via augmented realities and smart technologies (Masood and Egger, 2020). Congruently, operating highly complex green initiatives relevant for fostering cleaner production would require leaders that are competent in executing augmented reality space innovations and smart technologies (Vishwanath *et al.*, 2019). Such developments could consequently reduce the complexities of cumbersome job processes of team members, who due to high productivity and successful project completion demands by their top management, are otherwise strained, pressured and are under pressure in their jobs (Deery and Jago, 2015). Related studies advocate that high job strain and job pressures are negative indicators that could provoke team members to leave their organisation (Mahlasela and Chinyamurindi, 2020; Oludayo *et al.*, 2018). Therefore, while an absence of LSC could increase team member turnover intentions, the effective and efficient deployment of LSC may reduce their intention to leave their organisation (Ogbeibu *et al.*, 2020a; Tajuddin *et al.*, 2015). We thus hypothesise that LSC would negatively predict turnover intention.

H3. LSC negatively predicts staff turnover intention.

Digital task interdependence (DTI) and turnover intention

Despite the proliferation of studies that have investigated task interdependence and turnover intention, much work remains to be done to underpin their nexus in the context of

digitalisation (Mahlasela and Chinyamurindi, 2020; Ngo-Henha, 2017; Ogbeibu *et al.*, 2021b). Given their relevance in the context of digitalisation, how DTI consequently acts to predict turnover intention lacks significant empirical consideration (Antikainen *et al.*, 2018; Ngo-Henha, 2017). The work of Masood and Egger (2020) suggests that by engaging in, and executing tasks digitally, teams are able to more effectively communicate and exchange knowledge across disparate locations of an organisation. When dealing with complex digital tasks, team members who may be overwhelmed or frustrated as a result of certain processes that require expert guidance from another team may be able to obtain direct expert assistance via live interactions across online digital platforms (Salvi *et al.*, 2021). Prior research espouses the importance of the IoT and cloud computing as core indicators for advancing digitalisation, which becomes even more relevant for interdependent teams to drive initiatives forward across the digital space (Sarc *et al.*, 2019). DTI consequently fosters more effective and efficient communications across disparate teams working collectively to execute set digital initiatives (Salvi *et al.*, 2021) and could help reduce any frustration(s) that may arise from difficulty in dealing with set tasks that team members might have as they attempt execution of daily job demands (Stoldt *et al.*, 2018). DTI may congruently, help reduce the degree at which frustrated team members may consider leaving an organisation as the provision of digital assistance for efficient task execution and delivery can often be readily accessed to foster productivity (Mahlasela and Chinyamurindi, 2020). Studies debate that increased digital support from other interdependent teams can aid increased speed in completion of milestones, increased work engagements by dissimilar teams and increased teams' commitment to continue to participate in set task initiatives (Mahlasela and Chinyamurindi, 2020; Ogbeibu *et al.*, 2021b). In this study, we therefore, hypothesise that DTI would be a negative predictor of staff turnover intention:

H4. DTI negatively predicts staff turnover intention.

Moderating role of leader STARA competence on the green talent management and turnover intention relationship

Existing research and its predictions of the future of work continue to foster uncertainty that heralds a need to further deepen insights into how LSC may influence the impact of green TM on staff turnover intention (Anlesinya *et al.*, 2019; Brougham and Haar, 2018; Fatorachian and Kazemi, 2018; Reischauer, 2018). Though green hard TM has been suggested to have a positive association with turnover intention, how LSC influences the association is yet to be given significant attention (Bui and Chang, 2018). Given the mechanistic driven values of the green hard TM, the extant literature indicates that team members feel estranged from the organisation, and their levels of commitment to their jobs may decline (Abdul *et al.*, 2019). The works of Barkhuizen and Schutte (2017), Deery and Jago (2015) and Gardas *et al.* (2019) emphasise that green values which reflect high levels of bureaucratic work structures and stringent performance appraisal systems may further reduce the job satisfaction of team members and could facilitate their intentions to leave organisations. Likewise, in the context of green hard TM, there is often less task autonomy and flexibility in job demands, as leaders frequently view talent as mainly a tool to be controlled for boosting competitive advantage and bolstering the achievement of environmental sustainability goals (Bui and Chang, 2018). The works of Reischauer (2018) and Oosthuizen (2019) relate that given the rising advancements in STARA, demonstrating green hard TM values may increase team members' pressure and stress, and consequently their turnover intention, and this might also likely be the case when organisations deploy and use new and advanced technologies that team members find complex and challenging to adopt, adapt to and drive green initiatives with (Mahlasela and Chinyamurindi, 2020).

Conversely, green soft TM is argued to mirror a humanistic side of TM that perceives talent as a core human capital resource that ought to be constantly nurtured and retained and whose welfare and wellbeing needs to be effectively and efficiently supported in the organisation (Bui and Chang, 2018). In green soft TM, organisational leaders tend to demonstrate values of benevolence, flexible control, foster effective communication, team members' empowerment and inclusiveness, and strive to ensure team members are given an adequate degree of autonomy to execute their green initiatives (Deery and Jago, 2015; Gardas *et al.*, 2019). Studies emphasise that values exhibited under green soft TM are often positive indicators of increased job satisfaction, commitment and increased job engagement by team members towards climate initiatives (Plessis *et al.*, 2015; Nwosu and Ward, 2016). Congruently, team members are more likely to easily adapt to, adopt and also continue with their organisation despite probable volatile impacts of rapidly changing technology evidenced via STARA (Haenlein and Kaplan, 2021), and green soft TM is suggested to have a negative association with turnover intention (Budhwar *et al.*, 2009; Bui and Chang, 2018).

Equally, under a green hard and soft TM system, turnover intention would decline when LSC is embraced and implemented (Brougham and Haar, 2018; Vishwanath *et al.*, 2019). By having leaders who are STARA competent, the use of new and advanced technologies could be subtly introduced and advanced, and consequently adopted and adapted to, by team members (Oosthuizen, 2019; Vishwanath *et al.*, 2019). This link seems plausible as team leaders and team members tend to exchange relative knowledge during task execution processes (Ogbeibu *et al.*, 2021c). Moreover, under a green soft or hard TM, LSC could play important roles in reducing the task complexity of team members and also help them more easily familiarise themselves with new and advanced technologies relevant for enhancing green initiatives (Mahlasela and Chinyamurindi, 2020; Masood and Egger, 2020). Therefore, rather than resolve to leave the organisation as a consequence of high job demands and expectations, amid rapidly changing technologies, team members may otherwise become more committed to executing their tasks due to LSC's influence (Ogbeibu *et al.*, 2021a). We therefore, hypothesise that LSC would negatively moderate the positive influence of green hard TM on turnover intention, and further positively moderate the negative influence of green soft TM on turnover intentions, namely,

H5. LSC dampens the positive influence of green hard TM on turnover intention.

H6. LSC reinforces the negative influence of green soft TM on turnover intention.

Moderating role of digital task interdependence on the green talent management and turnover intention relationship

The need to manage talent that would aid further enhancement of organisations' long-term survival amid the volatility of digitalisation, and under a competitive business environment, imprints a pressing challenge for organisational leaders (Antikainen *et al.*, 2018; Ferreira *et al.*, 2019; Perez and de Pablos, 2003). Considering the tenets of green soft and hard TM, debates of extant studies relate that while green hard TM may increase the rate at which team members intend to leave an organisation, green soft TM is a negative predictor of team members' turnover intention (Bui and Chang, 2018; Lee *et al.*, 2017). To survive in an era of digitalisation, the works of Ogbeibu *et al.* (2021b) and Anand *et al.* (2018) elucidate the need for organisations to encourage the execution of tasks via interdependent teams working digitally and collectively to foster defined organisational objectives. Studies accentuate the possibility of executing and addressing very complex tasks via the digital space by leveraging digital technologies and the IoT even across distinct geographical locations (Ferreira *et al.*, 2019; Fong *et al.*, 2018). Ogbeibu *et al.* (2021b) espouse that DTI

could foster quicker and more expert support for team members across disparate locations who may be struggling with handling new complex machineries or be unable to physically assess very sensitive processes in defined tasks. Teams are consequently able to further boost organisational initiatives and save time and cost by deploying new digital technologies such as working with augmented realities, smart technologies and exploring the IoT (Masood and Egger, 2020; Sarc *et al.*, 2019).

Given the need for organisations to adapt to and exploit the benefits of digitalisation, intense job demands and high expectations of organisations driving green hard TM values could provoke team members to then intend to leave their organisation (Haenlein and Kaplan, 2021; Mahlasela and Chinyamurindi, 2020). Though under a green soft TM system, task flexibility and some degree of autonomy may minimise turnover intentions (Abdul *et al.*, 2019), studies find that the digital space also provides opportunities that engender risk-taking by team members by allowing simulated avenues that accommodate failures which team members may consequently learn from (Stoldt *et al.*, 2018; Vishwanath *et al.*, 2019). Prior debates also indicate that by initiating and advancing tasks digitally, organisations may be able to more effectively and efficiently foster set milestones (Stoldt *et al.*, 2018). Executing complex tasks within the digital space could create room for increased flexibility of implementing job demands and reduce overwhelming control by organisational leaders as otherwise evidenced under a green hard TM system (Ferreira *et al.*, 2019). While DTI could thus improve productivity, it may also foster increased commitment and job satisfaction in team members who, being more familiar with set task routines, may exhibit little or no turnover intention (Wong and Berntzen, 2019). We therefore, hypothesise that DTI would weaken the positive influence of green hard TM and strengthen the negative influence of green soft TM on turnover intention, respectively. All hypotheses are further outlined in Figure 1 accordingly, including,

H7. DTI weakens the positive influence of green hard TM on turnover intention.

H8. DTI strengthens the negative influence of green soft TM on turnover intention.

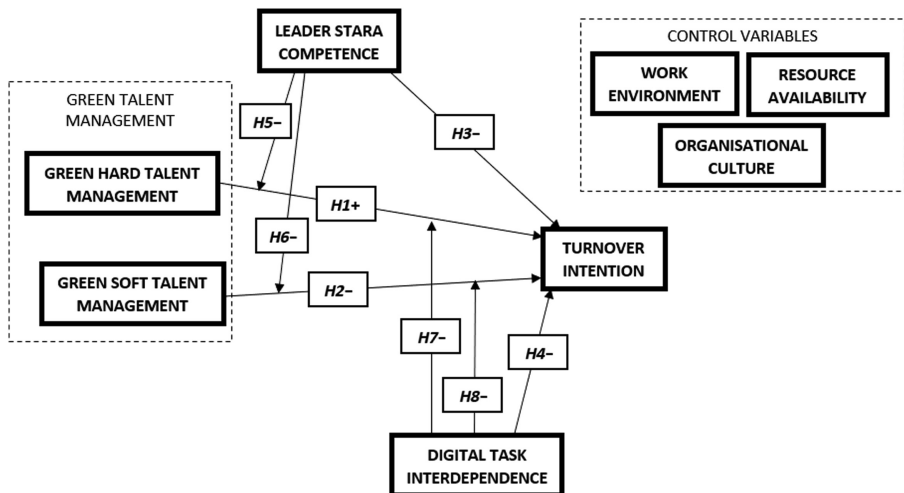


Figure 1.
Theoretical framework

Methodology

Data collection and sample size

Data were obtained via a cross-sectional collection technique from 49 distinct manufacturing organisations in Nigeria. Consistent with the recent literature, leaders and team members were from research and development (R&D), HRM and information technology (IT) departments (Ogbeibu *et al.*, 2020b). In our study, leaders were in charge of groups of 2–6 interdependent teams, who ranged from four to eight (average = 5.2) team members respectively. To identify the 49 organisations, we used the Nigerian Stock Exchange – an approach congruent with similar studies (Ogbeibu *et al.*, 2018). We determined our sample size by employing the Krejcie and Morgan (1970) population sample recommendations, which aided the achievement of an adequate sample size and a stratified proportionate sampling of our study. Thus, a total of 417 questionnaires were distributed to the distinct 49 manufacturing organisations, and 372 completed samples were returned and used for final analysis. This was an 89% response rate, where 89 teams received a questionnaire, and responses were received from 85 teams (95% response rate) and used for further analysis. A total of eighteen team leaders responded to the distributed questionnaire. Overall, the participants' age ranged from 24 to 57, and they consisted of 46.7% male team leaders. The HRM, IT and R&D departments consisted of 32.6%, 38.2% and 29.2% participants, respectively. In terms of their education, 21.2% of respondents hold a diploma/equivalent, 39.6% undergraduate degrees, 30.2% a master's degree and 9% a PhD.

Prior to data collection, attention was given into ensuring that our investigation strictly adhered to ethical and validated actions of conventionally acceptable and established research procedures. The target respondents were assured that their respective information would be treated with strict confidentiality without any identifying details being included in the reporting of the research. The respondents were informed about the purpose of the research, their role in the research and the processes of data protection and storage employed post data collection. Participation was informed and voluntary, and they were informed of their right to withdraw from the data collection process at any given point in time. Consent was implied through the respondents' completion and return of the survey. Our questionnaire items were prepared in English and evaluated by six researchers. The distributed questionnaires were comprised of seven-point Likert scales that ranged from strongly disagree to strongly agree. We also employed various measurement instruments to examine our constructs and this was appropriate for reducing possible biases that may arise due to the use of single source of measures for the constructs examined in this study (McCoach *et al.*, 2013).

Moreover, seven research assistants (RAs) were recruited and trained for data collection purposes. Data obtained from a pilot study consisting of fifty participants were analysed using the SmartPLS3 software to determine and exclude poorly loaded items as recommended by existing studies (Hair *et al.*, 2010; Ogbeibu *et al.*, 2018). Our RAs visited the headquarters (HQs) of the identified manufacturing organisations for data collection purposes, and these HQs were situated in seven distinct states of Nigeria. Contacts with the manufacturing organisations were done via direct visits, telephone calls and emails. Human resource (HR) managers were contacted, and respondents were informed to fill, seal and return the questionnaires to their HR managers in their individual sealed envelopes. Submitted envelopes were collected from respective HR managers by RAs to foster further data collation. To address concerns of common method bias (CMB), the recommendations of Podsakoff *et al.* (2012) were considered. Though participants' anonymity was guaranteed, an item of the LSC construct and two items from green hard TM construct were reverse coded prior to data collection. Equally, congruent with Kock's (2015) recommendation for a post data collection CMB measure, the variance inflation factor (VIF) values ranging from 1.318 to 1.758 indicate a reduced influence of CMB in our study (See Table 1).

Table 1.
Reliability, validity and
prediction-oriented
assessments

Construct	Composite reliability (CR)	VIF values	rho_A	AVE	PLS predict MAE	LM MAE
Digital task interdependence (DTI)	0.907	1.758	0.878	0.620		
Green hard TM	0.943	1.589	0.930	0.769		
Green soft TM	0.933	1.486	0.915	0.699		
Leader STARA competence (LSC)	0.870	1.740	0.818	0.628		
Organisational culture	1.000	1.644	1.000	1.000		
Resource availability	1.000	1.318	1.000	1.000		
Turnover intention	0.901		0.836	0.752		
(1) TI1					0.675	0.715
(2) TI2					0.695	0.757
(3) TI3					0.63	0.613
Work environment	1.000	1.423	1.000	1.000		

Note(s): AVE (Average variance extracted); VIF (Variance inflation factor)

Measures

The LSC, turnover intention and DTI measures were adopted from prior research, while green soft and hard TM measures employed in this study were developed based on earlier research. Adjustments of prior measurement items and the inclusion of new items for green hard and soft TM were necessary to much closely identify with the context, investigated constructs and aims of our study (See [appendix](#) for full measurement scales). To measure LSC, four items which are congruent with existing research (Ogbeibu *et al.*, 2021a), were adopted (Ogbeibu *et al.*, 2020a). An example is “My leader is not good at designing or applying algorithms to complete defined tasks” (Reverse coded)”. Reliability of this measurement scale is 0.908 (Ogbeibu *et al.*, 2020a). To measure turnover intention, three items were adopted from Bui and Chang (2018), and an example of these items is “I am always searching for an opportunity to work anywhere else”. The reliability of this measurement scale is 0.795 (Bui and Chang, 2018). Furthermore, consistent with extant debates concerning probable encompassing factors that may influence turnover intention in the context of environmental sustainability, we consequently controlled for work environment, resource availability and organisational culture (Abdul *et al.*, 2019; Ariss *et al.*, 2014; Anlesinya *et al.*, 2019; Deery and Jago, 2015; Gardas *et al.*, 2019; Lee *et al.*, 2017; Wan *et al.*, 2018). To measure DTI, seven items were initially self-developed based on the work of Langfred (2005). An example of the items is “Most of my digital tasks are affected by the activities of team members from other teams.” To measure green soft and hard TM, seven items were developed based on the works of Bui and Chang (2018), John *et al.* (2009) and Gardas *et al.* (2019). An example of items for green soft TM is: “My organisation cares about my well-being and offers considerable support for my welfare when executing green-centred initiatives.” Conversely, an example of items for green hard TM is “My organisation offers a stringent performance appraisal system to drive green initiatives.”

Findings and analysis

Congruent with our study’s prediction-oriented scope, partial least squares structural equation modelling (PLS SEM) was employed for further data analysis. Use of PLS SEM is also based on the causal explanatory nature, model complexity, interpretation ease and soft distributional assumptions of our study. The green soft and hard TM construct, LSC and DTI

constructs are relatively underdeveloped, as a major focus of the prior literature has been towards advancing TM's conceptual underpinnings and theoretical developments (Ariss *et al.*, 2014; Anlesinya *et al.*, 2019). Consequently, extant research (Hair *et al.*, 2019; Sarstedt *et al.*, 2016) recommends the use of PLS SEM for models consisting of new or relatively underdeveloped constructs in order to also foster theory development. To initiate statistical analysis, we utilise the SmartPLS3 software.

Results

Mean values ranged from 5.3 to 5.6 and standard deviation results ranged from 1.3 to 1.6, thus suggesting no significant distinction among the constructs examined. Equally, skewness values (−1.3 to 1.5) and Kurtosis values (0.6–2.3) indicate normality of distribution (Hair *et al.*, 2010). Values of Figure 2 suggest that all measurement items are larger than the lowest factor loading threshold, thus substantially contributing to their respective constructs (Ringle *et al.*, 2018). In Table 1, Rho_A and composite reliability (CR) values indicate internal consistency and reliability for all the constructs examined in this study. Likewise, average variance extracted (AVE) values confirm our model's convergent validity (Hair *et al.*, 2019). The heterotrait–monotrait ratio (HTMT) results noted in Table 2 suggest that all constructs examined have met the requirements for discriminant validity (Henseler *et al.*, 2016). Equally, multicollinearity concerns are not an issue, considering that all VIF results are less than the maximum required threshold of 5 (Ringle *et al.*, 2018). In light of values of model fitness, Hair *et al.* (2019) and Ogbeibu *et al.* (2020b) strongly advocate against the use of model fitness indices in PLS-SEM, given that the measures are yet incomprehensive and include tentative model fit thresholds that are of questionable value in general. Hence recent research (Ogbeibu *et al.*, 2020b; Ringle *et al.*, 2018; Shmueli *et al.*, 2019) opines that researchers initiating PLS SEM estimations ought to demonstrate a causal-predictive nature that relies on the predictive accuracy, relevance and power of their model (Q^2 , β , R^2 and lesser RMSE or MAE values).

As a point of departure, we present results for our structural model. R^2 values ($\beta = 0.534$, $t = 8.784$, $p = 0.000$) indicate a moderate degree of variance explained in turnover intention (Hair *et al.*, 2019). Congruent with the inner model values of Figures 2 and 3, green hard TM exerts the most significant positive influence on turnover intention, and this is followed by green soft TM and then LSC. Although, green hard TM is a more significant predictor, green soft TM demonstrates a much stronger influence on turnover intention. These results provide support for H1, but surprisingly not for H2 and H3, though H2 and H3 are statistically significant. DTI is however, not significant and H4 is therefore, not supported. Values of effect sizes (f^2) for LSC (0.027), green hard TM (0.044) and green soft TM (0.048) suggest small effects (Aiken and West, 1991), and Lowry and Gaskin (2014) accentuate that even small effects add significant contribution and are very meaningful to a model and for subsequent policy implications. Moreover, f^2 values for DTI (0.003) indicate no meaningful effect. Furthermore, results from Figure 3 indicate that the work environment and organisational culture positively influence turnover intention, while resource availability is not significant.

Figures 4–7 show respective interaction analysis results, and considering that our model has two separate moderating variables, we employed the recommendations of Hair *et al.* (2013). Consequently, we examined one moderator variable at a time, thus producing a moderation model showing the bootstrapped significance of product terms and report the interaction effects in the results' output accordingly. Result of Figure 4 suggests that LSC dampens ($\beta = -0.217$, $t = 2.974$, $p = 0.003$) the positive influence of green hard TM on turnover intention. LSC interaction effect size ($f^2 = 0.036$) indicates a small effect. This confirms our initial postulation for H5 and is consequently supported. Figure 5 indicates that LSC strengthens ($\beta = 0.148$, $t = 1.932$, $p = 0.054$) the negative association between green soft TM and turnover intention. The LSC interaction effect size ($f^2 = 0.018$) in this association

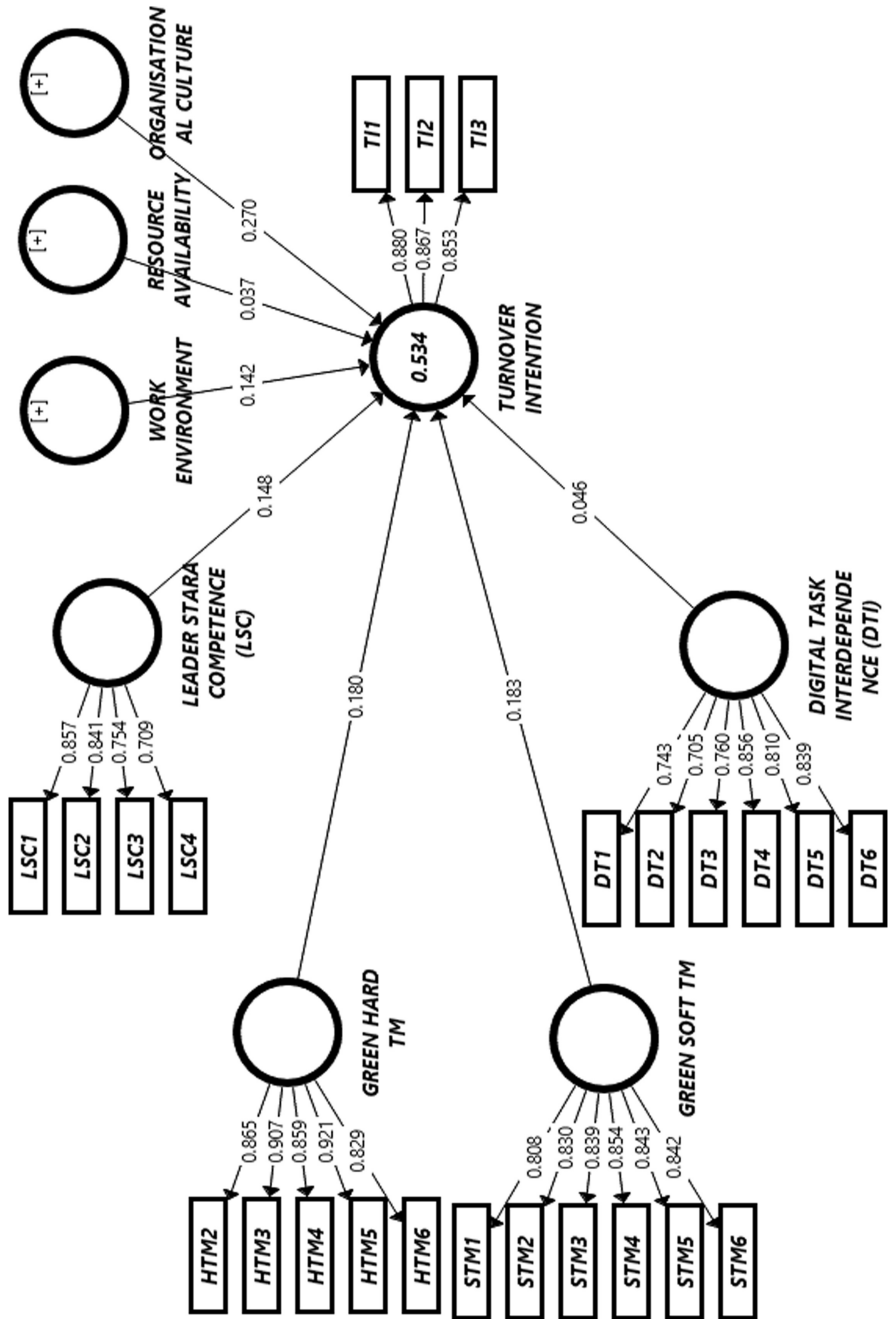


Figure 2.
Measurement model

	DTI	Green hard TM	Green soft TM	LSC	OC	RA	TI	WE
Digital task interdependence (DTI)								
Green hard TM	0.473							
Green soft TM	0.491	0.455						
Leader STARA competence (LSC)	0.682	0.499	0.510					
Organisational culture (OC)	0.435	0.550	0.459	0.453				
Resource availability (RA)	0.416	0.331	0.352	0.401	0.394			
Turnover intention (TI)	0.551	0.617	0.599	0.628	0.648	0.407		
Work environment (WE)	0.474	0.375	0.375	0.513	0.377	0.271	0.518	

Table 2.
The HTMT ratio test

indicates a relatively small effect. This also confirms our initial postulation for H6 and is consequently supported. Figure 6 indicates that DTI weakens ($\beta = -0.204, t = 2.348, p = 0.019$) the positive influence of green hard TM on turnover intention. The LSC interaction effect size ($f^2 = 0.024$) in this association indicates a small effect. We can thus, conclude that our initial postulation for H7 is confirmed and supported. Figure 7 shows that although DTI strengthens ($\beta = 0.142, t = 1.607, p = 0.108, f^2 = 0.012$) the negative influence of green soft TM on turnover intention as initially postulated, it is not significant and therefore does not support our prior theorisation of H8. Furthermore, considering our model's predictive accuracy and relevance, the value of Q^2 (0.382) indicates a sufficient and acceptable path model's predictive accuracy and relevance (Ogbeibu et al., 2020b). Congruent with the rule of thumb (Shmueli et al., 2019) on the predictive power of a model, our PLS Predict mean absolute error (MAE) results (lesser prediction errors) in Table 1 offer substantial support that confirms our model's *medium* predictive power.

Discussion and conclusions

Our study examines important emerging concepts in the context of the development of green HRM (Renwick et al., 2013), and has attempted to position them in an environmental sustainability context, to emphasise the need for organisational leaders and work teams to take into consideration the relevance of demonstrating LSC and green hard and soft TM and DTI. Not only do the examined predictors have significant influences on turnover intention, but by understanding how they influence turnover intention, organisations may be able to better manage talent towards further achievement of the UN SDGs. Congruent with the debates of relevant prior research, we find that green hard TM has a positive association with turnover intention (Abdul et al., 2019; Bui and Chang, 2018; Lee et al., 2017). As noted in the extant literature, values (for example, excessive control, less task autonomy, highly formal work environment and bureaucratic work structure, ineffective communication, stringent performance appraisal system and others) exhibited within organisations that practice green hard TM are indicators that can provoke team members' intention to leave an organisation (Adeosun and Ohiani, 2020; Budhwar et al., 2009; Bui and Chang, 2018; John et al., 2009). Equally, we found that green soft TM also positively, rather than negatively, predicts turnover intention as earlier theorised. This result has been unexpected though quite plausible given the cultural context of our study.

While these findings challenge earlier research findings (Abdul et al., 2019; Anlesinya et al., 2019; Ngo-Henha, 2017; Rana and Abbasi, 2013), they do bring to mind a possibility that may arise while demonstrating green soft TM. Drawing from Figures 2 and 3, we find that in the Nigerian manufacturing industry, organisational culture and work environment are

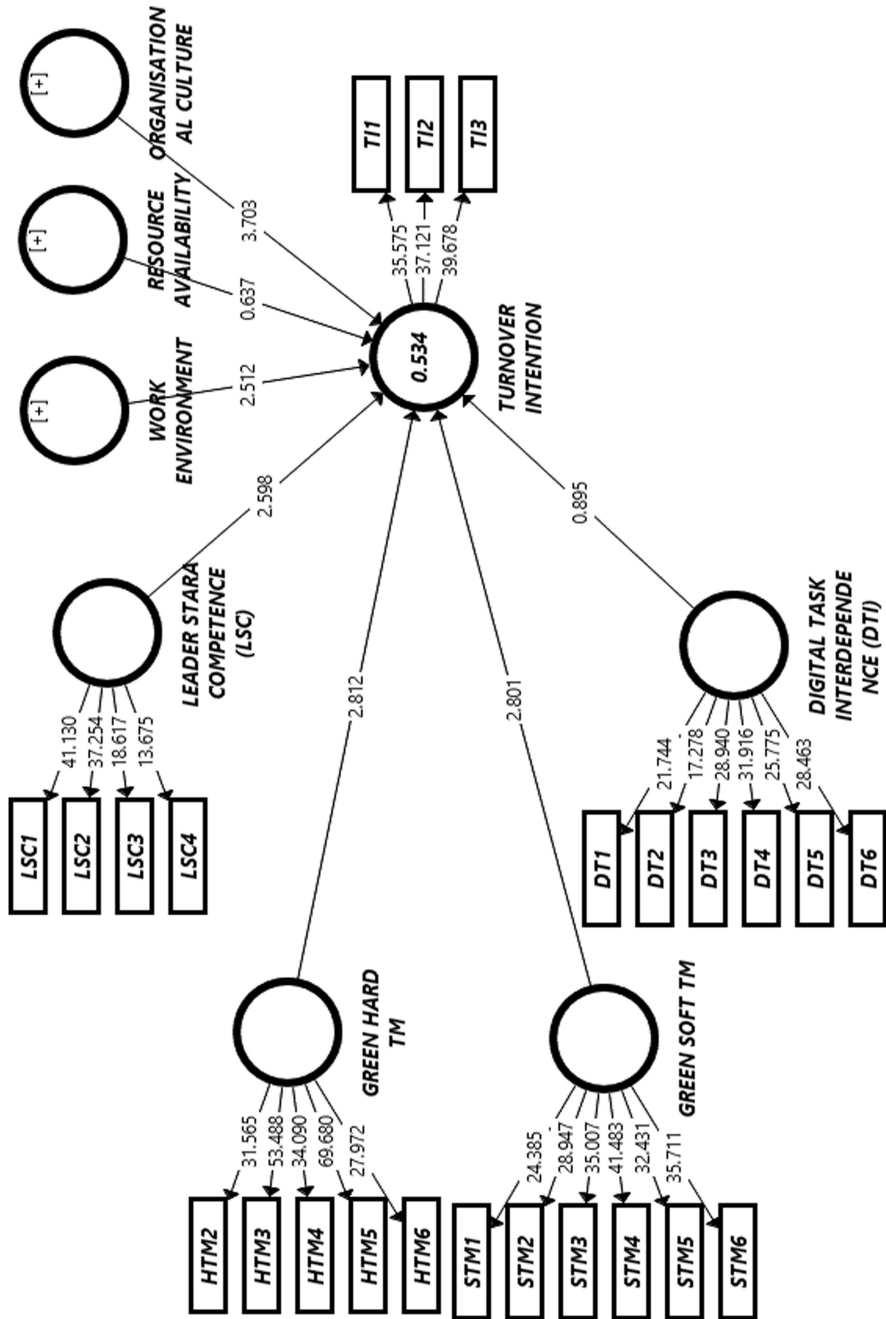


Figure 3.
Structural model with
the *t*-statistics test

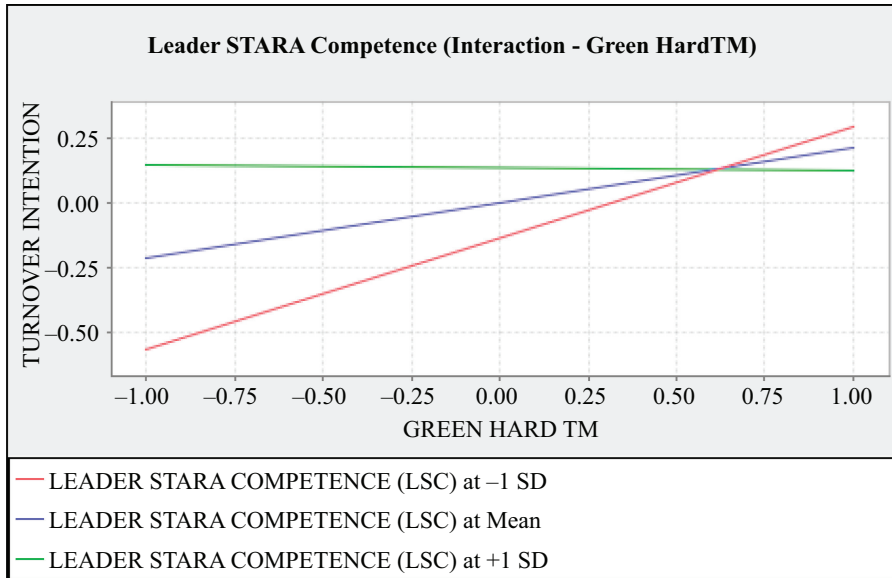


Figure 4. Interaction effect of LSC on the relationship between green hard TM and turnover intention

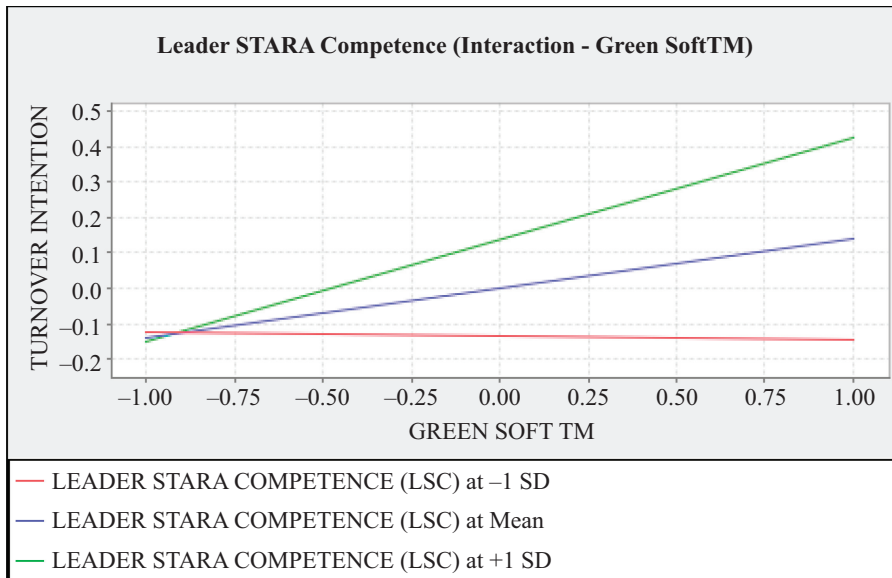


Figure 5. Interaction effect of LSC on the relationship between green soft TM and turnover intention

significant factors that foster turnover intention of talent, despite the dimension of green TM applied within an organisation. In this context it may be difficult for leaders and team members to introduce values reflective of green soft TM amid a firmly established hierarchical organisational culture (Jabbour, 2011; Roscoe *et al.*, 2019). Ogbeyu *et al.* (2018) argue that the organisational culture demonstrated within manufacturing organisations in

Figure 6.
Interaction effect of DTI on the relationship between green hard TM and turnover intention

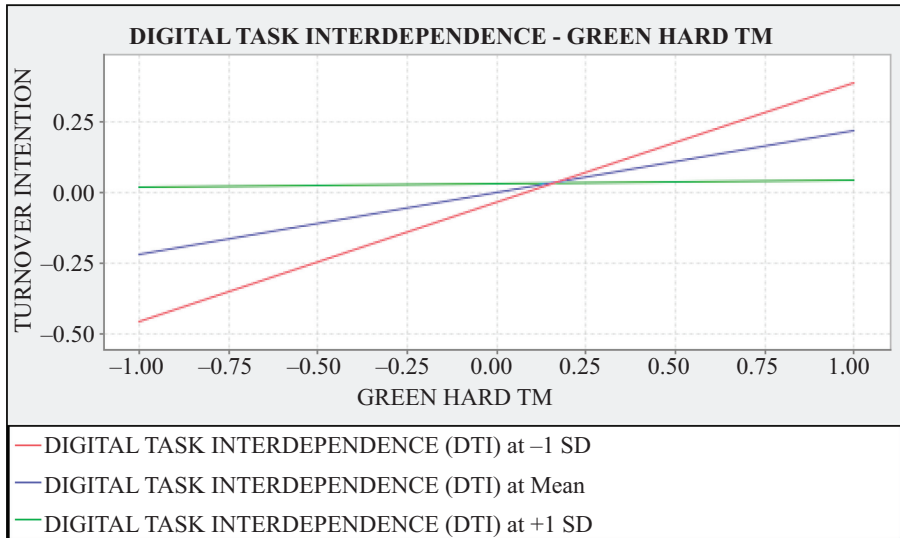
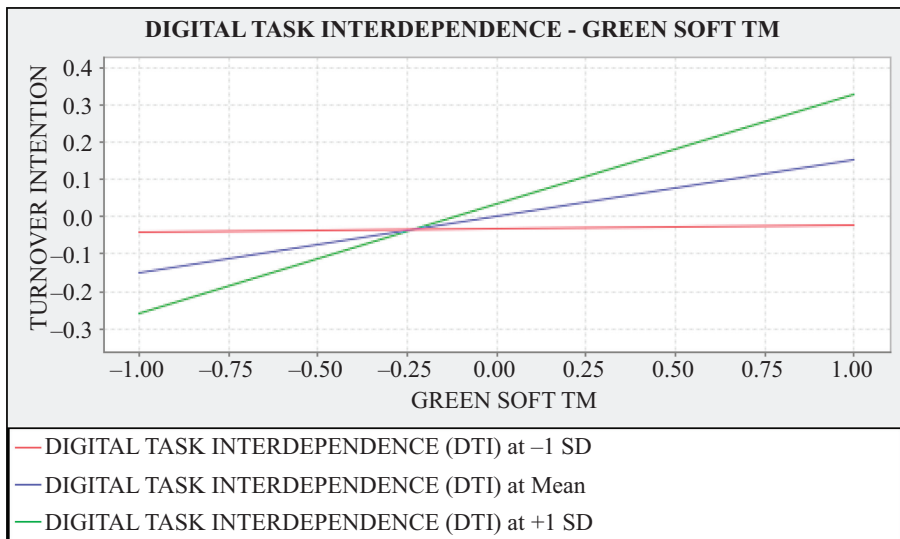


Figure 7.
Interaction effect of DTI on the relationship between green soft TM and turnover intention



Nigeria is firmly hierarchical, and studies (Auernhammer and Hall, 2014; Gupta, 2011; Naranjo-Valencia *et al.*, 2016; Porter *et al.*, 2016) lament that such organisational culture can stifle creativity, impair innovativeness, dampen job satisfaction, increase ineffective communication, and foster exclusion and alienation of talent. Congruently, studies suggest that this could provoke intention of organisational members to leave their organisation (Abdul *et al.*, 2019; Deery and Jago, 2015). We also find that LSC is a positive predictor of turnover intention. This means LSC also increases talents' intention to leave their organisation. Again, this result has been unexpected.

Considering the changes evidenced via the components of the 4IR, leaders who are STARA competent would need adequate and constantly maintained work environments to deploy STARA-related competencies and to effectively execute complex green initiatives (Brougham and Haar, 2018; Reischauer, 2018; Stoldt *et al.*, 2018). An adequate work environment is also essential to foster relevant STARA knowledge exchange between team leaders and their members (Ogbeibu *et al.*, 2021a). However, drawing from Figures 2 and 3, one can deduce that the work environment of manufacturing organisations in Nigeria is likely to increase turnover intention. Rapidly changing demands of the 4IR provoke the need for organisations to also constantly equip their work environment with relevant resources needed to accommodate emerging technological innovations (Reischauer, 2018; Stoldt *et al.*, 2018). This could lead to continuous increase in financial cost associated with the constant need to implement industry 4.0-related relevant changes in the work environment (Oosthuizen, 2019; Vishwanath *et al.*, 2019). Organisations with insufficient financial resources may consequently be unable to adequately support their work environment (Stoldt *et al.*, 2018; Wu, 2016). Therefore, despite the influence of LSC, extant research suggests that the lack of an adequate or supportive work environment could reduce work engagement, impair commitment and consequently provoke intention to leave (Teo *et al.*, 2020; Wan *et al.*, 2018). Another reason for this outcome is that team members may not be mentally prepared for, or willing to accept new or emerging technological advances in light of maintaining conventional work practices (Nejati *et al.*, 2017). Considering that such technological advances may alter the way they originally execute their daily task routines, this could provoke resistance to change (Mahlasela and Chinyamurindi, 2020). Studies suggest that the influence of LSC could be met with resistance by team members who may be unaware of, or lack adequate knowledge of, or lack the mental capability to embrace and utilise new technologies (Plessis *et al.*, 2015; Mahlasela and Chinyamurindi, 2020; Nejati *et al.*, 2017). Prior research espouses that workplace conflict may ensue due to resistance to technological advancements that could foster team members' intention to leave their organisation (Anand *et al.*, 2018; Yong *et al.*, 2014).

We also find that LSC dampens the positive influence of green hard TM on turnover intention and reinforces the negative influence of green soft TM on turnover intention. These findings complement prior findings (Anlesinya *et al.*, 2019; Brougham and Haar, 2018; Fatorachian and Kazemi, 2018; Reischauer, 2018) that have espoused the distinct roles and benefits of embracing and deploying the tenets of STARA in the organisation. Moreover, these findings also stand in dissonance to prior contentions that present STARA as an influence that may negatively impact the future of work, and consequently provoke team members' turnover intention (Mahlasela and Chinyamurindi, 2020; Oosthuizen, 2019; Santana and Cobo-Martín, 2020; Vishwanath *et al.*, 2019). We also find that DTI weakens the positive influence of green hard TM on turnover intention. By embracing, encouraging and supporting interdependent teams to drive tasks via distinct digital technologies, workloads that initially seemed overly complex or overwhelming may consequently be completed with less energy, time and cost. According to Ogbeibu *et al.* (2021b), DTI can foster team members' willingness to become more committed and engaged in further executing defined tasks. Studies further support that increased task engagement and commitment can help reduce turnover intention (Teo *et al.*, 2020; Wan *et al.*, 2018). Thus, our finding on DTI complements the discourse of extant research (Antikainen *et al.*, 2018; Barnewold and Lottermoser, 2020; Ferreira *et al.*, 2019; Sarc *et al.*, 2019).

Theoretical implications

Despite the proliferation of investigations that have respectively considered the concepts of TM, task interdependence and STARA associated tenets, our study is the first to

simultaneously investigate TM's disparate dimensions, leader competency and task interdependence in the context of digitalisation, STARA and environmental sustainability. We offer novel insights that inform how green soft and hard TM, LSC and DTI predict turnover intention in Nigeria. We conducted the research in an emerging economy context (Nigeria) that is scarcely found in prior research to garner original and substantial knowledge that is meaningful for theory and practice. While prior works on TM may have yielded meaningful findings, only a handful of studies have examined TM via its soft and hard dimensions. By examining TM as a unidimensional construct, prior research raises endogeneity concerns and has consequently overlooked robust findings that could have otherwise been obtained to foster relevant policy implications. We have attempted to close this major gap in the literature and have further positioned TM in a more timely environmental sustainability context by investigating green TM via its green soft and hard dimensions, respectively.

By demonstrating how green hard TM positively predicts turnover intention, we complement prior research. Notably, our findings show that green soft TM positively predicts turnover intention. We thus, extend earlier conceptualisations of stakeholder theory and challenge prior empirical findings that have suggested that green soft TM has a negative or insignificant association with turnover intention. By providing evidence that demonstrates how green TM acts as both a positive and negative resource, we advocate a new understanding that extends the VRIO theoretical underpinnings. We advance the VRIO tenets by offering substantial evidence that demonstrates how an often-overlooked intangible resource such as LSC acts to predict turnover intention. While the debate continues on as to how the 4IR via its relative components such as STARA could adversely influence the workforce or better equip the organisation for the future of work, we offer substantial evidence that allows for deeper clarity into how STARA via LSC operates in the workforce.

Congruent with our findings, we stretch recent empirical insights that mirror the LSC phenomenon as a portent for organisations and the future of work. We show that LSC dampens the negative influence of green hard TM on turnover intention and strengthens the negative association between green soft TM and turnover intention. Conversely, we provide evidence that supports how LSC could be a portent to organisations by demonstrating that it could also directly engender turnover intention of talent. In view of the debate on digitalisation and its probable impact on organisations and the future of work, our findings offer evidence that deepens understanding into the roles of DTI. We predict that DTI would not directly lead to turnover intention, neither would DTI influence the relationship between green soft TM and turnover intention as it has been found to be insignificant, respectively. However, we extend previous empirical contentions on DTI by demonstrating that DTI does weaken the negative influence of green hard TM on turnover intention. Our study captures substantial insights from recently emerging fields in the literature and provides an avenue to further furnish researchers with novel findings that complement, extend and challenge contemporary understandings associated with the LSC, DTI, green TM and turnover intention. We consequently open a new lens of research for future inquiry into relative issues of STARA and digitalisation from a perspective of deploying LSC and DTI to further nurture and retain talent in an environmental sustainability context.

Managerial and policy implications

By investigating how green TM, LSC and DTI predict turnover intention, we provide insights that support meaningful policy implications. We consequently furnish practitioners and industry policymakers with substantive evidence for establishing guidelines relevant for driving green soft and hard TM in organisations. To ensure human capital – talents – are

adequately nurtured and retained in organisations for fostering environmental sustainability, practitioners and leaders should consider instilling values endemic within the green soft TM rather than the green hard TM. Although our findings also show that the green soft TM does engender turnover intention, we argue that contextual factors such as a hierarchical organisational culture ought to be given careful consideration when implementing defined values of green soft TM in an emerging economy context like Nigeria. Therefore, policies should be instituted to foster the establishment of values (e.g., effective communication, talent inclusiveness, support for talent wellbeing and welfare) that capture green soft TM practices in organisations. Nurturing, supporting, and recognising the importance of green values and competencies among staff is an important process of long-term development of employees with a commitment to environmental sustainability. Organisational members, especially those with green skills and commitment, should be recognised as a vital resource that should be supported towards developing and disseminating green initiatives throughout the organisation. Existing evidence supports that excessive control of organisational members, as found in the green hard TM system, may result in less commitment, less job engagement and increased turnover intentions. Supporting green skill development, engaging with employees to develop sustainability values, and supporting staff with green skills and aspirations can be part of a process of organisational re-orientation to recognise and incorporate a sustainability agenda. To also help curb or reduce the negative impact of green hard TM on staff turnover intention, HRM systems should support the incorporation of green aspirations and programmes into staff development and talent management programmes. Practical processes associated with a green inclusive HRM system include training and skill development programmes; the mentoring of those staff with potential leadership capabilities and staff who have green capabilities, the inclusion of green objectives in performance management systems and the strategic management of talent within the organisation, especially to ensure that key divisions and subsidiaries are linked to green objectives. Additionally, industrial policymakers interested in green industry development should pay attention to green soft TM while estimating the impacts of their policies on the green proactivity of firms.

Given that our findings suggest that LSC positively predicts turnover intention, policymakers and practitioners may want to consider allocating adequate resource for the development of the work environment which supports effective and efficient demonstration of leader STARA-related competencies. This could be relevant for supporting team members' tasks commitment and engagement and consequently reduce their intention to leave. This recommendation is congruent with our findings that relay the work environment as a positive predictor of turnover intention. Moreover, leaders and practitioners may consider the benefits of slowly instituting changes or driving processes associated with STARA as it may otherwise have a confounding effect on team members who may feel overwhelmed, and thus resist adopting, embracing or utilising knowledge associated with STARA. Leaders and practitioners may also consider initiating training programmes for team members to increase their STARA awareness, cultivate their interest in STARA, and to effectively adopt or adapt to STARA for bolstering environmental sustainability.

Though we find that green hard TM leads to turnover intention, policymakers may take comfort in knowing that by implementing LSC and DTI, the negative influence of green hard TM can be reduced. Thus, organisations currently managing talents to foster environmental sustainability by instilling green hard TM values, may consider adopting and embracing the LSC and DTI phenomenon to drive tasks and operations processes. By instituting strategies to foster DTI, task routine processes and complex projects could be more easily executed and driven to fruition via the leveraging of distinct digital technologies (for example, augmented reality technology and others). Equally, while policies could be established to further enhance the adoption of LSC in the workplace, practitioners and leaders may also ensure resources are

allocated to support LSC's acceptance and use, especially as it can reinforce green soft TM's negative influence on turnover intention. This is congruent with our finding that LSC increases the strength of green soft TM to reduce turnover intention of talent in organisations. Consequently, organisations driving green initiatives via green soft TM practices may be able to further nurture and retain their talent by deploying the tenets of LSC.

Limitations and ideas for future research

Although our study offers robust empirical contributions to both theory and practice, it is not without limitations. Our study has been driven along the lines of a team-level analysis, so organisational or individual inferences should not be deduced. Nevertheless, it provides an avenue for future investigation to be initiated from organisational and individual points of analysis. Our study did not directly consider the perceptions of other stakeholders such as customers, suppliers, societal factors, corporate level or community actors as such deviation would have deeply altered the motivation, aims and context of our present investigation. We thus leave this to future research investigations to examine. A major part of our focus has been to investigate the predictive powers of LSC, DTI and green TM dimensions on turnover intention. However, given the intense debates associated with STARA and digitalisation from the future of work perspective, it would be meaningful for future research to consider examining the influence of LSC on the relationship between DTI and turnover intention.

We acknowledge that several other factors in the literature have been debated to engender turnover intention, and not all of these have been examined in our study. Although, we controlled for some other core factors like work environment, resource availability and organisational culture, we contend that it would be unrealistic to have evidenced or controlled for all prior identified predictors of turnover intention. Congruently, we provide an avenue for future research to further examine the plausible moderating roles of work environment, resource availability and organisational culture on the relationships between our endogenous and target exogenous constructs. This work could foster more substantive insights from an organisational level perspective. Another major focus has been on LSC, whereas deeper insights may have been obtained from a plausible examination of individual or team level STARA competence. We call on scholars to consider this in their investigations. Furthermore, our study has initiated a cross-sectional investigation in which the data obtained is also influenced by self-reporting measurement scales that are limited to one country; one sector and thus, does not advocate causality. We therefore, recommend that a longitudinal investigation (via multisource data collection) which garners insights from across the manufacturing industry, national or cultural contexts is initiated by future studies to foster causality and generalisability of our prediction-oriented model. We encourage future researchers to also examine additional sectors, especially the service sectors and initiate studies of actual training, nurturing and retention programmes linked to developing green TM and leadership competence.

References

- Abdul, L.F., Saraih, U.N. and Harada, Y. (2019), "Talent management and turnover intention: the moderating effect of employee engagement", *Journal Of Advanced Research In Business, Marketing, And Supply Chain Management*, Vol. 3 No. 1, pp. 10-17, doi: [10.10516/j.jarims.2019.10.075](https://doi.org/10.10516/j.jarims.2019.10.075).
- Adeosun, O.T. and Ohiani, A.S. (2020), "Attracting and recruiting quality talent: firm perspectives", *Rajagiri Management Journal*, Vol. 14 No. 2, pp. 107-120, doi: [10.1108/RAMJ-05-2020-0016](https://doi.org/10.1108/RAMJ-05-2020-0016).
- Aiken, L. and West, S.G. (1991), *Multiple Regression: Testing and Interpreting Interactions*, Sage, Newbury Park: CA.

- Anand, S., Vidyarthi, P. and Rolnicki, S. (2018), "Leader-member exchange and organizational citizenship behaviors: contextual effects of leader power distance and group task interdependence", *The Leadership Quarterly*, Vol. 29 No. 4, pp. 489-500, doi: [10.1016/j.leaqua.2017.11.002](https://doi.org/10.1016/j.leaqua.2017.11.002).
- Anlesinya, A., Amponsah-Tawiah, K. and Dartey-Baah, K. (2019), "Talent management research in Africa: towards multilevel model and research agenda", *African Journal of Economic and Management Studies*, Vol. 10 No. 4, pp. 440-457, doi: [10.1108/AJEMS-12-2018-0371](https://doi.org/10.1108/AJEMS-12-2018-0371).
- Antikainen, M., Uusitalo, T. and Kivikyto-Reponen, P. (2018), "Digitalisation as an enabler of circular economy", *Procedia CIRP*, Vol. 73, pp. 45-49, doi: [10.1016/j.procir.2018.04.027](https://doi.org/10.1016/j.procir.2018.04.027).
- Ariss, A.A., Cascio, W.F. and Paauwe, J. (2014), "Talent management: current theories and future research directions", *Journal of World Business*, Vol. 49, pp. 173-179, doi: [10.1016/j.jwb.2013.11.001](https://doi.org/10.1016/j.jwb.2013.11.001).
- Auernhammer, J. and Hall, H. (2014), "Organisational culture in knowledge creation, creativity and innovation: towards the Freiraum model", *Journal of Information Science*, Vol. 40 No. 2, pp. 154-166, doi: [10.1177/0165551513508356](https://doi.org/10.1177/0165551513508356).
- Baima, G., Forliano, C., Santoro, G. and Vrontis, D. (2020), "Intellectual capital and business model: a systematic literature review to explore their linkages", *Journal of Intellectual Capital*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JIC-02-2020-0055](https://doi.org/10.1108/JIC-02-2020-0055).
- Bamel, U., Pereira, V., Del Giudice, M. and Temouri, Y. (2020), "The extent and impact of intellectual capital research: a two decade analysis", *Journal of Intellectual Capital*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JIC-05-2020-0142](https://doi.org/10.1108/JIC-05-2020-0142).
- Barkhuizen, N. and Schutte, N. (2017), "Talent management, burnout and retention of employees in a selected Botswana mine", *Journal of Innovative Research in Education and Management*, Vol. 1 No. 1, pp. 8-13.
- Barnewold, L. and Lottermoser, B.G. (2020), "Identification of digital technologies and digitalisation trends in the mining industry", *International Journal of Mining Science and Technology*, Vol. 30, pp. 747-757, doi: [10.1016/j.ijmst.2020.07.003](https://doi.org/10.1016/j.ijmst.2020.07.003).
- Barney, J.B. and Harrison, J.S. (2020), "Stakeholder theory at the crossroads", *Business and Society*, Vol. 59 No. 2, pp. 203-212, doi: [10.1177/0007650318796792](https://doi.org/10.1177/0007650318796792).
- Berraies, S., Lajili, R. and Chtioui, R. (2020), "Social capital, employees' well-being and knowledge sharing: does enterprise social networks use matter? Case of Tunisian knowledge-intensive firms", *Journal of Intellectual Capital*, Vol. 21 No. 6, pp. 1153-1183, doi: [10.1108/JIC-01-2020-0012](https://doi.org/10.1108/JIC-01-2020-0012).
- Brougham, D. and Haar, J. (2018), "Smart technology, artificial intelligence, robotics, and algorithms (STARA): employees' perceptions of our future workplace", *Journal of Management and Organization*, Vol. 24 No. 2, pp. 239-257, doi: [10.1017/jmo.2016.55](https://doi.org/10.1017/jmo.2016.55).
- Budhwar, P.S., Varma, A., Malhotra, N. and Mukherjee, A. (2009), "Insights into the Indian call centre industry: can internal marketing help tackle high employee turnover?", *Journal of Services Marketing*, Vol. 23 No. 5, pp. 351-362, doi: [10.1108/08876040910973459](https://doi.org/10.1108/08876040910973459).
- Bui, L.T. and Chang, Y. (2018), "Talent management and turnover intention: focus on Danang city government in Vietnam", *International Review of Public Administration*, Vol. 23 No. 4, pp. 219-236, doi: [10.1080/12294659.2018.1552403](https://doi.org/10.1080/12294659.2018.1552403).
- Clarkson, M.B. (1995), "A stakeholder framework for analyzing and evaluating corporate social performance", *Academy of Management Review*, Vol. 20, pp. 92-117.
- Coley, L., Lindemann, E. and Wagner, S. (2012), "Tangible and intangible resource inequity in customer-supplier relationships", *Journal of Business and Industrial Marketing*, Vol. 27 No. 8, pp. 611-622.
- Deery, M. and Jago, L. (2015), "Revisiting talent management, work-life balance and retention strategies", *International Journal of Contemporary Hospitality Management*, Vol. 27 No. 3, pp. 453-472, doi: [10.1108/IJCHM-12-2013-0538](https://doi.org/10.1108/IJCHM-12-2013-0538).
- Dodd, M. (2016), "Intangible resource management: social capital theory development for public relations", *Journal of Communication Management*, Vol. 20 No. 4, pp. 289-311.

- Farndale, E., Thite, M., Budhwar, P. and Kwon, B. (2020), "Deglobalization and talent sourcing: cross-national evidence from high-tech firms", *Human Resource Management*, Vol. 60 No. 2, pp. 1-14, doi: [10.1002/hrm.22038](https://doi.org/10.1002/hrm.22038).
- Fatorachian, H. and Kazemi, H. (2018), "A critical investigation of Industry 4.0 in manufacturing: theoretical operationalisation framework", *Production Planning and Control*, Vol. 29 No. 8, pp. 633-644, doi: [10.1080/09537287.2018.1424960](https://doi.org/10.1080/09537287.2018.1424960).
- Ferreira, J.J., Fernandes, C.I. and Ferreira, F.A. (2019), "To be or not to be digital, that is the question: firm innovation and performance", *Journal of Business Research*, Vol. 101 No. c, pp. 583-590.
- Fong, P., Men, C., Luo, J. and Jia, R. (2018), "Knowledge hiding and team creativity: the contingent role of task interdependence", *Management Decision*, Vol. 56 No. 2, pp. 329-343, doi: [10.1108/md-11-2016-0778](https://doi.org/10.1108/md-11-2016-0778).
- Freeman, R.E., Phillips, R. and Sisodia, R. (2020), "Tensions in stakeholder theory", *Business and Society*, Vol. 59 No. 2, pp. 213-231, doi: [10.1177/0007650318773750](https://doi.org/10.1177/0007650318773750).
- Gardas, B.B., Mangla, S.K., Raut, R.D., Narkhede, B. and Luthra, S. (2019), "Green talent management to unlock sustainability in the oil and gas sector", *Journal of Cleaner Production*, Vol. 229, pp. 850-862, doi: [10.1016/j.jclepro.2019.05.018](https://doi.org/10.1016/j.jclepro.2019.05.018).
- Gupta, B. (2011), "Organisational culture and creative behaviour: moderating role of creative style preference", *Int. J. Innovation and Learning*, Vol. 10 No. 4, pp. 429-441.
- Haenlein, M. and Kaplan, A. (2021), "Artificial intelligence and robotics: shaking up the business world and society at large", *Journal of Business Research*, Vol. 124, pp. 405-407, doi: [10.1016/j.jbusres.2020.10.042](https://doi.org/10.1016/j.jbusres.2020.10.042).
- Hair, J.F., William, B.C., Barry, B.J. and Rolph, A.E. (2010), *Multivariate Data Analysis*, 7th ed, Pearson Prentice Hall.
- Hair, J.F., Ringle, C.M. and Sarstedt, M. (2013), "Partial least squares structural equation modeling: rigorous applications, better results and higher acceptance", *Long Range Planning*, Vol. 46, pp. 1-12, doi: [10.1016/j.lrp.2013.01.001](https://doi.org/10.1016/j.lrp.2013.01.001).
- Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019), "When to use and how to report the results of PLS-SEM", *European Business Review*, Vol. 31 No. 1, pp. 2-24, doi: [10.1108/EBR-11-2018-0203](https://doi.org/10.1108/EBR-11-2018-0203).
- Henseler, J., Hubona, G. and Ray, P.A. (2016), "Using PLS path modeling in new technology research: updated guidelines", *Industrial Management and Data Systems*, Vol. 116 No. 1, pp. 2-20, doi: [10.1108/IMDS-09-2015-0382](https://doi.org/10.1108/IMDS-09-2015-0382).
- Hinterhuber, A. (2013), "Can competitive advantage be predicted?", *Management Decision*, Vol. 51 No. 4, pp. 795-812.
- Jabbour, C.J. (2011), "How green are HRM practices, organizational culture, learning and teamwork? A Brazilian study", *Industrial and Commercial Training*, Vol. 43 No. 2, pp. 98-105, doi: [10.1108/001978511111108926](https://doi.org/10.1108/001978511111108926).
- John, G., Chris, H. and Eric, L. (2009), "The emergence of green talent", *Business Strategy Review*, Vol. 20 No. 4, pp. 52-56, doi: [10.1111/j.1467-8616.2009.00631.x](https://doi.org/10.1111/j.1467-8616.2009.00631.x).
- Knott, P. (2015), "Does VRIO help managers evaluate a firm's resources?", *Management Decision*, Vol. 53 No. 8, pp. 1806-1822.
- Krejcie, R.V. and Morgan, D.W. (1970), "Determining sample size for research activities", *Educational and Psychological Measurement*, pp. 1-4.
- Kock, N. (2015), "Common method bias in PLS-SEM: a full collinearity assessment approach", *International Journal of e-Collaboration*, Vol. 11 No. 4, pp. 1-10, doi: [10.4018/ijec.2015100101](https://doi.org/10.4018/ijec.2015100101).
- Langfred, C. (2005), "Autonomy and performance in teams: the multilevel moderating effect of task interdependence", *Journal of Management*, Vol. 31 No. 4, pp. 513-529, doi: [10.1177/0149206304272190](https://doi.org/10.1177/0149206304272190).
- Lee, I., Lin, C. and Lin, T. (2017), "The creation of national intellectual capital from the perspective of Hofstede's national culture", *Journal of Intellectual Capital*, Vol. 18 No. 4, pp. 807-831.

- Li, X., Nosheen, S., Haq, N.U. and Gao, X. (2020), "Value creation during fourth industrial revolution: use of intellectual capital by most innovative companies of the world", *Technological Forecasting and Social Change*, Vol. 163, pp. 1-10, doi: [10.1016/j.techfore.2020.120479](https://doi.org/10.1016/j.techfore.2020.120479).
- Lowry, P.B. and Gaskin, J. (2014), "Partial least squares (PLS) structural equation modeling (SEM) for building and testing behavioral causal theory: when to choose it and how to use it", *IEEE Transactions on Professional Communication*, Vol. 57 No. 2, pp. 123-146.
- Macfarlane, F., Duberley, J., Fewtrell, C. and Powell, M. (2012), "Talent management for NHS managers: human resources or resourceful humans?", *Public Money and Management*, Vol. 32 No. 6, pp. 445-452.
- Mahlasela, S. and Chinyamurindi, W. (2020), "Technology-related factors and their influence on turnover intentions: a case of government employees in South Africa", *E J Info Sys Dev Countries*, Vol. 86 No. 3, pp. 1-11, doi: [10.1002/isd2.12126](https://doi.org/10.1002/isd2.12126).
- Masood, T. and Egger, J. (2020), "Adopting augmented reality in the age of industrial digitalisation", *Computers in Industry*, Vol. 115, pp. 1-14, doi: [10.1016/j.compind.2019.07.002](https://doi.org/10.1016/j.compind.2019.07.002).
- McCoach, D.B., Gable, R.K. and Madura, J.P. (2013), *Instrument Development in the Affective Domain: School and Corporate Applications*, 3rd ed., Springer, New York.
- Naranjo-Valencia, J.C., Daniel, J.-J. and Raquel, S.-V. (2016), "Studying the links between organizational culture, innovation, and performance in Spanish companies", *Revista Latinoamericana de Psicología*, Vol. 48 No. 1, pp. 30-41, doi: [10.1016/j.rlp.2015.09.009](https://doi.org/10.1016/j.rlp.2015.09.009).
- Nejati, M., Rabiei, S. and Jabbour, C.J. (2017), "Envisioning the invisible: understanding the synergy between green human resource management and green supply chain management in manufacturing firms in Iran in light of the moderating effect of employees' resistance to change", *Journal of Cleaner Production*, Vol. 168, pp. 163-172, doi: [10.1016/j.jclepro.2017.08.213](https://doi.org/10.1016/j.jclepro.2017.08.213).
- Nerdrum, L. and Erikson, T. (2001), "Intellectual capital: a human capital perspective", *Journal of Intellectual Capital*, Vol. 2 No. 2, pp. 127-135.
- Ngo-Henha, P.E. (2017), "A review of existing turnover intention theories", *World Academy of Science, Engineering and Technology - International Journal of Economics and Management Engineering*, Vol. 11 No. 11, pp. 2760-2767.
- Nirino, N., Ferraris, A., Miglietta, N. and Invernizzi, A.C. (2020), "Intellectual capital: the missing link in the corporate social responsibility-financial performance relationship", *Journal of Intellectual Capital*, Vol. ahead-of-print No. ahead-of-print. doi: [10.1108/JIC-02-2020-0038](https://doi.org/10.1108/JIC-02-2020-0038).
- Nwosu, B. and Ward, T. (2016), "The way forward: human capital development in the hotel industry in Nigeria", *Worldwide Hospitality and Tourism Themes*, Vol. 8 No. 2, pp. 235-240, doi: [10.1108/WHATT-11-2015-0049](https://doi.org/10.1108/WHATT-11-2015-0049).
- Ogbeibu, S., Senadjki, A. and Gaskin, J. (2018), "The moderating effect of benevolence on the impact of organisational culture on employee creativity", *Journal of Business Research*, Vol. 90C, pp. 334-346.
- Ogbeibu, S., Burgess, J., Emelifeonwu, J. and Pereira, V. (2020a), "How green HRM and technological turbulence predicts green product innovation: a STARA tale. Manchester", *United Kingdom: British Academy of Management Conference (Paper Accepted as Full Paper)*, 2nd - 4th of September, ISBN 978-0-9956413-3-4.
- Ogbeibu, S., Emelifeonwu, J., Senadjki, A., Gaskin, J. and Kaivo-oja, J. (2020b), "Technological turbulence and greening of team creativity, product innovation, and human resource management: implications for sustainability", *Journal of Cleaner Production*, Vol. 244 No. 118703, pp. 1-15, doi: [10.1016/j.jclepro.2019.118703](https://doi.org/10.1016/j.jclepro.2019.118703).
- Ogbeibu, S., Jabbour, C.J., Gaskin, J., Senadjki, A. and Hughes, M. (2021a), "Leveraging STARA competencies and green creativity to boost green organisational innovative evidence: a praxis for sustainable development", *Bus Strat Env.*, pp. 1-20, doi: [10.1002/bse.2754](https://doi.org/10.1002/bse.2754).

- Ogbeibu, S., Pereira, V., Emelifeonwu, J. and Gaskin, J. (2021b), "Bolstering creativity willingness through digital task interdependence, disruptive and smart HRM technologies", *Journal of Business Research*, Vol. 124, pp. 422-436, doi: [10.1016/j.jbusres.2020.10.060](https://doi.org/10.1016/j.jbusres.2020.10.060).
- Ogbeibu, S., Senadjki, A., Emelifeonwu, J., Gaskin, J. and Pereira, V. (2021c), "Augmenting environmental sustainability through the exchange of green creative ideas –evidence from an emerging economy", *Sustainable Production and Consumption*, Vol. 26, pp. 275-287, doi: [10.1016/j.spc.2020.10.007](https://doi.org/10.1016/j.spc.2020.10.007).
- Okpara, J.O. and Wynn, P. (2008), "Human resource management practices in a transition economy: challenges and prospects", *Management Research News*, Vol. 31 No. 1, pp. 57-76, doi: [10.1108/01409170810845958](https://doi.org/10.1108/01409170810845958).
- Oludayo, O.A., Akanbi, C.O., Obot, B.M., Popoola, S.I. and Atayero, A.A. (2018), "Influence of talent retention strategy on employees' attitude to work: analysis of survey data", *Data in Brief*, Vol. 20, pp. 698-705, doi: [10.1016/j.dib.2018.08.103](https://doi.org/10.1016/j.dib.2018.08.103).
- Oosthuizen, R.M. (2019), "Smart technology, artificial intelligence, robotics and algorithms (STARA): employees' perceptions and wellbeing in future workplaces", in Potgieter, I.L., Ferreira, N. and Coetzee, M. (Eds), *Theory, Research and Dynamics of Career Wellbeing Becoming Fit for the Future*, Springer, Cham, pp. 17-40, doi: [10.1007/978-3-030-28180-9_2](https://doi.org/10.1007/978-3-030-28180-9_2).
- Perez, J.R. and de Pablos, P.O. (2003), "Knowledge management and organizational competitiveness: a framework for human capital analysis", *Journal of Knowledge Management*, Vol. 7 No. 3, pp. 82-91.
- Pinto, J. (2017), "A multifocal framework for developing Intentionally Sustainable Organizations", *Current Opinion in Environmental Sustainability* No. 28, pp. 17-23, doi: [10.1016/j.cosust.2017.07.002](https://doi.org/10.1016/j.cosust.2017.07.002).
- Plessis, L.D., Barkhuizen, N., Stanz, K. and Schutte, N. (2015), "The management side of talent: causal implications for the retention of generation Y employees", *The Journal of Applied Business Research*, Vol. 31 No. 5, pp. 1767-1780.
- Podsakoff, P.M., MacKenzie, S.B. and Podsakoff, N.P. (2012), "Sources of method bias in social science research and recommendations on how to control it", *Annual Review of Psychology*, Vol. 63, pp. 539-569.
- Porter, T.H., Gallagher, V. and Lawong, D. (2016), "The greening of organizational culture: revisited fifteen years later", *American Journal of Business*, Vol. 31 No. 4, pp. 206-226, doi: [10.1108/AJB-04-2016-0011](https://doi.org/10.1108/AJB-04-2016-0011).
- Rana, A.H. and Abbasi, A.S. (2013), "Impact of talent management and employee turnover intention on organizational efficiency – a case of telecommunication sector of Pakistan", *Science International*, Vol. 25 No. 3, pp. 655-660.
- Reischauer, G. (2018), "Industry 4.0 as policy-driven discourse to institutionalize innovation systems in manufacturing", *Technological Forecasting and Social Change*, Vol. 132, pp. 26-33, doi: [10.1016/j.techfore.2018.02.012](https://doi.org/10.1016/j.techfore.2018.02.012).
- Renwick, D.W.S., Redman, T. and Maguire, S. (2013), "Green HRM: a review and research agenda", *International Journal of Management Reviews*, Vol. 15 No. 1, pp. 1-14.
- Renwick, D.W.S., Jabbar, C.J.C., Muller-Camen, M., Redman, T. and Wilkinson, A. (2016), "Introduction: contemporary developments in Green (environmental) HRM scholarship", *The International Journal of Human Resource Management*, Vol. 27 No. 2, pp. 114-128.
- Renwick, D.W.S. (Ed) (2020), "Contemporary developments in green human resource management research: towards sustainability in action?", *Routledge Research in Sustainability and Business Series*, First Edition (June), Routledge, Abingdon, Oxfordshire, pp. 1-199.
- Ringle, C.M., Sarstedt, M., Mitchell, R. and Gudergan, S.P. (2018), "Partial least squares structural equation modeling in HRM research", *The International Journal of Human Resource Management*, Vol. 31 No. 12, pp. 1-27, doi: [10.1080/09585192.2017.1416655](https://doi.org/10.1080/09585192.2017.1416655).

- Roscoe, S., Subramanian, N., Jabbour, C.J. and Chong, T. (2019), "Green human resource management and the enablers of green organisational culture: enhancing a firm's environmental performance for sustainable development", *Business Strategy Environment*, Vol. 28 No. 5, pp. 1-13, doi: [10.1002/bse.2277](https://doi.org/10.1002/bse.2277).
- Salau, O., Osinbajo, A., Adeniji, A., Oludayo, O., Falola, H. and Igbinoba, O.O. (2018), "Data regarding talent management practices and innovation performance of academic staff in a technology-driven private university", *Data in Brief*, Vol. 19, pp. 1040-1045, doi: [10.1016/j.dib.2018.05.081](https://doi.org/10.1016/j.dib.2018.05.081).
- Salvi, A., Vitolla, F., Rubino, M., Giakoumelou, A. and Raimo, N. (2020), "Online information on digitalisation processes and its impact on firm value", *Journal of Business Research*, In press. doi: [10.1016/j.jbusres.2020.10.025](https://doi.org/10.1016/j.jbusres.2020.10.025).
- Salvi, A., Vitolla, F., Rubino, M., Giakoumelou, A. and Raimo, N. (2021), "Online information on digitalisation processes and its impact on firm value", *Journal of Business Research*, Vol. 124, pp. 437-444, doi: [10.1016/j.jbusres.2020.10.025](https://doi.org/10.1016/j.jbusres.2020.10.025).
- Sanni, M. (2018), "Drivers of eco-innovation in the manufacturing sector of Nigeria", *Technological Forecasting and Social Change*, Vol. 131, pp. 303-314, doi: [10.1016/j.techfore.2017.11.007](https://doi.org/10.1016/j.techfore.2017.11.007).
- Santana, M. and Cobo, M.J. (2020), "What is the future of work? A science mapping analysis", *European Management Journal*, Vol. 38 No. 6, pp. 846-862, doi: [10.1016/j.emj.2020.04.010](https://doi.org/10.1016/j.emj.2020.04.010).
- Sarc, R., Curtis, A., Kandlbauer, L., Khodier, K., Lorber, K.E. and Pomberger, R. (2019), "Digitalisation and intelligent robotics in value chain of circular economy oriented waste management – a review", *Waste Management*, Vol. 95, pp. 476-492, doi: [10.1016/j.wasman.2019.06.035](https://doi.org/10.1016/j.wasman.2019.06.035).
- Sarstedt, M., Hair, J.F., Ringle, C.M., Thiele, K.O. and Gudergan, S.P. (2016), "Estimation issues with PLS and CBSEM: Where the bias lies", *Journal of Business Research*, Vol. 69, pp. 3998-4010, doi: [10.1016/j.jbusres.2016.06.007](https://doi.org/10.1016/j.jbusres.2016.06.007).
- Shmueli, G., Sarstedt, M., Hair, J.F., Cheah, J., Ting, H. and Vaithilingam, S. (2019), "Predictive model assessment in PLS-SEM: guidelines for using PLSpredict", *European Journal of Marketing*, Vol. 53 No. 11, pp. 2322-2347, doi: [10.1108/EJM-02-2019-0189](https://doi.org/10.1108/EJM-02-2019-0189).
- Stoldt, J., Trapp, T.U., Toussaint, S., Sube, M., Schlegel, A. and Putz, M. (2018), "Planning for digitalisation in SMEs using tools of the digital factory", *Procedia CIRP*, Vol. 72, pp. 179-184, doi: [10.1016/j.procir.2018.03.100](https://doi.org/10.1016/j.procir.2018.03.100).
- Tajuddin, D., Ali, R. and Kamaruddin, B.H. (2015), "Developing talent management crisis model for quality life of bank employees in Malaysia", *Procedia - Social and Behavioral Sciences*, Vol. 201, pp. 80-84, doi: [10.1016/j.sbspro.2015.08.133](https://doi.org/10.1016/j.sbspro.2015.08.133).
- Temouri, Y., Pereira, V., Muschert, G.W., Ramiah, V. and Babula, M. (2021), "How does cluster location and intellectual capital impact entrepreneurial success within high-growth firms?", *Journal of Intellectual Capital*, Vol. 22 No. 1, pp. 171-189, doi: [10.1108/JIC-02-2020-0066](https://doi.org/10.1108/JIC-02-2020-0066).
- Teo, S.T., Bentley, T. and Nguyen, D. (2020), "Psychosocial work environment, work engagement, and employee commitment: a moderated, mediation model", *International Journal of Hospitality Management*, Vol. 88, pp. 1-10, doi: [10.1016/j.ijhm.2019.102415](https://doi.org/10.1016/j.ijhm.2019.102415).
- Tymon, W.G. Jr, Stumpf, S.A. and Doh, J.P. (2010), "Exploring talent management in India: the neglected role of intrinsic rewards", *Journal of World Business*, Vol. 45, pp. 109-121, doi: [10.1016/j.jwb.2009.09.016](https://doi.org/10.1016/j.jwb.2009.09.016).
- Vishwanath, A., Singh, A., Chua, Y.H., Dauwels, J. and Magnenat-Thalmann, N. (2019), "Humanoid co-workers: how is it like to work with a robot?", *28th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, New Delhi, pp. 1-6, doi: [10.1109/RO-MAN46459.2019.8956421](https://doi.org/10.1109/RO-MAN46459.2019.8956421).
- Wan, Q., Li, Z., Zhou, W. and Shang, S. (2018), "Effects of work environment and job characteristics on the turnover intention of experienced nurses: the mediating role of work engagement", *Journal of Advanced Nursing*, Vol. 74, pp. 1332-1341, doi: [10.1111/jan.13528](https://doi.org/10.1111/jan.13528).

- Wong, S.I. and Berntzen, M.N. (2019), "Transformational leadership and leader-member exchange in distributed teams: the roles of electronic dependence and team task interdependence", *Computers in Human Behavior*, Vol. 92, pp. 381-392, doi: [10.1016/j.chb.2018.11.032](https://doi.org/10.1016/j.chb.2018.11.032).
- Wu, J. (2016), "Total resources and speeds of internationalization, global entrepreneurship: past, present and future", *Advances in International Management*, Vol. 29, pp. 279-319.
- Yong, K., Sauer, S.J. and Mannix, E.A. (2014), "Conflict and creativity in Interdisciplinary teams", *Small Group Research*, Vol. 45 No. 3, pp. 266-289, doi: [10.1177/1046496414530789](https://doi.org/10.1177/1046496414530789).

Further reading

- Bosch-Sijtsema, P., Ruohomaki, V. and Vartiainen, V. (2009), "Knowledge work productivity in distributed teams", *Journal of Knowledge Management*, Vol. 13 No. 6, pp. 533-546, doi: [10.1108/13673270910997178](https://doi.org/10.1108/13673270910997178).
- Sadangharn, P. (2010), *The Determinants of Talent Retention in the Thai Public Sector*, Doctoral dissertation, National Institute of Development Administration, Bangkok, available at: <http://libdcms.nida.ac.th/thesis6/2010/b166707.pdf>.

Appendix

Measurement Items

Leader STARA competence (LSC)

- (1) My leader is not good at designing or applying algorithms to complete defined tasks (reverse coded).
- (2) My leader has the knowledge and ability to apply smart (self-monitoring, analysing and reporting systems) technology during operations.
- (3) My leader knows how to design and apply robots or mechanical devices during operations.
- (4) Matters related to machines that share similar qualities (reason, calculate, learn, discover) with the human mind are adequately addressed by my leader.

Turnover intention

- (1) I am always searching for an opportunity to work anywhere else.
- (2) I thought I would leave this organization.
- (3) I plan to work at this organization for a certain time and will leave after that.

Digital task interdependence (DTI)

- (1) I work best when I coordinate my digital tasks closely with other teams.
- (2) I have to digitally work together with other teams to complete digital tasks.
- (3) The way I perform my digital tasks has a significant impact on team members in other teams.
- (4) My digital task cannot be completed unless team members from other teams do their work digitally.
- (5) Most of my digital tasks are affected by the activities of team members from other teams.

- (6) Team members from other teams and I frequently have to coordinate our efforts with each other digitally.
- (7) As a team, we cannot complete a project digitally unless contributions are gotten from team members of other teams.

Green soft talent management (Green soft TM)

- (1) My organisation cares about my wellbeing and offers considerable support for my welfare when executing green centred initiatives.
- (2) My organisation offers green training, workshop opportunities, coaching and courses that advance my knowledge on how to foster environmental sustainability.
- (3) My organisation offers me a considerable degree of autonomy when carrying out green related tasks.
- (4) My organisation offers me job rotation opportunities associated with environmental sustainability.
- (5) My organisation is very supportive of green related activities that can help me plan my future development.
- (6) My organisation offers me challenging assignments that are grounded on environmental sustainability.
- (7) In my organisation, green tasks are driven with several opportunities that allow me express myself and share my opinions on green related matters.

Green hard Talent Management (Green hard TM)

- (1) My organisation offers a stringent performance appraisal system to drive green initiatives.
- (2) Environmental sustainability initiatives in my organisation are driven by a high level of bureaucracy.
- (3) My organisation offers more support towards achievement of green results than it offers to support my wellbeing.
- (4) Green initiatives are not driven by already established and prescribed strict rules (reverse coded).
- (5) Organisational support for developing team members is mainly geared towards increased task efficiency and productivity in green initiatives.
- (6) My organisation offers high level of task flexibility, autonomy, effective and efficient communication when carrying out green initiatives (reverse coded).
- (7) Personal development in my organisation is driven by green related results I achieve.

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