

# TALENT MANAGEMENT IN THE MANUFACTURING SECTOR: A SYSTEMATIC LITERATURE REVIEW

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## Abstract

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This article conducts a systematic literature review (SLR) analysis and relates to talent management (TM) in the manufacturing industry. The objectives are first, to provide a comprehensive analysis of TM research in the manufacturing industry; second, to identify and discuss key research topics, and third, to recommend avenues for future research. The study examines publications that were published between 2008 and 2022, which were thoroughly searched and obtained from four established databases: Scopus, Web of Science, Mendeley, and Google Scholar. According to the findings, academics are becoming more interested in TM in the manufacturing industry, which appears to be related to a scarcity of talent with high knowledge, skills, and abilities (KSAs), which contributes to negative organisational outcomes. The article presents findings that have relevance for both academia and practitioners. It provides data on existing research while also emphasizing the need for further investigation into the discovery, value, and implementation of TM. As a result, this article offers a pathway for researchers to conduct empirical studies on the role of TM practices in effectively and efficiently managing manufacturing talent with high KSAs. Furthermore, the article adheres to the preferred reporting items for systematic reviews and meta-analysis (PRISMA) requirements for SLRs, ensuring a structured approach to the content and methodology of the study.

**Keywords:** Human Resource Management, Manufacturing, Systematic Literature Review, Talent Management

**Authors' individual contribution:** Conceptualization — N.E.A. and N.H.; Methodology — N.E.A. and K.W.-L.; Formal Analysis — N.E.A.; Resources — N.E.A.; Data Curation — N.E.A.; Writing — Original Draft — N.E.A., N.H., and K.W.-L.; Writing — Review & Editing — N.H., K.W.-L., and N.H.M.; Visualization — N.H., K.W.-L., and N.H.M.; Supervision — N.H. and K.W.-L.; Project Administration — N.E.A.

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## 1. INTRODUCTION

Talent management (TM) practice is researched due to a “war for talent” and talent shortages (Foerster-Pastor et al., 2019; Michaels et al., 2001). The field

has been criticised as lacking intellectual and theoretical foundations (Collings et al., 2015; Li et al., 2018), and several recent studies have contributed significantly to this field and its theoretical underpinnings (King & Vaiman, 2019;

Vaiman et al., 2015). Nevertheless, the field is still in its infancy (Mujtaba & Mubarik, 2022), and a good understanding of who is considered talented and why is also still lacking (Lewis & Heckman, 2006; Tlaiss, 2021). Broadly, TM encompasses the activities and strategies employed to effectively oversee and nurture a group of skilled and high-performing individuals within an organisation. Its primary goal is to continuously retain these individuals by implementing a distinct human resource management (HRM) framework, thereby ensuring their ongoing commitment to the company (Collings & Mellahi, 2009; Uddin, 2019).

Global crises have shown that valuable employees must be effectively managed, developed, and retained for an organisation to be sustainable and agile in changing business goals (Arasanmi & Krishna, 2019; Urbancová & Vnoucková, 2015). Research on TM has expanded (Lewis & Heckman, 2006; Thunnissen & Gallardo-Gallardo, 2019), typically by contextualising TM (Batra & Resham, 2020), as an effective and efficient strategy that is frequently influenced by the specifics of certain industries (Zheng, 2009; Zheng et al., 2008). Although the manufacturing industry is significant to the global economy and a reliable predictor, particularly for nations that depend on it, research on TM in the industry is still sparse (Alias et al., 2022; Sathyanarayana et al., 2019). According to Deloitte's (2020) manufacturing outlook, sector 4.0 is associated with the development of sophisticated technologies. Sustainability is also a priority for global manufacturers, as can be seen in their adoption of the "circular economy" (Deloitte, 2020). In addition, the manufacturing industry is almost certainly an important factor in the continuation of the global economic downturn (Anggraini & Ardi, 2020; Raja et al., 2021), specifically in Malaysia (Malaysian Investment Development Authority [MIDA], 2022, 2023).

Therefore, it has been advocated that talent pools with particular knowledge, skills, and abilities (KSAs) that offer organisations a competitive advantage in the market need to be acknowledged within the organisations (Tlaiss, 2021; Tlaiss et al., 2017). Organisations must first identify and create the talent pool and then manage this elite group of valuable employees (Muyela & Kamaara, 2021). Pandita and Ray (2018) claim that some employee groups who actively participate in organisational business strategy activities have an impact on how management manages them. Consequently, TM is an effective strategy for managing organisations' talent pool to deal with potential HR planning uncertainties, particularly low retention rates and talent shortages in the manufacturing industry (Ogbeibu et al., 2022; Song & Qi, 2020).

Considering the increasing significance of TM in the manufacturing industry, a systematic literature review (SLR) is required to scrutinise the current state of the field, future research, and practitioners' directions in an unbiased and comprehensive manner. Even though several relevant studies have been published over the years, the majority of them concentrate on specific areas of interest related to TM in the manufacturing industry. For example, Panday and Kaur (2022) shed light on practices in TM for talent retention. Augustine et al. (2022) and Chukwudi et al. (2022) adopt a well-being approach to TM and

organisational development and performance. Raja et al. (2021) and Supian et al. (2021) discuss how TM in organisations plays a significant role in recruiting talents and creating high employer branding amongst potential talents in the manufacturing industry. Moreover, in the early stages of previous research, Karalar and Atay (2009) explored issues that are prevalent in the manufacturing industry and suggested how the influence of managing specific talents affects organisational companies.

Through a thorough review of the literature on TM in the manufacturing industry, it is important to focus on the challenges and opportunities in this field. It is also important to analyse the available evidence on the themes in a clear and comprehensive manner, both in the manufacturing industry and in academia, so that further research may be conducted in the field. It is also essential to fill the identified research gaps in our modern understanding of the field. Further, such reviews and analyses might also point out methodological problems in research studies and be used to improve future research in the field. Therefore, despite the growing yet fragmented scholarly output in the field, a thorough SLR that evaluates current research on TM in the context of manufacturing is especially required. Based on reviews and analyses of articles, this SLR sets forth:

- 1) an empirically comprehensive analysis of TM research in the manufacturing industry;
- 2) identification and discussion of key research topics;
- 3) recommendations for future research.

The structure of this paper is as follows. Section 2 reviews the relevant literature in the TM field. Section 3 analyses the methodology that has been used to conduct a rigorous SLR study. Section 4 presents the findings from the SLR study on TM research in the manufacturing industry. Section 5 provides a discussion and, finally, Section 6 concludes the study.

## 2. LITERATURE REVIEW

The American consulting company, McKinsey & Company introduced TM in its 1998 article titled *The War for Talent* and appealed that it is important to keep in mind that most of what has been published about TM in the past has been written for the general public, not for scientific peer-reviewed journals (Chambers et al., 1998). Thus, this provides an avenue for future researchers (D'Annunzio-Green, 2018; Kim et al., 2014) to tap the gaps between academic and practical interest in the research field (Dries, 2013) and underlines the necessity for an extended academic focus on the concept of TM. For instance, despite the growing TM studies and academic research findings, practitioners are still facing challenges in managing human capital, i.e., talent shortage, low retention, etc. (Muyela & Kamaara, 2021). Collings and Mellahi (2009) further said that a conceptual framework based on empirical research will direct researchers to explore new avenues in their research in the future. Popular arguments in the TM field have been criticised as lacking intellectual and theoretical foundations (Collings et al., 2015; Li et al., 2018), and several recent studies have significantly contributed to this field and its theoretical underpinnings (King & Vaiman, 2019; McDonnell et al., 2017). Despite

the lack of theoretical underpinnings (Ramli, 2016), a good understanding of who is considered talented and why is also still in its infancy (Lewis & Heckman, 2006; Sandeepanie et al., 2023).

TM in academic literature has gained popularity over the last decade, and the need for TM in organisations is escalating rapidly, but very little has been done to address the specifics of TM for manufacturing-related industries (Shaaban, 2018). In addition, research on TM in manufacturing also remains inconsistent due to a lack of clarity over its definition. Even though academics are fretting about the lack of clarity and are still working on a coherent framework to understand TM, most agree that the fundamental goal is to maximise the benefits to the organisation by proactively attracting, developing, and retaining talent (Nittala & Jesiek, 2018). Furthermore, Nittala and Jesiek (2018) found that, despite the claims of the value-added of technical talent to the manufacturing industry, such TM remains a significant concern for organisations. This is often attributed to the intense competition among manufacturers to attract and retain talent as well as the lack of technical KSAs availability. However, no evidence of the best practices of TM in the manufacturing industry has been proven effective in dealing with talent shortage issues (Ali et al., 2017). Hence, these issues further boost the need to systematically review and analyse the TM practice for unique KSAs or employee talents in the manufacturing industry (Muyela & Kamaara, 2021; Iskandar, 2011).

Employers can gain a better understanding of what a talent requires from a job if retention factors are properly set up (Ramli, 2016; Smyth & Zimba, 2019). Thus, TM is one of the retention strategies that continually identifies the factors influencing the decision to stay, specifically among talent with unique KSAs (Ramli, 2016; Yelamanchili, 2018). Moreover, manufacturing employers have started to consider the significance of TM practices in managing their talent pool (Supian et al., 2021; Zheng et al., 2008). In conjunction with the scope of the study, the current SLR study has identified the top three justifications for concerning TM research in the manufacturing industry. This is due to manufacturing talent with unique KSAs:

- 1) continuous high demand to accomplish critical projects and the ability to solve technical issues in all manufacturing stages (Ali et al., 2017);
- 2) continuous shortages in the employment market (Alias et al., 2022; Raja et al., 2021);
- 3) a significant contribution to the manufacturing industry as a dominant key economic indicator (Gallardo-Gallardo et al., 2015; Mahfoozi et al., 2018).

Hence, these are the reasons why an organisation's talent resources are described as valuable, rare, imperfectly imitable, and non-substitutable, particularly in the manufacturing industry (Ogbeibu et al., 2022; Sparrow & Makram, 2015). Narayanan et al. (2019) and Shikweni et al. (2019) reported that TM practices have strong validity for achieving and sustaining competitive advantage for organisations that have specific talents and a unique KSA pool. Henceforth, understanding TM is important because it can be a strategy that covers a wide range of topics and issues relating to talent resources in the manufacturing industry. However, there are still uncertainties when it comes to defining, establishing theoretical

frameworks, and offering empirically-based recommendations TM in the manufacturing industry (Bonsall et al., 2018; Lagali & Ganesh, 2018). Therefore, it is crucial to conduct a comprehensive review to provide academics, practitioners, and other stakeholders with a better understanding of the chronological development of TM literature in the manufacturing industry.

### 3. RESEARCH METHODOLOGY

#### 3.1. Research approach

An SLR methodology was employed in this research to conduct a comprehensive analysis of TM in the manufacturing industry. The purpose of the SLR is to identify, assess, and interpret all relevant research available pertaining to a specific research question, topic area, or phenomenon of interest (Anlesinya et al., 2019a; Sandeepanie et al., 2023). An SLR was chosen as the research method because it is more thorough and up-to-date and can help find other areas that need more research (Anlesinya et al., 2019a; Kravariti et al., 2022; Theodorsson et al., 2022). The SLR is a powerful research method and analysis for assessing the landscape of academic literature on a certain topic and laying the groundwork for academic research. In addition, the use of a systematic approach for selecting review articles decreases bias (Robledo-Ardila & Román-Calderón, 2022; Theodorsson et al., 2022).

#### 3.2. Data collection procedure

The study searched for "talent management", "talent", and "manufacturing", "factory", "plant", "production", or their combination using the Boolean operator "AND" or "OR". The search was conducted in four prominent databases, specifically: Scopus, Web of Science, Google Scholar and Mendeley. Following Kravariti et al. (2022), Anlesinya et al. (2019a) and Theodorsson et al. (2022), the keywords were searched in the titles or topic, abstract and keywords of the articles. No limitation was imposed on the present study, as such a limitation could have hindered the ability to obtain all available literature related to the topic. Nonetheless, the rigorous search discovered publications from 2008 to 2022. Since similar studies of TM literature, in general, have already been done, it is not surprising that TM scholarship in the manufacturing industry began in 2008 (Zheng et al., 2008), management, workforce, and young talents in manufacturing (Perini et al., 2014), conceptual and review articles on TM in manufacturing in various countries (Alias et al., 2022; Deif & Van Beek, 2019; Erbaş et al., 2020; Song & Qi, 2020; Tobón & Vélez-Ramos, 2020) and without any time limitations, the structured literature reviews found other related empirical studies in 2008–2022 publications.

#### 3.3. Inclusion and exclusion criteria

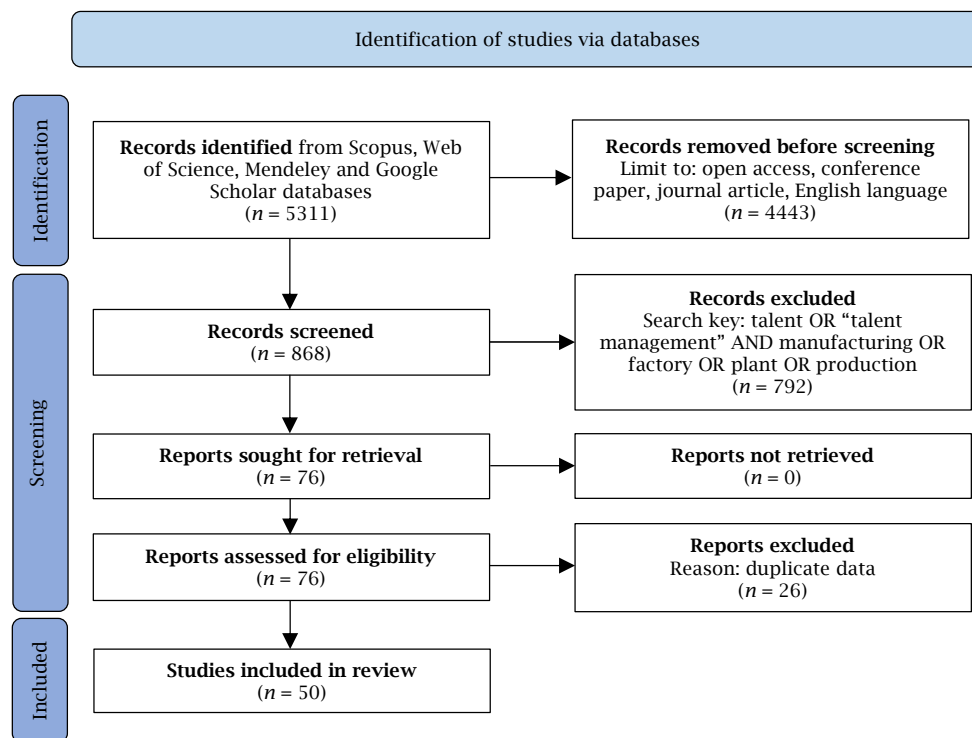
The next step involved the establishment and application of inclusion and exclusion criteria in order to build a comprehensive database of articles exploring the topic of TM in the field of manufacturing. Before conducting the search,

inclusion and exclusion criteria were defined. Only articles published in peer-reviewed journals and conference papers written in English were considered. Additionally, the full-text articles had to be freely accessible (Anlesinya et al., 2019b; Kravariti et al., 2022; Mitosis et al., 2021) in the Scopus, Web of Science, Google Scholar, and Mendeley databases. These criteria ensured that the selected articles met the standards of scholarly research and were readily available for analysis and review. As a result, theses, journal, and conference proceeding articles were included, and other sources, such as book chapters, theses or dissertations, interviews, editorial notes, brief communications and commentaries, symposia, and presentation slides, were excluded from the retrieved articles. Moreover, the articles must focus on the manufacturing context or include any “manufacturing” or “factory” or “plant” or

“production” organisations and must not collect data from a “non-manufacturing” context.

The study followed the preferred reporting items for systematic reviews and meta-analysis (PRISMA) process independently (Kravariti et al., 2022; Moher et al., 2009; Reis et al., 2021). A total of 868 articles were screened, with 401 from Scopus, 333 from Web of Science, 64 from Mendeley, and 28 from Google Scholar. After applying the initial selection criteria, 792 articles were excluded. The remaining 76 articles underwent full-text screening and eligibility assessment. Among these, 26 articles were excluded due to duplicate data. Eventually, consensus was reached on including 50 articles in the final review (see Table A.1, Appendix). The process of article identification, screening, eligibility assessment and inclusion is depicted in Figure 1.

Figure 1. PRISMA flow diagram



Source: Page et al. (2021).

### 3.4. Data analysis

The last stage of the SLR process involves analysing the articles to ensure that the evidence found can be practically applied. In this analytical stage, the qualitative content analysis method is employed. Content analysis is a suitable method for analysing management studies and has been commonly used in existing literature on TM in the manufacturing industry (Kravariti et al., 2022; Theodorsson et al., 2022). It greatly aids in identifying the main contributions of each article to the TM literature, such as determining frequencies and organising articles into related themes. The frame and data-driven inductive logic for open coding were combined, and the 50 selected articles were carefully reviewed. Therefore, it was crucial to define and construct concepts. The researcher needed to have the flexibility to navigate back and forth within

the search data pool as it finished the frame. This was made feasible by using an approach to qualitative content analysis and open-source code (Schreier, 2012). Thus, a method for uncovering concepts in the researcher's data served as the foundation for the construction (Schreier, 2012). As a result, this content analysis was consistent with this review's themes. The coding framework comprised various elements, including but not limited to publishing, years, organisational setting, techniques, theories, aims, purposes, objectives, themes, keywords, and recommendations for future studies. These components were categorised and grouped into themes. These included “talent management”, “talent”, and “manufacturing” or “factory” or “plant” or “production.” In the findings section, the outcomes are presented in further detail.

## 4. RESULTS AND DISCUSSIONS

### 4.1. The trajectory of research on talent management in the manufacturing sector and its publication patterns

Figure 2 illustrates the trajectory of published TM scholarship in the context of manufacturing over the past two decades. TM is considered a “phenomenon”, and its progression can be divided into four stages (Dries, 2013; Gallardo-Gallardo et al., 2015). The first wave occurred between 2008 and 2012, the second wave occurred between 2014 and 2018, the third wave occurred between 2018 and 2020, and the fourth wave occurred between 2020 and 2022. Analysis of bibliometric data reveals that TM research articles in manufacturing occurred

between 2008 and 2012, during its embryonic stage, followed by a second wave between 2014 and 2018, during its growth stage. Even though there was a slight decrease in 2020, this is arguably due to the fact that Authors have no influence over the journal publishing process. In fact, as we know, in 2020, the world was affected by the pandemic COVID-19. However, as the world dealt with and controlled COVID-19, the rate of publication increased significantly in 2021 and 2022. It may be argued that the emerging field of TM in manufacturing is maturing and is expected to make significant contributions to the discipline through academic publications. This growth indicates the establishment of TM in manufacturing as a regulated research field.

Figure 2. Number of articles on TM in manufacturing

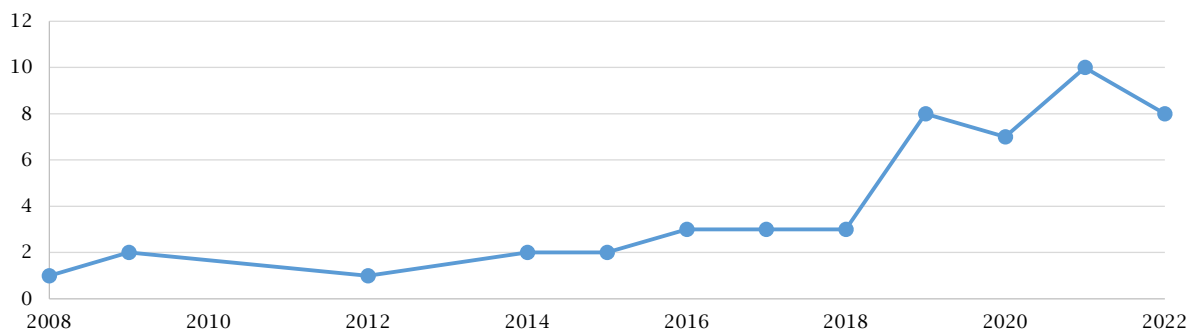
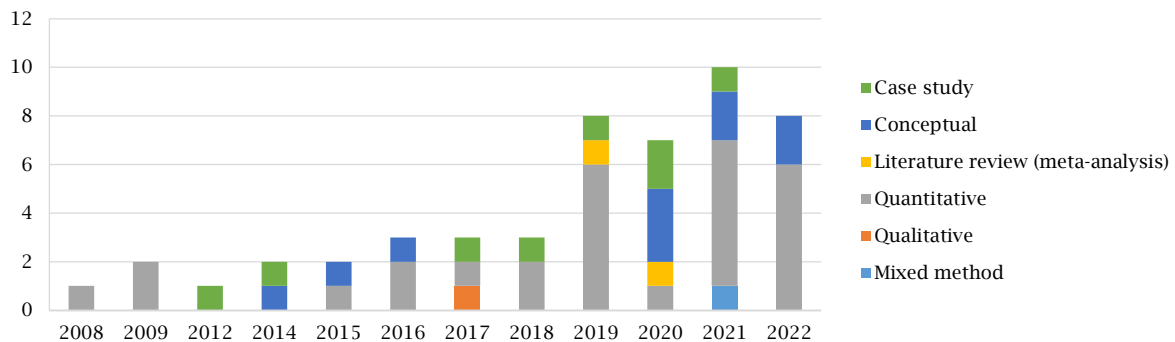


Figure 3. Methodological overview



### 4.2. Research on talent management in the manufacturing sector

Figure 3 shows one-fifth of the conceptual articles were either conceptual proposed models or conceptual reviews, and case studies with expert interviews. This partially contradicts previous researchers' (Anggraini & Ardi, 2020; Honoré & Ganco, 2020; Raja et al., 2021) assertion that more articles of conceptual studies focusing on TM in manufacturing have been developed, but limited causal relationships have been identified. Nonetheless, each year (except 2012 and 2014) has quantitative method publications with empirical findings.

Prior to the emergence of TM in the manufacturing sector, researchers utilised conceptual frameworks derived from other TM research streams (Thunnissen & Van Arensbergen, 2015) to contextualise empirical findings in manufacturing. These frameworks

facilitated an understanding of the unique characteristics of manufacturing (Deif & Van Beek, 2019; Girdharwal, 2019) and established clarity in the area of TM's contribution to this sector. Given the significance of context in developing theoretical models (Thunnissen & Gallardo-Gallardo, 2019) and understanding the manufacturing landscape, conceptual developments specific to TM in manufacturing have proven valuable. They have aided in mapping the TM landscape, providing insights into the unique challenges and opportunities in manufacturing, and facilitating the development of theoretical models that account for the specific context of the manufacturing industry (Lin & Wang, 2022; Perini et al., 2014; Tobón & Vélez-Ramos, 2020). Therefore, it is recommended to conduct periodic reviews to document the conceptual advancements in the field and highlight significant findings for both academics

and practitioners. As a result, the analysis of this SLR revealed the opposing findings of Anggraini and Ardi (2020), Honoré and Ganco (2020), and Raja et al. (2021), where the analysis discovered that approximately two-thirds of TM research in manufacturing are empirical analysis studies.

Methodologically, Figure 4 presents the analysis of publications and found that the majority of empirical studies used quantitative analysis, which is mostly based on survey distribution (Panday & Kaur, 2022; Zheng, 2009). Only two empirical studies used exploratory (meta-analysis) (Deif & Van Beek, 2019; Song & Qi, 2020). Further, mixed-method studies were also found, which combined methods with focus groups or interviews with experts to confirm their study (Lin & Wang, 2022). Based on quantitative research analysis, TM in manufacturing became increasingly popular from 2019 to 2022,

which may be a good reason for the prevalence of quantitative methods. Scholars have focused on using survey questionnaires and statistical analysis to examine the relationships between variables. The variables that have been examined are the various TM practices in manufacturing companies that affect human behavioural outcomes, i.e., employee retention (Subramaniam et al., 2019; Zheng et al., 2008), employee engagement (Setia et al., 2021) and organisational performance (Ali et al., 2017; Augustine et al., 2022). In analysis, the analysis also discovered that there was a significant variance in sample sizes, and the target research group was almost equally made up of all employees or certain group employees with specific KSAs. This demonstrates that this body of literature recognises that diverse human resources have distinct interests and perspectives.

Figure 4. Empirical studies on TM in manufacturing

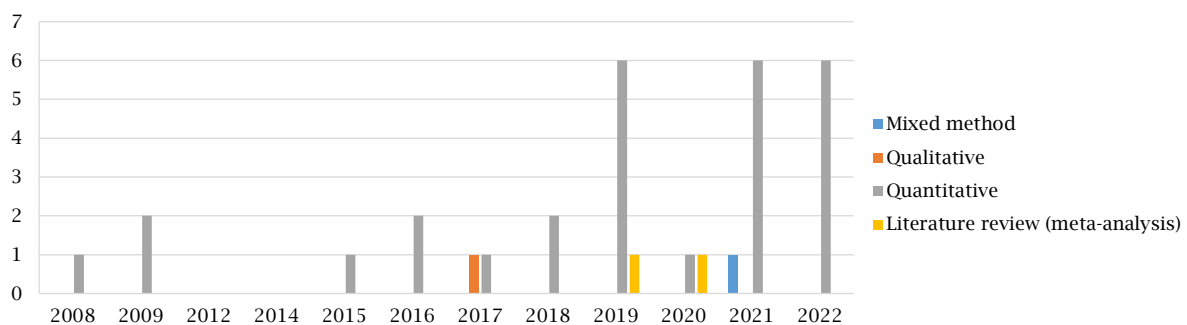


Figure 5. Number of articles by region

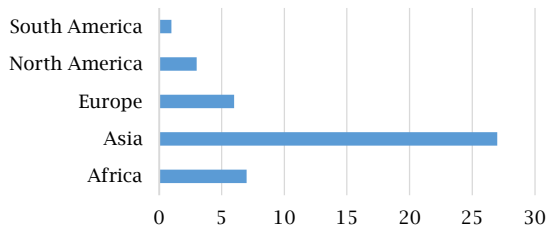


Figure 5 depicts that most of the empirical research focused on Asia, followed by Africa and Europe. Presumably, though continents represent nations with emerging economies and developed countries, manufacturing companies are struggling to attract and retain their employee talents (Alias et al., 2022; Muyela & Kamaara, 2021). Perhaps it was more important to comprehend the contribution of TM to the sustainability of each nation's manufacturing industry. The analysis also revealed that less research has been done in North and South America, as most countries are developed nations where TM is already widely implemented in companies. TM studies in Asian manufacturing companies were mostly done in India, Malaysia, Indonesia, China, and Thailand. Bangladesh, Iraq, Pakistan, Saudi Arabia, and Turkey were other Asian countries with few publications. This supports Zheng (2009), who stated that Asian countries need to implement TM more than other developed countries. As Zheng (2009) also specified, Asian manufacturing employers are urged to adopt a strategic plan to attract, develop, and retain talent within their companies in order to confront the continuous issue of skill shortages in

the Asian labour market. Moreover, emerging economies and countries with a skills shortage suffer from this issue more than developed countries (Latukha & Selivanovskikh, 2016).

According to Muyela and Kamaara (2021), another important finding is that the uncertainties surrounding the concept's definition, as well as the current state of TM literature, are exacerbated by an alarming lack of theoretical advancement in the field. Moreover, the available literature in this field is accompanied by a lack of strong conceptual frameworks (Narayanan et al., 2019) and a lack of theory to explain the conceptual understanding of TM (Sathyanarayana et al., 2019). Through an extensive review, more than half of the publications had lack of theoretical grounding explaining the conceptual understanding, and the rest of the articles adopted a conceptual framework or model, but only some of them were built on theories (see Table 1). It is found that social exchange theory (SET) and/or resource-based view theory (RBV) were the most commonly used, with a few articles drawing on more than one theory (Anggraini & Ardi, 2020; Setia et al., 2021; Ogbeibu et al., 2022). In addition, agency theory, equity theory, expectancy theory, and human capital theory are the other theories that were also used by previous research to explain TM practice in manufacturing. Theoretically, TM research in manufacturing is fragmented. In contrast to other areas of TM research, where theories have only been applied slightly and inconsistently, there has been a lot of progress in this area (Thunnissen & Gallardo-Gallardo, 2019). Thus, the SLR analysis can conclude that research in this field lacks solid theoretical ground, thereby impeding its progress.

Therefore, this study aims to fill theoretical gaps in the literature that were loosely coupling the integration of the TM model specifically in the manufacturing industry with behavioural-related theories (i.e., SET and RBV). The pioneer in RBV, Barney (2001), argued and suggested that a combination of resources or organisational practices that are valuable, rare, and inimitable provides synergies in the value-creation process. Without combining with other resources, no single resource can create or sustain a firm's competitive advantage (Collings et al., 2015). Thus, Lewis and Heckman (2006) stated that due to the ongoing issue of talent shortages, organisations have no choice but to be agile in the market, and to remain agile and sustain a competitive advantage, organisational TM practices ensure the retention level among scarce talents is continuously high. Moreover, SET by Blau (1964) was employed to measure the employees'

social relationships between employers and employees within organisations. The social exchange is more complex as this exchange relates to social behaviour to understand the relationships between individuals, and the benefits gained from social exchange relationships are longer-term, more open-ended, and associated with stronger interpersonal attachments (Blau, 1964; Cropanzano & Mitchell, 2005). Based on extensive SLR analysis, it was found that the combination of TM practices and their exclusive implementation in the talent pool will consequently attract and retain valuable talents with specific KSAs within manufacturing companies. In addition, most of the TM studies have discussed that based on the RBV and SET, specific organisational practices (i.e., TM practices) are able to curb talent shortage and retention issues (Barney, 1991; Ogbeibu et al., 2022).

**Table 1.** Studies in TM in manufacturing included theoretical foundations

<i>Theoretical grounding/Conceptual framework</i>	<i>Scope (reference)</i>
Agency theory	To measure the managerial practices, particularly, TM practices (Basco et al., 2021)
Equity theory, RBV, human capital theory, expectancy theory	To determine the effect of TM on employee performance (Muyela & Kamaara, 2021)
Generational theory, theory of planned behaviour, SET	The behaviour of millennials' talents and factors can affect millennial talents turnover (Anggraini & Ardi, 2020)
SET, RBV	Relationship between TM and individual talent outcomes (Alias et al., 2022; Dalal & Akdere, 2021; Khan et al., 2021)
SET, person-organization (P-O) fit and person-job (P-J) fit theory	A thorough comprehension of talent identification, development, and retention (Björk et al., 2022)
SET, social role theory, leaders-member exchange theory	Effects of TM practices, transactional and transformational leadership styles, and employee engagement (Setia et al., 2021)
Human capital theory	TM on employee performance
RBV theory	Relationship between antecedents and consequences of TM practices, i.e., employer branding (Raja et al., 2021), sustainable employment relationships from a Work 4.0 perspective (Lin & Wang, 2022), intention to leave (Ambrosius, 2018), green hard and soft TM on turnover intention (Ogbeibu et al., 2022)
Fuzzy set theory	Investigating the competency level of employees and obtaining a yield at an optimal level (Karatop et al., 2015)

#### 4.3. The literature on talent management in the manufacturing industry's predominant research topics

The majority of articles examined the implementation of TM in various areas, including retention (Alias et al., 2022; Anggraini & Ardi, 2020), performance and engagement (Khan et al., 2021). Other articles provided framing of what TM practice manufacturing entails (Swart-Opperman et al., 2020; Othman & Sumardi, 2014), factors in TM in managing talents in manufacturing (Girdharwal, 2019) and organisational outcomes (Ali et al., 2017). Given that most articles emphasised the distinctiveness and significance of the manufacturing setting, pointing to areas in which there is contextualised evidence, this was rather expected. Some articles discussed the role of TM on other external factors in the manufacturing industry, as such manufacturing competitiveness (Deif & Van Beek, 2019), fuzzy TM system (Karatop et al., 2015), sustainable social development (Tobón & Vélez-Ramos, 2020), green corporate entrepreneurship (Khan et al., 2021) and marketing intelligence (Al-Ameedi, 2022). Fewer articles focused on how talents in manufacturing are unique and should be managed well. The analysis found a lack of articles discussing and defining specifically individual talent in the studies (Lin & Wang, 2022; Zheng, 2009). The next sections present the results by research topic.

#### 4.4. Talent management practices in the manufacturing sector

To demonstrate that manufacturing organisations value specific KSAs/employee talents (De Boeck et al., 2018), a realistic message about TM must be identified in order to be able to recruit talented candidates (Honoré & Ganco, 2020) and achieve a high employer value proposition (Alias et al., 2022). Furthermore, manufacturing companies can attract and retain talent by demonstrating an understanding of their employment needs. Most of the previous research on TM in manufacturing was focused on keeping talent with the increasingly high attrition rates (i.e., intention to leave, intention to stay, intention to leave, and intention to stay). Talent retention is an ongoing challenge for industries that rely on highly skilled and knowledgeable employees to function (Savanevičienė & Vilčiauskaitė, 2017; Zheng, 2009). With regard to TM in manufacturing, scholars explore how TM is:

- 1) designed and implemented to meet organisational needs;
- 2) attracting, developing, and retaining talent;
- 3) curbing the talent shortage issues.

Manufacturing is an industry that operates using machines, equipment, tools, hardware, or software that are mostly sophisticated with technological advancement to deal with (Song &

Qi, 2020). Hence, in an increasingly innovative and digital global market, countries must attract and, more importantly, retain top talent to foster the growth and advancement of their manufacturing industry (Deif & Van Beek, 2019). The analysis of this study found that most of the articles were on talent retention, where it conceptualised the research framework in respective areas and fields, as well as in different organisational settings and individual talent (Li et al., 2018). Only a few studies use or relate theories as a foundation for their research (Dalal & Akdere, 2021). However, there is still no previous research that has proposed a “one-size-fits-all” TM-retention practice framework or model that effectively works for all different types of talent in the manufacturing industry (Othman & Sumardi, 2014).

In relation to achieving performance-oriented TM practices in the manufacturing industry, Zheng (2009) proposed a strategic approach for recruiting and training employees to enhance the retention of skilled workers. The study focused on multinational manufacturing companies operating in Indonesia, Malaysia, the Philippines, Singapore, Taiwan, and Thailand and their challenges in attracting highly skilled management and professional workers. Girdharwal (2019) further identified seven crucial variables that constitute TM: creativity and advancement, executives, cooperation, interpersonal relations, inspiration, affiliation, and team spirit. The study examined the suitability of these talent measures in developing innovative abilities for executives in the automobile and IT sectors in India. Previous studies found that opportunities for training and development (Ambrosius, 2018), career development/growth (Akanda et al., 2021), and rewards and recognition (Subramaniam et al., 2019) often lead to positive organisational outcomes. The analysis also revealed that TM-retention practices were more focused in the Asian region, where the need for manufacturing employers to achieve a competitive advantage in the market is to keep their valuable talent pool so they are able to face talent shortage issues in this industry.

#### 4.5. Definition and approach to talent and talent management in the manufacturing industry

In manufacturing research, the analysis of the SLR has indicated that the conceptualisation of talent and TM is a prevalent topic. However, many of the reviewed articles lack a clear definition of “talent” or “TM”, highlighting the need for conceptual clarity in both concepts. Nevertheless, some studies have provided definitions of talent or TM by either establishing their own or referencing existing definitions from broader literature and specifically from TM-manufacturing literature. The definition of talent most frequently cited is that of Michaels et al. (2001), which emphasises the unique and strategic attributes of manufacturing talent that contribute to the success of the business. According to this definition, talent encompasses a combination of KSAs that play a critical role in the organisation’s achievements. Talent is characterised by exceptional abilities that allow individuals to excel in complex and challenging tasks both presently and in the future (Sathyanarayana et al., 2019). Individual talent can be an individual

characteristic of entrepreneurs and aspects of corporate entrepreneurship (Deif & Van Beek, 2019). Scholars such as Zheng et al. (2008) describe talent in manufacturing as job-related technical skills that may not have been adequately taught in tertiary institutions to meet the requirements of the manufacturing industry.

From the SLR, Michaels et al. (2001), Collings and Mellahi (2009) and Gallardo-Gallardo et al. (2020) typologies for thinking about talent and TM, manufacturing talent is often perceived as an exclusive group within an organization, consisting of high performers referred to as star workers, “A” type workers, genius employees, highest achievers, key performers, potential employees, and possessors of human capital (e.g., knowledge, skills, abilities, experience, judgment, intelligence, attitude) (Gallardo-Gallardo et al., 2015). While an inclusive approach to TM seems attractive, the exclusive approach is more prevalent in both HR practice and the literature (Blass, 2007; Narayanan et al., 2019; Ready, 2007). As a result, TM in manufacturing undermines the capability of an exclusive approach since it is the most pertinent for future research.

For example, Zheng et al. mentioned in their study *What Sort of Talent are Dragons’ and Tigers’ Manufacturers Fighting for?* (2008, p. 55). In manufacturing operations, talent is more than just an individual’s skills and capabilities at work. It encompasses the collective abilities of all employees that contribute to the achievement of organisational objectives. The success of a manufacturing operation relies on effectively managing and retaining talented employees in key positions (Zheng et al., 2008). This can be supported by Song and Qi (2020), who researched TM in China’s advanced manufacturing industry and referred talents related to the industrial development process, including industry instructors who focus on the overall development of the industry. In some other regions of manufacturing industries, such as Malaysia’s manufacturing (Raja et al., 2021), a person with talent has the innate ease of acquiring a specific ability as a person or as a person with an attitude. In various national contexts, including African manufacturing (Chukwudi et al., 2022), it is recognised that employees’ innate potential plays a crucial role in their current and future performance, ultimately contributing significantly to the achievement of strategic goals. Further, experience — for example, learning, development, and acquisition of KSAs through work experience — is a measure that defines who is considered a talent in Europe, Asia, American automotive supplier manufacturing (Erbaş et al., 2020), and US technology manufacturing (Honoré & Ganco, 2020).

TM, as defined by Collings and Mellahi (2009) and Gallardo-Gallardo et al. (2020), is most commonly referred to in manufacturing as the systematic implementation of specific HRM practices. These practices aim to attract, develop, and retain talented individuals who exhibit high performance or potential. The objective is to enhance workforce productivity and contribute to long-term strategic success and sustainable competitive advantage for the organisation. Manufacturing talent is a unique and strategic resource that is vital to the success of the business,



and their worth is proportionate to their position in the organisation's performance. Hence, TM in manufacturing is the activity of attracting, selecting, developing, and retaining unique and strategic resources to increase workforce productivity to achieve long-term strategic success and a competitive edge (Karalar & Atay, 2009; Lin & Wang, 2022). TM in Asian research is defined as a systematic process that involves the identification of key positions, the development and retention of a talent pool specifically for those positions (Khan et al., 2021; Othman & Sumardi, 2014), and the utilisation of the necessary KSAs of the workforce to meet both current and future business needs (Sahai & Srivastava, 2012). The analysis found that one-third of the reviewed articles took an exclusive approach to TM, while other articles took an inclusive approach. It can therefore be argued that the TM approach in manufacturing is still being mixed up with both approaches, leading to gaps in the field of study.

In some articles, the concept of talent is approached either exclusively or inclusively. In the exclusive approach, talent is limited to a specific group of employees such as managers, leaders, executives, or technical staff. This is based on their significant contribution to the organisation or their demonstrated potential/performance. On the other hand, the inclusive approach considers talent to include all employees, regardless of their position or role within the organisation. However, it is worth noting that a large portion of the reviewed articles (approximately more than half) lack a clear definition of talent and TM. This lack of definition may be attributed more to deficiencies in the research methodology rather than a lack of opinions on the subject (Gallardo-Gallardo et al., 2015). According to Khan et al. (2021), the effort to define TM is preceded by the definition of talent in the respective study itself. Does this imply that organisations implementing an inclusive TM approach are making a mistake? Clearly, the response is "no" (Gallardo-Gallardo et al., 2015). This suggests that each study's purpose and objective were unique, whether it was to examine a specific talent pool or all the employees in that organisation, sector, or industry. As long as the primary ideas and findings of the study are meant to address problems and fill knowledge gaps, the study is considered to be valid. Therefore, the conceptualisation and approach to TM in manufacturing are multifaceted, encompassing various TM practices from the same perspective as the management, attraction, development, and retention of the best talent needed to achieve competitive advantage within a manufacturing organisation.

## 5. DISCUSSION

This SLR demonstrates that TM in manufacturing is a growing field of study and interest in the field has increased dramatically in recent years. The field has not yet reached its maturity stage, as evidenced by the paucity of conceptual and empirical studies on the subject, the majority of which lack a coherent theoretical underpinning. This SLR also shows how fragmented TM research is in manufacturing nowadays. Firstly, the results showed that few

determinants or predictors of TM policy areas that exist within a dominant theme, i.e., TM practice, were examined. According to data from other TM research avenues, some researchers focus on articulating and implementing prevailing TM practices in the areas of talent attraction, development, and retention (Khan et al., 2021; Kravariti et al., 2022; Theodorsson et al., 2022). In addition, TM practices, including organisational behaviour and work-life balance, appear to be under-researched in the manufacturing industry. Secondly, there have not been many attempts to simultaneously explore a "one-size-fits-all" of TM practices focusing on talent identification, attraction, development, and retention of talent pools. This suggests a knowledge gap about how different TM practices cooperate to improve the management of talents, i.e., low retention rates or talent shortages. Consequently, if it is carried out, it may create a new avenue and provide a framework for better organisational outcomes (Alias et al., 2022; Muyela & Kamaara, 2021; Sahai & Srivastava, 2012).

Thirdly, regarding the conceptualisation of manufacturing talent, the study found that it is generally viewed from an inclusive approach, where organisations treat all employees fairly, on the assumption that all employees have the potential to improve the effectiveness of the workforce to improve organisation. The inclusive approach of the whole workforce is based on the idea that most employees, possibly all, are capable and can make a small but significant contribution to the success of an organisation. The study also found that one of the key issues with TM manufacturing studies is the low retention rates of certain talent, particularly individuals with unique KSAs to perform the jobs and achieve organisational goals. There are different KSAs and competencies among talent in manufacturing, proving that the operationalisation of talent is contextual (i.e., environment or organizational setting). Therefore, little is known about the needs for specific talents or KSAs in the manufacturing industry and the nature of these talents as the context of study (e.g., country, type of KSAs or position, unit of analysis) influences the operationalization of talent and TM (Björk et al., 2022; Thunnissen et al., 2013). Furthermore, the lack of research to systematically review the specific and important talents, or KSAs pools, in the manufacturing industries, particularly in the Asian and African regions, as TM manufacturing studies have shown a growth of publications in these regions.

Fourth, apart from that, in addition to an exclusive approach, it can also include the identification of strategic positions in the manufacturing industries (managers, executives, engineers, IT specialists, highly qualified technicians, etc.) that could help to better understand what kind of talent is managed and, above all, to be developed and retained, which is necessary in this context. The exclusive approach views talent as a specific group of highly skilled and high-potential employees who are strategically more significant to an organization's success. According to Chung and D'Annunzio-Green (2018), from an exclusive approach standpoint, managing, identifying, developing, and retaining selected talents may be done more affordably within organisations. Moreover, Othman

and Sumardi (2014) argue that the TM approach is attractive as it aims to be implemented for a wider range of people as different talents are unique. It raises the question of whether organisations' TM practices are simply more sophisticated versions of traditional HRM practices, albeit more complex ones. So, it is trying to develop and retain the whole workforce while working toward different goals, which is more like traditional HRM than the exclusive approach which is synced with the emergence of TM research.

Fifth, the manufacturing industry as a whole is being influenced by various factors, leading to a re-evaluation of TM agendas. Thunnissen et al. (2013) propose categorising these factors into organizational, individual, and societal outcomes. According to McDonnell et al. (2017), it is crucial to adopt nuanced theories to determine the effects of TM at different levels — individual, group, or organisational. This approach could broaden the scope of TM in the manufacturing industry. Further empirical research could investigate the predictors and outcomes of TM practices. Finally, this could indicate that manufacturing companies consider their crucial and valuable KSAs in their operations and companies as a significant indicator of success that requires a specific TM approach, which then affects their decision to stay with the company. If this conclusion is accurate, it may show that manufacturing talents are the most valuable and strategic resources for sustaining competitive advantage (Ambrosius, 2018; Lin & Wang, 2022). Future research should therefore address which talents are in demand. Keeping them is therefore the biggest challenge for organisations or industries.

## 6. CONCLUSION

The literature review conducted in this study took a more comprehensive and focused approach compared to previous ones. Unlike previous literature reviews that focused on specific areas of interest or relied on generic literature, this SLR rigorously reviewed articles covering various topics related to TM in the manufacturing industry over the last fifteen years. By examining the broader manufacturing context, this SLR provided a more detailed and complete account of the current state of knowledge regarding TM in this diverse industry. The first contribution of this study is the sectoral discussion of the field of TM in manufacturing. The second contribution of this study is the recognition of a paradox. Despite the exponential interest in the study of TM in manufacturing, the literature in this field remains fragmented and lacks well-developed theoretical underpinnings. The study suggests that further research is needed to explore and expand upon theories such as SET (Anggraini & Ardi, 2020) and RBV (Muyela & Kamaara, 2021). These theories should be considered in a systematic approach to enhancing manufacturing competitiveness for different companies (Deif & Van Beek, 2019) and contribute to sustainable competitive advantage in the long term (Boonyoo et al., 2019). The study also emphasises the need for both conceptual and empirical work in this area.

This comprehensive review presents the key findings and insights gained from previous studies

on TM in the manufacturing industry. The aim of this review is to provide valuable guidance to practitioners on effectively implementing and enhancing TM practices both at tactical and strategic levels. Additionally, it seeks to raise awareness among manufacturing policymakers and stakeholders about the importance and relevance of TM in their industry. The practical implications derived from these studies highlight the tangible benefits and applications of TM in manufacturing.

Firstly, talent retention. Over the past five decades, academics and management practitioners have shown continued interest in the concept of employee retention, as voluntary turnover is always a key concern for organisations and HRM (Narayanan et al., 2019). This is due to high voluntary turnover among specific and strategic groups of employees in the respective organisations or industries, especially in manufacturing around the world (Al-Ameedi, 2022; Girdharwal, 2019; Zheng, 2009). Since then, researchers have examined and identified various factors, or TM practices, for specific groups of employees that contribute to increased retention rates in manufacturing industries. Thus, an exclusive and inclusive approach to TM emerged (Collings et al., 2015; Collings & Mellahi, 2009; Gallardo-Gallardo et al., 2015).

Secondly, the idiosyncratic conditions that characterise manufacturing make TM imperative for companies of all sizes. In general, manufacturing consists of industry- and operation-intensive sectors with a leading level in terms of technology, process, manufacturing techniques, product quality, elements, and organisational form (Song & Qi, 2020), which require different types of skills, particularly technical ones (Girdharwal, 2019; Sahai & Srivastava, 2012; Zheng et al., 2008), while it is characterised by high employee turnover rates (Subramaniam et al., 2019) and the challenge of talent shortage (Ali et al., 2017; Muyela & Kamaara, 2021). Thirdly, this SLR provides arguments for the development and evaluation of TM strategies in manufacturing, and for the incorporation of TM into practices such as challenging and meaningful work, performance-based pay, and career development opportunities (Sathyanarayana et al., 2019), i.e., potential hazards, noise, dusty conditions with limited ventilation, typical work-shifts, and work routines can be quite monotonous (Subramaniam et al., 2019). TM practices should be implemented and not isolated, as specific aspects of the manufacturing environment.

Thirdly, the SLR also noted that in this digitised economy, manufacturing industries and technological advances cannot be separated, the situation is particularly serious (Al-Ameedi, 2022; Khan et al., 2021). According to Lin and Wang (2022), the World Manufacturing Forum (WMF) highlighted the top 10 skills for the future of manufacturing. These skills encompass both non-digital and digital abilities. Non-digital skills include open-minded thinking, flexibility, creativity, and entrepreneurship, emphasising the importance of adaptable and innovative mindsets in the manufacturing industry. On the other hand, digital skills such as artificial intelligence (AI), data analysis, cybersecurity, and data mindfulness are also emphasised as crucial competencies for the future of manufacturing. The WMF's focus on these skills demonstrates

the recognition of the evolving landscape of manufacturing, which requires a blend of traditional and technological proficiencies.

In the previous SLR, limitations and prospects for advancing the field of TM in manufacturing were discussed. One methodological limitation was the exclusion of non-English articles, as well as opinion papers and editorials. The study focused on scholarly articles published between January 2008

and December 2022, obtained from reputable databases: Scopus, Web of Science, Mendeley, and Google Scholar. While prioritising peer-reviewed journals, there is an opportunity to broaden the inclusion criteria to involve research from different organisational settings and languages. Periodic SLRs should be conducted to expand the research landscape and assess future research directions.

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## APPENDIX

Table A.1. The systematic literature review matrix (Part 1)

<i>Authors</i>	<i>Journal</i>	<i>Research type and design</i>	<i>Geographical context</i>	<i>Research focus</i>	<i>Unit of analysis</i>	<i>Theoretical groundings</i>
Muduli (2008)	<i>International Conferences on Management Sciences and Arts</i>	Quantitative	India	TM practices (recruiting and staffing, competency management, leadership development and assessment, performance management, compensation and succession planning)	All employees	-
Zheng (2009)	<i>Journal of Manufacturing Technology Management</i>	Quantitative	Indonesia, Malaysia, Philippines, Singapore, Taiwan, and Thailand	Issues relating to recruiting highly skilled managerial and professional staff experienced by multinational companies (MNCs) manufacturing	Highly skilled managerial and professional staff	-
Karalar and Atay (2009)	<i>Öneri</i>	Quantitative	Turkey	TM on the employee performance	All employees	-
Sahai and Srivastava (2012)	<i>International Conference on Emerging Economies — Prospects and Challenges (ICEE-2012)</i>	Case study and interview	India	It discusses newly implemented goal setting, performance management and employee development practices of the firm	-	-
Othman and Sumardi (2014)	<i>Emerald Emerging Markets Case Studies</i>	Case study	Malaysia	The approach taken by the company in managing its high performers	-	-
Perini et al. (2014)	<i>IFIP International Conference on Advances in Production Management Systems</i>	Conceptual (review)	-	ManuSkill's innovative approach provides a strong integrated strategy towards attracting young talent	Young talent	-
Karatop et al. (2015)	<i>Computers and Industrial Engineering</i>	Conceptual (proposed model)	-	Investigating the competency level of employees and obtaining a yield at an optimal level from employees' emotional and intellectual capabilities, and experiences	All employees	Fuzzy set theory
Gogate and Pandey (2015)	<i>Indian Journal of Science and Technology</i>	Quantitative	-	A study of the Induction programme of heavy manufacturing industry unit	Employees who have recently joined the company	-
Ližbetinová and Hitka (2016)	<i>Drvna Industrija</i>	Conceptual (proposed model)	-	Solutions to increase the objectivity of identifying talents and planning effectively their further development	Selected talent	-
Muralidhar (2016)	<i>PES Business Review</i>	Quantitative	India	HR practices on job satisfaction and TM among selected talents	Selected talent	-
Ambrosius (2018)	<i>Thunderbird International Business Review</i>	Quantitative	Brazil	Strategic TM practices and employees' intention to leave	All employees	RBV
Ali et al. (2017)	<i>International Business Research</i>	Quantitative	China	Importance of external knowledge management and TM among managerial staff having more than 10-year experience	Staff has more than 10-year experience	-
Moheb-Alizadeh and Handfield (2017)	<i>Logistics</i>	Case study	-	Generalize the problem of managing talent from a supply-demand standpoint through a resource acquisition lens, to an industrial business case	-	Chance-constrained programming (CCP) theory
Savanevičienė and Vilčiauskaitė (2017)	<i>Business, Management and Education</i>	Qualitative	Lithuanian	The choice of exclusive or inclusive TM strategy, the practical application of these strategies in companies	-	-



Table A.1. The systematic literature review matrix (Part 2)

<i>Authors</i>	<i>Journal</i>	<i>Research type and design</i>	<i>Geographical context</i>	<i>Research focus</i>	<i>Unit of analysis</i>	<i>Theoretical groundings</i>
Bonsall et al. (2018)	<i>SSRN Electronic Journal</i>	Quantitative	United States	Managerial talent roles in shaping the clarity of regulated financial disclosures and a firm's information environment	Managerial talent	-
Lagali and Ganesh (2018)	<i>EFFLATOUNIA – Multidisciplinary Journal</i>	Case study and interview expert	India	Various aspects of recession and its impact on effective TM and impact of the recession on TM and retention	-	-
Shaaban (2018)	<i>International Journal of Business and Management</i>	Quantitative	Egypt	The relationships between talent recruitment and talent development, employee engagement and talent retention	All employees	-
Deif and Van Beek (2019)	<i>Journal of Manufacturing Technology Management</i>	Literature review (meta-analysis)	94 countries	The relationship between TM and manufacturing competitiveness (MC) through national culture	-	TM-MC congruence theoretical perspective
Girdharwal (2019)	<i>International Journal of Recent Technology and Engineering</i>	Quantitative	India	The appropriateness of talent measure shapes the ground-breaking ability of the executives	Executives	-
Subramaniam et al. (2019)	<i>Global Business and Organizational Excellence</i>	Quantitative	Malaysia	Organizational initiatives (performance management, rewards and recognition, and hiring and promotion practices) on employee retention	All employees	-
Boonyoo et al. (2019)	<i>Academic conferences, national and international research presentations</i>	Quantitative	Thailand	The relationships between TM, employee engagement, knowledge integration, and sustainable competitive advantage among entrepreneurs	Entrepreneurs	-
Manju and Vimala (2019)	<i>The International Journal of Analytical and Experimental Modal Analysis</i>	Quantitative	India	Training and development on enhancing the talent; and perception of employees about the existing talent pool and the various TM initiatives taken by their organisation	Undergraduates and postgraduates employees	-
Sathyanarayana et al. (2019)	<i>International Journal of Management Studies</i>	Quantitative	India	TM practices influence the intention to stay among talented employee	Middle and higher middle-level employees recognised as talents	-
Foerster-Pastor et al. (2019)	<i>Management and Marketing</i>	Case study and interview expert	Romania	Focused on cooperation and competition amongst private firms of the retail and manufacturing sector that are growing and have the urgency of skilled workforce	-	-
Uddin (2019)	<i>European Journal of Business and Management</i>	Quantitative	Bangladesh	To assess the HR practices and employee intention to stay in the organisation	All employees	-
Anggraini and Ardi (2020)	<i>ACM International Conference Proceeding Series</i>	Conceptual (proposed model) and interview expert	Indonesia	The behaviour of millennials' talents and factors can affect the millennial talents turnover	Millennial talents and 1 HR manager	Generational theory, theory of planned behaviour, SET
Honoré and Ganco (2020)	<i>Strategic Management Journal</i>	Conceptual	United States	The role of prior industry experience in the start-ups' next stage in the hiring of new employees	All new employees	-
Swart-Opperman et al. (2020)	<i>Emerald Emerging Markets Case Studies</i>	Case study	Namibia	Why TM is a vital component and the impact of generation, life stage and career stage on an employee's professional needs, goals and expectations of their firm and develop a TM strategy to address issues and create a sustainable pipeline of talent	-	-

Table A.1. The systematic literature review matrix (Part 3)

<i>Authors</i>	<i>Journal</i>	<i>Research type and design</i>	<i>Geographical context</i>	<i>Research focus</i>	<i>Unit of analysis</i>	<i>Theoretical groundings</i>
Tobón and Vélez-Ramos (2020)	<i>World Review of Science, Technology and Sust. Development</i>	Conceptual (review)	-	Develop talent in people, communities, and organisations, so that they work collaboratively to overcome these problems	-	Theory of sustainable social development
Erbaş et al. (2020)	<i>Uludağ Journal of Economy and Society</i>	Case study and interview expert	Europe, Asia, and North America	Examine the TM process and find the gap between application and no application of TM	-	-
Song and Qi (2020)	<i>Advances in Economics, Business and Management Research</i>	Literature review (meta-analysis)	China	Constructs the Chenery-Selquin talent structure model	-	-
Unachukwu and Nzewi (2020)	<i>Global Journal of Management &amp; Social Sciences</i>	Quantitative	Nigeria	TM on employee performance	All employees	Human capital theory
Raja et al. (2021)	<i>Estudios de Economía Aplicada</i>	Conceptual (proposed model)	Malaysia	Relationship between employer branding and TM and assess the effect employer branding on TM	All employees	RBV
Al-Oumi and Al Doubi (2021)	<i>EPRA International Journal of Multidisciplinary Research (IJMR)</i>	Quantitative	Saudi Arabia	TM strategies in improving the strategic performance of all employees	All employees	-
Dalal and Akdere (2021)	<i>Human Resource Development Quarterly</i>	Quantitative	India	Relationship between TM and employee job-related outcomes among full-time employees	All employees	RBV, SET
Ganesh (2021)	<i>Academic Discourse</i>	Conceptual (proposed model)	India	Takes interest in introspective parameters on TM for the service and manufacturing industry among all employees	All employees	-
Muyela and Kamaara (2021)	<i>Journal of Human Resource Management</i>	Quantitative	Kenya	TM on employee performance	All employees	RBV, human capital theory, equity theory and expectancy theory
Supian et al. (2021)	<i>Selangor Business Review</i>	Quantitative	Malaysia	Recruitment practices and TM	All employees	-
Gillberg and Wikström (2021)	<i>Journal of Organizational Effectiveness</i>	Case study and interview expert	Scandinavia	Performing TM and reassessing the relationship between TM practices and outcomes	-	Status characteristics theory
Khan et al. (2021)	<i>Frontiers in Psychology</i>	Quantitative	Pakistan	The role of TM practices in promoting green corporate entrepreneurship	All employees	SET, RBV
Setia et al. (2021)	<i>Turkish Journal of Computer and Mathematics Education</i>	Quantitative	Indonesia	The impact of transformational & transactional leadership style and TM practices towards employee engagement	Women leader	Social role theory, SET, leaders-member exchange theory
Basco et al. (2021)	<i>Journal of Management and Governance</i>	Mixed methods	United States, France, Germany, and the United Kingdom	To measure the quality of managerial practices, specifically, TM practices	Plant managers	Agency theory
Lin and Wang (2022)	<i>Sustainability</i>	Conceptual (review)	-	Factors influencing talent retention for the development of sustainable employment relationships from a Work 4.0 perspective	-	RBV
Al-Ameedi (2022)	<i>Journal of Positive School Psychology</i>	Quantitative	Iraq	Role of TM in supporting and enhancing marketing intelligence among executive leaders	Executive leaders	-
Alias et al. (2022)	<i>International Journal of Academic Research in Business and Social Sciences</i>	Conceptual (proposed model)	Malaysia	The exclusive approach of TM practices in predicting engineers' ITS	Manufacturing engineers	RBV, SET
Augustine et al. (2022)	<i>Journal of Global Economics, Management and Business Research</i>	Quantitative	Nigeria	Effect of talent planning, employee development and compensation/reward on organisational performance among all employees	All employees	-

**Table A.1.** The systematic literature review matrix (Part 4)

<i>Authors</i>	<i>Journal</i>	<i>Research type and design</i>	<i>Geographical context</i>	<i>Research focus</i>	<i>Unit of analysis</i>	<i>Theoretical groundings</i>
Chukwudi et al. (2022)	<i>International Journal of Business Management</i>	Quantitative	Nigeria	Talent acquisition, talent retention, and career development on a firm's profits and market expansion	All employees	-
Panday and Kaur (2022)	<i>SCMS Journal of Indian Management</i>	Quantitative	India	TM factors associated with employee retention among technical employees	Technical employees	-
Ogbeibu et al. (2022)	<i>Journal of Intellectual Capital</i>	Quantitative	Nigeria	The roles of green hard and soft TM on the turnover intention from 49 manufacturing organisations	Leaders were in charge of groups	RBV-VRIO concept (of valuable, rare, imperfectly imitable and organised for value capture), stakeholder theory
Björk et al. (2022)	<i>Frontiers in Psychology</i>	Quantitative	Finland	Focusing specifically on a key TM practice, talent identification, and the social dimension of employee wellbeing	All employees	SET, P-O fit and P-J fit theory