Blue-collar workers, career success and innovation in manufacturing

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Abstract

Purpose: The research seeks to contribute to the understanding of the relationship between employees' knowledge and organisational performance.

Design/methodology/approach: Using a structural equation model, feedback received from 237 blue-collar workers from multinational high-tech manufacturing enterprises in Italy was studied to understand, from a dynamic capabilities perspective, the role of soft skills in the career success of production workers.

Findings: The results of the analysis indicate a positive relationship between workers' commitment to develop their soft skills and their career success, as well as a positive relationship between an organisation's approach to both knowledge exploration and knowledge exploitation and the prospects for career success of blue-collar workers.

Research and implications: The research has both theoretical and practical implications, as any efforts by researchers and practitioners to find effective ways to motivate the workforce will be likely to lead to a positive attitude towards learning and, ultimately, to improved business performance.

Originality/value: The originality of the paper is the focus on the personality and interpersonal attributes of workforce -blue-collar workers-and how they can affect business performance in highly innovative contexts.

Keywords: career, career development, organisational performance, knowledge management, structural equation modelling.

Classification: **Research Paper.**

1. Introduction

Creativity, social intelligence, innovativeness and complex problem solving are among the most notably cross-domain competences required by the Industry 4.0 paradigm to support innovation, decision making, and to respond to wicked problems (Schinner et al., 2017). As soft skills become more critical in the knowledge economy, over time organisational performance will rely less on technical skills (Paré and Tremblay, 2007). As a consequence, a growing volume of research seeks to fill the conceptual gap between soft skills and occupational outcomes, with several scholars arguing that workers should develop adaptive expertise, integrating theoretical and practical knowledge through reflective practices (Rüßmann et al., 2015). Addressing this gap requires a reshaping of talent management, learning processes, and knowledge management systems (Shah et al., 2017). Such concepts are often intertwined and highly dependent on employee learning, a product of the combination of their soft skills and practical experience. It has been found that when guided, facilitated and coordinated through the leadership of trusted managers and supported by efficient and well-established processes, employees are enabled to develop their learning skills (Singh, 2011).

A plausible approach to address this challenge is offered by the studies on Knowledge Management (KM) and, more specifically, by the concept of a learning organisation as a construct based on the combination of knowledge, the organisation, its human resources, and technology (Senge, 2014). This explains why KM studies have often been related to the Human Resources Management (HRM) field, or its contributions to the processes of evaluating, addressing and improving firms' performance by increasing the productivity of its employees (Oltra, 2005). For example, Armstrong and Baron (2000) considered HRM as a strategic personnel management domain, which focuses on the organisation and the motivation of its people to share their knowledge. Garavan et al. (2000) expanded on this by outlining the role of HRM strategies in organisational learning through three key KM processes that require: 1) the development and implementation of KM strategies, 2) the building of relational network to support knowledge sharing, and 3) the definition of a double-loop learning. Yahya and Goh (2002) described KM as an evolution of HRM based on the use of Information Technologies to support human interactions and collaboration processes. However, despite a common view on the relevance of employees' knowledge for organisational performance, a review of the literature on knowledge management and human resources management suggests a lack of common understanding and approach to career development between the two disciplines (Di Nauta et al., 2015).

This research has been conducted to explore, from a dynamic capabilities perspective, the role of soft skills in the career success of production workers. Our aim is to operationally assist the sustainability, adaptation, innovation, and growth orientation of smart manufacturing companies by studying the extent to which knowledge management capabilities and soft skills determine the career success of production workers.

The study develops a theoretical model aimed at analysing the extent to which knowledge management determines the career success of production workers in knowledge-intensive contexts. Starting from the pivotal works of Cohen and Levinthal (1990) Zahra and George (2002), and Parente et al., (2012), we investigate the extent to which soft skills mediate the relationship between the exploratory, transformative and exploitative capacities of blue-collar workers, and their career success.

The paper is structured as follows: section 1 introduces the theoretical background of the research; in section 2, hypotheses are developed; section 3 describes the methodology used for the collection and analysis of data; results of the data analysis are presented in section 4, followed by a discussion of the research findings, its limitations, and concluding remarks.

2. Theoretical Background

2.1 The role of knowledge management in workers' career success

The concept of human capital refers to all competencies of the people within an organisation, including skills, education, and experiences, potential and capacity. It is considered a pillar of competitive advantage (Memon et al., 2009; Richard, 2001). Effective managing its human capital enables organisations to measure and manage it effectively (Hitt et al. 1998; Afiouni, 2007; Del Giudice and Maggioni, 2014; Vrontis et al., 2017).

The Becker's (1975) human capital theory suggests that individuals that invest the most in human capital attributes such as education, training, and experience are expected to show higher performance and subsequently obtain higher rewards. Those rewards are not only financial incentives but also include opportunities for continuous progression and career development within the organisation. Recent empirical evidence supports the positive reletationship between human capital variables and career success (Ng et al., 2005; Vicentini and Boccardelli, 2016), defined as "*the accomplishment of desirable work-related outcomes at any point in a person's work experiences over time*" (Arthur et al., 2005, p. 179). On the same vein, Hall and his colleague have focused on the subjective perspective of the individual career actor who faces the external career realities of the contemporary business environment (Hall & Moss, 1998).

Taking the above into account, this research focuses on the individual as a driver of their own human capital development by maximising education and skill investments for achieving career success, a process that is facilitated by organisational structures and behaviours, including, for example, a learning-oriented culture. In this context, individual- and organisational-learning variables found in the literature become particularly relevant. As greater personal attributes enable individuals to perform better, managers at all levels are faced with the challenge of actively managing both individual talent and also the collective skills and aptitudes of the workforce (Ballout, 2007). Knowledge management therefore offers the variety of strategic practices and tools, stimulating individuals' capability to manage the processes of knowledge acquisition, sharing and application, as well as creative and innovative thoughts that may eventually lead to better innovation performance (Chen & Huang, 2009).

2.2 How Soft skills contribute to Career Success

As human capital can enhance employee career attainment, it is frequently examined as a predictor of career success (e.g., Judge et al., 1995). However, literature on this subject has scarcely investigated the ways through which human resources can react to the increasing pressures brough by information technology developments and their effects on the career success (Paré & Tremblay, 2007). Specifically, we refer to the advent of the Industry 4.0 paradigm, or the fourth industrial revolution, which is leading to the digitisation of most industrial processes. Despite the important role of HRM and human capital in tackling the emerging context, which is now well-established and widely discussed in the literature (Del giudice & Della Peruta, 2016; Vrontis et al., 2017), significant gaps still remain.

According to Parasuraman (2000), technology has a strong impact on the ability of human resources to appreciate the value proposition of new systems which depend on the individual's ability to use the technology, previous experiences, and willingness to be engaged in innovation. As companies turn to Industry 4.0, human resources need to acquire new skills and knowledge (Manyika et al., 2013). This issue is more relevant in the manufacturing industry, where a continuous and intense review and updating of knowledge contents and delivery schemes is required. As Ras et al. (2017) pointed out, tasks needed in the Industry 4.0 context are more interdisciplinary and combine, for example, technical elements, data analytics, and business administration. Thus, individual factors that affect employees' career success are playing a strategic role (Seetha, 2014). In this highly competitive marketplace, technical skills alone are no longer sufficient to advance employees' careers (Lazarus, 2013). This, in turn, has led several studies to consider soft skills as one of the drivers to achieve manufacturing competitiveness (Seetha, 2014; Carayannis et al., 2018). In this context, we refer to

blue-collar workers, also named "shaded-collar workers", as those human resources that master cross-domain functions partly or fully handled by machines (WEF, 2016). Thus, we advance the idea that soft skills could be recognised as the most powerful personal trait employees need in order to handle cross-domain functions, improve individual performance, and gain career success. Thus, we hypothesise the following:

Hp1: *In highly innovative contexts, there is a positive and direct relationship between soft skills and career success*

2.3 Internal and external dimensions of knowledge management

Organisational learning is considered as a key strategic driver to increase performance and innovation (March, 1991; Carayannis et al.., 2017; Peruffo et al., 2018;). The concept can be described as a combination of a set of explorative structures and exploitative practices within the organisation, that is, referred to organisational ambidexterity (Cegarra-Navarro et al., 2018; Vrontis et al, 2017) Explorative structures within the organisation are those which enable its workforce to interact with their stakeholders and learn about new possibilities and challenges related to the use of innovative approaches (Mom et al., 2007). Exploration-related activities create new areas of competency –both individual and organisational-, extending the firm's capabilities and involving new combinations of resources. Exploitative practices, on the other hand, are based on the existing firm's capabilities and procedural knowledge essential to support processes such as development, decision making, production, efficiency, selection, implementation or execution of business processes (Lee et al., 2012). Thus, organisational learning and the resulting proclivity towards improved performance are determined by both the firm's inward and outward focus, reflected on a set of knowledge processes directly related to organisational ambidexterity (Salavou et al., 2004). The combination of explorative and exploitative structures determine knowledge needed to improve performance, creativity, innovation, and competency not only at an organisational but, mainly, at an individual level.

Organisational culture is another factor described as an imperative to increase KM (Davenport et al., 1998; Martensson, 2000) and improve performance (Den Hartog et al., 2004). Organisational culture is defined as the common set of beliefs, values, norms and customs that control the behaviour of members of the organisation (Martins & Terblanche, 2003; Vicentini, 2013). Organisations are expected to encourage and develop a culture characterised by the values of tolerance to uncertainty, openness to challenge, and trust, which enables learning and improved performance (Lin and McDonough, 2011). A learning-oriented culture facilitates professional development, shared values, beliefs, traditions, philosophies, rules, and role models. Culture is a heterogeneous element across different organisations, which drives the behaviour of companies towards either the exploitation of existing practices or the exploration of new knowledge and related opportunities (Al Saifi 2015).

Here, again, knowledge exploration and exploitation define the corporate culture of an organisation, which is recognised as an important component of any strategy potentially leading to its success (Irani et al. 2004). Simonin (2004) described performance improvements in terms of both tangible (e.g. financial) and intangible (e.g. knowledge processes, a learning-oriented culture and other knowledge-based) benefits. From this perspective, the presence of ambidexterity within the organisation allows knowledge acquired by employees and subsequently released and assimilated by the company, to become part of the organisational memory (Hung et al. 2010). Such ambidexterity would have a direct effect on the personal and professional development of staff by enhancing their capabilities and skills in line with expectations of both the individual and the business. Explorative and exploitative structures and an organisational learning culture form the basis of an entrepreneur and ambidextrous behaviour within the organisation (Del Giudice et al. 2013; Vrontis et al., 2017). Such entrepreneurial behaviour promotes a commitment to learning and a capacity for knowledge acquisition and transfer among employees, facilitating professional development, and nurturing learning-oriented values, beliefs, philosophies, rules, and role models. The potential effect of the organisation approach to ambidexterity on the personal and professional development of its workforce led us to hypothesise the following:

Hp2: *There is a positive and direct relationship between companies approach to knowledge exploration and blue-collar workers' career success.*

Hp3: *There is a positive relationship between companies approach to knowledge exploitation and career success.*

2.4 The role of soft skills in the knowledge management perspective

The fast development of technologies and the rapidly changing markets, combined with increased global competition and changing customer demands, implies that a firm's focus on production capacity and cost reduction can only generate a temporary competitive advantage (Memon et al., 2009). In this scenario, KM has already been recognised as a key managerial process necessary for achieving competitive advantage (Carayannis, 1999; Dias and Bresciani, 2006). Specifically, it is assumed that tangible resources are sources of competitive advantages only when they are applied with certain knowledge (Grant, 1996), consequent with the difficulty of imitating knowledge (Nonaka, 1994; Spender, 1994; Nonaka and Takeuchi, 1995; Soto-Acosta and Merono-Cerdan, 2008). In the current dynamic environment, firms need to heighten Knowledge Management Capacity (KMC).

The ability to maintain internally developed technology over time is important for corporate vitality. Garud et Nayyar (1994) referred to this ability as transformative capacity. Thus, transformative capacity refers to the process stages of maintaining knowledge in a firm's knowledge base and subsequently reactivating this knowledge (Walsh and Ungson, 1991; Garud and Nayyar, 1994). According to Parente et al. (2012), soft skills are the interpersonal and life skills that help people to share effectively their hard skill, that could enhance knowledge transformation. Since the term 'transformative capacity' indicates that knowledge is transformed if firms maintain knowledge over time and reactivate it subsequently, skills such as motivation, commitment level, and reliability are assuming a critical role (Parente et al.,2012). Soft skills needs of motivation and enthusiasm are important to the IT sector indeed (Wahl et al., 2012). Thus, we hypothesise that:

Hp4: *There is an indirect relationship between companies approach to knowledge transformation and career success mediated by the blue-collar workers approach to motivation, commitment, and reliability.*

The hypotheses outlined in this section can be represented in the conceptual framework in figure 1

Figure 1. Research design
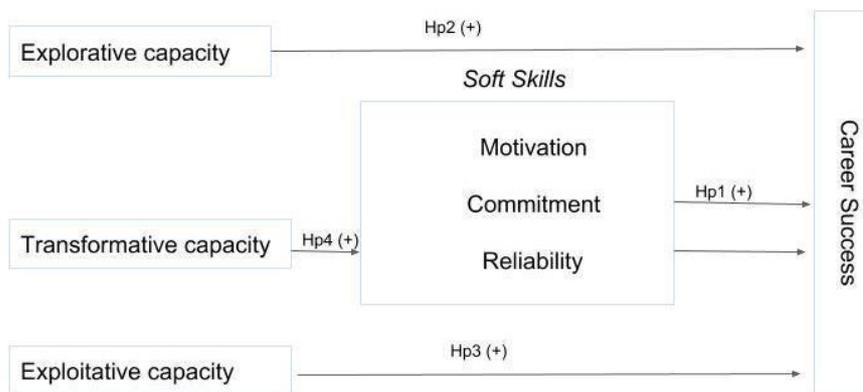
3. Methodology

3.1 Research design

To measure the relationship between three variable: knowledge management capabilities, soft skills, and career success, we conducted a survey. The in-house survey was structured by the measures and items included in the table 1, which were introduced on the basis of a careful literature review. The questionnaire was structured in two sections and 23 items, using a five-point Likert scale in which 1 means 'strongly disagree' and 5 means 'strongly agree'. The value of each variable was defined by

their items' average. The first section investigates via 8 items the KM capabilities. The second section investigates via 15 items soft skills and career success. The items are formulated on the basis of the extant literature on the topic of Soft skills and Career Success in the light of KM. In order to avoid interpretation problems, the questionnaire was tested on a sample of 28 workers from different cities. According to Lewis et al. (2005), the sample can be considered relevant and therefore sufficient for a pilot test. The analysis of the results of the pilot test didn't show any comprehension or ambiguity concerns. Measures chosen to investigate the variables are as follows:

Table 1. Measures and items

Measures	Items	Sources
Knowledge management capabilities	Exploratory Capacity Transformative Capacity Exploitative Capacity	Rosenbaum, 1989; Aryee et al., 1994; Raisch & Birkinshaw, 2008; Cegarra-Navarro et al., 2018
Soft Skills	Motivation Commitment Level Reliability	Parente, Stephan, & Brown, 2012; Wahl et al., 2012
Career Success	Salary level Promotions Career Satisfaction	Judge et al., 1995; Seibert et al., 2001; Burke, 2001

To validate the questionnaire, we distributed it to a population of 495 blue-collar workers employed in multinational manufacturing enterprises. Of the total sample, 85 did return incomplete questionnaires, 173 have not provided any response. After identified unsuitable case, the answering rate was 47.8 per cent. According to Baruch & Holtom, (2008), we considered responding rate as acceptable. Hence, 237 usable questionnaire responses were obtained. The questionnaire was delivered with a cover letter describing the purpose of the research. Data were collected over a period of 6 months.

3.2 Sample

The final sample size includes 237 cases for the analysis. In order to analyse better the relationship between knowledge management capabilities and career success of the blue-collar workers, the context for the conduct of the research consisted of a number of organisations operating in a knowledge intensive industry within the context of the Italian high-tech manufacturing sector.

Therefore, the authors chose to base the research in Italy in order to generalise findings to other modest innovator countries, such as Spain and Portugal, affected by lower investments in intangible assets and modest productivity growth (European Commission, 2017). To analyse companies directly affected by Industry 4.0 framework (automation, cloud computing, etc) and to find managerial implications, the context for the conduct of the research consisted of multinational enterprises (MNEs). As Rieple et al., (2012) underlined Industry 4.0 is increasingly at the centre of managers' agendas but despite efforts, it still represents a chimera for small and medium enterprises (SMEs), curbed by the lack of a culture of innovation, operational vision and digital leadership, very confused about actual return on digital investments. The main development procedures of such stage are for smart manufacturing, i.e. the total digitisation of industrial processes, integration and interconnection between different aspects of production and between departments and functions. As a matter of fact, while MNEs may enjoy of the advantages of their large dimension, SMEs don't have so easy access to internal and external sources of innovation.

Thus, the authors sought to engage MNEs in the conduct of the research. According to Dunning (2002), multinational companies should be defined as firms involved in productive activities beyond their incorporated country. Their engagement in foreign involvement depends on the comparative ownership advantage and host country firms and the comparative location endowments of home and foreign countries. As MNEs are subject to an increasing pressure to successful integrate across borders and respond to local demands, they should locate resources where they are best utilised, building an interdependency among units that is constantly shifting. These companies should manage the utilisation of their resources and to improve coordination and control in order to maximise returns. The above considerations led to the Authors relying on data from a sample of 237 operational-level employees of 5 high-tech multinational manufacturing enterprise located in Italy. The questionnaire was submitted to operational positions at a sample of high-tech manufacturing multinational companies located in Italy. The choice of manufacturing was motivated by the willingness to analyse indirect effects of Industry 4.0 on this sector. Industry 4.0 is improving the establishment of intelligent products and production processes. In future manufacturing, factories have to cope with the need of rapid product development, flexible production as well as complex environments (Vyatkin et al., 2002). Within the factory of the future, also considered as a smart factory. Since many tech jobs have gone from white collar to blue-collar, companies should manage the communication between Cyber Physical Systems (CPS), operational workers, machines and products alike (Einsiedler, 2013)

3.4 Data analysis

The next step in the research consisted of an assessment of the hypotheses, that is, an evaluation of the following correlations between constructs as shown in Figure 1.The correlations were assessed by using structural equation modelling (SEM). SEM is a second-generation data analysis technique that enables researchers to answer interrelated research questions in a single, systematic, and comprehensive analysis by modelling the relationships among multiple independent and dependent constructs simultaneously (Gefen et al., 2000; p.3-4). A careful review of the literature informed our decision to classify each relevant construct as either latent exogenous and endogenous variables.

Exogenous variable

Knowledge Management related capabilities was defined as an exogenous variable and correlated to environmental responsibility, considered by Ayuso et al. (2006) as its antecedent. Knowledge management related-capabilities is defined by a combination of Exploratory capacity, Transformative capacity and Exploitative Capacity (Santoro and Usai, 2018).

Endogenous variables

Soft skills and *Career success* were defined as endogenous variables.

Soft skills was understood as a combination of Motivation, Commitment Level, Reliability (Parente et al., 2012; Wahl et al., 2012).

With regard to *Career success* as a variable, Salary level and Promotions are generally considered as proxies for success (Greenhaus, 2003; Sullivan, 1999). Moreover, career satisfaction captures the breadth of dimensions upon which people react to their careers. In line with the analysis carried out in previous sections, career success has been be understood as a combined effect of objective (or extrinsic) and subjective (or intrinsic) factors. The first one refers specifically to aspects evaluated objectively, such as salary attainment and the number of promotions (Judge et al., 1995). The second one, capture individuals' subjective judgments about their career attainments, such as job and career satisfaction (Burke, 2001; Seibert et al., 2001). Our understanding of the hypotheses and the variables to be studied enabled the assessment of total of 237 responses to a web-based survey, using SmartPLS (Ringle et al., 2012). We used a bootstrap technique to evaluate the correlations between the variables, which allowed for simulation of a larger sample size by redrawing records already in the sample, and in this particular case, place the drawn record back into the sampling pool to potentially be picked again (Nejati et al., 2014: p.2032). On these premises, the pathway for data analysis was structured as follows:

- The reliability of data obtained through the survey was measured using Cronbach's alpha (Hinkin, 1995).

- The unidimensionality of the model was verified by investigating the Factor Loading (FL) of each item (Bentler, 2007).

- The convergent validity was measured by using the composite reliability (CR) and the average variance extracted (AVE) (Westen & Rosenthal, 2003).

- The discriminant validity was tested by comparing the square root of AVE for each construct with the correlation coefficients among the constructs (Garver & Mentzer, (1999).

- The hypotheses were tested using structural equation modeling (Bielby & Hauser, 1977).

- Finally, the fitting of the model was verified through the use of fitness indexes such as the normed fit index (NFI), the chi-square-to-degree-of-freedom ratio ($\chi 2/df$), the comparative fit index (CFI), and the goodness of fit index (GFI) (Lomax & Schumacker, 2004).

The following section describes the results of each stage of the data analysis.

4. Findings

4.1 Unidimensionality, reliability, and convergent validity

Table 1 shows the Factor Loadings (FL) coefficients for each item, the Cronbach's alpha (α), the composite reliability (CR) and the average variance extracted (AVE) coefficients for each construct.

Table 1. *Results for unidimensionality, reliability, and convergent validity*

Constructs	Items	FL	α	CR	AVE
Knowledge exploration capacity (EXPLR)	$EXPLR_1$	0.563	0.901	0.792	0.594
	$EXPLR_2$	0.587			
	$EXPLR_3$	0.812			
Knowledge exploitation capacity (EXPLT)	$EXPLT_1$	0.713	0.742	0.703	0.546
	$EXPLT_2$	0.682			
	$EXPLT_3$	0.752			
Knowledge transformative capacity (TRANS)	$TRANS_1$	0.764	0.827	0.802	0.652
	$TRANS_2$	0.634			
	$TRANS_3$	0.901			
Blue-collar workers approach to soft skills towards motivation, commitment and reliability (BCWSF)	$BCWSF_1$	0.763	0.712	0.748	0.627
	$BCWSF_2$	0.543			
	$BCWSF_3$	0.912			

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Blue-collar workers career success (BCWCS)	BCWCS$_1$	0.798				
	BCWCS$_2$	0.532	0.702	0.792	0.598
	BCWCS$_3$	0.763				

Note: Items with a factor loading lower than 0.5 have been removed.

According to Hair et al. (2006), the unidimensionality is respected when the items have FL of 0.5 or higher. In accordance with Nunnally (1978), the reliability is achieved when the constructs have an α value of 0.70 or greater. Finally, the convergent validity is assured when the CR coefficients are equal or higher than 0.7 and the AVE coefficients are more than or equal to 0.5 (Hair et al., 2006). As the results in Table 1 show, all the identified cut-off values were exceeded.

4.2. Discriminant validity

Table 2. *Results for discriminant validity*

	EXPLR	EXPLT	TRANS	BCWSF	BCWCS
EXPLR	*0.913*				
EXPLT	0.827	*0.802*			
TRANS	0.593	0.413	*0.654*		
BCWSF	0.593	0.635	0.573	*0.712*	
BCWCS	0.902	0.619	0.536	0.418	*0.643*

Note: Italics in the diagonal: square root of AVE value for each construct.

According to Hair et al. (2006), discriminant validity is achieved when the square root of AVE for each construct is greater than the correlation coefficients among the constructs.
As the results in Table 2 show, the square root of AVE for each construct are greater that the related correlation coefficients among the constructs. Therefore, the discriminant validity is achieved.

4.3. Structural Equation Modelling

The hypotheses were tested via the Structural Equation Modelling (SEM) and the results are reported in the following Table 3.

Table 3. *Hypotheses Testing Results*

Hypotheses	Standardised regression coefficient	P-Value
H$_1$ (+): Blue-collar workers approach to soft skills towards motivation, commitment and reliability → Blue-collar workers career success	0.327	0.021

H$_2$ (+): Companies approach to knowledge exploration →blue-collar workers career success	0.218	0.012
H$_3$ (+): Companies approach to knowledge exploitation → blue-collar workers career success	0.237	***
H$_4$ (+): companies approach to knowledge transformation → career success vua blue-collar workers approach to motivation, commitment and reliability	0.427	0.003

Notes: ***: is significant at the 0.001 level (two-tailed).

With reference to the results of SEM, the hypotheses which a probability value (P-value) was greater than 0.05 were refuted. As shown in Table 3, all the hypotheses have a P-value lower than 0.05, then they are considered significant and accepted.

4.4. Fitness indexes

To verify the fitness of model some fitness indexes were measured (Table 4)

Table 4. *Fitness indexes*

Index	Value	Cut-off value
normed fit index (NFI),	1.27	> 0.90 (Hu and Bentler, 2007)
the chi-square-to-degree-of-freedom ratio ($\chi2/df$)	2.74	≤ 3 (Byrne, 2001)
the comparative fit index (CFI)	1.03	> 0.90 (Hoe, 2008)
and the goodness of fit index (GFI)	0.93	> 0.90 (Jöreskog and Sörbom, 1996)

As shown in Table 4, all the identified indexes overcome the cut-off values. Therefore, the conceptual model can be considered validated.

5. Discussion

The results of empirical study show that all the hypotheses were confirmed. More specifically, from the results of the structural equation modelling it emerges that there is a positive relationship between blue-collar workers approach to soft skills towards motivation, commitment and reliability and their career success (H$_1$). This finding can be considered aligned with previous studies about Soft skills. As pointed out, adequate levels of soft skills are considered desirable for moving forward in the career (Mitchell et al., 1999). From the empirical study it also emerges that there is a positive relationship between organisations' approach to knowledge exploration and blue-collar workers career success (H$_2$). Our empirical study shows that there is a positive relationship between Companies approach to knowledge exploitation and employee career success (H$_3$). These results are coherent with previous empirical and theoretical contributions in the field of career success and Knowledge Management. Exploring and exploiting knowledge could enhance employee satisfaction through a sense of self-efficacy. This, in turn, affects career success. Coherently, Eby et al. (2003) observed a positive association between employees' skill building and career satisfaction as well as perceived

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marketability. Finally, it was found that there is a positive relationship between companies approach to knowledge transformation and career success mediated by employee soft skills towards motivation, commitment and reliability (H4). This finding is aligned with previous studies about individual competencies, individual and organisational learning and knowledge management. Motivation, commitment and reliability could affect employees learning process. Transformative knowledge capacity can support individual learning based on conversion of explicit knowledge to personal tacit knowledge. Since transformative capacity refers to the the process of maintaining knowledge in a firm's knowledge base and subsequently reactivating this knowledge (Walsh and Ungson, 1991), such process immersed workers in the routines of other members, thereby allowing access to the partners' stock of tacit knowledge (Fahey and Prusak,1998). A benefit is that learning takes place without the need to first convert tacit knowledge to explicit, saving time and resources and preserving the original knowledge base (Fahey and Prusak 1998). Hence, this finding can be considered aligned with Li et al., (2006) observations which suggest that learning experiences could enhance the trade-off between exploration and exploitation.

6. Conclusions

Building on the relationship between employee knowledge and organisational performance, this research has been conducted to study the potential impact of organisational ambidexterity on the prospects for career success of blue-collar workers, with focus on the mediating role that individuals' soft skills may play in this relationship. We have found a positive relationship between workers' commitment to develop their soft skills and their career success. In this sense, any effort made by management to motivate the workforce is likely to lead to a positive attitude towards learning and, ultimately, improved performance.

We have also found a positive relationship between an organisation's approach to both knowledge exploration and knowledge exploitation and the prospects for career success of blue-collar workers. In line with previous knowledge management and human resource management research, knowledge-oriented processes potentially enhance employee satisfaction through a sense of self-efficacy, in a learning-oriented culture that potentially leads to explicit actions for individuals' skill building, career satisfaction and success. Again, efforts made by the organisation to nurture a learning culture through knowledge-oriented processes is likely to lead to an increased perception of self-value in the workforce which, ultimately, results in improved performance.

Implications for Theory and Practice

In terms of theoretical contributions, our conceptual model adds to the existing body of literature on career development in two main ways. Firstly, by adding to the current understanding of the

importance of soft skills for career development of production workers in a knowledge-intensive context, our research informs future career development research in both smart manufacturing and other knowledge-intensive sectors.

Secondly, this study has pioneered efforts to connect HRM Theory with Knowledge Management Theory (KMT). The combination of Knowledge Management and Human Resources Management is a pivotal phenomenon for production workers. The research has addressed the lack of studies that take into account the relationship between knowledge acquisition, exploration and exploitation (Santoro and Usai, 2018) and the effective capabilities of workers to manage their environment, work well with others, perform well, and achieve their goals (Robles, 2016). In doing so, it sets the basis for future studies to continue to build on career development in the knowledge economy to bridge the gap between HRM theories and KM theories.

Future research

Our research opens new opportunities to study the impact of soft skills on the concept of a learning organisation as a construct based on the combination of knowledge, organisation, people, and technology as defined by Senge (2014). Such studies would add to the currently limited volume of management literature focused on the relationship between soft skills and learning. Considering that current developments rely on technology knowledge to maximise the benefits of connectivity and computing power, such research is of upmost importance for current and future efforts to facilitate the necessary shift to soft skills, team skills, and problem solving skills. From a management research perspective such a process should be facilitated by a better understanding of required organisational structures and behaviours, including, for example, a learning-oriented culture.

Since this study has highlighted that soft skills are a strategic factor not only for knowledge workers but also for operational workers in multinational manufacturing, future research is expected to develop a new learning framework to improve employability of blue-collar workers. Moreover, if we consider that today many technology-related jobs have gone from white collar to blue-collar workers, the need to bring attention to the role of soft skills to improve productivity has now become evident. Having studied the role of soft skills in the career success of production workers and its importance for organisational performance, this research emphasises that public policies are expected to also consider specific local issues while addressing productivity, innovation, firm competitiveness, employability and social integration.

Research limitations

While the findings of our research can be translated into effective theoretical and managerial recommendations, there are limitations derived from the very nature of the origins of the data, that is, multinational enterprises from the high-tech manufacturing sector in Italy, which also offer opportunities for further research. First, our findings rely on the views of firms from a high-tech manufacturing sector, which is indicative of their engagement to some extent in innovation activities. Future research may be conducted to study the relationship between knowledge management, soft skills and career success in organisations from a context characterised by lesser degree of knowledge intensity. Secondly, our analysis is limited to Italy and therefore to a specific societal, political and regulatory context for sustainable innovation. Our findings may not therefore apply to other countries and therefore we recommend a comparative study based on our findings. Finally, findings of this study cannot be directly applied to SMEs due to the substantial differences in the way they respond to social and economic pressures. Further research is therefore needed to better understand the extent to which SMEs could combine knowledge management and human resource management principles and tools to improve their productivity and innovation capabilities.

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