Authentic and transformational leadership and innovative work behaviour: the moderating role of psychological empowerment

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Abstract

Purpose – The purpose of this paper is to analyse the moderating role of psychological empowerment on the relationships between authentic leadership and innovative work behaviour, as well as transformational leadership and innovative work behaviour.

Design/methodology/approach – We have applied the mixed-method research on the selected case study. The quantitative field study was conducted on a sample of 126 employees in a multinational technological company. A series of paired sample *t*-tests were followed by a hierarchical regression analysis to test the hypotheses. The qualitative study consists of a content analysis of in-depth semi-structured interviews with four leaders.

Findings – The research provides further confirmation of the positive relationship between leadership and innovative work behaviour. Specifically, the results showed that psychological empowerment moderates the relationship between leadership (authentic as well as transformational leadership) and innovative work behaviour.

Originality/value – This paper contributed to leadership and innovation literature and provided insights in studying the boundary conditions on the relationship between authentic leadership, as well as transformational leadership, in stimulating innovative work behaviour through the moderating role of psychological empowerment. The added value is expanded by introducing the comparison of the two leadership theories.

Keywords Authentic leadership, Transformational leadership, Innovative work behaviour, Psychological empowerment

Paper type Research paper

Introduction

Innovation is a crucial factor for organisational success in today's competitive and dynamic environment (Škerlavaj *et al.*, 2019). The researchers identify leadership as one of the most important factors affecting creativity and innovativeness (Gumusluoglu and Ilsev, 2009a). Gumusluoglu and Illsev (2009b) also note that the interest in the impact of the transformational leadership on creativeness and innovativeness is growing. The increasing scholarly interest in innovative settings is also perceived in authentic leadership, whereas the authenticity has become a "widespread emerging social trend" (Cha *et al.*, 2019) and a "gold standard for leadership". Not only the scholarly interest but also the attention of the practitioners are growing. Innovation in the workplace is, next to the learning, crucial for employees, organizations and societies, and as such, presents the substantial part of EU's agenda of globalization and knowledge-based societies. Ability to

innovate at organizational and country-level is a crucial factor for social and economic growth, whereas, at the individual level, innovation embedded in work is precondition for enhanced job satisfaction (Høyrup, 2010).

Existing work of researchers thus helps us in starting to understand what influence employee *innovative work behaviour*. Many studies on leadership, as well as on innovativeness, have been conducted (Basu and Green, 1997; Oke *et al.*, 2009); however, little has been done so far in studying the boundary conditions on the relationships between authentic leadership, as well as transformational leadership, in stimulating innovative work behaviour through the moderating role of psychological empowerment. Despite the research findings speaking in favour of the positive role the leader has in encouraging innovative work behaviour, we are witnessing the inconsistency of the empirical results on the relationship between leadership and innovativeness (Crossan and Apaydin, 2010).

In particular, we know little about the contextual boundary factors that influence leaders' abilities to promote innovation in organizations (Denti and Hemlin, 2012; Rosing *et al.*, 2011), or about the psychological mechanisms that moderate the relationship between leadership and individual innovation (Byrne *et al.*, 2009). Thus, this is an opportune time to examine the boundary conditions of authenticity and transformational leadership in innovative work settings. To better understand this phenomenon, we are guided by the *overarching theoretical framework* of Creative Knowledge Environments (hereinafter CKEs), which posits that individuals who conduct creative work (for example – working in innovative settings, such as in research and development (hereinafter R&D)) are nested in several different organizational levels of influence, whereas factors at the higher levels in an organization influence factors at the lower levels (Hemlin *et al.*, 2006; Denti, 2013). Moreover, CKEs are those environments the characteristics of which are such that they exert a positive influence on human beings engaged in creative work aiming to produce new knowledge or innovations whether they work individually or in teams, within a single organization or in collaboration with others.

Through this *overarching framework, the present study will* deepen our understanding of psychological empowerment as the moderating factor (individual level) that affects innovative work behaviour. The moderating role of psychological empowerment offers practical solutions on how to improve the innovative work behaviour of employees at an individual level. With our research, we respond to the call of researchers on the investigation into the factors that moderate the relationship between leadership and innovation (Denti, 2013). We focus our attention on the under-researched boundary conditions about mechanisms that moderate leadership to individual innovation (Byrne *et al.*, 2009). The mechanisms and the limit boundary conditions through which leadership affects the innovative work behaviour is scarce (Saeed *et al.*, 2019) and, additionally, of relevant importance in recent studies (Afsar and Umrani, 2019) in order to understand through what moderator and mediator mechanisms and under what boundary conditions leaders might promote innovative work behaviours.

The objective of this paper is to contribute to the existing scientific discussion on the authentic and transformational leadership and their interactive roles in stimulating innovative work behaviour, specifically by understanding the moderating role of psychological empowerment. Thus, the research question of our study is how psychological empowerment moderates the relationship between (a) authentic and (b) transformational leadership and innovative work behaviour.

On the basis of the above, the focus of our research is: *first,* to examine the interplay of authentic and transformational leadership in stimulating the innovative work behaviour, taking into account the moderating role of psychological empowerment; *second,* the CKEs framework is extended by introducing transformational and authentic leadership interplay in stimulating innovative work behaviour settings at individual level; *third,* to develop the research model of the interplay between transformational and authentic leadership and the

moderating role of psychological empowerment in stimulating innovative work behaviour; And, *fourth*, to consider whether the role of psychological empowerment differs regarding the boundary conditions of different leadership theories, authentic and transformational leadership, with innovative work behaviour.

Overall, *our findings intend to the literature* in the field of leadership and innovativeness in the following ways. *First*, we extend the CKE framework (Hemlin *et al.*, 2006), by introducing the interplay between two leadership theories in stimulating innovative work behaviour; *Second,* this study extends the research incorporating the moderating mechanism of psychological empowerment in studies of innovative work behaviour (de Jong and den Hartog, 2007), by articulating how moderating mechanism affects the leadership innovation relationship at different levels, as proposed by Avolio *et al.* (2009) as well as Gumusluoglu and Ilsev (2009a). And, *third*, by putting relevant leadership theories (authentic and transformational) in relationship with innovative work behaviour, we respond to the findings of the researchers to support additional positive outcomes of followers at the individual level, for example, well-being (Weiss *et al.*, 2018).

The paper is structured as follows: After the introduction, we present the literature review and model development. In the first subsection, we focus on the theoretical background of innovation, innovative work behaviour, leadership, transformational leadership and authentic leadership as well as psychological empowerment. The second section is dedicated to acknowledging the reader with the indirect relationship between leadership and innovative work behaviour, meanwhile, in the third subsection, we outline the moderating role of psychological empowerment, in which the hypotheses are developed. In the third section, we present the methodology, namely the sample and data collection as well as measuring instruments together with the control variables. The fourth section is dedicated to the results. Here, we present the descriptive statistics, confirmatory factor analysis, and the validation of the hypotheses. The fifth section outlines the discussion, starting with contributions and implications as well as limitations and avenues for further research. We finish our paper with the conclusion section.

Literature review and research model development
Theoretical background
The topic of innovation has attracted the interest of researchers in management since Schumpeter's (1934) argument that continuous innovation activity is a crucial source of long-term organizational success (Rosenbusch *et al.*, 2011). Leadership is recognized by researchers as one of the critical factors influencing creative behaviour (Chang *et al.*, 2015) and innovation. Oke *et al.* (2009) believe that managing innovation remains one of the most significant challenges for contemporary leaders.

Innovation can be on the one hand perceived as a discrete product or outcome, namely as a new device, method or idea, or on the second hand as a process in terms of introducing something new. On the most basic level, innovation means something new (Gopalakrishnan and Damanpour, 1997). Hage (1999, p. 599) understands innovation as the "adoption of an idea or behaviour that is new to the organization", and according to the typology of Johnson (2001), innovation refers to: (1) the change in the product/service range an organization markets, (2) change in the application of a product/service away from original purpose; (3) change in the market at which product/service is applied; (4) change in the way product/service is developed and delivered; (5) change in the business model. *Innovative work behaviour* is a multidimensional construct that encompasses all behaviours through which employees contribute to the innovative process (de Jong and Den Hartog, 2007; Saeed *et al.*, 2019). Innovative work behaviour has gained the attention of researchers and practitioners for decades, whereas the concept of an innovative work behaviour originates from

individuals' creative behaviour that helps generate, modify, communicate and implement novel ideas (Maqbool *et al.*, 2019). Carmeli *et al.* (2006) observe that innovative work behaviour is one of the basic pillars of successful organizations; that is why the identification of motivational factors and activators of innovative work behaviour presents a considerable contribution to the understanding of innovativeness at an individual level (Wu *et al.*, 2014). Even though there is little research on the relationship between transformational leadership and innovative work behaviour, there are a number of reasons speaking in favour of a positive relationship (Afsar *et al.*, 2014).

According to Daft (2014, p. 687), leadership is defined as "the ability to influence people toward the attainment of organizational goals". *Transformational leadership* refers to an approach by which leaders motivate followers to comply with organizational goals and interests in order to perform beyond expectations (Buil *et al.*, 2019). Kim (2014, p. 398) claims that "transformational leaders have the ability to transform organizations through their vision for the future, and by clarifying their vision, they can empower the employees to take responsibility for achieving that vision". The concept of transformational leadership as an important approach to leadership was first introduced by political sociologist Burns in 1978, and the transformational leadership theory is primarily based on the work of Bass (1999). Transformational leadership theory emphasises the emotions, values and importance of leadership directed toward fostering employee creativity (Garcia-Morales *et al.*, 2012).

Transformational leaders take chances of introducing new work methods, changing the existing processes and systems for long-term benefits, and helping the followers to take opportunities (Pearce and Ensley, 2004) successfully. They develop an attractive vision, serve as role models, emphasise innovation and address their followers individually (Bass and Avolio, 1995). They encourage them to assess the existing state – *status quo*, and to challenge their own values and beliefs in exchange for developing innovations and/or new solutions for persisting problems (Aryee *et al.*, 2012; Bass *et al.*, 2003). Transformational leaders encourage innovative work behaviour in such a way that they strive for collective goals (Majumdar and Ray, 2011). Transformational leaders have a positive influence on enhancing organizational innovation (Zuraik and Kelly, 2019). A recent study reveals that transformational leadership has a positive impact on organisational learning and knowledge sharing, where similarly, organizational learning and knowledge sharing have a significant impact on employee innovation (Khan and Khan, 2019). Transformational leaders encourage intellectual capacities and inspire followers to create opportunities under which they considerably influence their own roles at the workplace leading to higher levels of innovative work behaviour (Afsar *et al.*, 2014).

Due to the lack of ethics and integrity in business practices, authentic leadership has emerged. *Authentic leadership* has become "a 'widespread emerging social trend' (Carroll, 2015, p. 2) and a 'gold standard for leadership' in organizations" (Ibarra, 2015, p. 54; Cha *et al.*, 2019, p. 634) and the interest in authentic leadership is flourishing (Cha *et al.*, 2019). Reflecting the multiple works of literature, scholars have emphasised that authentic leaders have to be themselves, to attain happiness and success (Cha *et al.*, 2019; Harter, 2002). Avolio *et al.* (2004) connected authentic leadership with positive organizational behaviour (hope, trust, positive emotions) and Gardner *et al.* (2005) conceptualized the role of the authentic following as an integral component and as a result of authentic leadership development. Great importance is given to self-awareness and self-regulation and the concept of positive modelling (Avolio *et al.*, 2004; Gardner *et al.*, 2005). Without authenticity, it is possible to succeed mainly in the short-term, but for the long-term results, authentic leadership is crucial George (2007).

According to its characteristics, authentic leadership is also appropriate for encouraging creativeness and innovation (Černe *et al.*, 2013). Authentic leaders have a well-developed dimension of self-awareness and thereby learn from themselves and use this for the progress

of their followers (Neider and Schriesheim, 2011). According to Zhou *et al.* (2014), leaders with a higher level of self-awareness, value, and develop creative and innovative behaviours. Highly authentic leaders encourage the innovative behaviour of their followers more than less authentic leaders (Černe *et al.*, 2013). When the followers perceive their leader as an authentic leader, they feel encouraged and enthusiastic (Penger and Černe, 2014). Such followers are more likely to come up with innovative solutions as they have more self-confidence for implementing innovative solutions and can tackle problems and opportunities easier (Zhou *et al.*, 2014). Authentic leaders improve the positive psychological capital of their followers, their hope, self-confidence, optimism and flexibility (Luthans *et al.*, 2007). Their followers are more inclined to try out new things and are not afraid of failure or rejection (Rego *et al.*, 2012). Even if the innovation is not successful, followers who perceive their working environment as being in favour of trying new things are more likely to maintain a positive relationship to innovative behaviour (Vinarski-Peretz *et al.*, 2011). During the process of positive modelling by the authentic leader, positive psychological capital is accumulated, which increases the self-confidence of followers, creates hope and establishes trust (Ilies *et al.*, 2005), enhances flexibility and raises the level of optimism (Avolio *et al.*, 2004; Avolio and Gardner, 2005; Gardner *et al.*, 2005).

In the literature on management, empowerment is traditionally perceived as the delegation of authority and power to subordinates (Daft, 2014). The notion of empowerment builds on the well-grounded body of participative management, job enrichment, and alienation research (Spreitzer *et al.*, 1999). Based on the work of Spreitzer *et al.* (1999, p. 512), the psychological empowerment is defined as *"intrinsic motivation manifested in four cognitions reflecting an individual's orientation to his or her work role: meaning, competence, self-determination, and impact"*. It is important to note the distinction between empowerment and psychological empowerment. As cited by Nederveen Pieterse *et al.* (2010): "Psychological empowerment is a psychological state residing within individuals, reflecting an active orientation towards a work role (Thomas and Velthouse, 1990). It is thus distinct from the conception of empowerment as a set of managerial practices focused on the delegation of responsibilities" (e.g., Leach *et al.*, 2003). Psychological empowerment needs to be understood as a motivational construct based on an employee's perception of the ability to perform the work well, the choice of originating and regulating actions, impacting the environment, and the job having meaning. Peers, organization, and several other facets in one person and the environment can be perceived as antecedents of psychological empowerment (Spreitzer, 1995; Thomas and Velthouse, 1990).

Leaders are bounded by several organizational factors, as for example human resource management, rules and regulations as well as other social and organizational settings, which can influence the perception of psychological empowerment of the follower, independent of leadership (Nederveen Pieterse *et al.*, 2010). Nederveen Pieterse *et al.* (2010) studied the moderating role of psychological empowerment on the relationship between transformational and transactional leadership and innovative behaviour. In their empirical study, they have surveyed 230 employees of a government agency in the Netherlands. Results of their study showed that transformational leadership is positively related to innovative behaviour only when psychological empowerment is high, whereas transactional leadership has a negative relationship with innovative behaviour only under these conditions. We are expanding the study of Nederveen Pieterse *et al.* (2010) to a different context, research setting and by adding an additional leadership style, namely authentic leadership. According to the study of Nederveen Pieterse *et al.* (2010), the psychological empowerment should be understood as a psychological state that can be moderately independent of transformational leadership and, as such, an important moderator of the influence of transformational leadership. A similar proposition can be proposed for authentic leadership.

Rousseau *et al.* (1998) define *trust* as a psychological state that accepts an individual's vulnerability based on positive expectations about the intentions of others. In this respect, Holtz (2013) states two important and generally accepted aspects: (1) the experience of trust is associated with risk: if there were no risk, there would be no need for trust. In an organizational context, there is always a level of risk to employees, since employment is related to both desired and undesirable outcomes; and (2) trust is driven by expectations that, or not, an identity will prove to be trustworthy in future interactions. Trust has positive effects for the successful functioning of an organization (Holtz, 2013) and an important role in the context of a leader-follower relationship (Podsakoff *et al.*, 1990). When followers perceive a leader as trustworthy, they become motivated to show better organizational results (Wasti *et al.*, 2007).

The indirect relationship between leadership and innovative work behaviour
Oke *et al.* (2009) believe that innovation remains one of the biggest challenges for leaders. According to Nederveen Pieterse *et al.* (2010), there are very few researches that assess the direct relationship between leadership and innovative work behaviour, whereby the findings of such researches are inconsistent: Basu and Green (1997) observe a negative relationship, Boerner *et al.* (2008) a positive one, and Moss and Ritossa (2007) observe no effects. An explanation for the inconsistent results can be the presence of moderator variables (Nederveen Pieterse *et al.*, 2010). The psychological processes of the followers that help to transmit the leader's behaviour in the actions of their followers are important (van Knippenberg *et al.*, 2004). The same view is held by Boerner *et al.* (2008) who note that a better understanding of the mediation and moderation processes with which the leaders stimulate innovation is needed. The above-mentioned gaps are addressed by including the moderation mechanism of psychological empowerment in the context of the relationship between authentic/transformational leadership with innovative work behaviour.

The researchers are also studying the overlap of authentic and transformational leadership. Debates are being held about conceptual vagueness and the necessity for further research in order to clarify the separation of authentic and transformational leadership (Anderson and Sun, 2015b). Gardner *et al.* (2011) believe that the above descriptions and definitions do not clearly distinguish the authentic leadership from transformational leadership. The same was observed by Jensen and Luthans (2006) when they used the transformational leadership statements from the MLQ measuring instrument for the operationalization of authentic leadership. Despite the overlapping of authentic and transformational leadership, Anderson and Sun (2015b) observed that the initial empirical researches indicated the diversity of the constructs and thus, call for targeted research of both leadership theories. This study addresses the call and through a research model thoroughly describes the overlap of the authentic and transformational leadership theories.

The broad interest in psychological empowerment comes forward at a time when the global competition and changes demand initiative and innovation on the part of the employees. The researchers Thomas and Velthouse (1990) and Spreitzer (1995) describe psychological empowerment as a motivation construct defined by four dimensions: (1) importance: the value that an individual places on the goals and roles in the workplace based on their ideals and standards; (2) competence: the belief of an individual in their capability to perform the activities based on their skills; (3) effect: the degree to which an individual can affect the strategic, administrative and operative work outcome; and (4) self-determination: the sense of freedom and the opportunity to choose within the workplace environment.

The relationship between authentic leadership and psychological empowerment has been confirmed by researches (e.g., Walumbwa *et al.*, 2008). Also, Zhu *et al.* (2004) connect the

authenticity of the leader with psychological empowerment. The followers of authentic leaders perceive themselves as autonomous in decision-making which is an important dimension of psychological empowerment (Shapira-Lishchinsky and Tsemach, 2014). Jung et al. (2003) note that transformational leadership demonstrates the typical and positive relationship between psychological empowerment and innovation. Figure 1 shows a research model of the indirect connection between leadership and innovative work behaviour.

The moderating role of psychological empowerment
Research has suggested (Nederveen Pieterse et al., 2010) that psychological empowerment is a psychological state that may be relatively independent of transformational leadership and is as such an important moderator of the influence of transformational leadership. Consequently, in order for followers to be innovative, they have (1) to be willing to be innovative, as well as (2) be competent to be innovative, whereas, for latest, they need to feel psychologically empowered. Specifically, to take innovative initiative, Nederveen Pieterse et al. (2010) claim that transformational leaders need to inspire followers high in psychological empowerment to make use of the possibility to take innovative initiatives. Given the emerging evidence for the psychological empowerment in the relationship between transformational leadership and innovative work behaviour (Khan et al., 2019), psychological empowerment should not be underestimated by the leaders to stimulate innovative work behaviour. Concretely, individuals who are psychologically empowered, have the willingness and ability to facilitate proactive behaviour in meaningful ways and act independently (Thomas and Velthouse, 1990; Spreitzer, 1995). The psychological empowerment is essential for the followers to act on the stimulus of transformational leadership. Transformational leaders can stimulate followers' willingness to innovate; however, for their innovative competence, the psychological empowerment is needed. In addition, Nederveen Pieterse et al. (2010) argue that transformational leadership motivates followers high in psychological empowerment to seize the opportunity and take the initiative. Under those circumstances, the followers act more innovative.

Complementing Spreitzer et al. (1999) study that has shown the positive consequences of psychologically empowered employees on meaningfulness in their work and feeling of self-efficacy, competence and active orientation towards their work, we claim that psychological empowerment will moderate the positive effect of transformational leadership on the level of innovative work behaviour, particularly, a high level of psychological empowerment will contribute to breaking barriers and stimulating individuals to increase their level of creative idea implementation. The moderation role of psychological empowerment contributes to the overarching aspect of CKE (Hemlin et al., 2006), as, according to the Bain et al., (2001):
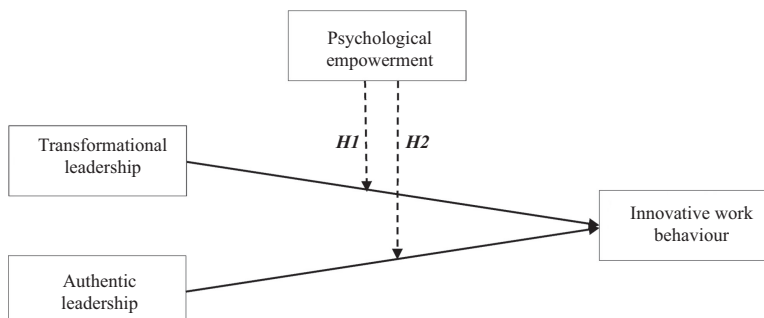

Figure 1.
The research model of the interplay between transformational and authentic leadership and the moderating role of psychological empowerment in stimulating innovative work behaviour

"empowerment, that is, the extent to which individuals feel autonomous as they undertake tasks, such organizational support may lead to actual advances in innovative work behaviour".

Furthermore, this perspective is conceptually supported by overarching framework of CKEs (Hemlin *et al.*, 2006; Denti, 2013), that posits that factors at the higher levels in an organization influence factors at the lower levels, whereas our study proposes, that psychological empowerment, that moderates the relationship between leadership and innovative work behaviour, is such factor. Followers need to feel able to be innovative through psychological empowerment in order to move into the following action and behave innovatively.

Therefore, we propose that at the higher levels of psychological empowerment, the higher level of innovative work behaviour is determined. In addition, we suggest that the benefits of transformational leadership become even greater in stimulating innovative work behaviour of followers when the levels of psychological empowerment are higher. The followers need to feel psychologically empowered in order for them to believe in their ability to operate innovatively and consequentially feel inspired by transformational leaders (Nederveen Pieterse *et al.*, 2010). Such followers feel more engaged in innovative work behaviour because they feel more psychologically empowered and are better prepared to adjust their skills and behaviour with these demands and the expected performance (Afsar *et al.*, 2014).

We claim that transformational leadership is more effective in encouraging innovative work behaviour with followers having a higher as opposed to those with lower levels of psychological empowerment (Nederveen Pieterse *et al.*, 2010). On the contrary, followers who are less psychologically empowered, do not have the confidence to take innovative initiatives, which might lead to followers to experience demotivational state, or it could even hinder their innovative behaviour. Therefore, low psychological empowerment is expected to be less effective (Nederveen Pieterse *et al.*, 2010). Consequently, we posit the high levels of psychological empowerment might support innovative work behaviour; hence, we specifically predict the following hypothesis H1:

H1. The relationship between transformational leadership and innovative work behaviour is moderated by psychological empowerment. When the psychological empowerment is high, the relationship between transformational leadership and innovative work behaviour is more positive than when the psychological empowerment is low.

As followers have more freedom and are able to make their own decisions, they show a higher level of commitment in the creative process (Volmer *et al.*, 2012). Psychological empowerment is recognized as a mechanism through which authentic leaders have an influence on their followers. The authentic leaders strive to empower their followers and thus create high-quality relationships based on the principles of social rather than economic exchange (Illies *et al.*, 2005).

We claim that psychological empowerment will moderate the positive effect of authentic leadership on the level of innovative work behaviour, in particular, we propose that the stimulation to innovate comes from the inspiring nature of authentic leadership assumes a high level of follower psychological empowerment, which makes authentic leadership less effective for followers with low psychological empowerment. Authentic leaders, through their internalized moral perspective and balanced processing, give their followers constructive feedback, which is a key factor of innovative work behaviour (Müceldili, 2013). Empowered followers attach importance to their work and are intrinsically motivated, which encourages their innovative behaviour (Krishnan, 2012; Laschinger *et al.*, 2004). The psychological empowerment contributes to innovative behaviour by raising awareness, affiliation and

integration of followers (Damanpour, 1991). For this reason, it is expected that authentic behaviour will be more effective in encouraging innovative work behaviour with high rather than low levels of psychological empowerment. We therefore hypothesize:

H2. The relationship between authentic leadership and innovative work behaviour is moderated by psychological empowerment. When the psychological empowerment is high, the relationship between authentic leadership and innovative work behaviour is more positive than when the psychological empowerment is low.

Methodology
The case study approach
The single case study is one of the most common approaches, relevant when the researcher wants to gain a deeper understanding of the research context and processes (Eisenhardt and Graebner, 2007). A case study is a complex system (Byrne and Ragin, 2013) that examines a researched topic or phenomenon within its context or within real-life contexts (Saunders *et al.*, 2012). It also answers the "why", "what" and "how" research questions, making it the most commonly used in explanatory and exploratory research (Saunders *et al.*, 2012). The single case is used when it represents a typical or unique case. In doing so, it is important that the selection is appropriate given the nature of the goals and research questions (Yin, 2009).

To conduct this study, the case of an international technology company with more than 1,000 employees is chosen. The company has existed for over 25 years, is present in 11 countries, and operates in the market of information technology service and software solutions. More than half of their revenue is generated in Western Europe and the US The choice of the company is based on the findings of Ostrom *et al.* (2010) that the service sector contributes more than 70% of gross domestic product to developed economies and therefore plays an important role in promoting and the creation of creativity and innovation. The success of the service sector is based on innovative services (Ostrom *et al.*, 2010), which are a key factor in value creation (Moller *et al.*, 2008) and a means of increasing market share (Chapman *et al.*, 2003). Researchers Gumusluoglu and Ilsev (2009a) also affirm the importance of service activity, which is neglected in empirical research despite its importance.

Mixed method approach within the case study
In order to overcome the limitations of using only quantitative or qualitative research methods, the mixed-method approach is applied, as according to Mumford (2011) a variety of research methods are required to understand the complexity of a leader's performance and its impact on various aspects of society. Mixed methods require a combination of qualitative and quantitative research methods with the integration of thematic and statistical data, leading to greater depth and breadth of overall outcomes, and therefore allowing researchers to reach more precise conclusions with superior reliability (Jogulu and Pansiri, 2011; Saunders *et al.*, 2012; Stentz *et al.*, 2012) compared to the usage of a single approach (Molina-Azorín and Cameron, 2010). Triangulation (Jogulu and Pansiri, 2011) achieved by using the technique of combining and comparing multiple data sources, analysis and processes, reinforces the credibility of findings (Jack and Raturi, 2006). Jogulu and Pansiri (2011) find that when the qualitative findings confirm the quantitative, it increases the validity and reliability of the research performed.

To analyse the quantitative data, we perform the descriptive statistical analysis, validity and reliability tests, exploratory factor analysis, as well as the confirmatory factor analysis. On the other hand, content analysis is performed to analyse four in-depth semi-structured interviews with leaders. In order to present the readers the in-depth insight, we provide the proof quotations.

Sample and data collection for the quantitative study
Within the selected case, the data collection was done in the English language, so no information was lost with translation. A database was created by retrieving all e-mail addresses from the regularly employed employees in the company. Each participant received an e-mail invitation with the link to an online questionnaire. Participation in the study was voluntary, and participants' anonymity was assured. The data for the quantitative research were collected in November and December of 2015. The data were obtained using on-line questionnaires. The validity of the research model was first assessed by using the confirmatory factor analysis (CFA) in the Amos 20 program. To assure the reliability and validity of the assessment, an additional tests of the discriminant validity of the authentic and transformational leadership constructs were employed, and the average variance extracted (AVE) value was calculated and combined with the common variance of both constructs. The proposed hypotheses were analysed using the hierarchical regression analysis. For this purpose, the software IBM SPSS Statistics 20.0 was used. In determining the moderating impact, the Dawson's (2014) guideline was followed.

To reduce potential common method bias effects, several *a priori* steps were conducted. First, the survey was part of a larger data collection; therefore, respondents were less likely able to guess the purpose of the study. Second, the questionnaires were completed separately and with an interval of 21 days, as proposed by Podsakoff *et al.* (2003). Within the first cycle, the company's human resource department reminded and invited the employees several times to fill out the questionnaires. For both questionnaires to match, an instrument of a self-generated identification code was used which enabled a researcher to combine the answers from different questionnaires from the same respondent and could at the same time preserve their anonymity. Each respondent created an individual identification code, which they used in both questionnaires. The first questionnaire, completed by 191 employees, included the selected measuring instruments of authentic leadership, transformational leadership and psychological empowerment. The second questionnaire, completed by 170 employees, included the measuring instrument of the innovative work behaviour. Subsequently, the data were classified in the program SPSS 20.0 according to the matching of the identification codes of the respondents, on the basis of which the final sample was being obtained. It included 126 employees.

Measuring instruments
The research measuring instruments had to satisfy predefined criteria. Namely, they had to be: (1) well-established: they were developed and/or used by the key authors of the individual fields examined and have the appropriate psychometric properties; (2) often used: scientific publications that address the development of measuring instruments were often quoted; and (3) current: the measuring instruments in question are also used in the most recent studies.

Authentic leadership. Authentic leadership was accessed by using the measure of Ali (*Authentic Leadership Inventory*), developed by Neider and Schriesheim (2011), consisting of 16 items. It follows the Aviolo *et al.* (2009) who summarize four key factors of authentic leadership. Example items include (1) *self-awareness*: "My leader is clearly aware of the impact he/she has on others"; (2) *relational transparency*: "My leader admits mistakes when they are made"; (3) *balanced processing*: "My leader objectively analyses the relevant data before making a decision"; and (4) *internalized moral perspective*: "My leader is guided in his/her actions by internal moral standards". The items were assessed on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach's α measuring the reliability of the aforementioned instrument was 0.94.

Transformational leadership. For measuring transformational leadership, and MLQ (*Multifactor Leadership Questionnaire*) by Bass and Avolio (1995) was chosen which, in

different forms, is considered to be the most widely used measuring instrument of this construct (Anderson and Sun, 2015a). Since the instrument also measures transformational and laissez-faire leadership, 20 items relating to transformational leadership were used. Item examples of the selected version of the MLQ 5X-Short by individual components are: (1) *idealized influence (attributed)*: "My leader goes beyond his/her self-interest for the greater good"; (2) *idealized influence (behaviour)*: "My leader considers the moral and ethical consequences of his/her decisions"; (3) *inspirational motivation:* "My leader has an optimistic outlook on the future"; (4) *intellectual stimulation*: "My leader seeks different perspectives when solving problems"; and (5) *individualized consideration*: "My leader helps others to develop their strengths". The items are assessed on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Cronbach's α of the aforementioned instrument was 0.96.

Innovative work behaviour. For measuring innovative work behaviour, the instrument of de Jong and den Hartog (2010) with ten items was used. The questions were adjusted in order to refer to the self-assessment of followers. Some examples are: (1) "How often do you look for opportunities to improve things?"; and (2) "How often do you look for new approaches to execute tasks?" The items were assessed on a five-point scale ranging from 1 (never) to 5 (always). Cronbach's α of the measuring instrument of innovative work behaviour was 0.89.

Psychological empowerment. For measuring psychological empowerment, Spreitzer's (1995) instrument with 12 items was used, which measured the perception of psychological empowerment by the followers and was based on the following dimensions: meaning, impact, competence and self-determination. The chosen examples of items from Spreizer's (1995) instrument are (1) *meaning*: "The work that I do is important to me"; (2) impact: "I have a great deal of control over what happens in my department"; (3) competence: "I have mastered the skills necessary for my job"; and (4) self-determination: "I have considerable opportunity for independence and freedom in how I do my job". The items were assessed on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Cronbach's α of the aforementioned instrument was 0.88.

Control variables. At the individual level, the control variables that were examined as controls are: gender, age, education level, dyad tenure (number of years of cooperation with the current leader), number of years in the current position, trust, and current job title. Researchers see these variables as indicators of innovative work behaviour: (1) gender: Ang *et al.* (2003); (2) age: Ng and Feldman (2008); (3) education level: Amabile and Conti (1999); (4) dyad tenure: Wang and Cheng (2010); (5) number of years in the current position: Nederveen Pieterse *et al.* (2010); and (6) trust: Dirks (2000); Scott and Bruce (1994). Trust has an impact on efficiency and the quality of cooperation between the members of an organization, which is of key importance in a rapidly changing environment where higher complexity and uncertainty are present (Hsieh and Wang, 2015). Rousseau *et al.* (1998) define it as a psychological state accepting the vulnerability of a person based upon their positive expectations of other people's intentions. Trust was measured by an adjusted instrument from the researcher Dirks (2000), with nine items of trust in the leader. The instrument takes into consideration the emotional as well as the cognitive aspects of trust. These are two examples of the items: "If I shared my problems with my leader, I know he/she would respond constructively and caringly". And "If my leader changed jobs, I would feel a loss". The items are assessed on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Cronbach's α of the measurement instrument of trust was 0.93.

The qualitative component of the research
Content analysis of the provided interviews was selected as the most appropriate method to analyse the data, to allow understanding of its context (Bansal and Corley, 2012). The content

analysis allows recognizing parts of the whole, connected to certain phenomena and its attributes (Penger, 2006). We provide the reader with the selected proof-quotations.

Before conducting the research, the interviewees' consent to record interviews was asked, and later the transcription was done. Following the example of researchers Gumusluoglu and Ilsev (2009a), the terminology and meanings of authentic and transformational leadership, innovative work behavioural and psychological empowerment as a moderating mechanism to the interviewees, thus contributing to validity as interviewees evaluate the constructs we want to evaluate and confirm that they encounter them in their work (Gumusluoglu and Ilsev, 2009a).

In order to increase the quality of the data obtained through interviews, in addition to the above activities to ensure reliability and validity, the guidance of Fraenkel and Wallen (2006) were followed: (1) the triangulation by using different techniques of data capture: the interviewee was asked the same thing in different parts of the interview, and the consistency of the answers has been checked. Also, interviewees' statements about the same thing were compared, next to comparison the content of the interview with the available written company reports and publicly available interviews of individual interviewees. (2) Altogether, interviews were conducted with four interviewees, thereof two with the interviewees at the vice president level and two with the department managers. Thereof, two interviews were conducted with two interviewees to allowing consistency check by comparison. (3) Continuous recording of additional questions and thoughts during the interviews, thus contributing to a deeper understanding of the topic being studied.

Results

Case study introduction/context

The selected company operates in a complex environment where individual projects usually take place in more than one location. More than 300 projects are implemented on a daily basis, for which a multi-spatial, multi-cultural and multi-technological approach is used. Their formal hierarchical organization has the features of a functional, divisional and team structure. In order to be responsive despite their size, the teams called "circles" are interconnected, improving communication speed, knowledge transfer and reaction time to environmental change. New ideas and value are created at their intersections of different circles. The structure of the circles is flexible and not limited to individual hierarchical levels since a top member, and an associate of the lowest hierarchical level can participate as peers within the project, while having equal roles, or a non-managerial associate may also have the more specific knowledge necessary for the successful implementation of the project. The company wants to avoid situations where there are no intersections between circles, which means less communication with other parts of the company and thus less knowledge transfer and less value created.

Descriptive statistics

Among the 126 respondents, 70.6% were male and 29.4% female. The respondents aged between 35 and 44 years prevailed, representing 40% of the entire age structure. It was observed that almost three-quarters of the respondents (72.2%) were aged between 25 and 44 years. The authors join Jung et al. (2008) who in their research record 86% of respondents aged between 30 and 50 years and attribute the identified demographic profile sufficient qualification for answering questions on leadership and innovation addressed in the survey questionnaire. More than half of the respondents (50.8%) had a university degree. More than a quarter (25.4%) had finished their higher education, and 19% had a Master's degree. 70.6% of the respondents had graduated or finished college. Furthermore, the authors noted that

nearly two-thirds of the respondents (62.7%) had been working together with their direct leader (dyad tenure) for a maximum duration of 3 years. More than half of the respondents (55.6%) had been working in their current workplace (position experience) for four years or less, 81% had been working in their current workplace for eight years or less and 90.5% 12 years or less.

Leadership and innovative work behaviour

Table 1 shows descriptive statistics for the variables analysed. On average, the respondents assessed best (in relative and absolute terms) trust (5.83), which, at the same time, demonstrated the highest fragmentation of evaluations, followed by a small difference in the assessment by the authentic leadership, psychological empowerment and transformational leadership (average evaluations between 3.82 and 3.93). The innovative work behaviour reached the worst evaluation (3.41). The correlation coefficients among the variables measured were mostly weak or moderately positive, ranging between 0.2 and 0.4. The authors stressed the strong positive correlation between the authentic and transformational leadership (0.85 at a level of significance of $p < 0.01$) by which they join the discussions in the academic sphere on the overlapping of the authentic and transformational leadership theories (Anderson and Sun, 2015b; Neider and Schriesheim, 2011).

Furthermore, psychological empowerment is positively and statistically connected with other constructs (at a level of significance of $p < 0.01$). The authentic and transformational leadership had a weak positive connection with the innovative work behaviour (at a level of significance of $p < 0.05$). Among the control variables, the position experience (number of years in the current workplace) had a moderate to strong connection with the dyad tenure (at a level of significance of $p < 0.01$) and a somewhat weaker connection with the age (at a level of significance of $p < 0.05$), whereby both were expected. The dyad tenure was positively and statistically related to psychological empowerment (at a level of significance of $p < 0.01$). It can, therefore, be concluded that longer cooperation with the leader meant a higher degree of psychological empowerment on the followers' part. Trust had a strong positive correlation with the authentic (0.79, at a level of significance of $p < 0.01$) and transformational leadership (0.74, at a level of significance of $p < 0.01$).

Confirmatory factor analysis (CFA)
The validity of the research model was first assessed by using the program Amos 20. CFA explains how well the variables measured the appropriate corresponding constructs. The results show that the second−order four-factor model for authentic leadership, transformational leadership, psychological empowerment and innovative work behaviour corresponded well with the data regarding the model fit indices (χ^2/df = 2.81; NNFI = 0.93; CFI = 0.96; RMSEA = 0.09). All variables and constructs exceeded the limit 0.50 for convergent validity as their fully standardized factor loadings range between 0.56 and 0.97. The above-mentioned model had a significantly better matching with the data than the more concise three-factor model where the statements for measuring authentic and transformational leadership were combined to one common second-order construct (χ^2/df = 3.34; NNFI = 0.88; CFI = 0,91; RMSEA = 0.14).

In order to additionally test the discriminant validity, the value of the average variance extracted (AVE) for the constructs of authentic leadership and transformational leadership was calculated and compared with the common variance of both constructs (measured by the square root of the correlation coefficient between both constructs). The AVE value for authentic leadership was 0.73 and for the transformational leadership 0.75, which was only slightly more than the common variance between both constructs (0.72). This indicates the discriminant validity between the transformational and authentic leadership and supports the logic of the simultaneous research of potentially different influences. At the same time, attention needs to be paid to the potential overlap between the two constructs.

Table 1.
Averages, standard deviations and correlation[a]

	Variable	M	SD	1	2	3	4	5	6	7	8	9
1	Age[b]	2.69	0.83	—								
2	Education[b]	2.87	0.79	−0.16	—							
3	Dyad tenure[c]	3.58	3.40	0.23*	−0.15	—						
4	Position experience[d]	5.23	4.61	0.47**	−0.19*	0.57**	—					
5	Authentic leadership (AL)	3.87	0.55	−0.16	−0.05	−0.08	−0.14	(0.94)				
6	Transformational leadership (TL)	3.82	0.62	−0.15	−0.02	−0.06	−0.12	0.85**	(0.96)			
7	Innovative work behaviour	3.41	0.56	0.11	0.06	−0.02	−0.07	0.20*	0.20*	(0.89)		
8	Psychological empowerment	3.83	0.51	0.14	−0.08	0.25**	0.07	0.32**	0.31**	0.33**	(0.88)	
9	Trust	5.83	0.96	−0.14	−0.02	−0.04	−0.22*	0.79**	0.74**	0.13	0.27**	(0.93)

[a]n = 126; Cronbach's α are indicated in brackets diagonally; M = average; SD = standard deviation; **$p < 0.01$, *$p < 0.05$
[b]The age and education averages were calculated as the weighted average of the classes
[c]Years of cooperation with the current leader, n = 108
[d]Years in the current workplace, n = 112

Validation of the hypotheses
Next, the construct of psychological empowerment was included as a moderation mechanism within the framework of the H1 and H2 hypotheses. For testing the hypotheses, a hierarchical regression analysis using centralized variables was employed. The first model included control variables and transformational leadership as an independent variable. The second regression model, in addition to the control variables, also included authentic leadership as an independent variable. The third regression model added an interaction variable for the moderation of the relationship between transformational leadership and innovative work behaviour. The fourth, on the basis of the second model, added the interaction variable for the moderation of the relationship between the authentic leadership and the innovative work behaviour (see Table 2).

The results of the regression analysis in the first and second model (before taking into account the interaction effects) show a positive and statistically significant connection between age and psychological empowerment with the innovative work behaviour. The authentic and transformational leadership are not related to the innovative work behaviour which supports the researchers' argument (Nederveen Pieterse *et al.*, 2010) to not look at the relationship between the leadership and innovative work behaviour as an indirect main effect. Models 3 and 4, which included psychological empowerment as a moderator of transformational leadership (Model 3) and authentic leadership (Model 4) demonstrate a considerable added value in comparison to the direct effects' models.

The results of the moderated regression analysis carried out in the third model show the positive and statistically significant relationship between psychological empowerment ($\beta = 0.263$ at a level of significance $p = 0.011$) and innovative work behaviour. The results of the carried-out moderated regression analysis of Model 3 show the presence of the moderation impact of psychological empowerment on the relationship between transformational leadership and the innovative work behaviour ($b = -0.501$; $\beta = -0.291$ at a level of significance $p = 0.003$). The simple slope line which represents the higher levels of psychological empowerment is significant at the level of $p = 0.001$. The interaction between transformational leadership and psychological empowerment of the followers in stimulating innovative work behaviour is depicted in Figure 2.

	Model 1	Model 2	Model 3	Model 4
Age	0.24* (0.08)	0.25* (0.08)	0.23* (0.08)	0.24* (0.08)
Gender	−0.02 (0.12)	−0.04 (0.12)	0.02 (0.12)	−0.02 (0.12)
Education	0.13 (0.07)	0.14 (0.07)	0.15 (0.07)	0.16† (0.07)
Dyad tenure	0.01 (0.02)	0.02 (0.02)	0.01 (0.02)	0.01 (0.02)
Position experience	−0.23† (0.02)	−0.24† (0.02)	−0.21† (0.02)	−0.22† (0.02)
Trust average	−0.18 (0.09)	−0.25 (0.09)	−0.26† (0.08)	−0.36* (0.09)
Psychological empowerment average	0.32** (0.12)	0.31** (0.12)	0.26* (0.12)	0.27** (0.12)
Transformational leadership average	0.17 (0.13)		0.27† (0.13)	
Authentic leadership average		0.26 (0.17)		0.33* (0.16)
Interaction effects				
TL_c × Empowerment_c			−0.29** (0.16)	
AL_c × Empowerment_c				−0.30** (0.14)
R^2	0.19	0.20	0.26	0.28
F (df)	2.709 (95)	2.905 (95)	3.692 (94)	4.095 (94)

[a]$n = 126$; standard errors are indicated in brackets, next to the standardized coefficients (β); **$p < 0.01$, *$p < 0.05$, †$p < 0.10$

Table 2.
The results of the hierarchical regression analysis for the innovative work behaviour as an independent variable[a]

On the basis of Figure 2, the highest levels of innovative work behaviour are determined, when the levels of psychological empowerment are the highest. Empowered followers will then exhibit innovative behaviour, regardless of the level of transformational leadership, which is depicted by the slightly inclined simple slope line. The importance of transformational leadership for innovative work behaviour is in the meantime, depicted by low levels of psychological empowerment. In this case, higher levels of transformational leadership lead to a higher level of innovative work behaviour. The hypothesis 1 stating that psychological empowerment moderates the relationship between transformational leadership and innovative work behaviour, in such a way that the effect of transformational leadership is stronger if the level of psychological empowerment is higher, is confirmed for low or medium-levels of transformational leadership. The higher the levels of transformational leadership, the less psychological empowerment contributes to a higher level of innovative work behaviour.

In the context of the fourth model, the results of the moderated regression analysis show a positive and statistically significant relationship between psychological empowerment ($\beta = 0.272$ at a level of significance $p = 0.007$), authentic leadership ($\beta = 0.334$ at a level of significance $p = 0.031$) and age ($\beta = 0.241$ at a level of significance $p = 0.019$) with innovative work behaviour. Trust is connected negatively with innovative work behaviour ($\beta = -0.355$ at a level of significance $p = 0.021$). The results of the moderated regression analysis of Model 4 indicate the presence of a moderation effect of psychological empowerment on the relationship between authentic leadership and innovative work behaviour ($b = -0.460$; $\beta = -0.305$ at a level of significance $p = 0.001$). The simple slope line which represents the higher levels of psychological empowerment is significant at the level of significance $p = 0.001$. The interaction between authentic leadership and psychological empowerment of the followers in stimulating innovative work behaviour is depicted in Figure 3.

Also, in the case of the interaction between authentic leadership and psychological empowerment of followers in stimulating the innovative work behaviour, we came to similar conclusions as in the case of transformational leadership. Followers exhibit the highest level of innovative behaviour when the levels of psychological empowerment are high, whereby the level of authentic leadership is not important, which is depicted by the only slightly inclined simple slope line. The importance of authentic leadership for innovative work behaviour is in the meantime depicted by the low levels of psychological empowerment. In this case, higher levels of authentic leadership lead to a higher level of innovative work
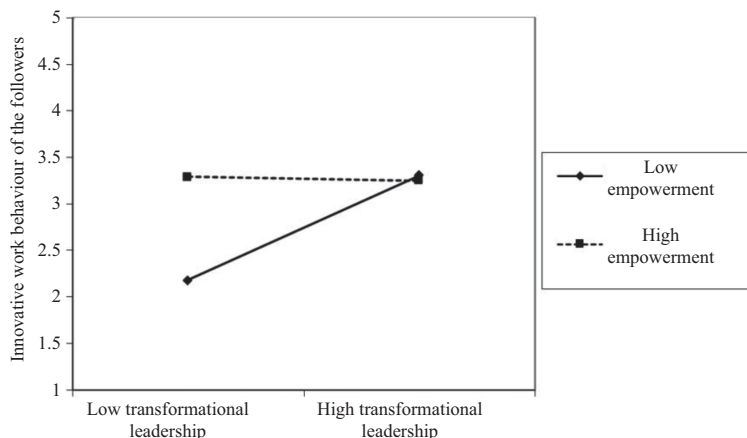

Figure 2.
The interaction between transformational leadership and the psychological empowerment of the followers in stimulating the innovative work behaviour

behaviour. Hypothesis 2 stating that psychological empowerment moderates the relationship between authentic leadership and innovative work behaviour, in such a way that the effect of authentic leadership is stronger if the level of psychological empowerment is higher, is confirmed for low or medium-levels of authentic leadership. The impact of psychological empowerment on the innovative work behaviour of followers decreases with higher levels of authentic leadership.

Qualitative research results
Our interviews indicate that authentic, as well as transformational leadership styles, are identified in the studied company. Proof quotations 1, 2, 3, and 4 present the executives' evaluation of the leadership style of the top management, as noted: Quotation 1: "When it comes to crises, I see in the foreground an authentic leader who must spread the decision. However, when it comes to growth, a transformational leader who understands the market and changes in the environment is needed. As a leader, he transforms the organization, the relationships in people, so that the motivation is greater. In our company, we have recognized both styles, prevented transformation, and have closed the transactional style that we created in terms of innovation and opposition rights".

Specifically, constant transformation is needed to be able for the company to respond to changes in creative and innovative ways: Quotation two: "We are at a stage where top management is constantly transforming itself into adapting to new needs in the value chain. We try to have a little micromanagement, which the level of aggressiveness in leadership is low, and that leaders treat other colleagues as peers. Responsiveness works with the organization in circles".

Further, our interviewee emphasized the need to empower the employees to be able to behave in an innovative way: Quotation 3: "People are fundamentally reluctant to change. The task of leaders is to put passivity into a program of change because if you do not change, they will be overtaken. And the failure of a large company means a failure for the company. As the comfort zone is strong, people with gradual lifting from this zone need to be prepared for change. Our leadership and attitude towards people are above average, and we lack the systematic and structured nature required by leadership. We need to devote more time to strategic management, as we currently focus on daily problems and short-term escalations". To illustrate the climate of innovative work behaviour, the interviewer highlighted the need for successful collaboration and communication: Quotation 4: "Because we have many
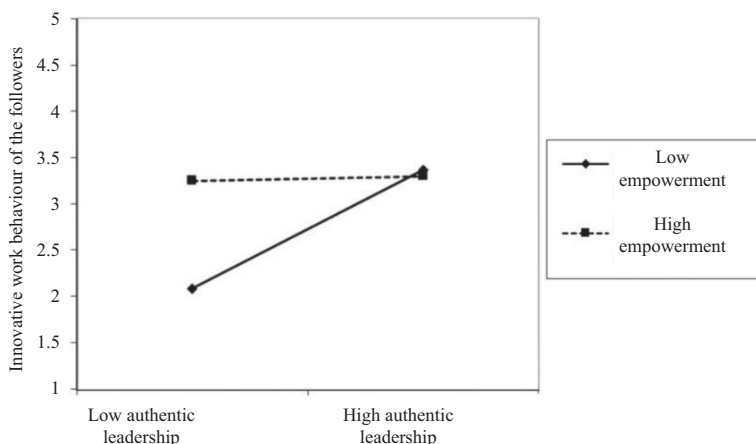
projects as an organization, it is crucial to get involved in the project, collaboration and communication. The work differs from project to project, so the team leader must work together with colleagues to define the microclimate of the team".

Leaders interviewed attribute leadership to innovative work behaviour. They justify this in the following ways: Quotation 5: "Leadership is key in the innovation process. As technology is the modus vivendi of a technology company, managing people is the biggest challenge". Along, leaders should psychologically empower their followers by walking the talk: Quotation 6: "Top management does not avoid change but is the first in change. It acts as an example". Moreover, the need for innovativeness must be recognized and supported by leaders, as noted in Quotation 7: "Top executives, with their way of doing things and actions, confirm that innovation is really important. Big changes can only happen with the support of top management". Nevertheless, the interviewee also expressed the need for innovative culture: Quotation 8: "To be innovative, we need to cultivate a culture for it. And our culture deals with the question of how to improve collaboration on internal projects, thus returning to leadership again".

Analysing the responses of the interviewed leaders, we find that they refer to the term change in different contexts, on the basis of which we believe that they implicitly see to transformational leadership as the dominant leadership style associated with innovative work behaviour. We further find that the evaluations of the interviewed leaders are consistent with the findings of the researchers (Gumusluoglu and Ilsev, 2009a; Hu *et al.*, 2013; Jung *et al.*, 2003; Mumford *et al.*, 2002), which show a positive relationship between transformational leadership and innovative work behaviour.

All interviewed leaders agree on its importance in relating leadership with innovative work behaviour, which is consistent with the findings of Černe *et al.* (2013), and Jung *et al.* (2003, 2008). The following are selected interviewee's quotations on empowerment and support for innovative work behaviour. In their words: Quotation 9: "The higher you are in the hierarchy, the more time you need. Because the main task of management is to be available, this can be achieved by empowering employees"; Quotation 10: "Empowerment increases leadership's impact on innovation, while support for innovation is a prerequisite"; Quotation 11: "Empowerment is not helpful if you are not prepared as an empowered associate".

Discussion

Empirical evidence of the relationship between transformational leadership and innovative work behaviour is scarce and inconsistent (Nederveen Pieterse *et al.*, 2010). The present survey highlights this relationship (and the relationship with authentic leadership) by studying the psychological empowerment of followers as the moderating role. It is important to note the combination of qualitative and quantitative research, which both show the importance of psychological empowerment when leaders (transformational or authentic) want to stimulate innovative work behaviour. The chosen research setting enabled us to not focus only on the perspective of the followers (qualitative part of the study), but also adding the leaders' perspective (quantitative part). In line with Jogulu and Pansiri (2011), when the qualitative findings confirm the quantitative, the validity and reliability of the research performed are increased. However, our results suggest that psychological empowerment moderates the relationship between leadership and innovative work behaviour both in authentic and transformational leadership. There are essential theoretical contributions that follow these findings.

Theoretical contributions
The first theoretical contribution to the innovative work behaviour literature is related to our evidence that such an approach not only enables us to understand a full spectrum of

the moderating role psychological empowerment has on the relationship between authentic/transformational leadership with innovative work behaviour (Denti, 2013), but also predominantly focuses on how immediate supervisors encourage the innovative work behaviour of the followers, thus looking at the leadership process, leader-follower relations and follower perceptions of these associations simultaneously to support innovativeness. Moderated regressions show that psychological empowerment plays a moderator role that is present in both cases, authentic and transformational leadership. The highest levels of innovative behaviour are achieved in both cases, when the level of psychological empowerment is high. The innovative work behaviour in the case of high levels of psychological empowerment proves to be unaffected by the changes in the level of either the authentic or the transformational leadership. The role of both leadership theories is visible in the case of low levels of psychological empowerment when higher levels of authentic and transformational leadership led to a higher level of innovative work behaviour.

The second theoretical contribution is aimed at authentic and transformational leadership theories. Employees felt more empowered when authentic and transformational leaders were less involved in supervising and micro-managing their followers. Such leadership behaviour enabled the employees to feel respected and autonomously motivated (Yang, 2015) and is connected with the employees' inclination to innovation, as it contributes to an environment that stimulates innovation (Ryan and Tipu, 2013) and allows the employees to have control and to increase their faith in successfully managing the challenges (Chen *et al.*, 2011; Cha *et al.*, 2019). Yang (2015) concludes that the non-involvement of leaders stimulates psychological empowerment, whereby highly-skilled workers appreciate the autonomy because of the non-involvement of the leaders and in the presence of self-control, exhibit innovative behaviour (Crawford *et al.*, 2003). When followers have low psychological empowerment, they feel less autonomously motivated. Consequently, their innovative behaviour is less responsive to different levels of authentic and transformational leadership. In the case of both leadership theories, the followers are the most innovative when their leaders are more authentic or transformational.

The third theoretical contribution has also been interpreted from the viewpoint of the nature and structure of the studied technological company which, on a daily basis, carries out over 300 projects using a multi-spatial and multi-technological approach. The company is structured in project teams; people usually being part of more than one team. Considering the above, the authors assess that such an environment is less sensitive to leadership as employees who work on more teams, in different countries and with different leaders, also virtual, were less likely identify themselves with such leaders and are thus less responsive to elements of authentic and transformational leadership.

The fourth theoretical contribution relates to the overlapping and the differentiation of the constructs of the authentic and transformational leadership theories, which was, as a topical subject, put forward by Anderson and Sun (2015b). Regardless of the notable developments made both theoretically and empirically, academics have expressed concerns regarding the contribution of authentic leadership to the existing theory of leadership (Banks *et al.*, 2016). In contrast, the authentic leadership overlaps conceptually with many positive constructs of leadership. A careful examination of the overlapping suggests that authentic leadership can incorporate many theories of leadership, including transformational, charismatic, servant, and spiritual, sideways with other forms of positive directions in leadership (Avolio and Gardner, 2005). Besides, previous studies already outline the concerns about whether authentic leadership is sufficiently distinct from existing theories (Banks *et al.*, 2016). According to Spell (2001), it was demonstrated that the issue of distinctiveness between authentic leadership and other positive theories of leadership could be seen as the 'old wine in new bottles'. Investigation of the overlap of the above-mentioned theories stresses the

importance of a leader's self-awareness, positive modelling and ethical organizational context while positing positive effects on individual, team, and organization performance.

We register a high level of correlation between the authentic and transformational leadership (0.85), only an implied discriminant validity between them (the average variance extracted AVE for authentic leadership was 0.73, for transformational leadership 0.75, and the common variance between the constructs was 0.72) and only slightly different patterns of interaction of authentic and transformational leadership with psychological empowerment in impacting innovative work behaviour. The latter was also apparent from the simple slope lines, which, in the case of both leadership theories, show an almost identical position. The results of our survey show a significant overlap between authentic and transformational leadership constructs. The overlap is also evident from the conditions of positive organizational behaviour (optimism, flexibility, and hope) which represent important factors in the emergence of authentic leadership (Anderson and Sun, 2015b; Weiss *et al.*, 2018) and are connected to both, authentic (Gardner *et al.*, 2011) as well as to the transformational leadership (Peterson *et al.*, 2009).

However, scholars implicitly pointed out the theoretical distinctions of the above-mentioned theories. Namely, transformational leadership does not implicitly discuss the positive psychological capital and the follower and leader relational transparency (Luthans *et al.*, 2007) as the notable differences between conceptualized elements of authentic versus transformational leadership. With our study, we capitalized on this potential of the implicit differentiation of the selected theories, to explore our research question, outlining how psychological empowerment moderates the relationship between two different leadership constructs, (1) authentic and (2) transformational leadership and innovative work behaviour. Accordingly, this is the first study to consider the moderating effect of psychological empowerment in stimulating innovative work behaviour using a mixed-method research approach for supporting the empirical redundancy among studied authentic and transformational leadership constructs.

As the focal outcome of the transformational leadership is performance, our study contributed with the mixed method approach to support the higher outcome of the authentic leadership, that is beyond performance, the internalized- moral perspective of a leader on the innovation process, as for the example proven by Quotation 10: "Empowerment increases leadership's impact on innovation, while support for innovation is a prerequisite". Moreover, the distinction between authentic leadership and transformational leadership is seen evidently in the higher, positive psychological dimension of the authentic leader, that is vital in the time of crises, as for example proven by Quotation 1: "When it comes to crises, I see in the foreground an authentic leader who must spread the decision. However, when it comes to growth, a transformational leader who understands the market and changes in the environment is needed. As a leader, he transforms the organization, the relationships in people, so that the motivation is greater. In our company, we have recognized both styles, prevented transformation, and have closed the transactional style that we created in terms of innovation and opposition rights". Hence, we consider that those evaluations contributed to the discussion on the distinction between authentic and transformational leadership, as well they open a promising avenue for the future research agenda of authentic and transformational leadership overlaps and differences.

The fifth theoretical contribution relates to the qualitative research results that promoted situations showing the importance of psychological empowerment when leaders, transformational or authentic, want to stimulate innovative work behaviour. We started this paper by outlining the research question that motivated our mixed-method research design: *how psychological empowerment moderates the relationship between two different leadership theories, (1) authentic and (2) transformational leadership and innovative work behaviour.* Our qualitative research delivered additional in-depth insights for the actual debate on the

overlapping of the selected leadership theories in stimulating innovative work behaviour. More specifically, our qualitative records show a slight difference in authentic and transformational leadership evaluations, which contribute to the discussion on the overlapping of the constructs as mentioned earlier, and therefore open a promising avenue for the future research agenda. Our qualitative study extends the current understanding of the above-studied leadership theories by positioning them in innovative work environments. Qualitative interviews showed how leaders perceive the value of empowerment to support the development of innovative behaviour, stating "empowerment increases leadership's impact on innovation …," and "empowerment is not helpful if you are not prepared as an empowered associate". Positive psychological dimensions of authentic leaders have been demonstrated. Our study goes beyond the observation of the importance of leadership theories by demonstrating how psychological empowerment stimulates the innovative outcome at the individual level.

The results on the role of psychological empowerment comply with past studies that show the importance of psychological empowerment for innovative work behaviour, for example, Jung *et al.* (2003), Spreitzer (1995), and Thomas and Velthouse (1990). Considering the importance of psychological empowerment in the relationship between authentic and transformational leadership with innovative work behaviour, the authors also expect its role in the connection of the examined leadership styles with other behaviours. In this respect, Nederveen Pieterse *et al.* (2010) put forward the effects of psychological empowerment on work, which requires high knowledge intensity. The results of the trust, however, offer the opportunity for exploring the conditions under which low confidence is connected with positive outcomes.

In addition to before mentioned theoretical contributions, there are also important theoretical and managerial implications of the study.

Theoretical and managerial implications
An important theoretical implication of this study may be seen in establishing a boundary condition in terms of psychological empowerment to the ability of transformational and authentic leadership in stimulating innovative work behaviour. In addition, to support the findings of the study of Nederveen Pieterse *et al.* (2010) that followers need to be empowered to act on the inspirational appeal of transformational leadership, an important theoretical implication is also the extension of the before mentioned findings to the authentic leadership theory.

The additional theoretical implication, regarding the psychological empowerment as the motivator of the innovative work behaviour, could be seen in terms of psychological empowerment being the precondition for innovative work behaviour. This result is in-line with previous research that highlighted the importance of psychological empowerment for innovative work behaviour (e.g. Nederveen Pieterse *et al.*, 2010). Nevertheless, our study is to be understood as a response to the call of the researchers (Anderson *et al.*, 2014) on greater integration of the innovation research that would contribute more to the field of innovativeness and creativity.

Our research offers several practical implications for leadership decisions in general and specific, authentic and transformational leadership interventions within companies to enhance the benefits of innovative work behaviour in the era of innovativeness (e. g. IT service, retail). The important question is, what can authentic and transformational leaders in business society and in general do to stimulate innovative work behaviour? Above all, authentic and transformational leaders should rethink the implementation of different workshops, coaching, meet-ups, team-building, seminars, and other HRM practices, to stimulate the psychological empowerment of the followers with an aim to support their innovative work behaviours and therefore overall organizational innovation capability.

Nevertheless, leaders should be aware that psychological empowerment moderates the relationship between leadership and innovative work behaviour both in authentic and transformational leadership. Leaders with a higher level of authentic and transformational leadership can expect that they have a higher impact on the innovative work behaviour of the followers. Our study suggested that leadership styles might affect innovative work behaviour in business practice. Therefore leaders should stimulate themselves to go through the process of further (self-)development to achieve a higher level of authentic or transformational leadership in order to be able to psychologically empower their followers on the higher levels.

We propose that to stimulate innovative work behaviour, leaders should nurture the psychological empowerment, which is also directly connected to innovative work behaviour (Afsar *et al.*, 2014). This has important implications for employees' motivation and strategic management; in addition, to stimulate innovative work behaviour of employees, the leaders in the age of innovativeness should gain more time for strategic decisions, and not wasting time with the micromanagement. The followers benefit from their intrinsic motivation, as within the project, they have the freedom of deciding on how to implement the activities, and they believe in their capacities to carry out the project and know their work is important.

Furthermore, our findings offer practical advice for leadership, particularly in settings with lower levels of psychological empowerment of employees. In such cases, we advise leaders to stimulate authentic and transformational leadership practices. Our recommendation is in line with recommendations posited by Sharifirad (2013): "Results of the analyses revealed that leader's active empathetic listening and psychological safety fully mediated the influence of transformational leadership on innovative work behaviour". In such cases, leaders with a higher level of authentic and transformational leadership have a higher impact on innovative work behaviour.

Here, the authors see additional practical implications for companies operating in innovative settings to set up a competence centre. On the basis of this study, we propose the integration of a transformational leadership programme which could motivate the followers to believe in the vision of transforming the company, to define a new vision, and help to implement the new organizational process for the era of complexity. The authors suggest contemporary organizations competing in the era of complexity to develop and implement authentic leadership programme. The authentic leaders namely respect their followers who consequently feel their work has more meaning and are intrinsically motivated, which in turn stimulates their innovative behaviour (Krishnan, 2012; Laschinger *et al.*, 2004; Denti, 2013).

Limitations and avenues for further research

Despite the many contributions of this research, some limitations must be acknowledged. *The first limitation* of our study is related to the common method bias, e.g., self-report measures. Indeed, underreporting could have led us to underestimate the frequency with which the international company stimulates innovative work behaviour. The given results likely constitute a higher bound estimate of the employee of the international company who actually participates in innovative work behaviour, because respondents are keen to report to engaging in behaviours that are viewed as desirable according to the norms of practice. However, Hernaus *et al.* (2019) suggest that using self-reported data gathering strategies actually enables researchers to capture a broader array of such behaviours. Self-reported data gathering is appropriate due to financial and time limitations to mitigate threats of method effects (Conway and Lance, 2010). In order to mitigate the common method bias, data were collected twice from the same respondents, namely for independent and dependent variables at different points of time. In addition, also mixed-method approach is chosen to combine qualitative and quantitative research findings.

The second limitation of the present research is the sample studied. The hypotheses were tested in one company and on 126 employees. The in-depth empirical support contributes to the reliability and validity of the measurements and the resulting interpretation of the strength of the connections, therefore putting in the question the generalization of the study. Gumusluoglu and Ilsev (2009a) believe that the finding, in their case, cannot necessarily be generalized to other service companies in different sectors and/or countries. For this reason, Černe et al. (2013) suggest, in order for further studies to be more generalizable, to include more teams from various different companies and companies from other countries and sectors. The opportunity to test a higher number of companies from different sectors is also recognized by Jung et al. (2003), thereby foreseeing more thorough testing of the hypotheses. Another limitation is the environment complexity. Even taking into account the moderation mechanisms, the behaviour of the members of the organization takes place in a more complex situation.

Among the avenues for further research on leadership and innovation, the authors suggest the following: (1) the implementation of additional mediation/moderation mechanisms (Avolio et al., 2009), for example, the matching of expectations as to the empowerment between the leaders and their followers (Wong an Kuvaas, 2013), as a moderator of the relationship of the selected leadership theory with the innovative work behaviour. Also, further studies might, for instance, examine organizational structure as the measure of the leadership success with one of its main purposes, as a moderating mechanism in stimulating the innovative work behaviour; (2) the implementation of other leadership theories: for example, ethical, and transactional leadership (Anderson et al., 2014); (3) further research of the comparison and overlapping of authentic and transformational leadership (Anderson and Sun, 2015b); (4) greater emphasis on qualitative research (Paulsen et al., 2013); (5) research at a broader level and beyond individual levels; and (6) the inclusion of a higher number of companies from one sector, or from different sectors, cultures and countries.

Conclusion
As the success and survival of businesses are dependent on the capability for sustainable innovation, the analysis of the factors impacting the innovative work behaviour is increasingly important. Leadership is recognized as one of the most important factors of innovative work behaviour. In the field of empirical research on leadership and innovative work behaviour, there is an inconsistency of findings, which is why it is necessary to identify and investigate more mediators and moderators, helping to clarify the relationship between leadership and innovative work behaviour.

This study analyses the moderating role of psychological empowerment in the relationship between authentic and transformational leadership in stimulating innovative work behaviour. The study results revealed that psychological empowerment has a relevant moderating role in the relationship between leadership and innovative work behaviour, both in authentic and transformational leadership. The research highlights different perspectives of the boundary conditions between authentic and transformational leadership in stimulating innovative settings at the individual level. Our research may encourage future scholars to more fully consider dynamics within innovative work behaviour at the team and organizational levels.

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