

Commitment-based HRM and inbound open innovation in SMEs: the role of organizational trust and developmental culture

Commitment-based HRM

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Abstract

Purpose – Although scholars have been studying human resource management (HRM) and open innovation (OI), yet there is less attention to this relationship in the context of small- and medium-sized enterprises (SMEs). This paper aims to bring some insights about the human side of inbound open innovation (INOI) in SMEs. The goal is to better understand the role of organizational trust (OT) and developmental culture (DC) in the interactions between commitment-based HRM (C-HRM) and INOI.

Design/methodology/approach – The present study employs partial least squares-structural equation modeling to investigate the interrelationships among constructs, utilizing data gathered from a sample of 206 SMEs.

Findings – The study's empirical results indicate that the presence of OT serves as a complementary factor in mediating the relation between C-HRM and INOI. Furthermore, the analysis shows that there exists a moderating influence of DC in the relationship between C-HRM and INOI.

Practical implications – The role of HRM practices is important in developing OT and consequently foster INOI in SMEs. To achieve INOI, SMEs need a DC that induces C-HRM toward an OI approach.

Originality/value – This study adds to the understanding of the interactions between C-HRM practices and INOI in SMEs. The comprehension of the mediating function of OT and the moderating effect of DC serve to enhance the scholarly understanding of the human dimension of OI research.

Keywords Commitment-based HRM, Organizational trust, Developmental culture, Inbound open innovation, SMEs

Paper type Research paper

Introduction

In order to remain competitive and embrace innovation, many companies are consequently adopting open innovation (OI) approaches (Lichtenthaler, 2009; West and Gallagher, 2006), and for many companies, this is a requirement because it is not possible to develop all the solutions internally (Lichtenthaler, 2011). Traditionally, firms have been focusing on internal

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resources to innovate (Calantone and Stanko, 2007). However, over the past decades, a shift from closed innovation strategies to externally seeking for new sources of knowledge and technology has been rapidly embraced by modern businesses (Engelsberger *et al.*, 2022; Naqshbandi *et al.*, 2023; Naqshbandi and Kamel, 2017; Zheng *et al.*, 2020). Accordingly, Bogers *et al.* (2018a, b) assert that access by organizations to external information is a significant factor in their innovation performance. The adoption of an open approach toward external sources enables firms to broaden their knowledge base and technological prospects by incorporating ideas from external entities (Laursen and Foss, 2003).

Apart from the studies conducted in OI, empirical literature concerning OI in small-and medium-sized enterprises (SMEs) requires further attention by researchers. According to Popa *et al.* (2017), although the significance of OI in SMEs is widely acknowledged, most research efforts have concentrated on high-production large organizations. OI is less implemented in SMEs than large firms; however, it is crucial for them to remain competitive in the long term (Gassmann *et al.*, 2010). Usually, because of the “liability of smallness,” SMEs suffer to generate their resources to innovate (Knol and Stroecken, 2001). Thus, implementing an open strategy might help them overcome their resource challenges (Chesbrough, 2010; Lee *et al.*, 2010).

Contemporary research has identified various factors that impact SMEs’ OI capability (Martinez-Conesa *et al.*, 2017; Popa *et al.*, 2017). The existing body of literature highlights the significant impact of various factors on a firm’s innovation. Drawing upon resource-based view (RBV), in order to compete in the market, create value and increase business performance, firms should invest in resources that are valuable, rare and inimitable (i.e. human resource) (Barney, 1991; Peteraf, 1993). Specifically, there is a strong emphasis on the pivotal role played by the utilization of strategic resources within an organization, such as human resources, in enhancing firm’s innovation capability (Çera *et al.*, 2023; Engelsberger *et al.*, 2022; Haar *et al.*, 2022; Majchrzak *et al.*, 2023; Naqshbandi *et al.*, 2023). According to Chesbrough and Crowther (2006) and Van De Vrande *et al.* (2009), lack of employee internal commitment and change resistance are perceived as important barriers toward OI adoption in the SMEs context. Nevertheless, despite the recognition of the significance of human resource management (HRM) practices in enhancing innovation performance in SMEs, there is a dearth of empirical research that has elucidated the potential impacts of HRM practices on the capability of SMEs to engage in OI (Le and Le, 2023). Particularly, existing literature suggests that further research is needed to explore the potential impact of commitment-based HRM (C-HRM) practices on specific types of innovation, such as OI (Ceylan, 2013; Park *et al.*, 2019). Hence, to address this gap, this study has developed a research model to inspect the potential direct effect C-HRM practices exercise on inbound open innovation (INOI) in the SMEs context.

Furthermore, our study delves into the impact of HR practices on INOI, while also exploring the underlying mechanisms through the examination of two crucial intervening variables such as organizational trust (OT) and developmental culture (DC). Prior research acknowledges the influence of HRM practices on OI, but it is important to consider additional interactional factors between HRM and OI (Naqshbandi *et al.*, 2023; Podmetina *et al.*, 2013). Hence, to respond to these calls, our study presents OT as a possible mediator between C-HRM and INOI. Relying on social exchange theory (SET), when employees perceive high commitment, they offer positive support to their organization (Cropanzano and Mitchell, 2005), therefore implying reciprocity is the core element in which relations are interlinked (Blau, 1964). As a consequence, a work environment with high level of trust influences employees to openly share their ideas and be more innovative and creative, which in return improves work processes (Vanhala and Ritala, 2016). In the same logic, Vanhala (2019) considers trust as a knowledge sharing enabler. Apart from existing studies, Vanhala (2019) argues that OT and its underpinnings are not very clear and future studies can consider this

variable in knowledge sharing organizational studies. As a result, to bridge these research gaps, this study will examine the mediating mechanism by which OT can intervene within the impacts of C-HRM practices on INOI in SMEs context.

We further suggest that DC shapes the relations between C-HRM practices and INOI. [Martín-de Castro \(2013\)](#) argue that culture is very important for innovation management through its influence in organizational processes and systems. Following the social context theory (SET), the social context of organization shapes employees' thoughts on their organization ([Ferris et al., 1998](#)). The HRM system is a very important part of organizational management and corporate culture as crucial components of the "social context" shape HRM practices' implementation ([Ferris et al., 1998, 1999](#)). When DC is present, the execution of human resource practices will be more effective, and consequently, innovation will be enhanced ([Wei et al., 2011](#)). Talking about OI, organizational culture exercises a high impact on altering the work environment, processes and systems to embrace new knowledge from external parties and using it in internal activities for an innovative performance ([Chaudhary et al., 2022](#); [Naqshbandi et al., 2023](#); [Remneland Wikhamn et al., 2022](#)). [Martinez-Conesa et al. \(2017\)](#) show how important organizational culture is to OI in SMEs and encourages future researchers to include it in their studies. In the same light, [Chaudhary et al. \(2022\)](#) see culture as an intraorganizational factor that needs to be paid more attention to in the OI process of organizations, and future research could look at it as a moderator in this context. Therefore, our study strives to clarify the possible moderating mechanism of DC in the C-HRM and INOI connection in SMEs context.

In a nutshell, the originality of the present research rests on answering mentioned limitations by (1) investigating the interactive influences of C-HRM practices on INOI; (2) analyzing the mediating role of OT between C-HRM and INOI; and (3) analyzing the moderating role of DC between C-HRM and INOI, which have been overlooked by researchers in HRM and OI in general, and in the SMEs sector in particular. Consequently, this research seeks to address the above-mentioned research gaps and answer the following questions:

- RQ1.* Do C-HRM practices directly influence INOI?
- RQ2.* Do OT mediate the influences of C-HRM practices on INOI?
- RQ3.* Do DC moderate the relation between C-HRM practices and INOI?

The subsequent sections of this paper are organized as follows: theoretical background and hypotheses; research methodology; research findings; discussions and theoretical implications; practical implications; and lastly, conclusions and directions for further studies.

Theoretical background and hypotheses

The current study retrieved support from three perspectives: RBV ([Barney, 1991](#); [Wade and Hulland, 2004](#)), SET ([Blau, 1964](#); [Cropanzano and Mitchell, 2005](#)) and social context theory ([Ferris et al., 1998](#)). The reason for doing so is that the RBV helps to develop an understanding about the importance of HRM instrument in overall organizational performance and ability to innovate. In addition, SET becomes relevant in developing an organizational culture that facilitates the achievements of business objectives while developing HRM practices that are in line with the social context where the organization operates. [Barney \(1991\)](#) and [Wade and Hulland \(2004\)](#) have presented compelling evidence in support of the RBV framework arguing that organizations possess unique resources that allow them to gain a competitive edge and sustain it over time, leading to long-term performance. [Barney \(1991\)](#) argues that an organization's resources encompass its assets, capabilities, information, knowledge and other pertinent factors (e.g. human resources) that enable it to implement strategies aimed at enhancing its efficacy and competitiveness. This theoretical perspective highlights the

importance of strategically managing the workforce by focusing on attracting, developing and retaining talented employees who have the capability to create and execute knowledge and skills that distinguish an organization from its competitors. However, in order to ensure an effective use of RBV, it is important that the relationships between individuals within the organizations are constructive, supportive and nurture a sense of mutual respect and collectivistic effort and compensation. Having said this, SET helps organizations to design governing processes and procedures that reflect fairness and reciprocity, thus contributing to positive employment relationships (Chernyak-Hai and Rabenu, 2018). Singh *et al.* (2021) comment that when management establishes supportive working conditions, opportunities for development and fair treatment, employees are more likely to reciprocate behavior that illustrates stronger commitment, loyalty and enhanced performance. According to Aryee *et al.* (2002), when employees feel that their employer is supporting them, this increases trust and leads to a reciprocal commitment from the employees. As a result, when employees are committed to the company, it can lead to improved performance indicators such as innovation (Vanhala and Ritala, 2016).

The social context theory is also relevant to this study (Ferris *et al.*, 1998) because it recognizes that organizations operate within a larger societal and cultural context. It acknowledges that HRM practices and outcomes are influenced by external factors such as societal norms, legal regulations, cultural values and economic conditions (Ferris *et al.*, 1998). Social context theory highlights the importance of aligning HRM practices with the broader societal context, taking into account societal norms, cultural values, regulatory frameworks and economic conditions in order to design a harmonious and effective workplace. According to Ozcelik and Uyargil (2015), when an organization has a strong and supportive culture, all executives and senior members are more motivated to effectively implement HRM practices and policies. Since HRM is an effective management practice, an appropriate culture would make it easier to implement it and thus strengthen its impact on firm innovation (Wei *et al.*, 2011).

The impact of C-HRM in developing and consolidating OT is discussed widely in the literature acknowledging the important role it plays in strengthening the relationship between individuals and organizations (Naqshbandi *et al.*, 2023; Rubel *et al.*, 2018). Researchers Vanhala and Dietz (2015) illustrate that because of the bond between individuals and organizations, C-HRM establishes a working environment that leads an employee to engage constructively in management tasks and initiatives thus positively contributing to organizational performance. When discussing the dimensions of trust in the workplace, Safari *et al.* (2020) and Vanhala and Dietz (2015) categorize trust in two forms, known as interpersonal trust, where people build trust in specific individuals, and impersonal trust that is attributed to an organization. Impersonal trust is developed as a result of an individual's interaction and engagement with organizational systems, processes and structures, while interpersonal trust evolves from personal relationships and bonding between individuals (Vanhala and Ahteela, 2011). Due to the complexity of the business landscape which is characterized by high levels of uncertainty, competition and risks, impersonal trust is discussed as a potential source to establish competitive advantage (Vanhala and Ahteela, 2011). Research shows that HRM commitment practices help to promote and consolidate impersonal trust where an employee perceives an organization as an entity that delivers positive and beneficial experiences or organizational actions are not disadvantageous (Hong *et al.*, 2019; Vanhala and Dietz, 2015). Therefore, this study hypothesizes that:

H1. C-HRM practices have a positive effect on OT.

The RBV and C-HRM practices are interconnected in explaining the human capital as a source of a competitive advantage. C-HRM practices promote a sense of employee commitment, engagement and loyalty, while the RBV highlights that an organization's

distinctive resources and capabilities, including its human resources, contribute to its competitive advantage. Studies presented by Assensoh-Kodua (2019) and Collins (2021) pinpoint that the fundamental purpose of C-HRM practices serves to transform human capital into a strategic resource which aligns with the RBV approach. The human capital is crucial in promoting open innovation (OI) (Singh *et al.* 2021), and Chesbrough (2003) comment that OI is the practice of inflows and outflows of knowledge with the aim of speeding up internal innovation and be able to increase market accessibility for external use of innovation. OI is characterized by two dimensions, inbound, ability to access and utilize external knowledge (Cohen and Levinthal, 1989; Vanhala and Ahteela, 2011; Zheng *et al.*, 2020) and outbound, where an organization aims to commercialize technologies through outflows by seeking external actors who operate on more suitable business models for a particular technology developed (Naqshbandi *et al.*, 2023). Referring to the knowledge-based view (KBV), SET and contingency theories, evidence (Assensoh-Kodua, 2019; Chernyak-Hai and Rabenu, 2018; Collins, 2021) shows that innovation is a process of capitalizing on knowledge and discoveries of others where instruments of knowledge management and absorptive capacity have a direct impact on OI. In the context of OI, knowledge management seeks to synthesize and codify knowledge through the internal and external sources and develop management systems that support employees in sharing experiences and expertize to capitalize on market opportunities. Furthermore, absorptive capacity focuses on assimilating external knowledge and integrating it within organizational systems with the intention of enhancing organizational performance. Elezi (2021) explains that absorptive capacities require a collaborative approach involving different teams and organizational functions in order to effectively absorb, filter and apply external knowledge.

Nevertheless, organizations as social entities rely on employees to access and utilize external knowledge and C-HRM practices are vital in synchronizing independent and complex activities and actions across different business functions and employees. C-HRM practices focus on designing a working environment that promotes learning and knowledge sharing thus helping employees to develop learning abilities and optimize application of knowledge and expertise when engaging with external sources of knowledge. Hong *et al.* (2019) and Naqshbandi *et al.* (2023) highlight that building learning direction for employees is crucial in supporting employees to engage with external sources of knowledge and contribute to innovation. Therefore, this study hypothesizes that:

H2. C-HRM practices have a positive effect on INOI.

Trust is essential to the effective functioning of relationships between individuals and organizations. It is about willingness of individuals to be affected by the conduct of others, on the assumption that such action will be fair, reliable and beneficial (Tzafrir, 2005; Yu and Takahashi, 2021). In collaboration, sharing of information and promoting risk taking is essential that we trust one-another; these are all very important factors for innovation to thrive. OI promotes the importance of seeking outside sources of knowledge and ideas, in order to complement internal innovation efforts. In order to boost innovation processes, it involves working with external partners, customers, suppliers and even competitors. OI acknowledges that there is room for all valuable knowledge and ideas to reach out beyond the boundaries of a single organization. The significance of reciprocity and mutual advantage is emphasized in the SET (Chernyak-Hai and Rabenu, 2018; Cropanzano and Mitchell, 2005). The organization essentially takes part in an extensive network of exchanges when it pursues OI practices. Organizations are expected to gain significant input in return from the sharing of knowledge, resources and expertise with external partners. This reciprocal exchange contributes to the development of trusting relationships (Brandl, 2021), in line with the principles of SET (Cropanzano and Mitchell, 2005).

Ozgun *et al.* (2022) explain that developing a working environment where learning practices are integrated across different organizational stakeholders sets favorable grounds for innovation to emerge. However, as the dynamics of OI are more complex due to numerous internal and external stakeholders, the effect of learning practices and knowledge required to promote OI relies on the role of trust as an instrument that supports knowledge diffusion. For an impactful INOI, El Maalouf and Bahemia (2023) suggest that organizations should go beyond managerial practices that are associated with knowledge creation and ensure the embedment of practices that develop knowledge transaction flows. Nevertheless, the suitability and effectiveness of knowledge transaction flows will depend on trust (Brandl, 2021) and organizational capabilities in managing diverse networks of stakeholders and contributors which is a characteristic of OI (Yu and Takahashi, 2021). Having said this, McCauley and Kuhnert (1992) explain that the trust employees develop toward organizations will depend on how efficiently and fairly organizational systems and practices are dispersed across the organization. Promoting decentralized decision-making, incorporating internal career progression opportunities, communicating job security and demonstrating transparency and fairness through compensation and reward schemes are acknowledged to contribute to the development of OT (Rhee *et al.*, 2018; Vanhala and Dietz, 2015). An increased level of impersonal trust leads to stronger employee commitment and engagement. Employees are inclined to display reciprocal behavior toward employers' trustworthiness and commitment, thus strengthening impersonal trust. Overall, it is the influence of SET, OT and OI that shapes how an organization promotes innovation. The dynamic of fairness, reciprocity and mutual benefit that underlies such interactions is guided by the principles of SET while trust serves as a bridge between those concepts enabling knowledge exchanges in both internal and external contexts. The supportive environment in which innovation takes root is supported by this interaction. Therefore, this study hypothesizes that:

H3. OT has a positive effect on INOI.

According to Guest and Conway (2002) the implementation of C-HRM practices leads to higher levels of trust between employees and organizations. Several studies have highlighted that C-HRM practices associated with job security, performance appraisal and professional development opportunities are positively linked with OT (Hong *et al.*, 2019; Obradović *et al.*, 2021), which in return nurture OI. OT is vitally important in supporting employees to exchange ideas, knowledge and cocreate collaboratively. While interpersonal trust has been subject of several studies (Safari *et al.*, 2020; Zheng *et al.*, 2020) and acknowledged for its importance regarding employee performance and commitment, research shows that impersonal trust may have more substantial results in innovation (Ahteela *et al.*, 2010; Zheng *et al.*, 2020). Literature (Safari *et al.*, 2020; Zheng *et al.*, 2020) discusses that employees display innovative thinking and behavior in organizations that they trust as a result of understanding organization's strategic direction and having established a sense of alignment with organizational values through transparency, honesty and fairness. OI in organizations is associated with personal behavior of staff whose C-HRM practices are integrated and synchronized purposefully to enhance organizational knowledge and its ability to innovate (Obradović *et al.*, 2021; Zheng *et al.*, 2020). Safari *et al.* (2020) argue that OT has a significant positive effect on innovation and in particular emphasize the role of C-HRM practices on job satisfaction and its role in promoting innovation in the workplace. Hence the third hypothesis of this study is:

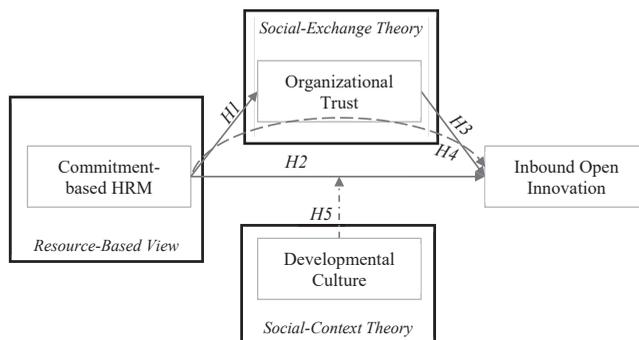
H4. OT mediates relation between C-HRM and INOI.

To understand how external factors affect and shape these interactions, social context theory has a role to play in the relationships between HRM practices based on commitment principles, DC as well as INOI. According to social context theory (Lazarrotti *et al.*, 2015), organizations do not exist in isolation, and they are influenced by wider contexts with an

impact on their practice, behavior or results. The connection between social context theory and a DC can be understood based on how the principles of social context shape the establishment and dynamics of a culture that fosters ongoing learning, advancement and enhancement within an organizational setting.

It has been suggested in the literature of organizational culture that a DC focuses on flexibility and change and is concerned with growth, creativity and external adaptation (Gimenez Espin *et al.*, 2023; Lau and Ngo, 2004). DC is driven by continuous learning and employee development through a combination of initiatives that may include mentoring, training programs, feedback instruments and career advancement. Promoting the undertaking of organizational initiatives and experiments that are driven from a sense of curiosity toward learning and continuous improvement set the DC as a prerequisite for OI. However, research highlights that when working on establishing a DC fit to nurture inbound OI, management needs to plan about overcoming challenges associated with resistance to change, lack of trust and collaboration. Barjak and Heimsch (2023) explain that it is important for organizations to shift in mindset and managerial practices in order to employ a culture that fosters inbound OI. Barjak and Heimsch (2023) highlight the risk of organizational silos which is attributed to rigid structures and hierarchies that may compromise the knowledge transaction flows and thus threatening an organization’s ability to capitalize on intellectual resources and effectively support inbound OI. Operating on a silo mentality sets barriers to the development of impactful knowledge networks needed to generate, disseminate and assess the relevance of individual, departmental and organizational knowledge. Therefore, it is important that organizations develop a culture where collaboration is valued and rewarded (Yun *et al.*, 2020) as inbound OI is driven by employees who play a key role in the network of knowledge transaction flows. Yun *et al.* (2020) explain that DC values diversity and inclusivity which offer an opportunity to increase employee participation and engagement across organizational initiatives thus contributing to knowledge flows that further strengthen a culture that supports inbound OI. In summary, a DC functions as a moderator, amplifying the favorable results arising from C-HRM practices and their influence on inbound OI. The spirit of OI is complemented by the culture’s focus on education, advancement, fostering risk and collaboration as a driver for its employees to come forward with their best ideas and effort toward cooperation in innovative activities. Therefore, this study hypothesizes that: (see Figure 1).

H5. DC moderates relation between C-HRM practices and INOI.



Note(s): — Direct effect
 - - - Mediating effect
 - · - · - Moderating effect
Source(s): Authors’ own

Figure 1.
 Conceptual framework

Research methodology

Context

The research was carried out in Albania. SMEs are essential drivers of sustainable economic growth in the country. SMEs operating in Albania employ more than 80% of the labor-age population, compared to the EU average of 67%. Albanian SMEs provide about 68% of the country's total value added, while the average in the EU is about 58% (OECD, 2022). According to the European Commission (2021) enlargement report, Albania has made good progress in implementing the Small Business Act (SBA) since the publication of the previous report. Albania has achieved its highest average scores in the institutional and regulatory framework for SME policy-making. However, further steps need to be taken to improve business growth and access to finance, such as developing the venture capital market, business enabling policies (Çera *et al.*, 2019) and increased trust in the government (Çera *et al.*, 2021). Additionally, specific measures such as coordination of innovation policy framework, investments in high-skilled workers and digitalization are required to strengthen the innovation capacity of SMEs. Supporting SMEs to develop enterprise skills through implementation of training and development programs for employees in all levels is a crucial step to boost innovation and business growth performance (OECD, 2022; World Bank, 2021). The introduction of incubators, clusters and technological parks deserves more emphasis. Moreover, collaboration between academia, public and private sector and internationalization of SMEs is required to increase competitiveness and innovation. Thus, examining the interplay between HR practices, organizational culture, OT and OI is of particular importance in the case of Albania.

Data and sample

The current study employs a questionnaire survey methodology to collect data for the purpose of evaluating the research hypotheses posited in the proposed model. In accordance with Saunders *et al.* (2009), this method of research approach entails conducting adequate quantitative research and examining the interactions between various variables related to a research framework. Furthermore, the study employed a quantitative approach owing to its ability to infer the characteristics, attitudes and/or behaviors of a population based on a small sample of the population (Creswell and Creswell, 2017). The analysis was conducted on 206 valid records, which satisfies the minimum sample size requirement (Bagozzi and Yi, 2012). Similar to previous research methodologies in HRM and innovation in SMEs (Haar *et al.*, 2022; Sheehan, 2014), this study employs firm-level data to examine the correlation between constructs.

Because the size of the target audience is known, respondents (SMEs) are chosen at random from a Microsoft Excel spreadsheet using the R and between function and then the sort command. The units are chosen based on a stratification of business sector, firm size and region in which SMEs operate. The units are selected randomly from the General Directorate of Taxation's business database. The data gathering period lasted from December 2022 through March 2023. The respondents must be owners or managers to ensure that they possess a comprehensive understanding of the organization's situation. Among these participants, 66% were managers and 34% owners. More descriptive data regarding the sample is presented in Table 1.

Variable measurement

The process of developing the questionnaire involved several stages, which are outlined below: (1) the very first phase in this study involved conducting a comprehensive literature review to identify established measures for the constructs under investigation; (2) development of the first draft version of the questionnaire; (3) draft reviewed by a panel consisting of three academics and two CEOs of SMEs. (4) pilot test including 14 managers or owners working in SMEs. A small-scale pilot survey enables authors to observe patterns in respondents' answers

Variable	Category	Count	Share (%)	Mean
Age				34.87 years
Experience in the sector				8.35 years
Gender	Female	110	53.4%	
	Male	96	46.6%	
Owner	No	136	66.0%	
	Yes	70	34.0%	
Main activity	Manufacturing	23	11.2%	
	Service	82	39.8%	
	Other			
Total		206	100%	

Source(s): Authors' own

Table 1.
Sample profile

and any issues with the questionnaire in order to ensure the quality of content and reliability of measures and: (5) development of the final questionnaire. All measures were assessed using five-point Likert scales that ranged from “strongly disagree” to “strongly agree”.

Commitment-based HRM. We measured the first construct of C-HRM through 10 items established by (Collins and Smith, 2006). A sample item is “Internal candidates are given consideration over external candidates”. Concerning data analysis, items: c_hrm1—“Internal candidates are given consideration over external candidates”; c_hrm2 – “We select employees based on an overall fit to the company”; c_hrm5—“Employee bonuses or incentive plans are based primarily on the performance of the firm” and c_hrm7 “Performance appraisals are used to plan skill development and training for future advancement within the company” have been removed, in order to only take those items with a high consistence on their answers and increase Alpha.

Organizational trust. We measured this mediating variable using 9-items construct adopted by (Ahteela and Vanhala, 2018). A sample item is “If someone in our company promises something, others trust that the promise will be kept”. Concerning data analysis, item: ot1—“If someone in our company promises something, others trust that the promise will be kept” have been removed to increase construct consistency.

Developmental culture. We measured the moderating variable using 4-item construct adopted by (Lau and Ngo, 2004). A sample item is “Our firm is a very dynamic and entrepreneurial place”.

Inbound open innovation. We measured our dependent variable using a 6-item construct adapted from (Cheng and Shiu, 2015). A sample item is “Our organization constantly scans the external environment for inputs such as technology, information, ideas, knowledge, etc”. Concerning data analysis, items: noi5—“Our organization seeks out technologies and patents from other firms, research groups, or universities” and inoi5—“Our organization purchases external intellectual property to use in our own R&D” have been removed, in order to only take those items with a high consistence on their answers and increase Alpha.

Method and assumption checking

To evaluate the proposed conceptual framework, we utilized partial least squares-structural equation modeling (PLS-SEM), which was performed using the SmartPLS 3.0 software (Ringle et al., 2014). PLS-SEM is a variance-based structural equation modeling method (Hair et al., 2017) that allows for the assessment of both the measurement model, including the reliability and validity of constructs, and the structural model. By examining the standardized path coefficients, this approach can test the formulated hypotheses. To estimate the standardized coefficients, we employed the recommended bootstrap procedure, with 5,000 resampling iterations (Hair et al., 2019).

The PLS-SEM technique is founded on certain assumptions, and when these assumptions are not upheld (either individually or together), it can cause difficulties in interpreting the outcomes that this technique produces. As a result, if any of these assumptions are violated, the results of the approach may be unreliable. To prevent such issues, it is crucial to verify certain assumptions, primarily those connected to the measurement model, such as the reliability and validity of the scales and items.

To evaluate the model's adequacy, a set of metrics can be assessed. These metrics include Cronbach's alpha, composite reliability (CR), rho alpha and average variance extracted (AVE). They inform about the scale's reliability and convergent validity. [Table 2](#) presents the results of these metrics. As all scales have Cronbach's alpha values above 0.80, composite reliability above 0.90 and rho alpha above 0.80, all above their respective threshold ([Hair et al., 2019](#)), it can be concluded that the data demonstrates satisfactory reliability and convergent validity of the constructs. Additionally, to assess item reliability, factor loadings above 0.708 are required ([Hair et al., 2019](#)), and as displayed in [Table 2](#). All loadings surpass this threshold, signifying that all constructs account for more than half of the indicator's variance, providing evidence to support the indicator's reliability. Furthermore, [Table 2](#) reports the variance influence factor (VIF) for each indicator, which typically indicates the presence of multicollinearity in a relationship. As the VIF values in the data are below 5 ([Hair et al., 2019](#)) it can be concluded that there is no issue of multicollinearity in the measurement model.

Variable	Mean	Standard deviation	Loadings	VIF	CA	rho_A	CR	AVE
C-HRM					0.9090	0.9122	0.9295	0.6872
c_hrm3	4.03	1.05	0.8550	3.4541				
c_hrm4	3.91	1.12	0.8295	3.0989				
c_hrm6	3.72	1.03	0.8047	2.1917				
c_hrm8	3.75	1.15	0.8125	2.2052				
c_hrm9	3.73	1.30	0.8293	2.5246				
c_hrm10	3.69	1.20	0.8417	2.6043				
DC					0.8779	0.8906	0.9159	0.7317
dc1	3.62	1.09	0.8272	2.1007				
dc2	3.76	1.01	0.8186	2.0488				
dc3	3.92	1.07	0.8919	2.8385				
dc4	4.15	1.03	0.8813	2.8542				
INOI					0.8801	0.8914	0.9170	0.7341
inoi1	3.81	1.13	0.8600	2.1745				
inoi2	3.86	1.08	0.8730	2.5079				
inoi3	3.55	1.24	0.8594	2.5402				
inoi4	3.56	1.21	0.8344	2.3591				
OT					0.9508	0.9539	0.9591	0.7461
ot2	4.03	0.95	0.8826	3.7536				
ot3	4.10	0.91	0.7473	2.2066				
ot4	4.09	0.93	0.8680	3.2735				
ot5	3.94	1.14	0.8735	3.4021				
ot6	3.90	1.04	0.8158	2.8646				
ot7	3.96	1.00	0.8974	4.2925				
ot8	3.96	1.14	0.9130	4.9585				
ot9	3.99	1.04	0.9005	4.9821				

Table 2. Descriptive statistics and measurement model quality attributes

Note(s): VIF, Variance influence factor; CA, Cronbach's alpha; CR, Composite reliability; AVE, Average variance extracted; C-HRM, commitment-based HRM; DC, developmental culture; INOP, inbound open innovation; OT, organizational trust

Source(s): Authors' own

Another critical aspect to consider in PLS-SEM is discriminant validity, which measures how distinct one construct is from others. Table 3 addresses this matter by presenting the heterotrait–monotrait ratio (HTMT) of the correlations. When using PLS-SEM, HTMT coefficients are recommended as a measure of discriminant validity (Henseler et al., 2015), and the rule of thumb is that HTMT values should be below 0.85. In Table 3, all of the coefficients meet this criterion, indicating that discriminant validity has been achieved in this study. Furthermore, Table 3 reports the correlation coefficients of the measured constructs.

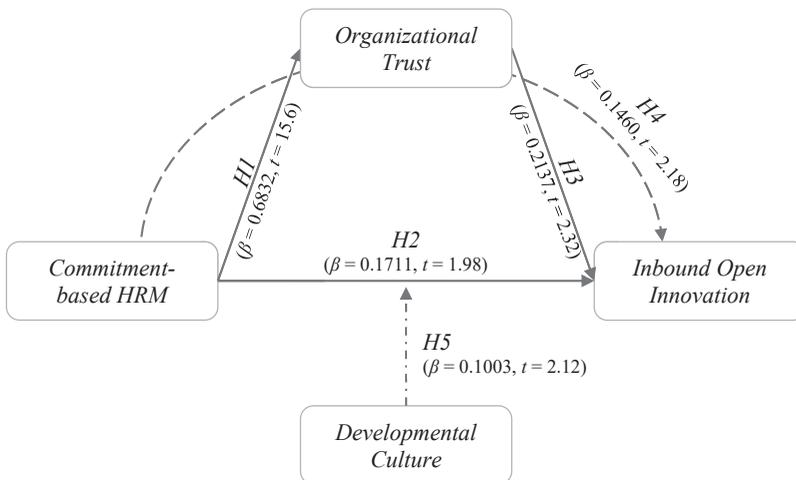
	C-HRM	DC	IT	mod_eff_DC	INOI
C-HRM	–	0.6455	0.6832	–0.4110	0.5617
DC	0.7176	–	0.6451	–0.3707	0.6596
OT	0.7289	0.7052	–	–0.4356	0.5723
mod_eff_DC	0.4309	0.3958	0.4448	–	–0.2102
INOI	0.6150	0.7344	0.6132	0.2109	–

Note(s): Correlation coefficients are above the diagonal, while HTMT coefficients are below that. C-HRM, commitment-based HRM; DC, developmental culture; INOP, inbound open innovation; OT, organizational trust
Source(s): Authors' own

Table 3. Correlation matrix and discriminant validity—HTMT

Results

This section discusses the interpretation of the results obtained from the PLS-SEM analysis after confirming that the assumptions of the method have been satisfied (see Figure 2). The findings allow for a closer examination of the formulated hypotheses. Before that, we introduce the descriptive statistics of the latent variables in Table 4.



Note(s): — Direct effect
 - - - Mediating effect
 ····· Moderating effect

Source(s): Authors' own

Figure 2. Tested research model

	C-HRM	DC	INOI	OT
Mean	0.0000	0.0000	0.0000	0.0000
Standard Error	0.0698	0.0698	0.0698	0.0698
Median	0.1950	0.1741	0.1797	0.1458
Mode	1.2595	1.2563	1.3022	1.1437
Standard Deviation	1.0024	1.0024	1.0024	1.0024
Sample Variance	1.0049	1.0049	1.0049	1.0049
Kurtosis	-0.1266	-0.1500	-0.4357	-0.2900
Skewness	-0.7916	-0.7900	-0.5886	-0.7598
Range	3.8677	3.8781	3.7325	3.6998
Minimum	-2.6082	-2.6219	-2.4303	-2.5562
Maximum	1.2595	1.2563	1.3022	1.1437

Table 4. Descriptive statistics of the latent variables

The mean values for all variables are close to zero, indicating that, on average, the values are concentrated around zero. The standard errors are 0.0698 for all variables, indicating the variability or uncertainty of the mean estimates. The median values suggest that the distribution of the variables is not heavily skewed. The variances are 1.0049, suggesting moderate spread of the data. The kurtosis values are negative, indicating a relatively flat distribution compared to a normal distribution. The skewness values are negative, indicating a slight left skewness. The range values represent the spread of the values within each variable. These descriptive statistics provide insights into the distribution, variability and range of the variables in the dataset.

After ensuring that the assumptions of the PLS-SEM method have been met, the results of the analysis can be interpreted. This allows for an investigation of the hypotheses that were formulated. The model that was tested in this study explains a variance of 49.4% in OI and 46.7% in OT. These results have been presented in [Table 4](#).

The proposed conceptual framework posits that OI is influenced by C-HRM practices, OT, development culture and their interactions (moderating and mediating effects). Results of the path analysis are presented in [Table 5](#), with statistical significance of path coefficients examined to determine support for the hypotheses. The findings reveal that C-HRM practices positively influence OT, supporting [H1](#) ($\beta = 0.6832, t = 15.6, p < 0.001$). Furthermore, according to the f-square statistic and [Cohen's \(1988\)](#) thresholds, the effect size for this influence is large ($f^2 = 0.875$). Based on the path analysis, INOI is positively influenced by C-HRM ($\beta = 0.1711, t = 1.98, p < 0.05$), DC ($\beta = 0.4565, t = 4.82, p < 0.001$) and OT ($\beta = 0.2137, t = 2.32, p < 0.05$). Given these findings, it can be said that there is enough evidence that the data supports [H2](#) and [H3](#), which link INOI with C-HRM and OT.

The fourth hypothesis claims that OT mediates the relationship between C-HRM and INOI. To properly interpret the mediating effect there is a need to examine both indirect and direct effect related to the respective relationship ([Hair et al., 2017](#)). The path analysis shows that the indirect effect of C-HRM via OT on INOI is statistically significant ($\beta = 0.1460, t = 2.18, p < 0.05$). Both direct effects of C-HRM on OT and OT on INOI resulted to be statistically significant ($\beta = 0.2137, t = 2.29, p < 0.05$). Since the indirect and direct effect are

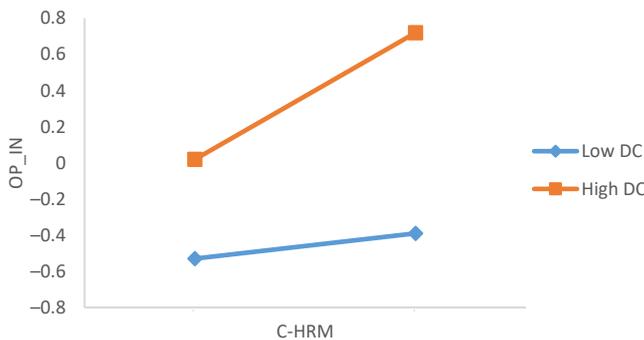
Variable	R square	R square adjusted
OT	0.467	0.464
INOI	0.494	0.484

Table 5. R-squares

Source(s): Authors' own

significant, then it can be said that OT partial mediates the relationship between C-HRM and INOI. Moreover, since the direct and indirect effects are both positive, the sign of their product is also positive. Hence, OT represents complementary mediation of the relationship from C-HRM to INOI. Therefore, the data supports H4.

The fifth hypothesis points to the moderating effect of DC on the influence of C-HRM on INOI. The path analysis demonstrates that the moderating effect is present in the data (see Table 5). However, the moderation should be interpreted in more details, since it compares two groups. To achieve this, the moderating effect is depicted in Figure 3. As shown in the figure, the slope of the relationship between C-HRM and INOI is steeper for those who manifest higher DC than those with low DC. Thus, this finding provides evidence in support of the H5 (see Table 6)



Source(s): Authors' own

Figure 3. Moderating effect

Hypothesis	Effect	Path	Coefficient	t statistic	VIF	f-square
H1	Direct	C-HRM → OT	0.6832	15.6***	1.0000	0.875
H2	Direct	C-HRM → INOI	0.1711	1.98*	2.2075	0.026
H3	Direct	OT → INOI	0.2137	2.32*	2.2487	0.041
H4	Mediating	C-HRM → OIT → INOI	0.1460 ^a	2.18*	–	–
	Direct	DC → INOI	0.4565	4.69***	1.9898	0.207
H5	Moderating	MOD_EFF_DC → INOI	0.1003	2.12*	1.2789	0.023

Note(s): a, specific indirect effect; VIF, Variance influence factor; f-Square, effect size; C-HRM, commitment-based human resources management; DC, developmental culture; INOI, inbound open innovation; OT, organizational trust; mod_eff_DC, moderating effect of DC on the C-HRM–INOI relationship. *, **, *** imply that test result is significant at 95%, 99% and 99.9%, respectively

Table 6. Results of hypotheses testing via bootstrapping (direct and specific indirect effects)

Discussions and theoretical implications

OI is acknowledged as a viable approach for organizations to effectively respond to the dynamic socio-economic and technological shifts, evolving customer preferences, intense competitive pressures and ultimately achieve a competitive edge (Engelsberger et al., 2022; Martinez-Conesa et al., 2017; Naqshbandi et al., 2023; Popa et al., 2017; Van De Vrande et al., 2009; West and Bogers, 2017). Drawing on the RBV, SET and the social context theory, this study proposed a conceptual framework showing interactions between C-HRM practices and INOI (Naqshbandi et al., 2023; Podmetina et al., 2013) with the mediation role of OT (Vanhala,

2019) and moderation effect DC (Chaudhary *et al.*, 2022; Martinez-Conesa *et al.*, 2017) with a special focus on SMEs (Podmetina *et al.*, 2013; Popa *et al.*, 2017; Van De Vrande *et al.*, 2009).

First, commitment-oriented HR practices encompass the provision of career advancement prospects and enduring avenues for personal growth, with the aim of enhancing collective motivation and fostering social interactions (Collins and Smith, 2006; Lepak and Snell, 2002). Hence, according to Shalley and Gilson (2004) the expertise, competencies and abilities of employees can significantly impact the advancement of novel procedures and approaches pertaining to all operational aspects within the organization. Therefore, individuals at all levels within an organization possess significant potential to generate innovative ideas and offer solutions to the challenges associated with the firm's operations. Consequently, innovation enhancement is possible only when organizations foster creativity through the development of friendly working environments and sustainable human-to-human interactions (Majchrzak *et al.*, 2023). Nevertheless, despite the recognition of the significance of HRM practices in enhancing innovation performance in SMEs, the link between C-HR practices remain unclear (Lei *et al.*, 2021; Park *et al.*, 2019). Hence, to address this gap, extending in RBV, this study demonstrate that C-HRM practices has a positive and significant effect on INOI. A workplace with a special focus on competence-enhancing HR practices (Naqshbandi *et al.*, 2023) that elicits employees' commitment (Zheng *et al.*, 2020) is positively related with OI (Bogers *et al.*, 2018b; Engelsberger *et al.*, 2022).

Findings, also suggest that C-HRM positively impacts OT which is consistent with other studies (Ahteela and Vanhala, 2018; Sultana and Khandakar, 2022; Vanhala and Dietz, 2015). Organizational environments that foster fairness, transparency and honesty (Collins and Smith, 2006) boost OT (Sultana and Khandakar, 2022) and have a positive effect in performance (Gould-Williams, 2003; Vanhala and Dietz, 2015) and knowledge inflows and outflows (Hoe, 2007). Moreover, responding to the call raised by Salampasis *et al.* (2014) regarding future empirical studies concerning OT and its underpinnings with OI, our results illustrate that OT foster INOI. According to Bowen and Lawler (2006), successful implementation of knowledge management typically necessitates the cultivation of an organizational culture that fosters a climate of sharing and trust among its members. Organizational cultures characterized by high levels of trust have the ability to motivate employees to engage in cooperative behavior, interact with one another and acquire valuable market knowledge (Hoe, 2007). The enhancement of innovation within a firm is closely linked to the processes of knowledge transfer and acquisition. Consequently, the firm's capacity for innovation is indirectly strengthened when employees have trust in their organization and actively engage in the acquisition of new knowledge, without the apprehension of facing punitive measures in the event of failure (Sankowska, 2013).

Secondly, by establishing a new conceptual framework this research addresses the calls presented by Podmetina *et al.* (2018) and Naqshbandi *et al.* (2023) for analyzing more mediating variables in the relation between HRM and OI. Consequently, this research demonstrates that OT can act as a mediator between C-HRM and INOI. Drawing in SET, this means that, if an organization pays attention to C-HRM practices, it may encourage its employees to trust in their organization and its management policies. In turn, an organizational environment based on trust will encourage employees innovative working behavior and knowledge sharing (Lee and Choi, 2003) that potentially impact organizational innovation openness. Lack of effective HRM systems, low levels of trust and absence of knowledge sharing harm innovation in SMEs (Curado *et al.*, 2018).

Finally, firms' openness continually requires changes in cultural context in order to embrace transition and adopt new realities that enhance competitiveness (Bertello *et al.*, 2023). Drawing a model suited to examining the moderating influence of DC, our research improves our knowledge of C-HRM and its effects on organizational INOI in SMEs context. Our findings demonstrate the importance of DC by pointing out that, the successful execution of HRM practices is contingent upon the prevailing organizational culture (Lau and Ngo, 1996; Lei *et al.*,

2021; Wei *et al.*, 2011). According to Wei *et al.* (2011), organizations that possess a culture that prioritizes development, adaptability, change and places significant emphasis on progress and external adaptation are more likely to achieve positive outcomes in terms of innovation. Consequently, this phenomenon has an impact on employees' attitudes, prompting them to adopt a proactive approach and actively participate in OI endeavors. In other words, the impact of C-HRM on the INOI of SEMs is bolstered by shared beliefs rooted in a DC.

Practical implications

The findings of this research hold various pragmatic effects, alongside the previously elaborated theoretical implications. It is known that because of the "liability of smallness", SMEs suffer to generate their resources to innovate (Knol and Stroeken, 2001). Thus, implementing an open strategy might help them overcome their resource challenges (Chesbrough, 2010; Lee *et al.*, 2010). From the prospective of practitioners, the outcomes of this study indicate that owners, leaders and managers of SMEs should pay attention to implement strategies and practices that could enhance firm's innovation through OI approaches (Marzi *et al.*, 2023; Popa *et al.*, 2017; Torchia and Calabrò, 2019; Van De Vrande *et al.*, 2009).

The results of this research suggest that promoting INOI could be a viable approach for leaders and managers in the current knowledge-driven era to assist SMEs in attaining their organizational goals. Prior studies affirmed that the sources of organizational innovation depended on C-HRM practices that foster knowledge exchange, creativity, trust and cooperation (Collins and Smith, 2006). Additionally, OT (Salampasis *et al.*, 2014; Sankowska, 2013) and DC (Wei *et al.*, 2011) are factors known for their effects of firm's innovation capabilities. Consequently, focusing on C-HRM practices, OT and DC to foster INOI emerges as an optimal strategy for Albanian SMEs.

Secondly, our findings advise that businesses prioritize the development of C-HRM practices that promote trust within organizations, which in turn stimulates INOI among SMEs. According to Vanhala and Ritala (2016), the development of trust within an organization is crucial for promoting innovation. They emphasize that HRM practices should be established in a consistent, well-integrated and effective manner to achieve this goal. SME decision-makers can also benefit from understanding how DC moderates the connections between C-HRM practices and INOI. By making changes to or creating new efficient HRM practices that boost employee commitment to the organization, they can affect the impact of culture on inbound innovation which is also supported in studies presented by Wei *et al.* (2011) and Lei *et al.* (2021).

Conclusions and future research

The present research endeavors to provide a theoretical and empirical analysis of the mediating function of OT and the moderating impact of DC in the interactions between HRM practices based on commitment and INOI. The results of our study offer new insights into the direct impacts of C-HRM on OT, C-HRM on INOI and OT on INOI. In addition, the mediating effect of OT and moderating effects of DC seem important antecedents in shaping the relation between C-HRM and INOI. The findings suggest that it is imperative for managers and leaders of SMEs to meticulously design an appropriate environment that can facilitate an OI approach.

In order to overcome the limitations of this research and continue to build on the existing research findings we propose three areas for further work. First, the cross-sectional design of this study raises the possibility that the underlying causal association will shift over time, thus, a longer-term study might be able to alleviate this limitation and improve the final result. Secondly, we only have data from a single point in time to analyze. Future studies should employ a time-lagged methodology to reduce research bias. Third, additional moderating and mediating mechanisms in the HRM-INOI relationship should be investigated

by future researchers. Relational leadership (Engelsberger *et al.*, 2023) for instance, could be an intriguing moderator to investigate further in this setting. Lastly, it is recommended that further research be conducted in other Western Balkan countries in order to compare the findings and enhance the generalizability of the data.

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