

## Entrepreneurial Orientation and Transformational Leadership for the Development of Innovation Capabilities

DOI: 10.12776/qip.v28i1.1895

Mauricio Antonio Bedoya, Elkin Pérez, César Zapata-Molina, Hugo Baier-Fuentes, Blanca Yenny Hernández

Received: 2023-08-23 Accepted: 2024-02-23 Published: 2024-03-31

### ABSTRACT

**Purpose:** This paper aims to analyse the impact of entrepreneurial orientation (EO) through the relationship of transformational leadership (TL) for the development of dynamic capabilities (DC) for organisational innovation.

**Methodology/Approach:** Under a qualitative method, and a single case study strategy, data were obtained from interviews with 15 senior managers and leaders of innovation activities; the document review and data triangulation method was used to analyse causality relations proposed in the theoretical framework.

**Findings:** The empirical results confirm that the EO and TL have a positive relationship with the development of innovation capabilities. Findings indicate that risk-taking, proactiveness, assimilation, and exploitation of internal and external knowledge remain the main difficulties in improving innovation capabilities and adaptability in the technological environment.

**Research Limitation/implication:** The present paper gathered data from a specific organisation in the field of EO. The research allowed us to better understand the incidence of EO, TL, and DC regarding the relationship between variables, and it should be considered a potential source for enhancing innovation management capabilities.

**Originality/Value of paper:** This work is the first that integrates the concepts of EO with other related disciplines into a single case strategy, within a specific entrepreneurship and innovation ecosystem context in a large automotive industry.

**Category:** Research paper

**Keywords:** entrepreneurial orientation; transformational leadership; dynamic capabilities; innovation

**Research Areas:** Management of Technology and Innovation

## 1 INTRODUCTION

The new competitive scenarios in an economic environment marked by globalisation and technology require adopting new business practices to generate new ways of managing organisational resources in such a way that they promote innovation and the development of distinctive capabilities and thus achieve better levels of competitiveness. In order to subsist inside the landscape of Industry 4.0, new forms of production are required where information technologies are integrated with production systems in real-time through innovative management processes and creating business value (Javaid et al., 2021; Karnik et al., 2021). Therefore, successful organisations in today's global economies must have entrepreneurial and innovative capabilities to face these changes in markets proactively and the competitive technological environment by creating flexible products and services. Hence, companies rely upon their innovation capabilities to positively and significantly impact business performance, even when they must face environmental risks (Wijaya and Rahmayanti, 2023).

Despite all the advances in research on innovation processes in technological industries, through data science, the internet of things, and artificial intelligence, getting to capitalise on creative ideas into innovations themselves truly remains elusive for many companies in competitive environments. Moreover, due to internal factors based on the simple fact of a lack of a well-defined innovation system and a poor innovative culture. Then, companies focus on local information systems, which can have negative results on the new value offer (Wei et al., 2014).

In this sense, at the external level, the short cycles of products and services, new customers' needs, and the entry of new companies with intensive use of technology means that the competitive scenario must transcend physical, biological, and digital borders. Consequently, managers through entrepreneurial orientation (EO) must generate a favourable impact on the performance of companies by promoting innovation (Ge and Li, 2023; Frank et al., 2019). Hence, all the leaders of the organisation can be connected in their daily activities with the leading goal of generating high-impact innovative processes through the use and application of technologies, tools, and techniques that allow them to face and get ahead of their rivals in the competitive environment.

In terms of corporate entrepreneurship, EO has emerged in the field of research on innovation and organisational change as one of the most studied topics in the corporate entrepreneurship literature. Thus, EO has been considered as a source of adaptability that generates renewal and organisational change through risky, innovative decision-making. In this sense, the need to link it with different disciplines or theories has arisen. Therefore, a call has been made for researchers to expand the field of knowledge of its construction and break paradigms in the areas of strategy, organisational theory, and economics (Miller, 2011). Following those lenses of research, Wales (2015) carried out a literature review to relate the theoretical field of EO with sister disciplines to incorporate new elements in the construct of EO, concluding that despite the existence of multiple investigations in

the field, there is little research exploring studies on the potential interactions between EO and leadership, and how they might be affected by organisational capabilities and environmental factors in predicting company performance. According to the literature, transformational leadership (TL) is one of the most effective forms of leadership, which positively impacts innovative behaviour at work, generating a climate of innovation in the business environment. Nevertheless, other key elements allow entrepreneurial organisations to adapt to change and generate competitive advantages in such a way that organisations can acquire, assimilate, transform, and exploit capabilities, which necessarily leads to higher levels of innovation and value creation. (Zahra and George, 2002). Besides, the role of the leader in entrepreneurial processes in organisations has positive effects on the development of innovation capabilities of the organisation (Engelen et al., 2013; Chen et al., 2014). For instance, managers have to rely on the role of a transformational leader to stimulate intellectual practices in the employees' to enhance innovation (Escobar-Sierra and Bedoya-Villa, 2018). On the other hand, recent research shows that DC significantly impacts the use of internal and external information sources to create innovation capabilities in their leaders and teams (Park, Chung, and Son, 2022; Bedoya et al., 2023).

The present study reveals the results of a doctoral dissertation with the purpose to analyse the entrepreneurial orientation from the transformational leadership perspective for the development of innovation capabilities in a company in the Colombian automotive sector. The analysis utilises data from a significant corporation subsidised by the science and technology budget of Medellín's competitive ecosystem of entrepreneurship and innovation. This city was the first experience in Latin America to have a headquarters since 2013, and it is now recognised as one of the global centres for the Fourth Industrial Revolution (4.0). The present research proposes a conceptual model based on a literature review by scholars and practitioners in recent decades. This leads to the following research question: What is the incidence of EO through the role of the leader in the development of innovation capabilities? As a research strategy, a simple case study was structured. The data collection techniques were documentary review and semi-structured interviews. The analysis of results was based on a qualitative method that was carried out through data triangulation, coding through families and network analysis.

The paper is structured into five sections: First, a brief introduction to the topic is made in the context of EO, TL, and innovation capabilities that link DC to the competitive environments of Industry 4.0. In the following sessions, the following topics are included: Section 2 explains the theoretical background of the related disciplines; Section 3 describes the research method and strategy; Section 4 summarises the results; and Section 5 discusses the main topics of the empirical findings. Finally, section 6 closes with the theoretical and practical implications and the study's conclusions and limitations, as well as some managerial implications and suggestions for future territories of research.

## **2 THEORETICAL FRAMEWORK**

### **2.1 Entrepreneurial Orientation**

The concepts related to the EO have been developed from the studies made by Miller (1983), which established the basis of the construct through a literature review of the last decades. Although, later studies have broadened the conceptual framework, strengthening the theoretical field (Covin and Slevin, 1989; Lumpkin and Dess, 1996). The studies allowed us to determine that EO is a concept that includes company actions related to the product in the market and technological innovation (Schumpeter, 1934; Cole, 1946; Cooper, 1973), risk-taking (Collins and Moore, 1970; Miller and Friesen 1978; Kets de Vries, 1977; Miller and Friesen 1982), and proactivity (Miller and Friesen, 1978 and Mintzberg, 1973). For this research and taking as a reference the concept of the EO formulated by Miller (1983), the three original dimensions are structured as follows: (1) Innovation: which is characterised by those organisations that promote innovative entrepreneurship through the creation or improvement of products, services, processes, businesses, markets, alternatives to materials, and structural changes in the organisation; (2) Proactiveness: proactive organisations that anticipate and take advantage of opportunities to meet the future needs of a market, leaving behind competitors and making the best use of available resources, and (3) Risk-taking: every entrepreneurial initiative involves risk to a certain level, the higher the innovation factor, the higher the uncertainty, an essential component of risk, along with the probability of being successful or not. This research adopts the definition of entrepreneurial orientation provided by Miller (1983): "A company is entrepreneurial when it engages in product market innovation, undertakes somewhat risky ventures, is the first to reach proactive innovations, surpassing competitors. Moreover, evidence from various studies suggests that the original dimensions, when compared to the Miller, Covin, and Slevin (1989) scale, have a positive effect on innovation activities.

### **2.2 Transformational Leadership**

In the field of management, a prior number of studies highlighted the importance of promoting leadership to achieve organisational goals. For instance, Bass (1990) and Yukl (2002), indicated that LT positively influences innovation performance, based on the idea that leadership encourages followers to develop new businesses. In this regard O'Connor et.al, (1995), argued that the executive decisions of leaders shape behaviour through the motivation sharing mutual values, the vision of the organisation and, foster the achievement of the objectives. In recent years, the conceptualisation of LT has been paid attention in the leadership literature. Based on the conceptualisation by Burns (1978), TL is conceptualised when one or more people interact with others. Leaders and followers have a two-way relationship with higher levels of motivation for the achievement of objectives.

Bass and Avolio (1994) distinguish four types of primary behaviors called "Four Is", and are known as follows; (1) Idealised influence: which is related to charisma, through which the leader gains the trust of his followers, is admired, respected, and

establishes a position of pride and power in his followers beyond their interests, focusing on the interest of the group; (2) Inspirational motivation: Leaders must be able to motivate their team members and provide meaning to their work; (3) Intellectual stimulation: the leader helps followers to be more innovative and creative, it is with this dimension where the leader promotes creative thinking and divergence of ideas and; (4) Individualised Consideration: This dimension shows when leaders pay attention to the needs of followers, support and are part of the development of each one of them in a unique way through a coaching or mentoring relationship. Therefore, transformational leaders increase the trust of followers and the intrinsic value of performance, resulting in higher levels of motivation (Seibert, Wang, and Courtright, 2011). Similarly, Gumusluog˘lu and Ilsev, (2009a) established that TL positively influences innovation performance, based on the idea that such type of leadership encourages followers to develop new businesses, and increase their willingness to perform beyond expectations.

### **2.3 Dynamic Capabilities**

The DC theory has been one of the most suggested by researchers in the EO field as a discipline that can explain the relationships between organisations, the external factors of the competitive environment where they develop, and their innovation capabilities. Since Cohen and Levinthal (1990), it has been recognised that Absorptive Capacity (AC) is a crucial factor in the development of innovation capabilities. The DC theory was developed by seminal authors such as Teece, Pisano, and Shuen (1997), it was based on the ideas of the resource-based view (Barney, 1991) to introduce the concept of DC. This theory explains competitive advantage as the result of the combination of assets, processes, and evolutionary paths. One of the most important works that gave dynamism to AC literature was the research carried out by Zahra and George (2002). The authors propose a new conceptualisation of AC as a DC. Therefore, they broaden the theoretical field of AC and define it as a set of organisational processes and routines through which it is possible to acquire, assimilate, transform, and exploit knowledge to generate new organisational knowledge. According to the authors, these capabilities are considered dynamic due to their degree of influence on organisational capabilities to create and deploy the knowledge required to develop other organisational capabilities. These capabilities are categorised into two subgroups. The first category refers to the potential absorption capacity (PACAP), which is defined by (1) Acquisition: refers to how a company develops activities to identify and acquire knowledge generated outside the organisation and that is critical to its operations; (2) Assimilation: implies that the company must implement routines that allow it to analyse, process, interpret and understand the information obtained from external sources. The second category refers to the realised absorptive capacity (RACAP). (3) Transformation: means having the ability to develop and adapt the routines that facilitate the combination of existing knowledge and newly acquired or assimilated knowledge and, (4) Exploitation: is based on the routines that allow companies to adapt, expand and leverage existing competencies or create new ones by incorporating insights and knowledge transformation into their

operations. According to Zahra and George (2002), there is a set of four variables with a multidimensional vision, and their continuing application allows for increasing the capacity to monitor, manage, and exploit the knowledge base.

In this context, to achieve the objective of the research, figure 1 summarises the development of the three dimensions of EO, along with two-way interaction with the LT, making a coherent relation to improve all innovation activities through DC.

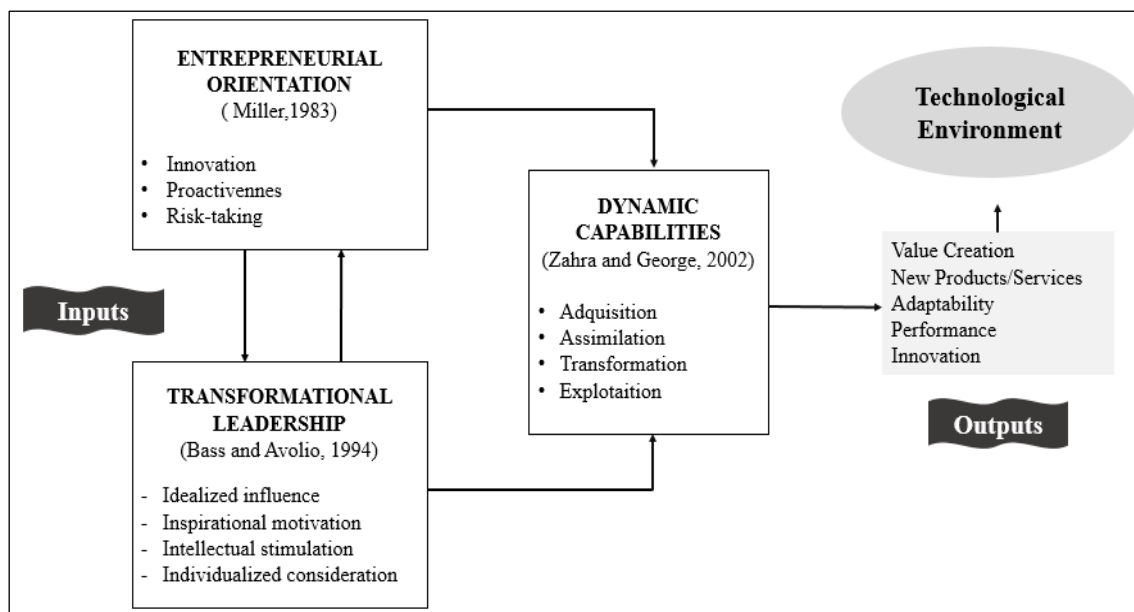


Figure 1 – Conceptual framework of entrepreneurial orientation and transformational leadership for the development of innovation capabilities

The proposed conceptual framework below illustrates, in an eclectic way, the three original dimensions proposed by Miller (1983) related to each other with the role of transformational leadership by Bass and Avolio (1994), which is considered the necessary leadership style that allows organisations with entrepreneurial vocation, strengthen a proactive behaviour that stimulates the generation of knowledge and strengthens innovative activities. This integration of dimensions allows the development of innovation capabilities dynamically, in agreement with Zahra and George (2002), who demonstrated in their different studies the existence of a direct relationship between the absorption capacity and the improvement in the innovation results, value creation, and knowledge generation.

### 3 METHODOLOGY

This research focuses on the automotive motorcycle manufacturing company in Colombia. The study was conducted in a large company in the sector that is taking part in the entrepreneurship and innovation ecosystem of the city of Medellín. This company was sponsored with funding from the government technology and innovation budget to foster innovation management capabilities. It is known that enterprises in innovation landscape of industry 4.0 are facing high challenges in

terms of innovativeness and competitiveness to create customer value. Moreover, firms tend to be directed toward improving their innovation capabilities to enhance the full possibility of industry 4.0 and to take advantage of opportunities available in the technological environment. A single case study was used as a research strategy with the objective of having a more complete and systemic view of the relationships under a multidimensional design by linking EO, TL and DC according to the conceptual framework. The single case study was structured according to Yin (2009), who established five potential designs that justify the study of a simple case given its possibility to improve recent theories. A qualitative research method was developed with the aim of exploring the most important aspects to have a higher level of analysis with key stakeholders. Miller (2011) suggests the choice of qualitative research as a way of collaborative learning of the EO, since much can be learned through interaction with businessmen on a particular problem. Creswell (2009) highlights how the type of qualitative approach is useful for broadening the explanation of behaviours and attitudes into a specific context. The empirical data were obtained through deep interview technique and documentary review. In this case, the people were interviewed for 45 minutes to 2 hours in 4 months at the company's facilities.

The instrument utilised in the fieldwork was comprised of 15 questions, namely: (5) questions concerning EO, according to the instrument designed by Covin and Slevin (1989); (5) questions of transformational leadership, using items in the scale defined in the Multifactor Leadership Questionnaire (MLQ), in its short 5X version, developed by Bernard Bass and Bruce Avolio (2004) and; (5) questions aimed to analyse the key elements about innovation capabilities according to Zahra's scale (1993a). Besides, each interview was recorded, transcribed, and documented in a repository for later analysis. Also, the interviews were completed with secondary information from public domain sources, such as web pages of different actors in the motorcycle sector in Colombia and documents from assembly companies, among others. In the same way, the organisation's documents of a "confidential" nature that are used only by selected company personnel in PDF, Excel, and PowerPoint-type presentations of the planning and management committees were analysed. A panel of 15 top leaders who have influence in the EO for the development of innovation capabilities in different areas of the organisation was adopted. Table 1 includes the research design and the key characteristics according to the conceptual framework.

*Table 1 – Research Design*

Type of Method	Qualitative approach
Role of the theory	Inductive
Theoretical Framework	Entrepreneurial orientation
Research question	What is the incidence of EO through the role of the leader in the development of innovation capabilities?
Research strategy	Single case study.
Analysis unit	Entrepreneurial orientation and role of the leaders.

Sample	15 top leaders in different areas in automotive industry.
Variables of study	-Entrepreneurial Orientation: Innovation, proactiveness and risk-taking. -Transformational leadership: Idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. -Dynamic capabilities: Acquisition, assimilation, transformation and exploitation
Techniques for data collecting	-Data source: Deep interview technique and documentary review -Instrument: Entrepreneurial orientation through scale by Covin and Slevin (1989); Transformational leadership through Multifactor leadership by Bernard Bass and Bruce Avolio (2004), and Dynamic capabilities according to Zahra’s scale (1993a).
Analysis of results	-Data coding: Citations, families and categories -Triangulation: Network diagram
Expected outputs	Value Creation, new products/services, adaptability, performance, innovation.

For the analysis of the relationship between the variables related in the conceptual framework, the ATLAS. Ti 7© computer program was used in version 7.5 for Windows. The first step in data processing consisted of preparing the primary documents (PDs) represented by files closely related to EO, the organisation's leadership, and innovation capabilities. Furthermore, the collected data were classified into different codes, taking into account that in qualitative research, there is a need to interpret data through coding and identification of themes, concepts, processes, or contexts (Lewins and Silver, 2009). Then, primary documents, codes, and annotations were grouped into units that the computer program calls families, including elements with some common characteristics. In the case of the codes, creating families was the final step towards establishing relationships. Hence, creating more abstract codes and elaborate blocks was necessary according to the established theoretical model.

#### 4 RESULTS

The results allowed us to confirm the linking between variables according to the conceptual framework proposed and in the line with the research question and the objective at different moments and with the use of triangulation techniques. The combination of information sources and methods enhanced the information analysis process and was the basis for the interpretations for analysing the phenomenon of EO concerning TL for the development of DC to innovate and value creation. The results show an incidence of the innovation code (82.85%) over a total number of seventy (70) citations, with the rest of the codes in different fragments of the PDs. Also, intellectual stimulation (54.28%) and transformation codes (44.28%) have a higher trend of relationship with other codes. Nevertheless, Proactiveness (18.57%), along with assimilation (18.57%) into CD construct, appears as a two set of dimensions with a lower incidence rate in citations in the



PDs., followed by Idealised influence and Inspirational motivation with the same result (25.35%). On the other hand, the dimension of Exploitation related to DC construct seems to be at a higher level (28.75%). Figure 2 illustrates an overview of the results with the main grade of relationships and the level of dependency between constructs, according to the different codes and citations.

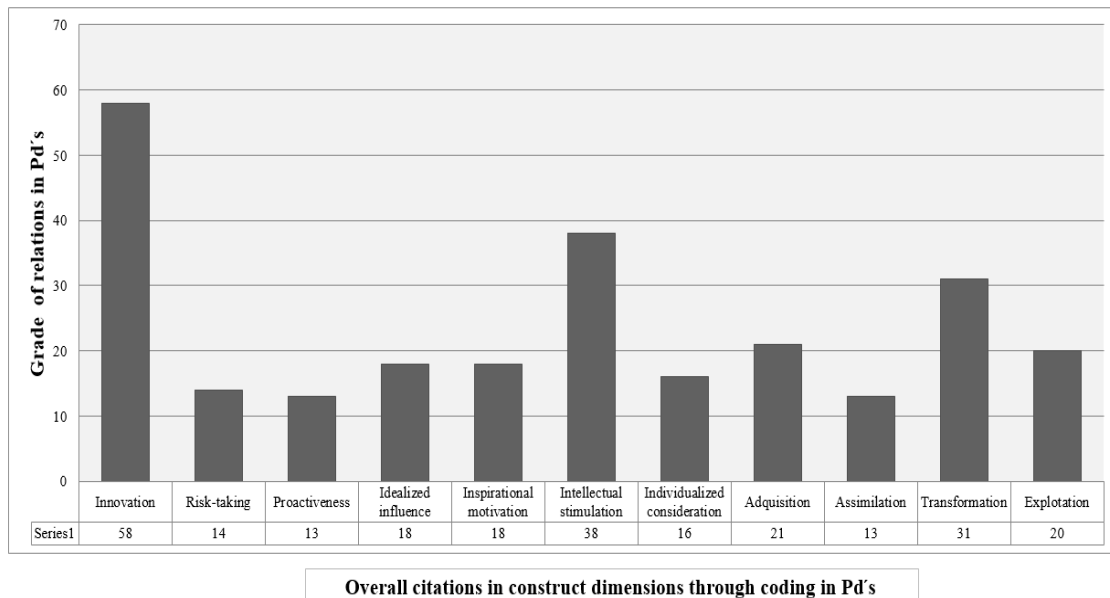


Figure 2 – Linking results between constructs codes with citations in the PDs.

In relation to the research objectives, the data triangulation was entitled to conceptualise the contribution from other theories with their respective theoretical assumptions. For this purpose, the codes with the highest number of citations and the underlying set of relationships were selected. Network Views are one of the most useful tools in ATLAS.ti because they create a diagram-like representation of qualitative analyses. According to the grounded theory of Strauss and Corbin (2002), this type of diagram is an integrating element that helps the researcher to round off the relationships through a clear description of the theory that synthesises the main concepts and connections. For the analysis of the results obtained, the focused network was chosen, which consists of creating a network of the information included in the hermeneutics unit.

The network diagram above allows linking, from a qualitative perspective, the type of relationships between the different codes and families. Although the program brings different options by default (is the cause of, is part of, is related to). Nonetheless, it was the researcher's task to verify their degree of relationship for each of the dimensions of EO, LT, and DC, respectively. Therefore, At the end of each code and family in the network diagram, the empirical evidence is quantitatively observed employing a bracket. The innovation code was identified by the 58-5 result, for instance. The first two digits indicate the result in terms with the number of citations to which the particular code is related, and the second digit corresponds to the number of codes that share some characteristic with others.

The graphic representation of the results of the relationships identified in the dimensions and variables allows for a work environment in which new relationships can be considered for a more refined development of the work. The network results can be seen in Figure 3.

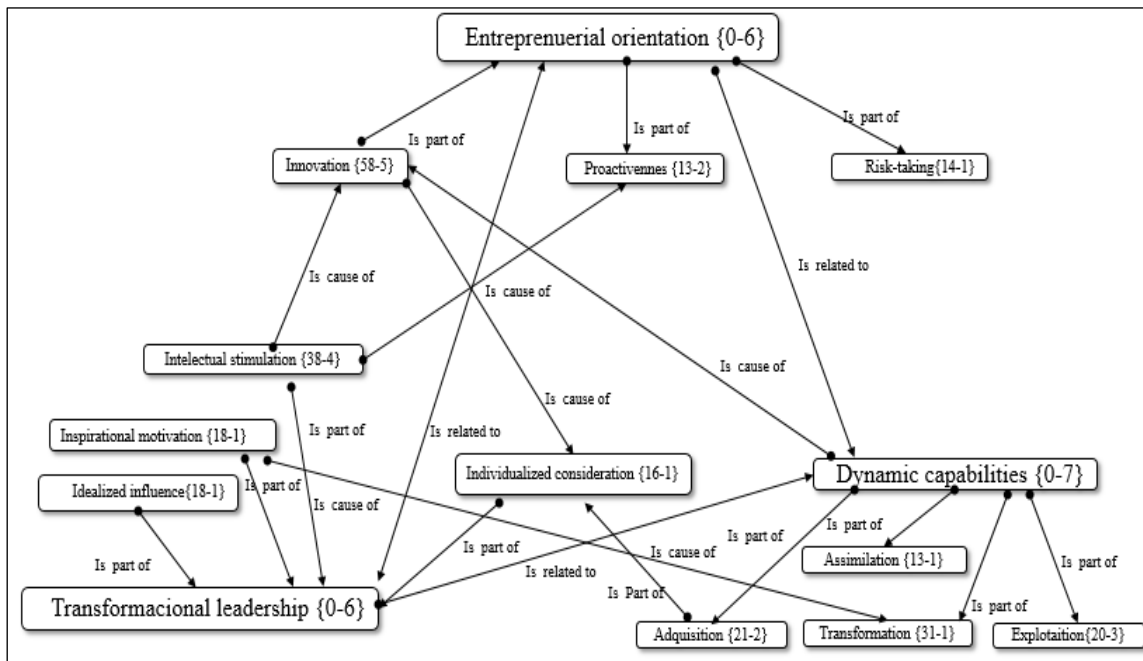


Figure 3 – Network view results through coding and data triangulation process.

The results allowed us to verify the model from the initial conceptualisation. A directional relationship is evident between the dimensions that are part of its constructs, which are about EO, TL, and DC. Then, the network model allowed for defining bidirectional relationships that show a degree of association between innovation and dynamic capabilities, especially through individualised consideration, which leads to transformation and exploitation capabilities.

Finally, causal relationships were found between the codes of intellectual stimulation and innovation, intellectual stimulation, and proactiveness, along with a superior order construct of TL and DC. This type of link indicates an incidence of one code concerning the other. Then, from the results obtained in the network view, it was possible to identify relevant aspects of the construction in the case study, revealing the set of causal relationships of the EO with other disciplines.

## 5 DISCUSSION

This study analyses how EO and LT are directly related to DC in a big company from the technology sector of industry 4.0 in the innovation ecosystem of Medellin-Colombia. Based on the logic of the research to respond to the recent call of seminal researchers, an attempt was made to relate EO with other disciplines considered disciplinary fields that can help strengthen the theoretical field (Miller,

2011; Wales et al., 2011; Bedoya and Arango, 2017). In this sense, from the theoretical conceptualisation, the results were intended to respond to the research question about the incidence of EO through the role of the transformational leader and its impact on the development of innovation capabilities according to the set of propositions formulated in the theoretical model. The findings of this study confirm the original dimensions of EO, as proposed by Miller (1983); thus, it was possible to determine that each dimension of the construct enables the capabilities of an organisation to adapt to turbulent environments. Hence, firms with OE must rely upon proactive methods as a path to anticipate competition and market conditions and take some risks to foster innovation capabilities in uncertain technological environments.

The results reinforce the existing findings in the literature made by Rauch et al. (2009); they state that EO composed of its three original dimensions, is the most used position in empirical studies developed by researchers in the last decades. Despite the company allocating resources to R&D activities and additionally dedicating a percentage of the annual budget to innovation activities, it was established that the dimension of risk-taking and proactiveness are the most critical dimensions when making strategic decisions for the generation of innovative products and services. This agrees with the findings of Maulidina, Harri, and Utomo, (2023), who state that the fact of acquiring innovative capabilities requires assuming risks within the field of EO to directly challenge competitors and strengthening of entrepreneurship in the firm to adjust to changes and opportunities to overtake rivals in the market. Although entrepreneurial orientation has been a concept developed in entrepreneurship, the current contexts in industry 4.0 organisations also require the incorporation of another series of talents in entrepreneurship and innovation management practices. One of the paths is adopting management practices based on TL through the influence of leaders of collaborators to freely, autonomously and spontaneously develop ideas based on creative processes with high levels of innovation (Escobar, Fernández, and González, 2022). This result is coherent in line with the conceptualisation of Bass and Avolio (1994). Then, it was possible to confirm that the four dimensions of TL, have a positive relationship and are highly related to the capacity that develops a firm to innovate. This is categorically consistent with research by Muchiri and McMurray (2015), who established the relevance of addressing transformational leadership in the EO field from the influence of the leader with his charisma to generate creative behaviour in collaborators. However, the incidence of the TL role in an entrepreneurial organisation is evident; it requires the deployment of individualised consideration and motivation policies based on the figure of a transformational charismatic leader who is capable of generating a favourable environment through admiration, respect and trust for the achievement of goals and collective effectiveness. Nevertheless, Mohd et al., (2023) found that job satisfaction improves motivation and satisfaction in working teams, but it depends on the ability of managers to promote innovation-oriented transformational leadership programs.

After reviewing the results obtained based on the approach of Zahra and George (2002), this research provided empirical evidence that DC positively impacts the development of innovation activities. In this sense, DC in the organisation has allowed it to identify and understand the innovations made by other companies in the technological sector. Despite the complementary relationships within a multidimensional framework, the capabilities of assimilation and exploitation of knowledge remain the main difficulty in achieving innovation. However, the successful exploitation of capabilities in organisations requires a clear innovation policy, budgets, and a long-term culture. Thus, better use of knowledge can be gradually incorporated into the routines of employees to reduce trial-error costs in innovation activities (Jiao, Shi, Hou and Gui 2021). A higher standard of routines in a transversal is an excellent complementary factor to the Innovation capabilities within the firm to improve the innovation and, in turn, achieve a better business performance (Mir, Llach and Casadesus, 2022). Also, it is necessary for firms with DC, to keep establishing the challenge of making gradual changes to the conviction that exploitation of innovation capabilities can be developed through market forecasting and through the understanding of internal capabilities linked to the external cyclical changes of products and services. Hence, experience, learning, and transformation of knowledge are the ways to foster business capabilities to generate continuous innovation in the dynamic business environment (Apostolov and Coco, 2021).

This document has implications of a managerial nature. Consequently, the managers of the innovation processes should encourage leaders to focus on the innovative process, having resources and capabilities, and establishing a culture, structure, and strategy under the figure of the corporate entrepreneur. These leaders must act as agents of change who promote innovation in modern management practices and innovative innovation models, since innovation in firms with EO doesn't happen in isolation. Achieving it requires a combination of talents.

Based on the analysis of innovation routines in emerging economies, managers and organisational leaders must continuously develop entrepreneurial policies, which serve as facilitating mechanisms in long-term decision-making. Therefore, it would be easier to adopt best practices in organisations and offer the necessary conditions for developing a high potential in innovation capabilities to create value, influence better business performance, and form competitive advantages in the context of technological environments.

## 6 CONCLUSIONS

This study sought to contribute to the relationship of EO, TL and DC, providing interesting insights between disciplines for the development of innovation capabilities, specifically through the results of an empirical study applied to a large company in the innovation ecosystem. Therefore, innovation leaders are encouraged to implement mechanisms to exchange knowledge across the entire organisation as a source of strategic renewal and value creation in changing

environments. For instance, in terms of risk-taking to derive tangible benefits from technological innovation, the company needs to undertake actions related to product and market. However, it depends on the organisation's ability to innovate, which involves associating costs and risks for the development of new products and services.

The results obtained allow a specific degree of understanding of the phenomenon concerning the role of transformational leaders in EO firms that face market changes and aggressive competition. For this purpose, the promotion of proactiveness and autonomy within the entrepreneurial activities of the firm is essential for enabling leaders to freely engage in decision-making and respond to adversity in the marketplace. However, spaces and routines must be created in the constant search for opportunities, which the leadership and an adequate corporate culture must influence.

This paper integrates elements made by researchers and practitioners about EO, LT, and DC based on a solid theoretical framework enriching the current literature to analyse the relationships between the dimensions of the EO and the role of the leader in the development of innovation capabilities. Besides, in response to the research question, it was recognised that idealised influence and inspirational motivation in the TL field have a low incidence. This might be because of the lack of a leader who demonstrates consideration for the needs of collaborators, including their own demands, sharing risks and showing high standards of ethical behaviour. Thus, the leader needs to have a vision that entices both workers and the firm, making followers feel involved and committed to inventing new things. Hence, the leader needs to have a vision for the firm that entices both workers, making followers feel involved and committed to innovate

As the paper shows, intellectual stimulation and individualised consideration are significantly related as business enablers to achieve better communication and the collective construction of knowledge and innovation in the context of a big company in the Colombian automotive sector. This means that leaders stimulate their employees by encouraging innovative thinking and creativity to find solutions to problems that may arise in different ways and, leaders should provide opportunities for developing organisational culture supported by the growth of the individual. Building on this relationship, top-level managers of firms might be encouraged to learn and apply transformational leadership behaviours to innovation teams.

Managerial implications of this research indicate that for the development of innovative capabilities, organisations need to pay attention to intervention programs that enhance their managers' leadership through the integration of resources, creative skills and risk-taking policies. It all depends as a result of the incorporation of routines for the transformation and exploitation of knowledge as a necessary condition for the generation of new products or services in the field of EO. According to the case study's findings, it is imperative to enhance the competencies of innovation leaders in order to provide them with adequate

resources and routines to continuously acquire and integrate knowledge with a strategic focus. Furthermore, in an environment of change, uncertainty, and aggressive competition, organisations should also bear in mind that an easier path to the development of innovation and value-creation is further strengthening innovation ecosystems with long-term relationships between research institutions, universities, supply chains, industry associations and government.

This study also identifies some limitations concerning the findings and methods. First, the findings shown in this study were conducted in a large company in the automotive industry in a specific innovation ecosystem. Secondly, the present study included data instruments corresponding to the qualitative method, applying instruments to the innovation leaders of the organisation under study. It could be possible that some biases were related to the behavioural factors of individuals at the moment of the interviewing process.

Finally, to get a better understanding of the incidence of EO, LT in innovation management, future territories of research may explore the proposed model in organisations from other sectors of the economy than manufacturing, which could give rise to the meeting points of convergence and divergence, as well as patterns of behaviour that could contribute to the field of knowledge in corporate entrepreneurship. It would also be convenient to develop research in the field of SMEs that participate in the innovation ecosystem of the city and the region through multiple case studies and broader studies, including other variables in terms of organisational culture that could be out of the interests of this research, such as the reward policies, training processes and work environment.

## REFERENCES

- Avolio, B. J., and Bass, B. M., 2004. Multifactor Leadership Questionnaire: Manual & Review Copy. Mind Garden.
- Apostolov, M., and Coco, N., 2021. Digitalisation-based innovation—a case study framework. *International Journal of Innovation and Technology Management*, 18(05), 2050025.
- Barney, J., 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Bass, B. M., 1990. *Bass and Stogdill's handbook of leadership: Theory, research, and management applications*. New York: Free Press.
- Bass, B. M., and Avolio, B. J., 1994. Transformational leadership and organisational culture. *The International Journal of Public Administration*, 17(3-4), 541-554.
- Bedoya, M. A., and Arango, B., 2017. Entrepreneurial Orientation, Resources and Capabilities: A Review of its Conceptual Framework for Innovation. *Spaces Magazine*, 38(38).

Bedoya-Villa, M., Pérez-Sánchez, E., Baier-Fuentes, H., Zapata-Molina, C., and Román-Castaño, E., 2023. The Effects of Dynamic Absorptive Capacity on Innovation Strategy: Evidence from SMEs in a Technological Context. *Mathematics*, 11(10), 2366.

Burns J. M., 1978. *Leadership*. New York: Harper & Row.

Chen, Y., Tang, G., Jin, J., Xie, Q., and Li, J., 2014. CEOs' transformational leadership and product innovation performance: The roles of corporate entrepreneurship and technology orientation. *Journal of Product Innovation Management*, 31(S1), 2-17.

Cohen, W. M., and Levinthal, D. A., 1990. Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35, 128–152.

Cole, A. H., 1946. An approach to the study of entrepreneurship: A tribute to Edwin F. Gay. *The Journal of Economic History*, 6(S1), 1-15.

Collins, O. F., and Moore, D. G., 1970. *The organisation makers: A behavioral study of independent entrepreneurs*. Appleton-Century-Crofts.

Cooper, A. C., 1973. Technical Entrepreneurship: What do we know? *Research and Development Management*, 3, 59-64.

Covin, J. G., and Slevin, D. P., 1989. Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10(1), 75-87.

Creswell, J. W., 2009. *Research designs: Qualitative, quantitative, and mixed methods approaches*. California: Sage.

Escobar, G. S., Fernández, M. A., and González, J. H. C., 2022. El liderazgo transformacional y su relación con la innovación organizacional y lo verde: Una revisión de literatura. *Administración y Organizaciones*, 25(48), 106-132.

Escobar-Sierra, M., and Bedoya-Villa, M. A., 2018. Impact of employees' attitudes and leader's role on the innovation management linked to social responsibility. *Quality Innovation Prosperity*, 22(2), 65-81. <https://doi.org/10.12776/qip.v22i2.1121>

Engelen, A., Gupta, V., Strenger, L., and Brettel, M., 2013. Entrepreneurial orientation, firm performance, and the moderating role of transformational leadership behaviors. *Journal of Management*, 41(4). <https://doi.org/10.1177/0149206312455244>

Frank, A. G., Mendes, G. H., Ayala, N. F., and Ghezzi, A., 2019. Servitization and Industry 4.0 convergence in the digital transformation of product firms: A business model innovation perspective. *Technological Forecasting and Social Change* (in press).

- Ge, J., and Li, L., 2023. Dual innovation of the business model: The regulatory role of entrepreneurial orientation in family firms. *Journal of Business & Industrial Marketing*, 38(7), 1587-1599. <https://doi.org/10.1108/JBIM-03-2022-0157>.
- Gumusluog, L., and Ilsev, A., 2009. Transformational leadership and organisational innovation: The roles of internal and external support for innovation. *Journal of Product Innovation Management*, 26(3), 264-277. <https://doi.org/10.1111/j.1540-5885.2009.00657.x>
- Javaid, M., Haleem, A., Singh, R. P., Khan, S., and Suman, R., 2021. Blockchain technology applications for Industry 4.0: A literature-based review. *Blockchain: Research and Applications*, 2(4). <https://doi.org/10.1016/j.bcra.2021.100027>.
- Jiao, M., Du, D., Shi, W., Hou, C., and Gui, Q., 2021. Dynamic absorptive capability and innovation performance: evidence from Chinese cities. *Sustainability*, 13(20), 11460. <https://doi.org/10.3390/su132011460>.
- Karnik, N., Bora, U., Bhadri, K., Kadambi, P., and Dhattrak, P., 2021. A comprehensive study on current and future trends towards the characteristics and enablers of Industry 4.0. *Journal of Industrial Information Integration*, 27. <https://doi.org/10.1016/j.jii.2021.100294>.
- Kets, D.V.M., 1977. Crisis leadership and the paranoid potential: An organisational perspective. *Bulletin of the Menninger Clinic*, 41(4), 349-365.
- Lewins, A., and Silver, C., 2009. Choosing a CAQDAS Package: A working paper. CAQDAS Networking Project. Retrieved from <http://cue.berkeley.edu/qdaarticle.pdf>.
- Lumpkin, G. T., and Dess, G. G., 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1), 135-172.
- Maulidina, S. H., Harri, M., and Utomo, F. C. 2023. The Role of Dynamic Capabilities and Entrepreneurial Orientation Towards Innovation and its Implications for Creative Economy Performance in Indonesia.
- Miller, D., and Friesen, P. H., 1978. Archetypes of strategy formulation. *Management Science*, 24(9), 921-933.
- Miller, D., and Friesen, P. H., 1982. Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic Management Journal*, 3(1), 1-25.
- Miller, D., 1983. The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7), 770-791.
- Miller, D., 2011. A reflection on EO research and some suggestions for the future. *Entrepreneurship: Theory & Practice*, 35(5), 873-894.



Mintzberg, G. H., 1973. Strategy-Making in Three Modes. *California Management Review*, 44-53.

Mir, M., Llach, J., and Casadesus, M., 2022. Degree of Standardization and Innovation Capability Dimensions as Driving Forces for Innovation Performance. *Quality Innovation Prosperity*, 26(2), 1-20. <https://doi.org/10.12776/qip.v26i2.1687>

Mohd Zin, M. L., Ibrahim, H., Aman-Ullah, A., and Ibrahim, N., 2023. Transformational leadership, job enrichment and recognition as predictors of job satisfaction in non-profit organisations. *Nankai Business Review International*, 14(2), 338-351. <https://doi.org/10.1108/NBRI-01-2022-0010>.

Muchiri, M., and McMurray, A., 2015. Entrepreneurial orientation within small firms: A critical review of why leadership and contextual factors matter. *Small Enterprise* 22(1). <https://doi.org/10.1080/13215906.2015.1017076>

O'Connor, J., Mumford, M. D., Clifton, T. C., Gessner, T. E., and Connelly, M. S., 1995. Charismatic leaders and destructiveness: A historiometric study. *Leadership Quarterly*, 6, 529-555.

Park, Y., Chung, Y., and Son, H., 2022. Configurational paths for SMEs' innovation: Focusing on information resources, absorptive capacity, and government support. *Technology Analysis & Strategic Management*, 1-14.

Rauch, A., Wiklund, J., Lumpkin, G. T., and Frese, M., 2009. Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory & Practice*, 33(3), 761-787.

Schumpeter, J., 1934. *The Theory of Economic Development*. Cambridge University Press, Cambridge.

Seibert, S. E., Wang, G., and Courtright, S. H., 2011. Antecedents, consequences of psychological, and team empowerment in organisations: A meta-analytic review. *Journal of Applied Psychology*, 96(5), 981.

Strauss, A., and Corbin, J., 2002. *Bases of qualitative research. Techniques and procedures to develop the grounded theory*. Medellín, Colombia: Editorial University of Antioquia.

Teece, D. J., Pisano, G., and Shuen, A., 1997. Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533.

Wales, W. J., Monsen, E., and McKelvie, A., 2011. The organisational pervasiveness of entrepreneurial orientation. *Entrepreneurship Theory & Practice*, 35(5), 895-923.

Wales, W. J., 2015. Entrepreneurial orientation: A review and synthesis of promising research directions. *International Small Business Journal*, 1-13.

Wei, Z., Yang, D., Sun, B., and Gu, M., 2014. The fit between technological innovation and business model design for firm growth: Evidence from China. *R&D Management*, 44(3), 288-305.

Wijaya, N. S., and Rahmayanti, P. L. D., 2023. The role of innovation capability in mediation of COVID-19 risk perception and entrepreneurship orientation to business performance. *Uncertain Supply Chain Management*, 11(1), 227–236. <https://doi.org/10.5267/j.uscm.2022.10.004>.

Yin, R. K., 2009. *Case Study Research: Design and Methods*. SAGE Publications.

Yukl, G., 2002. *Leadership in organisations*. Upper Saddle River, NJ: Prentice-Hall.

Zahra, S. A., 1993. A conceptual model of entrepreneurship as firm behavior: A critique and extension. *Entrepreneurship: Theory and Practice*, 17(4), 5-21.

Zahra, S. A., and George, G., 2002. Absorptive capacity: A review, reconceptualisation, and extension. *Academy of Management Review*, 27(2), 185-203.

---

## ABOUT AUTHORS

**Mauricio Antonio Bedoya**<sup>0000-0002-3093-0503</sup> (M.A.B) – Ph.D, Professor and Researcher in Economics and Administrative Sciences, Leadership and Innovation, Colombia, e-mail: maurobedoya314@gmail.com

**Elkin Olaguer Pérez**<sup>0000-0002-0544-4650</sup> (E.O.P) – Ph.D, Professor and Researcher, School of Economics and Administrative Sciences, University of Medellin, Colombia, e-mail: eoperez@udemedellin.edu.co.

**César Zapata-Molina**<sup>0000-0002-4494-472X</sup> (C.Z.M) – Professor and Researcher, Faculty of Administrative and Economic Sciences, Tecnológico de Antioquia Institución Universitaria, Medellin, Colombia, e-mail: cesar.zapata@tdea.edu.co.

**Hugo Baier-Fuentes**<sup>0000-0002-6436-1222</sup> (H.B.F) – Ph.D, Professor and Researcher, Universidad Católica de la Santísima Concepción, Concepción, Chile, hbaier@ucsc.cl.

**Blanca Yenny Hernández**<sup>0000-0002-9516-6980</sup> (B.Y.H) – Ph.D, Professor and Researcher, School of Economics and Administrative Sciences, University of Medellin, Colombia, e-mail: bhernandez@udemedellin.edu.co

## AUTHOR CONTRIBUTIONS

Conceptualization, M.A.B. and E.O.P.; Methodology, M.A.B.; software, B.Y.H.; Validation, M.A.B., E.O.P and C.Z.M.; Formal analysis, H.B.F.; Investigation, M.A.B.; Resources, H.B.F.; Data curation, M.A.B.; Original draft preparation,

C.Z.M.; Review and editing, C.Z.M.; Visualization, B.Y.H.; Supervision, M.A.B.; Project administration, M.A.B.; Funding acquisition, H.B.F.

## CONFLICTS OF INTEREST

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.



© 2024 by the authors. Submitted for possible open-access publication under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).