

An evolution of entrepreneurial culture studies: A systematic literature review and future research agenda

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ABSTRACT

Objective: The objective of the article is to review entrepreneurial culture (EC) literature by seeking, analysing, and synthesising the research findings of extant journal articles. This study aims to demonstrate the evolutionary trends and current trends in EC research, which cannot be found in extant literature reviews of EC due to the limited number of analysed articles which focused only on the associations between national EC (NEC) and entrepreneurship.

Research Design & Methods: This research employed a systematic literature review (SLR) approach. The research technique of Garrard (2004) was utilized to create an SLR matrix to analyse the EC literature in peer-reviewed English journal articles. This study gathered and analysed 83 publications in 57 journals in the period between 1992 and 2021.

Findings: The article proposes four essential outcomes as the results of integrating the information that was investigated and approved in the literature. Firstly, there is an extreme development tendency in the number of EC articles which started rapidly in 2012. Secondly, this study offers the holistic framework of NEC which is the combination of five forms or indications including needs and motives, beliefs and behaviours, cognition, cultural values (societal and individual levels), and social context; while organizational entrepreneurial culture (OEC) is a unidimensional construct or a combination of the organizational characteristics that stimulates, promotes, and sustains the entrepreneurial activities of the organizations. Thirdly, this research generated two nomological networks that recapitulate and display the causal relationships of both veins of EC, which can be employed and expanded to enrich institutional theory and social cognitive theory. Finally, it provides promising research areas for future EC research in terms of research context, research design, theory, framework, measurement, and nomological network of NEC and OEC.

Implications & Recommendations: These findings provide meaningful implications for both theory and practice. In the theoretical context, we integrated and described the most recent and exclusive trends, frameworks, theories, measurements of both veins of EC and their causal relationships, and the research guideline for further research, thus, contributing to the theoretical development in EC literature. In a practical context, two nomological networks of EC contribute to the positive perceptions, awareness, and acknowledgement of the importance of developing and sustaining an appropriate EC amongst individuals, organizations, and nations.

Contribution & Value Added: This research integrates and demonstrates the most recent and exclusive trends, frameworks, theories, and measurements of EC and their causal relationships, proposing the research guideline for further studies. By offering the evolutionary trend of EC articles, this study provides evidence for selecting a suitable methodology through which future research can be conducted to create novel knowledge to develop the EC field. This study offers the holistic frameworks and two nomological networks of NEC and OEC that can be leveraged to enlarge the institutional theory and social cognitive theory, resolving the problems of disintegration and disjointedness that emerged in the literature.

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INTRODUCTION

Entrepreneurial culture (EC) is a fascinating notion that was built and developed by scientists and governors to stimulate the development, societal advancement, and economic growth of a nation (Van der Westhuizen, 2017). Moreover, EC was proved to have an essential role in the entrepreneurial activities of a country by affecting the attitude of residents especially in the field of generating new business ideas and risk-taking (Mueller & Thomas, 2001). The entrepreneurial culture was developed as the shared set of behaviours, attitudes, assumptions, values, mindsets, viewpoints, knowledge, motivations, experiences, and patterns of an individual (especially the entrepreneur), organization, or geographical region which generated income for the individuals, led to growth and success of the organizations, and facilitated and sustained the entrepreneurship in a nation (Fernández-Serrano *et al.*, 2018; Danish *et al.*, 2019; Oppen & Andersson, 2019; Mukhtar *et al.*, 2021). In the literature, EC was investigated and evaluated regarding two veins encompassing organizational EC (OEC) (*e.g.*, Dimitratos *et al.*, 2021; Sim *et al.*, 2021) and national EC (NEC) (*e.g.*, Coleman & Kariv, 2014; Samuel *et al.*, 2021).

There are two classical literature reviews of EC (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013) that investigate the relationships between NEC and collective measures of entrepreneurship, individual characteristics of entrepreneurs, and facets of corporate entrepreneurship. Hayton *et al.* (2002) suggested that NEC is illustrated through four forms or indications of EC combining needs and motives, beliefs and behaviours, cognition, and cultural values (societal and individual levels); creating a framework of NEC and entrepreneurship in which NEC acts as a moderator of the association between contextual factors and entrepreneurial outcomes rather than a causal factor of entrepreneurial outcomes. Those findings were enhanced by Hayton and Cacciotti (2013) who also promoted the utilization of the framework of Busenitz and Lau (1996) in the EC field to examine the causal relationships from cultural values through individual motives, traits and cognition, to behaviours and collective measures of behavioural outcomes. However, those studies concluded that they were less confident in the presence of a single EC, providing various research gaps and suggestions which can be further explored and investigated. Moreover, despite a great number of EC studies in the literature, research gaps remain because of the following reasons. Firstly, there is a deficiency of a literature review in the EC literature which integrates its related articles' characteristics, causing ambiguity regarding the extant trends in the literature. Secondly, there is a massive disintegration in terms of the frameworks, measurements, and theories applied in the EC literature; resulting in the deficiency of the typical relevant knowledge in both veins of EC. The meaning of the concept has not been well-defined, researched, and constituted accurately enough to promote EC (Malecki, 2018). Two literature reviews of EC (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013) concentrated only on the NEC, which was dominated by the utilization of Hofstede's conceptualization and ignored the other dimensions and the OEC and thus required the development of a rigorous and coherent theoretical framework of EC (Hayton & Cacciotti, 2013) and investigation of the effects of NEC and OEC upon entrepreneurship (Hayton *et al.*, 2002). Thirdly, the researchers put their effort into examining and certifying the causes and effects of the EC (Ruël *et al.*, 2012; Leal-Rodríguez *et al.*, 2017; Rahman *et al.*, 2019; Okoi *et al.*, 2021) but their findings were incoherent and were not aggregated, leading to the absence of an appropriate analytical framework that indicates and explicates the causal relationships of EC and the rational research agenda for future studies in this area.

Because of the growing quantity of EC research in diverse industries, contexts, and countries, a literature review which would epitomize and incorporate the research findings from those investigations emerges as a crucial concern in the entrepreneurship literature (Kraus *et al.*, 2020). Due to the restricted number of literature reviews conducted in the previous periods and their limitations and research gaps (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013), this research utilized the systematic literature review (SLR) to leverage its benefits of dealing with the lack of synthesis capacity in the traditional literature review. In this research, we focused on critical investigation and synthesis of the remarkable frameworks, measurements, causal relationships of the EC, and other appropriate findings related to the EC research. By using the SLR approach to synthesise a series of research which can represent entirely the EC literature, we will demonstrate the evolutionary trends and current trends

in EC research combining research approach, research context, data collection and analysis method, research time-frame, and level of analysis, thus showing a wide picture that may help other scholars recognize and form the ideas to perform a study in EC field. These trends cannot be found in extant literature reviews of EC (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013) due to the limited number of articles which were analysed and those studies only focused on the associations between NEC and entrepreneurship. Moreover, we will summarise and clarify the EC frameworks and measurements regarding two veins of EC including NEC and OEC, while illustrating the preeminent theories which were utilized in the literature; which fulfil the recommendations of Malecki (2018); Hayton *et al.* (2002); and Hayton and Cacciotti (2013). After that, we will also indicate a comprehensive view of what was investigated and approved in the EC literature by developing two nomological networks expressing the causal relationships of two veins of EC that satisfy the need for constructing a comprehensive theoretical framework of the causal relationships between culture and distinct outcomes of entrepreneurial behaviours, entrepreneurial activities, and entrepreneurship (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013). Thus, by delivering those findings, this research proposes the recommendations in terms of research direction for the further EC research. To summarize, the purpose of this research is to answer the following research questions.

1. What are the evolutionary trends and present trends in EC research?
2. What are the important contents addressed in EC research in terms of theory, conceptual framework, measurement, and causal relationships?
3. What are the promising areas for the upcoming EC research?

The structure of this study is formulated as follows. Section 2 will demonstrate the research methodology presenting the research approach and process of data collection and analysis. Then, section 3 will provide an interpretation of the literature review and clarification of the originality and definition of the EC. The findings and discussions will be illustrated in section 4, and section 5 will present conclusions.

RESEARCH METHODOLOGY

Research Approach

This research aims to analyse and synthesise research findings of extant EC articles in systematic progress, proposing potential research areas for future studies. This research was conducted to satisfy the recommendation of Kraus *et al.* (2020) whereas the context for further SLR review methodology and urgency of conducting an SLR exceptionally in the entrepreneurship field is illustrated. An SLR was depicted as a procedure of determining, evaluating, and illustrating all extant research evidence with the intention to produce answers for particular research questions and to give professionals and legislators a trustworthy foundation for making decisions and enforcing practices (Tranfield *et al.*, 2003). It was widely utilized in the management and entrepreneurship area (Liñán & Fayolle, 2015) because of its transparency, accuracy, fairness, approachability, consolidated, focused, and thus duplicatable (Pittaway & Cope, 2007) when compared to traditional types.

Search Strategy

Initial search and articles eliminated based on the title. We obtained the related research publications through a comprehensive advanced search in several databases including Scopus, Web of Science, and Google Scholar. We employed a combination of keywords including 'entrepreneurial culture' (124), 'entrepreneurship culture' (32), 'entrepreneurial climate' (47), 'entrepreneurship climate' (2), 'entrepreneurial environment' (50), and 'entrepreneurship environment' (5), which was demonstrated exactly in the title. We concurrently used a set of criteria: the publication must be (1) written in English, (2) peer-reviewed, and (3) a journal article because it provides highly valuable impact influence and is more trustworthy than other research types (Podsakoff *et al.*, 2003). The publication year and research context were not restricted, so this SLR encompasses journal articles up to December 2021. We skimmed the search outcomes and organized the appropriate articles in a single publication pool. The

initial database included 260 articles which satisfied the search filter, which was then decreased to 220 articles after excluding the duplicates and inappropriate publications.

Articles eliminated based on the abstract. The abstract of the remaining 220 articles was scanned based on a set of inclusive criteria. The articles had to (1) focus on the EC as a crucial variable or research area, (2) exhibit the conceptualizations, characteristics, theories, and measurements of the EC, (3) examine the EC and its causal relationships in either conceptual or empirical approach to remove the unrelated articles which complied the research objectives. The database was then decreased to 148 articles.

Articles eliminated based on the full text. The whole text of the leftover 148 articles was then analysed individually to re-evaluate whether they suited the research objectives or not by utilizing the suggested criteria, which disqualified the irrelevant articles while keeping only proper ones. Thus, the database shrunk to 73 articles according to the convention between the authors on the evaluation of the articles' full text.

Snowballing: through rigorously reading the full text of the 73 articles, the authors decided to operate a snowballing process to enlarge the critical articles which are regularly demonstrated in those articles but were not manifested in the searching procedure because of different key terms, turning into 10 additional articles. In summary, the final number of qualified publications selected for forthcoming analysis in this study was 83.

Data Analysis

We utilized the technique of Garrard (2004) to create an SLR matrix as the content analysis approach to analyse and assemble the crucial data which was excerpted from 83 selected articles. The crucial data included the name of the author, year of publication, journal title, research types (conceptual, qualitative, quantitative, or mixed method), research context including country and industry, data collection and data analysis technique, level of analysis, the definition of EC, theory foundation, characteristics of EC, measurement of EC, and causal relationships of EC.

LITERATURE REVIEW

Hofstede (1984, p. 21) defines culture as the 'collective programming of the mind which distinguishes the members of a human group from another, and includes systems of values.' Culture was also clarified as the systems of values, beliefs, processes, and other typical designs shared among businesses, which was the key element in the forming of individual behaviour (Kroeber & Parson, 1985). Culture was centrally associated with business chances which were the creation of novel value to community partially or generally (Nikolova-Alexieva & Angelova, 2020). This study defines the concept of the EC according to two veins including NEC and OEC.

Regarding OEC, the financial targets of firms and the self-actualizing capabilities of the staff are connected through EC. Hence, entrepreneurial culture transforms the staff into entrepreneurs who are eager to take risks and estimated responsibilities, and manage themselves for the good of the firm (Kelemen & Hristov, 1998; Okoi *et al.*, 2021). Entrepreneurial culture also refers to the total quantity of energetic and creative approaches and methods whereas a firm handles the shifts in the business context (Rohmetra, 1998). Entrepreneurial culture is also defined as the culture of an enterprise which promoted and sustained entrepreneurial actions of the enterprise in the international context through pursuing new international favourable chances to encourage new notions and creativity (Dimitratos *et al.*, 2012; Buccieri *et al.*, 2021). According to Mukhtar *et al.* (2021), it encompasses the shared combination of behaviours, assumptions, values, objectives, motivations, experiences, self-concepts, and procedures; impacting the organizational propensity towards creativity and innovativeness to encourage and maintain entrepreneurship. In particular, it demonstrates the organizational orientation regarding investigating novel alternatives or methods through seeking novel resources, and generating novel products; facilitating entrepreneurial mindset, creativity (Moh'd Adnan Homsy *et al.*, 2020), innovation, and a higher level of capabilities or competencies (Atiku & Fields, 2016). In general, Leal-Rodríguez *et al.* (2017) propose that EC comprises a series of internal and subjective elements associated with the organizations' and executives' entrepreneurial orientation. Moreover, EC relates to the

characteristics and environment linked with entrepreneurial movements including the pursuit of entrepreneurial chances, promoting novel concepts and creativity, establishing new firms, or other forms of entrepreneurial attitudes (Bergmann *et al.*, 2018; Sancho *et al.*, 2021). It may also be related to social norms, organizational policies, and processes that help the organizational members to acknowledge appropriate behaviours in a specific context (Sim *et al.*, 2021). Due to the development of the OEC concept, there have been various theories that were utilized and enriched in the literature with the domination of social cognitive theory and institutional theory. Social cognitive theory (Bandura, 1986; Bandura, 2001) exhibits human functioning as the interactions between environmental elements, personal elements, and behaviour elements. While environmental elements indicate external environments, which encompass the characteristics of OEC, influencing individual cognition and further generated behaviours, personal elements demonstrate cognitive or other internal characteristics which manipulate individual attitude, cognition, and understanding. Thus, the evolution of OEC improved social cognitive theory by enhancing the conceptualization of OEC which is embedded in environmental elements. Moreover, social cognitive theory was also enlarged by examining the connections between OEC, personal elements such as entrepreneurial knowledge and mindset (Cui, 2021), and personal behaviours such as entrepreneurial intention (Mukhtar *et al.*, 2021) providing a coherent framework for understanding the role of OEC. Besides that, the institutional theory of organizations (DiMaggio & Powell, 1983; Zucker, 1987) proposes that institutional elements ordinarily emerged from within the organization itself or from the reproduction of identical organizations, not from power or coercive processes presented in the regions. It describes the institutions as 'multifaceted, durable social structures, made up of symbolic elements, social activities, and material resources' which can be classified into formal and informal institutions (North, 1990; Scott, 2001). Hence, institutional theory takes advantage of the conceptualization and development of OEC as the information contexts which generate rules and norms prescribing entrepreneurial behaviours amongst the organization's individuals like entrepreneurial intention (Sim *et al.*, 2021).

Regarding NEC, Swierczek and Jatusripatak (1994) introduced EC as a theoretical concept that comprises two crucial facets, including (1) traits and beliefs, and (2) behaviours and acts. On the other hand, Stuetzer *et al.* (2018) suggest that it combines all three perspectives of entrepreneurship, namely organization, behaviour, and performance. Besides, EC is a combination of values, mindsets, and viewpoints commonly shared in a society which underpin the notion of any entrepreneurial 'way of life as' being desirable and in turn supports the pursuit of 'effective' entrepreneurial behaviour by individuals or groups (Gibb, 1999; Ruël *et al.*, 2012). Most acknowledge this as an essential factor of a territorial culture promoting the prosperity of regional clusters and economies (Beugelsdijk, 2007). It is utilized to represent the new ventures' establishment in a particular context (Majocchi & Presutti, 2009). Moreover, it is also the component of territorial culture which influences the likelihood of a human being elected to turn into an entrepreneur by inspiring (Foreman-Peck & Zhou, 2013). Furthermore, EC refers to the patterns, assumptions, and communal values of a specific region and society (Afriyie & Boohene, 2014). It is depicted as 'a positive collective programming of the mind,' aggregated cognitive feature, and orientation of the regional community with regard to entrepreneurial characteristics like 'individualism, independence, and achievement;' tuning into the communal acknowledgement of the entrepreneurs and their actions (Šebestová *et al.*, 2015; Fritsch & Wyrwich, 2018; Stuetzer *et al.*, 2018). Entrepreneurial culture combines the components elected, generated, utilized, and demonstrated by the business society throughout the business production procedures (Nguyen, 2016). Furthermore, Obschonka (2017) recommends that EC of a regional context can be clarified through the aggregation of entrepreneurial characterizations. Besides that, EC could be expressed as a set of mutual assumptions, communal norms, cultural values, entrepreneurial features and behaviours transferred and internalized throughout numerous generations (Fernández-Serrano *et al.*, 2018; Opper & Andersson, 2019; Bischoff, 2021). Moreover, EC was also analysed as the consequence of the energetic, creative, and innovative competencies of the entrepreneurs which were recognized and appreciated by the community (Prasetyo, 2019), causing the efficiency of the procedures and deliverables of creative and innovative notions of the entrepreneurship-based business actors who intensely chased their ambition to acquire exceptional economic and shared outcomes. Entrepreneurial culture is also conceptualized as a society

with entrepreneurial characteristics, values, thinking, and attitudes (Rahman *et al.*, 2019; Samuel *et al.*, 2021). Furthermore, EC is associated with the spread of entrepreneurial role models and the communal appreciation of entrepreneurship combined with the presence of supporting organizations (Capelleras *et al.*, 2019). Thus, it is rooted in the willingness to promote entrepreneurial competencies and skills in the people who are concerned about the revolutionary movements (Chabani, 2021). Numerous theories have been pursued in the NEC field with the predominance of institutional theory and cultural dimension theory. Cultural dimensions theory (Hofstede, 1980) determines the structure for cross-cultural communication by demonstrating the dimensions whereas distinct cultures differ and acknowledge the distinctness in culture between nations. In EC literature, six cultural dimensions which were proposed by Hofstede (1980) have been applied and modified in order to examine the cultural values of the nations that promote entrepreneurship (Swierczek & Jatusripatak, 1994; Swierczek & Quang, 2004; Autio *et al.*, 2013; Thampi *et al.*, 2015; Stephan & Pathak, 2016; Thampi *et al.*, 2018; Samuel *et al.*, 2021). Besides that, institutional theory (Scott, 1995) demonstrates the procedures through which structures combining patterns, regulations, norms, and practices, were generated like authorized direction behaviours amongst society (Scott, 2004). Scholars concentrate on improving the institutional theory, which reflects the institutional context stimulating entrepreneurship, by clarifying the constructs of NEC and its causal associations in order to provide the way to create a NEC which shapes the human behaviours (*e.g.*, entrepreneurial activities) (Stephan & Uhlaner, 2010; Aidis *et al.*, 2012; Ruël *et al.*, 2012; Stephan *et al.*, 2015; Capelleras *et al.*, 2019).

RESULTS AND DISCUSSION

Figure 1 depicts the types of EC publications over the years of publication. Despite some negligible shifts, we see an extreme development tendency in the number of EC articles throughout a lengthened time frame which is 29 years (1992-2021), starting with the earliest investigation in this publication pool which is the qualitative research of Chan (1992), and the extraordinary milestone, namely 2012, which opened the magnificent development of EC field afterwards. The most commonly utilized research methodology in EC literature is a quantitative method which was applied in 59 articles. Next is a qualitative method (13 articles), conceptual article (7 articles), and mixed method (4 articles). Due to the emerging and dominant quantity of quantitative research in the EC literature, the research purpose of EC research evolved from theory building to theory validation. Furthermore, because entrepreneurship possesses the characteristics of multidisciplinary, EC publications can be found in a broad range of journals ($n=57$). Noteworthy, 63 articles were published in 47 SCOPUS-indexed journals; see Table 1.

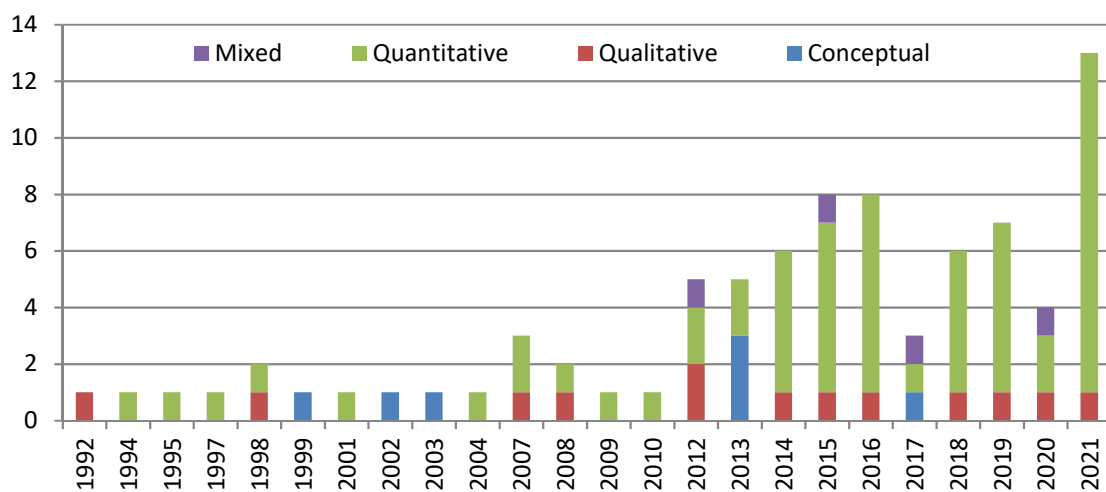


Figure 1. Types of EC publications over time 1992-2021

Source: own elaboration based on Scopus database.

Table 1. Summary of EC research

Authors	Journal	Research approach	Country of study	Industries	Data collection	Research method	Time-frame
NEC							
Swierczek and Jatusripatak (1994)	<i>Journal of Enterprising Culture</i>	Quantitative (QUAN)	Cross-national (CNT)	Multi-industry (MI)	Questionnaire (QUE)	Comparative analysis	Cross-sectional (CS)
Davidsson (1995)	<i>Entrepreneurship & Regional Development</i>	QUAN	Sweden	MI	QUE	Entrepreneurial values index (EVI)	CS
Davidsson and Wiklund (1997)	<i>Journal of Economic Psychology</i>	QUAN	Sweden	MI	QUE	Sign tests	CS
Gibb (1999)	<i>Small Enterprise Development</i>	Conceptual (CONC)	N/A	N/A	N/A	N/A	CS
Minguzzi and Passaro (2001)	<i>Journal of Business Venturing</i>	QUAN	Italy	MID	QUE	Multivariate analysis	CS
Hayton et al. (2002)	<i>Entrepreneurship Theory and Practice</i>	CONC	N/A	N/A	N/A	N/A	CS
Swierczek and Quang (2004)	<i>Journal of Enterprising Culture</i>	QUAN	CNT	Not specified (NS)	QUE	Cluster; correlation, and comparative analysis	CS
Beugelsdijk (2007)	<i>Journal of Evolutionary Economics</i>	QUAN	CNT	NS	Database (DAT)	OLS and SLS regression analysis	CS
Uhlaner and Thurik (2007)	<i>Journal of Evolutionary Economics</i>	QUAN	CNT	NS	DAT	Multiple regression analysis (MRA)	CS
Beugelsdijk and Smeets (2008)	<i>American Journal of Economics and Sociology</i>	QUAN	CNT	NS	DAT	Robustness analysis	CS
Majocchi and Presutti (2009)	<i>International Business Review</i>	QUAN	Italy	Manufacturing	DAT	MRA	CS
Stephan and Uhlaner (2010)	<i>Journal of International Business Studies</i>	QUAN	CNT	NS	DAT	MRA	CS
Aidis et al. (2012)	<i>Small Business Economics</i>	QUAN	CNT	NS	DAT	Factor analysis	CS
Ruël et al. (2012)	<i>International Journal of Entrepreneurship and Small Business</i>	Mixed (MIX)	CNT	Biotech	Semi-structured interviews (INT) and QUE	Content and cluster analysis	CS
Autio et al. (2013)	<i>Journal of International Business Studies</i>	QUAN	CNT	NS	DAT	Multilevel regression analysis	CS
Foreman-Peck and Zhou (2013)	<i>Journal of Evolutionary Economics</i>	QUAN	CNT	NS	DAT	Comparative analysis	CS

Authors	Journal	Research approach	Country of study	Indus-tries	Data col-lection	Research method	Time-frame
Hayton and Cacciotti (2013)	<i>Entrepreneurship & Regional Development</i>	CONC	N/A	N/A	N/A	N/A	CS
Spigel (2013)	<i>Entrepreneurship & Regional Development</i>	CONC	N/A	N/A	N/A	N/A	CS
Afriyie and Boohene (2014)	<i>Athens Journal of Education</i>	QUAN	Ghana	Educa-tion (EDU)	QUE	Pearson cor-relation and Chi-square test	CS
Coleman and Kariv (2014)	<i>Venture Capital</i>	QUAN	CNT	NS	QUE	MRA	CS
Meyer (2014)	<i>Mediterranean Journal of Social Sciences</i>	QUAN	South Af-rica	EDU	QUE	Z-tests and p-tests	CS
Thai and Turkina (2014)	<i>Journal of Business Ven-turing</i>	QUAN	CNT	NS	DAT	PLS-SEM	CS
Mwaura et al. (2015)	<i>International Journal of Academic Research in Business and Social Sci-ences</i>	QUAN	Kenya	EDU	QUE	SEM	CS
Breazeale et al. (2015)	<i>Community Development</i>	MIX	US	MID	Semi-struc-tured INT, Focus group, and QUE	CFA and AN-COVA	CS
Thampi et al. (2015)	<i>International Journal of Business and Globalisa-tion</i>	Qualitative (QUAL)	India	MID	Structured INT	Content analysis (CA)	CS
Šebestová et al. (2015)	<i>Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis</i>	QUAN	Czech	MID	QUE	Cross tabs and forward stepwise re-gression analysis	CS
Stephan et al. (2015)	<i>Journal of International Business Studies</i>	QUAN	CNT	NS	DAT	Logistic mul-tilevel re-gression analysis	CS
Leustean et al. (2016)	<i>FAIMA Business & Man-agement Journal</i>	QUAN	Romania	MID	QUE	Fuzzy logic	CS
Nguyen (2016)	<i>Economic Horizons</i>	QUAN	Vietnam	MID	QUE	Sociological statistics method	CS
Stuetzer et al. (2016)	<i>European Economic Re-view</i>	QUAN	UK	NS	DAT	OLS and IV regressions analysis	CS
Stephan and Pathak (2016)	<i>Journal of Business Ven-turing</i>	QUAN	CNT	NS	DAT	Multilevel regression analysis	CS
Obschonka (2017)	<i>Current Opinion in Behav-ioral Sciences</i>	CONC	N/A	N/A	N/A	N/A	CS
Fernández-Serrano et al. (2018)	<i>International Entrepre-neurship and Manage-ment Journal</i>	QUAN	CNT	NS	DAT	Data envel-opment analysis	CS

Authors	Journal	Research approach	Country of study	Indus-tries	Data col-lection	Research method	Time-frame
Fritsch and Wyrwich (2018)	<i>Small Business Economics</i>	QUAN	Germany	MID	DAT	MRA	CS
Thampi et al. (2018)	<i>International Journal of Entrepreneurship and Small Business</i>	QUAN	India	MID	QUE	MRA	CS
Stuetzer et al. (2018)	<i>Regional Studies</i>	QUAN	UK	NS	DAT	OLS and IV regressions analysis	CS
Capelleras et al. (2019)	<i>Small Business Economics</i>	QUAN	Spain	MID	DAT	Hierarchical linear regression analysis	CS
Göleç and Maksudunov (2019)	<i>South African Journal of Industrial Engineering</i>	QUAN	Kyrgyzstan	NS	QUE	Fuzzy multicriteria decision-making model	CS
Opper and Andersson (2019)	<i>Asia Pacific Journal of Management</i>	QUAN	China	NS	DAT	Principal component analysis and panel data analysis	Longitudinal (3 phases)
Prasetyo (2019)	<i>International Journal of Economics and Financial Issues</i>	QUAN	Indonesia	MID	DAT	SEM	CS
Rahman et al. (2019)	<i>Udayana Journal of Law and Culture</i>	QUAL	Indonesia	MID	Reflexive observations	Descriptive-reflexive observatory method	CS
Galambos (2020)	<i>Enterprise & Society</i>	QUAL	US	MID	DAT	CA	Longitudinal (2 phases)
Chabani (2021)	<i>Academy of Entrepreneurship Journal</i>	QUAN	CNT	NS	DAT	MRA	CS
Sipola (2021)	<i>Journal of Entrepreneurship in Emerging Economies</i>	QUAL	Finland	NS	DAT	CA	CS
Bischoff (2021)	<i>Small Business Economics</i>	QUAN	Cross-national	MID	QUE	OLS regression analysis	CS
Samuel et al. (2021)	<i>International Journal of Entrepreneurship</i>	QUAN	Nigeria	EDU	QUE	Pearson moment correlation and regression models	CS
OEC							
Chan (1992)	<i>Journal of Small Business & Entrepreneurship</i>	QUAL	US	Service	INT	CA	CS
Kelemen and Hristov (1998)	<i>Journal of Enterprising Culture</i>	QUAL	CNT	MI	In-depth and semi-structured INT	CTA	CS
Rohmetra (1998)	<i>Journal of Enterprising Culture</i>	QUAN	India	Banking	QUE	ANOVA	CS

Authors	Journal	Research approach	Country of study	Indus-tries	Data col-lection	Research method	Time-frame
Dimitratos and Plakoyiannaki (2003)	<i>Journal of International Entrepreneurship</i>	CONC	N/A	N/A	N/A	N/A	CS
Boojihawon et al. (2007)	<i>International Business Review</i>	QUAL	UK	Advertis- ing	In-depth INT	CA	CS
Göktepe-Hultén (2008)	<i>Science and Public Policy</i>	QUAL	Sweden	EDU	In-depth INT	CA	CS
Dimitratos et al. (2012)	<i>International Business Review</i>	QUAN	CNT	NS	QUE	CFA	CS
Cruz et al. (2012)	<i>Journal of Family Business Strategy</i>	QUAL	Honduras	MI	In-depth INT	Interpretive method	CS
Botezat (2012)	<i>International Journal of e-Education, e-Business, e-Management and e-Learning</i>	QUAL	Romania	MI	In-depth and semi- structured INT	CA	CS
Osiri et al. (2013)	<i>Journal of Entrepreneurship Education</i>	CONC	N/A	N/A	N/A	N/A	CS
Gabrielsson et al. (2014)	<i>Management Interna- tional Review</i>	QUAL	Finland	MI	In-depth INT	CA	CS
Atiku et al. (2014)	<i>Mediterranean Journal of Social Sciences</i>	QUAN	Nigeria	Banking	QUE	MRA	CS
Baimai and Mukherji (2015)	<i>Journal of Global Entre- preneurship Research</i>	QUAN	Thailand	MI	QUE	SEM	CS
Li and Lee (2015)	<i>Journal of World Business</i>	QUAN	China	MI	QUE	Hierarchical linear re- gression analysis	CS
Bau and Wag- ner (2015)	<i>International Journal of Entrepreneurship and Small Business</i>	QUAN	Sweden	Health insurance	QUE	EFA	CS
Abulhanova et al. (2016)	<i>Academy of Strategic Management Journal</i>	QUAN	Russia	Hospital- ity	QUE	Descriptive analysis	CS
Akuegwu and Nwi-Ue (2016)	<i>Mediterranean Journal of Social Sciences</i>	QUAN	Nigeria	EDU	QUE	T-test	CS
Dimitratos et al. (2016)	<i>International Business Review</i>	QUAL	CNT	MI	Multiple sources	CA	CS
Atiku and Fields (2016)	<i>Journal of Economics and Behavioral Studies</i>	QUAN	Nigeria	Banking	QUE	SEM	CS
Aryana et al. (2017)	<i>International Review of Management and Mar- keting</i>	MIX	Iran	EDU	In-depth INT and QUE	Explorative testing and Pearson cor- relation	CS
Leal- Rodríguez et al. (2017)	<i>International Entrepre- neurship and Manage- ment Journal</i>	QUAN	Spain	Manufac- turing	QUE	PLS-SEM	CS
Dutta (2018)	<i>Technology Innovation Management Review</i>	QUAL	US	Retail	DAT	CA	CS
Bergmann et al. (2018)	<i>Research Policy</i>	QUAN	CNT	EDU	QUE	Linear multi- level regres- sion analysis	CS

Authors	Journal	Research approach	Country of study	Industries	Data collection	Research method	Time-frame
Basargekar et al. (2019)	<i>Journal of Asia Entrepreneurship and Sustainability</i>	QUAN	India	MI	QUE	MRA	CS
Danish et al. (2019)	<i>Journal of Innovation and Entrepreneurship</i>	QUAN	Pakistan	Information technology	QUE	SEM	CS
Nikolova-Alexieva and Angelova (2020)	<i>International Journal of Entrepreneurship and Small Business</i>	MIX	Bulgaria	Food	In-depth INT and QUE	EFA and CFA	CS
Buccieri et al. (2020)	<i>International Business Review</i>	QUAN	India	High-technology	QUE	SEM	CS
Moh'd Adnan Homs et al. (2020)	<i>Innovative Marketing</i>	QUAN	Jordan	Banking	QUE	MRA	CS
Buccieri et al. (2021)	<i>International Small Business Journal</i>	QUAN	India	High-technology	QUE	SEM	CS
Hassan et al. (2021)	<i>Entrepreneurial Business and Economics Review</i>	QUAN	Malaysia	EDU	QUE	SEM	CS
Cui (2021)	<i>Sustainability</i>	QUAN	China	EDU	QUE	MRA	CS
Sancho et al. (2021)	<i>The International Journal of Management Education</i>	QUAN	CNT	EDU	QUE	PLS-SEM	CS
Lahikainen et al. (2021)	<i>Industry and Higher Education</i>	QUAN	Finland	EDU	QUE	ANOVA and MRA	CS
Mukhtar et al. (2021)	<i>Cogent Education</i>	QUAN	Indonesia	EDU	QUE	PLS-SEM	CS
Nguyen et al. (2021)	<i>Journal of Entrepreneurship in Emerging Economies</i>	QUAN	Vietnam	MI	QUE	PLS-SEM	CS
Okoi et al. (2021)	<i>Webology</i>	QUAN	Nigeria	NS	QUE	MRA	CS
Sim et al. (2021)	<i>Journal of Entrepreneurship in Emerging Economies</i>	QUAN	Malaysia	EDU	QUE	PLS-SEM	CS

Source: own study.

Research Context and Methodology

According to Table 1, EC arose universally as an appealing research field which resulted in extensive applications of this concept in numerous nations. Concerning the 76 empirical articles, there is a high amount of the selected studies (n=22) which were conducted in at least two nations to identify, evaluate, and compare the EC in proposed nations in order to determine the most appropriate culture that stimulated entrepreneurship. The remaining 54 studies were in 26 countries, of which India (n=6), Nigeria (n=5), the United States (n=4), and Sweden (n=4) took the highest proportion; followed by China (n=3), Finland (n=3), Indonesia (n=3), the United Kingdom (n=3), and other nations, thus presenting that the EC received a lot of attention in a wide range of territories from Western countries to Asia.

Moreover, because of the multidisciplinary embedded in entrepreneurship and EC, the studies which investigated multi-industry sectors were the most numerous in the publication pool and amounted to 25 articles. Besides that, there is also a great number of the elected articles which did not interpret their research industry (n=21), because their objective was to appraise the overall EC in

a particular region. The residual publications were implemented in education (n=14), banking (n=4), manufacturing (n=2), high-technology (n=2), and others.

Moreover, we observed a prominent trend of conducting cross-sectional (CS) research within the EC literature, in which 81 out of 83 selected studies gathered, analysed, and measure all variables concurrently, while only two studies applied a longitudinal approach to evaluate the EC of an appropriate context in distinct timelines, including two phases and three phases.

Besides that, in the publication pool, the EC studies performed within the national context were the most numerous (n=46) to clarify the social culture of a particular region that encouraged entrepreneurial activities. They were followed by studies within the organizational context (n=37) in which the researchers tended to determine and evaluate the organizational culture which facilitated the development of the firms, especially the new ventures, causing the growth of entrepreneurship in society.

Amongst the quantitative research, 40 out of 59 studies gathered quantitative data by conducting a survey with the questionnaire, while the remaining studies employed the extant database. Moreover, the researchers had a high tendency to apply the multiple regression analysis, structural equation model (SEM), and partial least squares-structural equation modelling (PLS-SEM) to evaluate the EC in a particular level of analysis and its causal relationships, which were utilized in 13, seven, and six studies, respectively. A wide range of statistical analysis techniques can be found in the leftover studies, which are illustrated in Table 1. In 13 qualitative studies, the researchers tended to mainly collect qualitative information from interviews; combining in-depth interviews, structured interviews, and the combination of in-depth and semi-structured interviews which was utilized in five, one, and two studies, respectively. The data was also gathered through the extant database, pursuing multiple sources, and reflexive observations, which was adopted in three, one, and one studies, respectively. Concerning the data analysis, the EC literature is dominated by content analysis (n=11) in which the researchers coded and synthesised the underlying themes to determine and assess an EC. There were two leftover studies that utilized the interpretive method and descriptive-reflexive observatory method to translate the qualitative data into findings. The four remaining mixed-method studies commonly performed a survey as a follow-up to interviews to validate the findings of the qualitative stage or performed the pilot test before spreading the questionnaire to assure research reliability and validity.

Theories Utilized in EC Research

The literature reviews of EC (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013) analyse mainly the studies that used Hofstede's cultural dimensions theory, ignoring other crucial theories in the NEC literature turning into the significant research gaps for future research in theory development. Moreover, they only concentrated on the first vein-NEC which thus led to the deficient analysis of the second vein-OEC. Therefore, this study is an extended version of those examinations by providing a holistic view of theories utilized in both veins of EC, generating the research guidelines to enrich efficiently those theories in the EC literature. The summary of the theories, which were applied in the EC literature, is illustrated in Table 2. Cultural dimensions theory and institutional theory are represented as the most frequently utilized theories in the NEC articles; while the institutional theory of organizations and social cognitive theory dominate the OEC studies.

Theories Utilized in NEC Research

Cultural dimensions theory (Hofstede, 1980) clarifies the structure for cross-cultural communication through demonstrating the dimensions in which distinct cultures differ and acknowledging the distinctness in culture between nations. It reduces cross-cultural diversification to national records regarding a restricted number of dimensions. The theory recommends that individuals of diverse nations vary in terms of the degree to which they permit the essential cultural dimensions including power, individualism (vs. collectivism), uncertainty avoidance (vs. tolerance), masculinity (vs. femininity), temporal (short-term vs. long-term) orientation, and indulgence (vs. restraint) (Hofstede, 1980; 1984). Although various studies were conducted to determine appropriate cultural dimensions, Hofstede's work was acknowledged to be one of the most extensive and integrated frameworks (Thampi *et al.*, 2018). In EC, cultural dimensions theory was utilized as the foundation to formulate

and evaluate the cultural values of the nations and their members that stimulated the entrepreneurship procedures based on original six dimensions (Thampi *et al.*, 2015; Thampi *et al.*, 2018), or modified framework in order to fit with the context (Swierczek & Jatusripatak, 1994; Swierczek & Quang, 2004; Stephan & Pathak, 2016). However, Hofstede's cultural dimensions were generally defined, which clarified the overall culture of a nation, and did not particularly explain facets of culture that were most meaningful to entrepreneurship (Busenitz *et al.*, 2000; Brancu *et al.*, 2012). Furthermore, McGrath *et al.* (1992) claim that nations' scores on those dimensions are not constant but may fluctuate with time. Thus, the urgency of constructing an independent measure of NEC values emerged in the literature (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013).

We recommend that future studies investigate other theories, especially the institutional theory, to clarify an independent measure of NEC values, which goes beyond normative facets of cultural dimensions, to examine institutional elements associated with entrepreneurship, instead of over-relying on cultural dimensions theory.

The institutional theory proved exceptionally advantageous in entrepreneurship investigations (Bruton *et al.*, 2010; Ruël *et al.*, 2012). The utilization of the institutional theory (Scott, 1995) represents the procedures through which structures containing patterns, regulations, norms, and practices, were generated like authorized direction behaviours among society (Scott, 2004). In NEC literature, Stephan and Uhlaner (2010) employ the perspective of NEC as informal institutions – patterns or reiterations of common behaviours and as practised codes of conduct – that structure societal interactions. Stephan *et al.* (2015) enlarged those practices by configuring the NEC embedded in the information institutions, influencing individuals' engagement in social entrepreneurship. Ruël *et al.* (2012) examined how an EC was constructed in a biotech cluster regarding its antecedents based on the institutional viewpoint that was affected by ministries and lawmakers, consisting of formal and informal institutions. Through an institutional perspective, Capelleras *et al.* (2019) claim that EC epitomizes the mutual values and assumptions schemes (Foreman-Peck & Zhou, 2013) which form the climates, in which individual behaviours (*e.g.*, entrepreneurial actions) are generated and entrepreneurs are entrenched. However, the EC literature has not been able to properly figure out the factors demonstrating a NEC (Ruël *et al.*, 2012). We integrated various models which have been exploited in EC literature and on this basis, we propose a comprehensive framework displaying the essential elements of a NEC and their causal connections that can be leveraged to research further in order to enhance the institutional theory.

We strongly suggest that future studies utilize the findings of this study and in particular the framework of NEC and its causal relationships to enhance the institutional theory by clarifying the crucial factors of a NEC and investigating their causal relationships to deal with the over-dependence on cultural dimensions theory.

Theories Utilized in OEC Research

When analysing the organizational level, researchers also applied the institutional theory of organizations (DiMaggio & Powell, 1983; Zucker, 1987), which views institutions as 'multifaceted, durable social structures, made up of symbolic elements, social activities, and material resources' that can be classified into formal and informal institutions (North, 1990; Scott, 2001). The OEC was clarified as the informal institutional elements generally emerged from within the organization itself or from the recreation of an identical organization, not from power or coercive processes presented in the regions. Sancho (2021) defines OEC as the institutional environment utilized by universities to constitute entrepreneurship amongst their members by stimulating entrepreneurial activities. In a similar context, Sim *et al.* (2021) applied the institutional theory to view the universities as institutions, in which the institutional components typically emerged from within the institution itself or from the mimicry of identical institutions, which was determined as OEC (informal context) combining codes of conduct, norms of behaviour and conventions; playing a mediating role in the relationship between the university's support for entrepreneurship (formal context) and the students' entrepreneurial intention. Nevertheless, the OEC vein also did not provide a coherent framework to clarify the cultural dimensions entrenched in an organization. Thus, according to our findings, we propose.

There is a need for making the dimensions of OEC and their causal effects explicit to promote the institutional theory.

Social cognitive theory (Bandura, 1986; Bandura, 2001) describes human functioning as the interactions between environmental elements, personal elements, and behaviour elements. While environmental elements indicate external environments, which encompass the characteristics of OEC, and influence individual cognition and further generate behaviours, personal elements demonstrate cognitive or other internal characteristics which manipulate individual attitude, cognition, and understanding. Cui (2021) expanded the social cognitive theory by integrating and confirming the relationships between educational (teaching methods), cognitive (entrepreneurial mindset), and environment elements (OEC) in the holistic entrepreneurship education context. In the same context, those findings were supported and enlarged in the work of Mukhtar *et al.* (2021) by certifying the interactions between OEC (environment factors), entrepreneurial mindset (cognitive factors), and students' entrepreneurial intention (individual behaviours). However, in OEC literature, due to the restricted number of articles that utilized the social cognitive theory, the opportunities to strengthen that theory emerge, which can be found in the nomological network of OEC of this study. There were numerous causal relationships between the environmental factors, cognitive factors, and behaviours factors confirmed in the EC literature. However, those findings have not been employed to enhance the social cognitive theory, which thus requires further investigation.

We advise that future research leverage the causal relationships of OEC in our nomological network of OEC to enrich the social cognitive theory.

Table 2. Theories utilized in EC research

Dimension	Theory	Authors
NEC	Cultural dimensions theory	Swierczek and Jatusripatak (1994); Swierczek and Quang (2004); Autio <i>et al.</i> (2013); Thampi <i>et al.</i> (2015); Stephan and Pathak (2016); Thampi <i>et al.</i> (2018), Samuel <i>et al.</i> (2021)
	Institutional theory	Stephan and Uhlaner (2010); Aidis <i>et al.</i> (2012); Ruël <i>et al.</i> (2012); Stephan <i>et al.</i> (2015); Capelleras <i>et al.</i> (2019)
	Action theory of entrepreneurship	Autio <i>et al.</i> (2013)
	Social capital theory	Spigel (2013)
	Eclectic theory of entrepreneurship	Thai and Turkina (2014)
	Personality-based approach	Obschonka (2017)
	Theory of entrepreneurial talent allocation	Opper and Andersson (2019)
	Organizational imprinting theory	Sipola (2021)
	Human capital theory	Samuel <i>et al.</i> (2021)
OEC	Institutional theory of organizations	Sancho <i>et al.</i> (2021); Sim <i>et al.</i> (2021)
	Social cognitive theory	Cui (2021); Mukhtar <i>et al.</i> (2021)
	Opportunity-based view theory	Dimitratos <i>et al.</i> (2016)
	Dynamic capabilities view theory	Buccieri <i>et al.</i> (2020)
	Organizational learning theory	Buccieri <i>et al.</i> (2021)
	Knowledge-based view theory	Buccieri <i>et al.</i> (2021)
	Resource-based view theory	Okoi <i>et al.</i> (2021)

Source: own study.

Frameworks and Measurements Utilized in EC Research

Due to the lack of literature review research on the EC, there is massive fragmentation in terms of frameworks and measurements that were utilized in both veins of EC in the literature. The literature reviews of EC (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013) suggest that NEC is illustrated through four forms or indications of EC combining needs and motives, beliefs and behaviours, cognition, and cultural values (societal and individual levels). However, due to the dominance of Hofstede's conceptualization of NEC to characterize cultural values, the underdevelopment of other domains emerged in the EC literature, thus calling for their development (Hayton *et al.*, 2002). Hayton and Cacciotti

(2013) conclude that the next phase of the evolution of this literature has to concentrate on the creation and improvement of more precise and comprehensive theoretical frameworks. However, they only focus on the NEC and its outcomes and do not summarise or clarify the rational frameworks of both veins of EC. Supporting this view and taking those studies (Hayton *et al.*, 2002; Hayton & Cacciotti, 2013) as the foundation, we synthesised the domains of NEC, instead of only focusing on Hofstede's cultural dimensions, and classified them regarding five forms of NEC to generate an extensive framework for NEC, resolving the disintegrations in the literature. This study went beyond an extended version of those studies by synthesising the EC frameworks and measurements in both veins of EC including NEC and OEC, which was displayed in Table 3, and combining them with their causal relationships in order to integrate them into the comprehensive nomological networks of both veins of EC (Figure 2 and 3). Table 3 depicts the summarisation of the appropriate EC frameworks and their corresponding measurements which have been applied and examined in the literature.

Framework of NEC

We consulted the works of Hayton *et al.* (2002), and Hayton and Cacciotti (2013) to create a comprehensive framework of NEC, resolving the fragmentation in the application of framework NEC. This framework can also be used to enlarge the institutional theory by clarifying the crucial facets of a NEC.

Needs and motives. They are impulses which initiate and influence specific behaviours regarding appropriate rewards and they can be viewed as the desire to act or conduct a future development towards entrepreneurship. They express the aggregation of the individuals' entrepreneurial attributes in a particular region including entrepreneurial values (Davidsson, 1995; Davidsson & Wiklund, 1997), need for achievement (Beugelsdijk & Smeets, 2008), and business startup motives (Afriyie & Boohene, 2014).

Beliefs and behaviours. They are a set of assumptions, convictions, actions, and activities of individuals in relation to entrepreneurship. In NEC literature, various dimensions were examined to characterize this domain. The dimensions include entrepreneurial beliefs (Davidsson, 1995; Davidsson & Wiklund, 1997), 'effective' entrepreneurial behaviour, entrepreneurial 'way of life' (Gibb, 1999), the level of entrepreneur's participation in industry association activity (Minguzzi & Passaro, 2001), entrepreneurial orientation (Afriyie & Boohene, 2014), creative – innovative, daring to take risks, seizing business opportunities, sustainable achievement (Nguyen, 2016)

Cognition. It concerns how individuals think and act. In entrepreneurship, it reflects the knowledge structure and process which individuals employ to promote awareness and make analyses, evaluations, or decisions comprising opportunity appraisal and business formation and growth. Scholars studied this domain in EC literature by investigating the entrepreneurial mindset of the individuals (Afriyie & Boohene, 2014), their perceptions towards finding a job, entrepreneurship and unemployment (Meyer, 2014), social acceptance of entrepreneurship (Capelleras *et al.*, 2019), and perceived awareness for entrepreneurship in a region (Bischoff, 2021).

Cultural values. Because of the dominance of Hofstede's cultural dimensions in the literature, the values embedded in the culture amongst a nation for both individual and societal levels were developed and modified efficiently and took an essential role in the NEC framework (Swierczek & Jatusripatak, 1994; Swierczek & Quang, 2004; Autio *et al.*, 2013; Thampi *et al.*, 2015; Stephan & Pathak, 2016; Thampi *et al.*, 2018; Samuel *et al.*, 2021). Besides that, the overall cultural dimensions which were proposed in the work of McClelland (1961) and Bourdieu (1977, 1986, 1989, 1990) were also enforced in the literature by examining and validating the applicability and sufficiency of their framework in promoting entrepreneurship (Beugelsdijk & Smeets, 2008; Spigel, 2013). Furthermore, there is a great number of scholars in the EC literature put their effort into creating the particular set of culture values to measure NEC that stimulates the entrepreneurial behaviours of individuals, groups, and societies. Thus, NEC supports the development of new venture, turning into the sustainable entrepreneurship in a nation. Several cultural values have been identified including postmaterialism (Uhlener & Thurik, 2007), performance-based culture, and socially-supportive culture (Stephan & Uhlener, 2010; Thai & Turkina, 2014), entrepreneurial community (Coleman & Kariv, 2014), business discouragements, business promotion, diversity and change, focus on the local (Breazeale *et al.*, 2015; Göleç & Maksudunov, 2019), national-level postmaterialism, national-level

socially supportive cultural norms (Stephan *et al.*, 2015), normative-cognitive layer (Šebestová *et al.*, 2015), work-life balance (Leustean *et al.*, 2016), cultural inputs (Fernández-Serrano *et al.*, 2018), and venture capital-financed entrepreneurship culture (Sipola, 2021).

Social context. However, the framework of Hayton *et al.* (2002) does not encompass the other valuable facets of NEC recommended in the study of Hayton and Cacciotti (2013). The scholars proved that the societal characteristics and social context support the development of entrepreneurial activities and entrepreneur's behaviours (Kim *et al.*, 1989), thus, it can be accounted as a crucial domain of NEC. Hence, we provided evidence to add the social context to generate a comprehensive framework for NEC. The social environment of a community provides many conditions and systems to assist entrepreneurs and entrepreneurial activities, which can be found through various remarkable characteristics including freedom from corruption, market freedom, size of the government (Aidis *et al.*, 2012), community role models, community's financial support (Coleman & Kariv, 2014), political layer (Šebestová *et al.*, 2015), allowances, taxation, and private funding, institutional advantages, laws, market condition (Leustean *et al.*, 2016), entrepreneurial inputs (Fernández-Serrano *et al.*, 2018).

National EC is illustrated through five forms or indications of EC combining needs and motives, beliefs and behaviours, cognition, cultural values (societal and individual levels), and social context.

Framework of OEC

Because many of the selected EC studies in the literature were conducted on the organizational level, the EC framework was constructed mostly in the organizational context, creating the OEC vein. A predominant number of selected articles investigated the OEC as a unidimensional construct, therefore, this concept is utilized to distinguish OEC from distinct types of cultures of organizations in a common geographical territory, which fosters the entrepreneurial activities of the organizations. Moreover, OEC was analysed as a combination of the organizational characteristics comprising the shared set of behaviours, assumptions values, objectives, motivations, experiences, self-concepts, and procedures, which stimulated, promoted, and sustained the entrepreneurial actions of the enterprises forming the organizational features that fostered the entrepreneurship in a particular region (Chan, 1992; Kelemen & Hristov, 1998; Rohmetra, 1998; Boojihawon *et al.*, 2007; Dutta, 2018; Aryana *et al.*, 2017; Basargekar *et al.*, 2019; Nikolova-Alexieva & Angelova, 2020; Nguyen *et al.*, 2021). Those variables can be leveraged to enhance the institutional theory of organizations. The framework of OEC was widely utilized in the international context (Dimitratos & Plakoyiannaki, 2003; Dimitratos *et al.*, 2012; Buccieri *et al.*, 2020; Buccieri *et al.*, 2021). The six major domains of international entrepreneurial culture (IEC) can be denoted in a diversity of material and cognitive components of organizational culture including international entrepreneurial orientation, international market orientation, international motivation, international network orientation, international learning orientation, and international risk attitude.

Organizational EC is a unidimensional construct or a combination of organizational characteristics that stimulates, promotes, and sustains organizations' entrepreneurial activities.

Nomological Network of EC

The literature reviews of EC (Hayton *et al.*, 2002) only generated a framework of NEC and entrepreneurship whereas NEC acted as a moderator of the connections between contextual factors and entrepreneurial outcomes rather than a causal factor of entrepreneurial outcomes. In the same vein, Hayton and Cacciotti (2013) also promote a framework to investigate the causal relationships ranging from cultural values through individual motives, traits, and cognition to behaviours and collective measures of behavioural outcomes. Therefore, we implemented those research frameworks and filled their research gaps by offering the comprehensive network of both veins of EC which demonstrates the sufficient causal chains. We pursued the works of Korber and McNaughton (2017) and Fitz-Koch *et al.* (2017) to organize the variables that create the causal relationships of EC based on three levels of analysis combining individual, organization, and socio-economic system; which are represented in Figure 2 and 3.

Table 3. Frameworks and measurements utilized in EC research

Model	Characteristics/Components	Measurement	Authors
NEC			
Inglehart (1990)	Postmaterialism	Inglehart (1990)	Uhlener and Thurik (2007)
Davidsson (1995)	Entrepreneurial beliefs; entrepreneurial values	Davidsson (1995); Davidsson and Wiklund (1997)	Davidsson (1995); Davidsson and Wiklund (1997)
Gibb (1999)	'Effective' entrepreneurial behaviour; entrepreneurial 'way of life'	N/A	Gibb (1999)
Swierczek and Jatusripatak (1994)	Characteristics; commercialization; decision making – entrepreneurial mode; entrepreneurial definition; innovation; motivation; operating management philosophy; proactivity	Swierczek and Jatusripatak (1994)	Swierczek and Jatusripatak (1994); Swierczek and Quang (2004)
McClelland (1961)	Need for achievement	McClelland (1961)	Beugelsdijk and Smeets (2008)
Bourdieu (1977, 1986, 1989, 1990)	Capital; field; habitus	N/A	Spigel (2013)
Minguzzi and Passaro (2001)	Age of entrepreneur; attitude to delegating of the entrepreneur; education level of the entrepreneur; father's profession; level of entrepreneur's participation in industry association activity	Minguzzi and Passaro (2001)	Minguzzi and Passaro (2001)
Hayton <i>et al.</i> (2002)	Beliefs and behaviours, cognition; cultural values; needs and motives	N/A	Hayton <i>et al.</i> (2002); Hayton and Cacciotti (2013)
McMullen <i>et al.</i> (2008)	Freedom from corruption; market freedom; the size of the government	Aidis <i>et al.</i> (2012)	Aidis <i>et al.</i> (2012)
Stephan and Uhlaner (2010)	Performance-based culture; socially-supportive culture	Thai and Turkina (2014); Stephan and Uhlaner (2010)	Stephan and Uhlaner (2010); Thai and Turkina (2014)
Autio <i>et al.</i> (2013)	Institutional collectivism; performance orientation; uncertainty avoidance	Autio <i>et al.</i> (2013)	Autio <i>et al.</i> (2013)
Afriyie and Boohene (2014)	Business startup motives; entrepreneurial mindset; entrepreneurial orientation	Afriyie and Boohene (2014)	Afriyie and Boohene (2014)
Meyer (2014)	Perceptions towards finding a job, entrepreneurship and unemployment	Meyer (2014)	Meyer (2014)
PSED II	Community role models; community's financial support; entrepreneurial community	PSED II	Coleman and Kariv (2014)
Breazeale <i>et al.</i> (2015)	Business discouragements; business promotion; diversity and change; focus on local	Breazeale <i>et al.</i> (2015)	Breazeale <i>et al.</i> (2015); Göleç and Maksudunov (2019)
Stephan <i>et al.</i> (2015)	National-level postmaterialism cultural motives; national-level socially supportive cultural norms	Stephan <i>et al.</i> (2015)	Stephan <i>et al.</i> (2015)
Thampi <i>et al.</i> (2015)	Collectivism versus individualism; indulgence versus restraint; long-term (pragmatic) orientation versus short-term (or normative) orientation; masculinity versus femininity; power distance; uncertainty avoidance	Thampi <i>et al.</i> (2015)	Thampi <i>et al.</i> (2015); Thampi <i>et al.</i> (2018)
Fritsch and Wyrwich (2012); Andersson (2012)	Normative-cognitive layer; political layer	Šebestová <i>et al.</i> (2015)	Šebestová <i>et al.</i> (2015)

Model	Characteristics/Components	Measurement	Authors
Leustean <i>et al.</i> (2016)	Allowances, taxation, and private funding; Institutional advantages; laws; market condition; work-life balance	Leustean <i>et al.</i> (2016)	Leustean <i>et al.</i> (2016)
Nguyen (2016)	Creative – innovative; daring to take risks; seizing business opportunities; sustainable achievement	Nguyen (2016)	Nguyen (2016)
Stephan and Pathak (2016)	Individualism-collectivism cultural values; uncertainty avoidance cultural values	Stephan and Pathak (2016)	Stephan and Pathak (2016)
Fernández-Serrano <i>et al.</i> (2018)	Cultural inputs; entrepreneurial inputs	Fernández-Serrano <i>et al.</i> (2018)	Fernández-Serrano <i>et al.</i> (2018)
Capelleras <i>et al.</i> (2019)	Social acceptance of entrepreneurship; the presence of entrepreneurial role models	Capelleras <i>et al.</i> (2019)	Capelleras <i>et al.</i> (2019)
Sipola (2021)	Venture capital-financed entrepreneurship culture	N/A	Sipola (2021)
Bischoff (2021)	Perceived awareness for entrepreneurship in a region	Bischoff (2021)	Bischoff (2021)
Samuel <i>et al.</i> (2021)	Celebrity endorsement; perceived gender norms; perceived social expectation	Samuel <i>et al.</i> (2021)	Samuel <i>et al.</i> (2021)
Others	EC		
OEC			
Chan (1992)	Co-operative; creative	N/A	Chan (1992)
Kelemen and Hristov (1998)	Commitment to quality; control of resources; organizational structure; strategic orientation; technological innovation	N/A	Kelemen and Hristov (1998)
Rohmetra (1998)	Development mechanisms; general climate; value base	Rohmetra (1998)	Rohmetra (1998)
Dimitratos and Plakoyiannaki (2003); Dimitratos <i>et al.</i> (2012)	International entrepreneurial orientation; international market orientation; international motivation; international network orientation; international learning orientation; international risk attitude	Dimitratos <i>et al.</i> (2012); Baimai and Mukherji (2015)	Dimitratos and Plakoyiannaki (2003); Dimitratos <i>et al.</i> (2012); Gabrielsson <i>et al.</i> (2014); Baimai and Mukherji (2015); Dimitratos <i>et al.</i> (2016); Bucciari <i>et al.</i> (2020); Bucciari <i>et al.</i> (2021)
Boojihawon <i>et al.</i> (2007)	Global vision; entrepreneurial MNC network management; entrepreneurial orientation	N/A	Boojihawon <i>et al.</i> (2007)
Osiri <i>et al.</i> (2013)	Communications that convey commitment to academic entrepreneurship; the presence of a support backbone to facilitate academic entrepreneurship	N/A	Osiri <i>et al.</i> (2013)
Bau and Wagner (2015)	Collaboration, information and innovation; leadership quality and effectiveness; product and market know-how; tasks and responsibility	Bau and Wagner (2015)	Bau and Wagner (2015); Nguyen <i>et al.</i> (2021)
Abulhanova <i>et al.</i> (2016)	Absence of really working system of mentoring and staff rotation; positive image of the hospitality industry; staff overloading; using behaviour patterns; work and train	Abulhanova <i>et al.</i> (2016)	Abulhanova <i>et al.</i> (2016)
Akuegwu and Nwi-Ue (2016)	Access to governmental/financial institutions' assistance; availability of raw materials; encouragement to work independently; exposure to occupational experience; exposure to success stories of entrepreneurs; exposure to technical	Akuegwu and Nwi-Ue (2016)	Akuegwu and Nwi-Ue (2016)

Model	Characteristics/Components	Measurement	Authors
	knowledge; knowledge of profit margin; the opportunity to display personal responsibility		
Aryana <i>et al.</i> (2017)	Entrepreneurship development	Aryana <i>et al.</i> (2017)	Aryana <i>et al.</i> (2017)
Dutta (2018)	Day 1 mentality; customer centricity; human capital Focus; self-competition	N/A	Dutta (2018)
Danish <i>et al.</i> (2019)	Innovative culture	Danish <i>et al.</i> (2019)	Danish <i>et al.</i> (2019)
Oosthuizen (2006)	Appropriate awards and reinforcement; continuous and cross-functional learning; discretionary time and work; empowered/multi-disciplinary teamwork; encouragement to innovations and new ideas; entrepreneurial leadership; flat organizational structure and open communication; management support; resource availability and accessibility; sponsorship (champion); strong customer orientation; tolerance for risk, mistakes and failure; vision and strategic intent	Oosthuizen (2006)	Basargekar <i>et al.</i> (2019)
Nikolova-Alexieva and Angelova (2020)	Cohesiveness; learning and development support; opportunity-driven change; organizational enthusiasm; stakeholder alignment	Nikolova-Alexieva and Angelova (2020)	Nikolova-Alexieva and Angelova (2020)
Unidimensional construct	OEC	12 authors	Atiku <i>et al.</i> (2014); Li and Lee (2015); Leal-Rodríguez <i>et al.</i> (2017); Bergmann <i>et al.</i> (2018); Moh'd Adnan Homsy <i>et al.</i> (2020); Hassan <i>et al.</i> (2021); Cui (2021); Sancho <i>et al.</i> (2021); Lahikainen <i>et al.</i> (2021); Mukhtar <i>et al.</i> (2021); Okoi <i>et al.</i> (2021); Sim <i>et al.</i> (2021)

Source: own study.

Nomological Network of Nec

Antecedents of NEC

Socio-economic system-level antecedents. Ruël *et al.* (2012) determined that both informal institutions and formal institutions in the entrepreneurial ecosystem can facilitate or hinder the development of EC in biotech clusters in which social networks, role models, and funding have high influences, while country orientation towards entrepreneurship, entrepreneurial education, economic enablers, specific legislation, supporting facilities, and technology transfer processes displays medium effects. Afriyie and Boohene (2014) concluded that if entrepreneurship education was made obligatory and learned by all students regardless of the field of study, it would positively cultivate and develop their EC, which means that they would become career generators instead of career seekers, thus ultimately reducing the unemployment rate. In detail, the formation of EC was positively influenced by entrepreneurial teaching methods, socialization process, and legal and regulatory framework because the EC could not be maintained by a restricted number of people but had to be all-inclusive so that individuals, organizations, family, society, and government all perform their particular functions to facilitate entrepreneurship (Mwaura *et al.*, 2015). Moreover, Stuetzer *et al.* (2016) found that the existence of large-scale industries in British areas

in the nineteenth century had a negative influence on entrepreneurship culture. The formation of a supportive and helpful EC within the tribe is a positive result of the cultural dimension of a community, perceived value, and kinship system (Rahman *et al.*, 2019).

Outcomes of NEC

Individual-level outcomes. The entrepreneurial entry by individuals, which is identified as the event in which an individual becomes an entrepreneur, is a positive result of freedom from corruption and market freedom (Aidis *et al.*, 2012) and performance orientation practices (Autio *et al.*, 2013), but is a negative consequence of the size of the state sector (Aidis *et al.*, 2012) and institutional collectivism and uncertainty avoidance practices (Autio *et al.*, 2013). Furthermore, the entrepreneurial post-entry growth aspirations, which are the pursuit of growth of an individual after becoming an entrepreneur, are the positive outcomes of institutional collectivism practices (Autio *et al.*, 2013). Coleman and Kariv (2014) demonstrated that the community's EC positively impacts entrepreneurial self-efficacy. Moreover, NEC also has a positive effect on the likelihood of individuals engaging in social entrepreneurship (Stephan *et al.*, 2015) and the likelihood of an individual being an entrepreneur-individual entrepreneurship (Stephan & Pathak, 2016). Samuel *et al.* (2021) concluded that the NEC includes perceived gender norms, celebrity endorsement, and perceived social expectation positively influences the career readiness of the youths, especially the students towards entrepreneurial ventures.

Organizational outcomes. The community's EC also delivered mixed effects on the expected performance of new firms led by women and men (Coleman & Kariv, 2014) and the entrepreneurial performance of micro, small, and medium enterprises (MSMEs) (Thampi *et al.*, 2018).

Socio-economic system-outcomes. Both entrepreneurial values and beliefs embraced by the NEC positively influence regional new firm formation rates across a broad number of regions (Davidsson, 1995; Davidsson & Wiklund, 1997). These findings were supported by the conclusions illustrating that total entrepreneurial activity (new business formation rates) and national entrepreneurship rate are the positive consequences of postmaterialism (Uhlener & Thurik, 2007) and socially-supportive culture (Stephan & Uhlener, 2010). Then, Thai and Turkina (2014) enlarged those statements by concluding that the high quality of NEC leads to a high national rate of formal and informal entrepreneurship. Moreover, nations obtain higher opportunity existence for entrepreneurship as a positive result of having performance-based culture (Stephan & Uhlener, 2010). More innovative regions with a culture that can be described as entrepreneurial tend to obtain higher economic growth rates (Beugelsdijk, 2007; Prasetyo, 2019), which thus leads to extraordinary regional economic performance (Stuetzer *et al.*, 2018), and ultimately turns into a regional economic posture (Chabani, 2021). Furthermore, the provinces with a high degree of EC in which entrepreneurship is encouraged to receive a high level of foreign investment (Majocchi & Presutti, 2009). Moreover, the local and regional EC was proved to have a mixed impact on the adaptability of entrepreneurial activities to changing institutional arrangements and related payoff structures (Breazeale *et al.*, 2015; Opper & Andersson, 2019). Fritsch and Wyrwich (2018) uncovered a positive impact of EC, which was represented in the degrees of historical self-employment, on the rate of new business formation in innovative industries. Moreover, Bischoff (2021) suggests that the EC, which is expressed through the level of entrepreneurial awareness in a territory, positively influences the perceived strength of the sustainable entrepreneurial ecosystem.

Mediators of NEC

Socio-economic system-level mediators. Stephan and Uhlener (2010) state that environmental framework conditions combine 'government policies and regulation, quality of research and development activity, physical infrastructure and other formal support' for new enterprises and play a mediating role in the impact of NEC on the opportunity level in a nation. Moreover, they also found that supply-side variables which support potential entrepreneurs in a community play a mediating role in the relationship between NEC and entrepreneurship rate. The cultural values of a nation affect entrepreneurship indirectly, through global leadership elements including charismatic and self-protective culturally-endorsed implicit leadership theories (Stephan & Pathak, 2016). The country's competition was found to be a significant and positive mediator in the relationships between EC in entrepreneurial and MSMEs sectors

and regional economic growth (Prasetyo, 2019). Besides that, the indirect effects of cultural dimension, perceived values, and kinship system on EC were expressed through the positive function of an informal cultural-based entrepreneurial learning which was embedded in the Minangkabau community (Rahman *et al.*, 2019). Furthermore, entrepreneurial education amongst the higher learning institutions in Nigeria indicated a positive mediating impact on the connections between EC and career readiness among the youth regarding entrepreneurial ventures (Samuel *et al.*, 2021).

Moderators of NEC

Individual-level moderators. Coleman and Kariv (2014) proved that gender acted as a moderator of the connections between a community's EC, as recognized by women and men, and entrepreneurial self-efficacy and expected business performance.

Despite the confirmed diverse causal relationships of NEC, the nomological network of NEC neglects some crucial variables which can be investigated further. In the entrepreneurship literature, NEC was acknowledged as a crucial domain of the entrepreneurial ecosystem by numerous critical studies (Isenberg, 2010; Stam, 2015; Global Entrepreneurship Monitor, 2018). Moreover, NEC is entrenched in the entrepreneurial ecosystem and it is defined as the composition of all social characteristics of a community and the subjective conditions correlated to the behaviours by which individuals interact with others (Isenberg, 2010). The nomological network of the entrepreneurial ecosystem, which can be found in the work of Thai *et al.* (2023), reveals several promising hypotheses for the NEC that have not been exposed in the EC literature. For instance, Thai *et al.* (2023) suggest that the positive determinants of the entrepreneurial ecosystem embracing the NEC are the coherence of entrepreneurial activities, strategies of an entrepreneurial ecosystem, information technologies and Internet, formal institutions, physical infrastructure and amenities; while its positive outcomes include productive entrepreneurship, economic resilience, entrepreneurship innovation, productive activities, regional performance, and social entrepreneurship. Those causal chains can be exploited to generate and investigate the potential hypotheses, which enlarge the nomological network of NEC.

We propose that future studies adopt a broader scope to seek, hypothesize, investigate, and approve the relevant and appropriate variables which illustrate the causal relationships of NEC embedded in entrepreneurial ecosystem literature to broaden and accomplish a more comprehensive nomological network of NEC.

Nomological network of OEC

Antecedents of OEC

Individual-level antecedents. Danish *et al.* (2019) found a positive influence of the employees' self-efficacy, openness to change, and creativity on entrepreneurship in information technology firms. Sim *et al.* (2021) confirmed the positive effects of students' perceptions of concept development support and students' perceptions of business development support on the EC of universities.

Organizational-level antecedents. Aryana *et al.* (2017) confirmed that employee empowerment in the organization includes a sense of competence (self-efficacy), a sense of having the right of choice (independence), a sense of effectiveness, a sense of meaning, and a sense of trust in other employees positively influence the development of an EC in a university. In the educational context, Hassan *et al.* (2021) supported that finding by concluding that enhancing and stimulating empowerment among students positively influence the EC in private higher education institutions. The EC of universities was also positively influenced by the degree of institutionalization of entrepreneurship at universities and the share of students who participated in a compulsory entrepreneurship-related course (Bergmann *et al.*, 2018). Furthermore, Moh'd Adnan Homsy *et al.* (2020) proved that the entrepreneurial marketing of the firm consisting of customer focus, opportunity-driven, innovation, risk management, and proactiveness positively impacts the organizational culture by cultivating entrepreneurial thinking, attitude and passion.

Outcomes of OEC

Individual-level outcomes. The employees' perception related to the OEC was explained as the facilitators of their perception related to the potential success of their organizations (Basargekar *et al.*, 2019). Moreover, EC in a university positively enhances the students' entrepreneurial intention, because it encourages students to learn and develop to become broad-minded to accept novel knowledge which stimulates entrepreneurial behaviours (Mukhtar *et al.*, 2021; Sim *et al.*, 2021). Although the non-significant direct effects emerged, Nguyen *et al.* (2021) detected an indirect effect of entrepreneurship on employees' innovative work behaviour through psychological empowerment.

Organizational outcomes. Buccieri *et al.* (2021) supported the positive impact of IEC on the performance of new international ventures, because it included entrenched routines generating an extensive pursuit of new international opportunities. The negative side was approved by Okoi *et al.* (2021) by confirming the negative impact of EC on the profitability of SMEs in Calabar Metropolis. The firm's EC positively impacted human resource development policy, inspiring entrepreneurial mindset and creativity among the enterprises in the Nigerian banking sector (Atiku *et al.*, 2014). In addition, their sustainable competitive advantage could be improved by transferring and controlling entrepreneurial orientations through efficient learning and development programs (Atiku & Fields, 2016). Leal-Rodríguez *et al.* (2017) suggested that promoting an EC is a positive driver of business innovation outcomes, causing a high level of organizational innovativeness, because the enterprise creates a dynamic and entrepreneurial climate whereas people are willing to take risks to transform their novel ideas into new products or services. Mukhtar *et al.* (2021) confirmed a positive impact of EC on entrepreneurial education in organizations, especially in universities, because it promotes social legitimization and supports a climate which encourages teaching and learning entrepreneurship.

Mediators of OEC

Individual-level mediators. Mukhtar *et al.* (2021) claim that the EC, which is presented within a university, stimulates students' entrepreneurial mindset, which thus strongly stimulates their entrepreneurial intention.

Organizational-level mediators. The effects of IEC on a firm's international performance were positively mediated by the firm's entrepreneurial strategy and entrepreneurial implementation (Baimai & Mukherji, 2015); or by the firm's ambidextrous innovation (Buccieri *et al.*, 2020); or by the organization's dynamic marketing capabilities (Buccieri *et al.*, 2020; Buccieri *et al.*, 2021). Moreover, Atiku, and Fields (2016) found that human resource development programs positively mediate the relationship between EC and sustainable competitive advantage in the Nigerian banking industry. Nguyen *et al.* (2021) approved a full and positive mediating role of psychological empowerment in the association between EC and employees' innovative work behaviour.

Moderators of OEC

Organizational-level moderators. Leal-Rodríguez *et al.* (2017) verified that the family nature of an enterprise promotes or enhances the relationships between EC and business innovation outcomes.

Socio-economic system-level moderators. Buccieri *et al.* (2020) suggested that an IEC has a larger influence on expanding ambidextrous innovation when environmental dynamism is demonstrated. Later, Buccieri *et al.* (2021) found that the benefits of IEC on dynamic capabilities and international business performance are strengthened when performing in turbulent markets.

In the nomological network of OEC, the causal relationships of the environmental factors (*e.g.*, OEC and other organizational characteristics), cognitive factors (*e.g.*, entrepreneurial mindset, employees' perception related to the potential success of the organization, perceptions of business development support, perceptions of concept development support, openness to change, and self-efficacy); and behaviours factors (*e.g.*, entrepreneurial intention, innovative work behaviour, and employees' creative behaviours) have been confirmed. Nevertheless, those causal relationships were not utilized to enrich the social cognitive theory. Thus, we propose the following.

It is fruitful to utilize the nomological network of OEC, especially the causal relationships between OEC and its individual-level antecedents and outcomes to enhance the social cognitive theory.

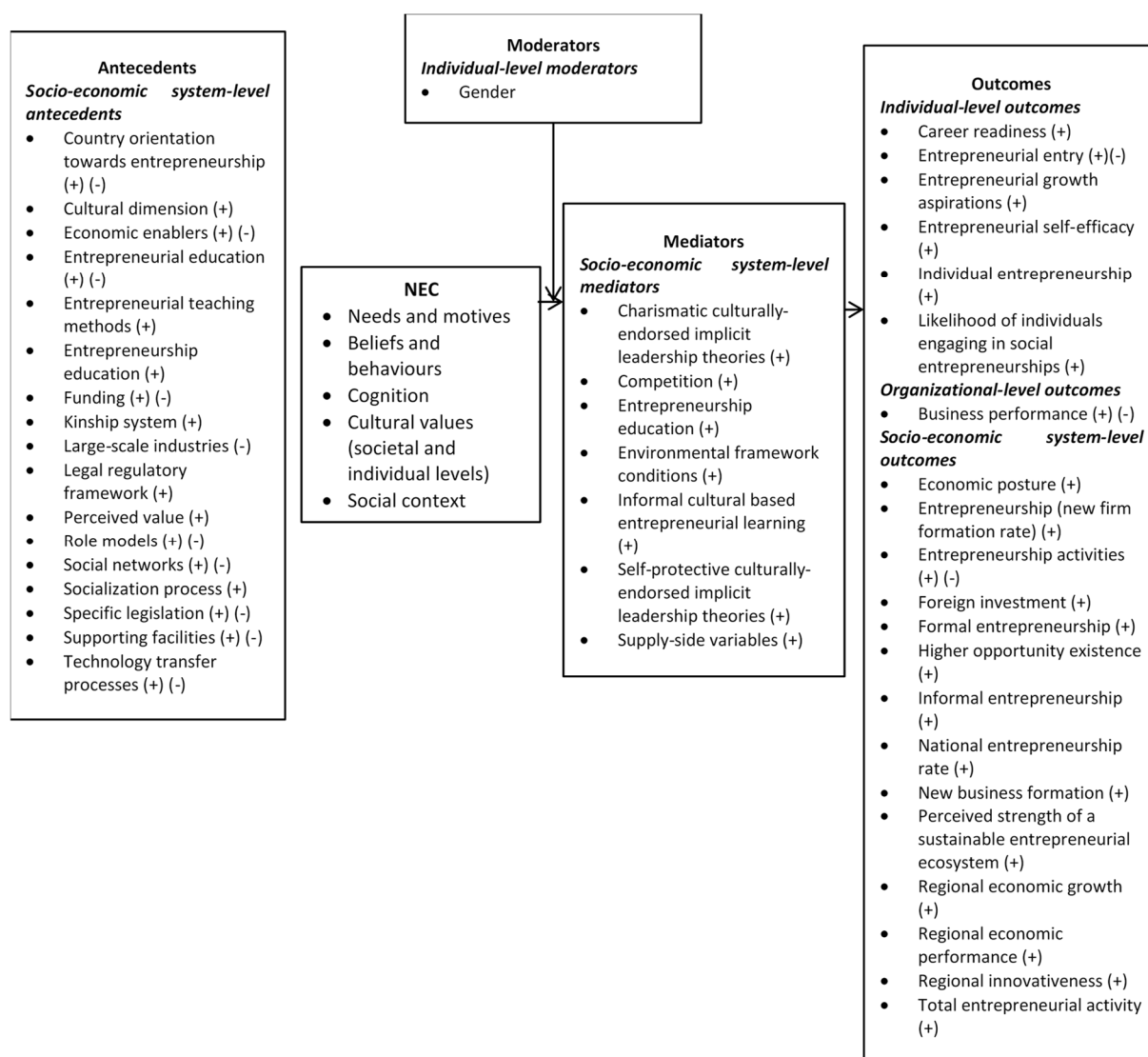


Figure 2. The nomological network of NEC

Source: own elaboration.

Areas for Future Research

The huge body of EC literature testifies to scholars' efforts to expand knowledge of this research area. Nevertheless, the research gaps remain in need of further research to achieve a comprehensive understanding of the field. Through consulting the research findings, we determined the promising research areas for forthcoming research.

Spreading research context. The EC studies were conducted only in 26 specific nations and the publication pool of this study included a high proportion of studies that evaluated and compared the culture between at least two nations. However, there are 195 countries in the world (United Nations, 2022). Therefore, entrepreneurship has been acknowledged as an essential factor in explaining national economic development, and thus has been developed and promoted among an exclusive range of individuals, organizations, and nations (McMullan *et al.*, 1986) combining influential education and support for entrepreneurs and entrepreneurship around the world (Global Entrepreneurship Institute, 2022), providing opportunities for future research in other nations, especially the least developed and developing countries. Moreover, there was the dominance of performing EC research within the

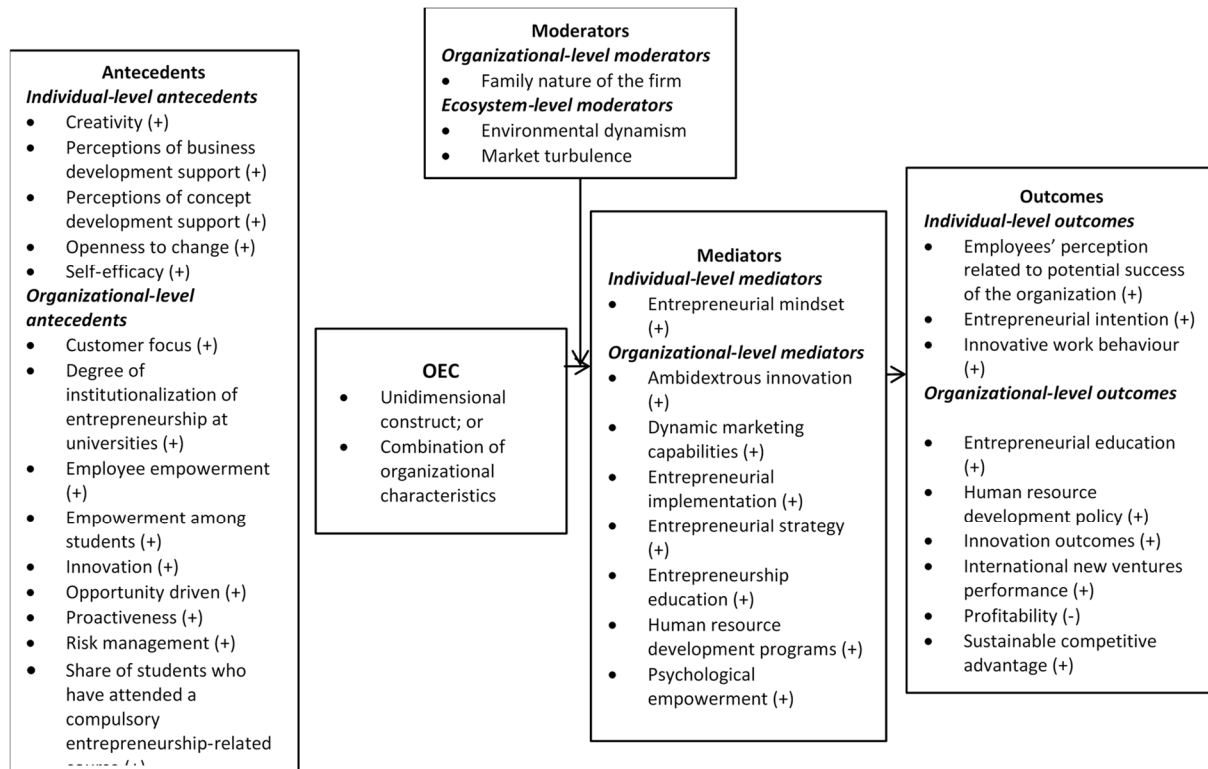


Figure 3. The nomological network of OEC

Source: own elaboration.

multi-industry sector and educational context, neglecting other crucial industries of entrepreneurship. Because of the feature of multidisciplinary embedded in entrepreneurship and EC, we suggest that the upcoming research be conducted in a sector which contributes essentially to entrepreneurship like travel, hospitality, media, energy, security, and real estate sectors (Zenbusiness, 2022).

Enhancing research design. The findings of this research expose that the quantitative research took the highest preeminent proportion among the selected studies, which aimed to investigate and confirm the proposed theories and hypotheses, combined with the over-reliance on the cross-sectional analysis causing the biases in the outcomes (Podsakoff *et al.*, 2003) because there is typically no proof of a temporal relationship between disclosure and finding (Solem, 2015). Hence, we recommend that future research utilize either qualitative or mixed methods associated with the longitudinal approach to examining and evaluating the EC in depth, thus providing the evolution of a culture that supports entrepreneurship within specific contexts.

Enriching theories of EC. Cultural dimensions theory and institutional theory were the most frequently adopted theories in the NEC articles; while the institutional theory of organizations and social cognitive theory dominate the OEC studies. However, those theories have not been well-developed in EC literature. Thus, we recommend that future research employ our findings, especially the frameworks of EC and their causal relationships to enrich those theories.

Developing frameworks and measurements of EC. This research depicted the enormous fragmentation in the application of frameworks and measurement of EC in both veins of EC in the literature, providing the research concern and promising issues for forthcoming studies. By consulting the synthesis of EC dimensions in our tables and figures, researchers can obtain the necessary information, and formulate and investigate the comprehensive frameworks and measurements which can be applied predominantly in both veins of EC, as well as validate the utilization of various appropriate theories in the literature. We also offer holistic frameworks for both veins of EC that can be applied and further evaluated.

Utilizing and strengthening the nomological network of EC. Because of the dominance of the quantitative approach in EC literature, researchers examined and confirmed varied causal relationships of

EC in diverse contexts. Nevertheless, those causal relationships neglected various variables which can be further examined. Since EC is an essential domain of the entrepreneurial ecosystem (Isenberg, 2010; Stam, 2015; Global Entrepreneurship Monitor, 2018). Therefore, we recommend that future studies should adopt a broader scope to seek, hypothesize, examine, and confirm the appropriate variables which demonstrate the causal relationships of NEC embedded in entrepreneurial ecosystem literature to expand and achieve a more comprehensive nomological network of NEC. Moreover, the application of the nomological network of OEC to expand social cognitive theory is highly desirable.

CONCLUSIONS

In this research, we performed an SLR regarding the EC literature, which aimed to summarise and synthesise the findings of pertinent extant research in order to expand knowledge in this research field by using the technique of Garrard (2004). We propose four essential outcomes as the results of integrating the information that has been investigated and approved in the literature. Firstly, there is an extreme developing tendency in the number of EC articles that started rapidly in 2012. The quantitative method is the most frequently utilized approach in diverse industries and nations. Thus, the research purposes of EC research evolved from theory building to theory validation. Secondly, there is enormous fragmentation in the utilization of frameworks, theories, and measurement of EC in two veins of EC in the literature. However, cultural dimensions theory and institutional theory are exhibited as the most frequently utilized theories in the NEC articles; while the institutional theory of organizations and social cognitive theory dominate the OEC studies. Despite the fact that distinct dimensions of EC have been examined in the literature, we offered the holistic framework of NEC which is the combination of five forms or indications including needs and motives, beliefs and behaviours, cognition, cultural values (societal and individual levels), and social context; while OEC is a unidimensional construct or a combination of the organizational characteristics that stimulates, promotes, and sustains the entrepreneurial activities of the organizations. Thirdly, this research generated a nomological network that recapitulates and displays the causal relationships of both veins of EC, which can be employed and expanded to enrich institutional theory and social cognitive theory. Finally, regarding the findings, we outline the promising research areas for future EC research in terms of research context, research design, theory, framework, measurement, and nomological network of NEC and OEC that may significantly contribute to the literature.

The findings of this research provide meaningful implications for both theory and practice. Concerning the theoretical context, this research integrated and demonstrated the most recent and exclusive trends, frameworks, theories, and measurements of both veins of EC and their causal relationships, proposing the research guideline for further studies. Thus, by offering the evolutionary trend of EC articles, this study provided evidence for selecting a suitable methodology through which future research can be conducted to create novel knowledge to develop the EC field. Furthermore, this study fulfils the research gaps of Malecki's study (2018) by providing a comprehensive view of the EC field which integrates the remarkable theories, frameworks, and measurements of EC. Besides that, it offers the holistic frameworks of NEC and OEC, thus resolving the problems of disintegration and disjointedness encountered in the literature. Those frameworks can be leveraged to enlarge the institutional theory by identifying the essential dimensions that shape and construct the EC in which human behaviours are conducted to indicate the institutional context stimulating entrepreneurship. Moreover, this research gave a reliable basis for adjusting and creating thorough frameworks and measurements of EC of both veins of EC in future studies regarding the research context, which was revealed in the summary of the EC models. Finally, this study went beyond the requests of Hayton *et al.* (2002) and Hayton and Cacciotti (2013) by generating two nomological networks displaying the causal relationships of NEC and OEC that were investigated and approved in the literature, thus assisting other scholars in determining the vital issues and formulating the appropriate variables for generating the future research in EC literature. In particular, the exploitation of the nomological network of OEC and the

causal chains between OEC and its individual-level antecedents and outcomes is highly likely to enhance the social cognitive theory which displays the interrelations between environmental elements, personal elements, and behaviour elements.

In a practical context, two nomological networks of EC also contribute to the positive perceptions, awareness, and acknowledgement of the importance of developing and sustaining an appropriate EC amongst individuals, organizations, and nations. Regarding NEC, the practitioners, governors, policymakers, and other stakeholders should concentrate on building an efficient NEC, because of its positive impacts on the entrepreneurship of a nation including the perceptions of the individuals towards becoming an entrepreneur, the new firm establishment rate and performance, entrepreneurial activities, which is likely to turn into positive national performance and growth. Besides that, they may elaborate on how to construct an effective NEC by acting as role models to encourage the citizens to follow entrepreneurial behaviours, creating an appropriate entrepreneurial education system which provides suitable skills and knowledge to the community, providing funding that supports the entrepreneurial actions, modifying the legal regulatory framework and legislation to stimulate the entrepreneurial attitudes, improving technology system, and applying other methods which are displayed in our nomological network of NEC. Regarding OEC, in an educational context, the principals in higher educational institutions can propose to create entrepreneurship departments, hold entrepreneurship competitions, and encourage sharing entrepreneurship knowledge. Meanwhile, teachers can empower their students in courses in order to constitute the EC throughout the institution that stimulates the students' intentions to become an entrepreneur. In a business context, due to its effect on the employees' performance, leading to organizational performance, profitability, and sustainable competitive advantage, managers and entrepreneurs may also focus on building the informal contexts of the organization. In doing so, they can develop entrepreneurial cognition and behaviours among the employees and organization, comprising creativity, innovation, openness to change, self-efficacy, proactiveness, and risk management.

However, this study was limited in terms of language as the articles in the publication pool included only studies in English. This limitation can be resolved in future research by seeking and analysing the articles which were written in other languages.

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