



Entrepreneurial Passion and its Influence on Innovation: A Review and Future Agenda

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Abstract. The current research explores entrepreneurial passion and how it influences innovation by means of a detailed analysis of existing studies on this relationship. It conducts a systematic review using databases such as JSTOR, Scopus, and ISI Web of Science to identify 30 relevant studies researching the impact of entrepreneurial passion on innovation. The findings point to an expanding body of research indicating that entrepreneurial passion significantly fosters various facets of innovation such as explorative and exploitative innovation, radical and technological innovation, and innovation behaviour and capabilities. Further, the research highlights that entrepreneurial passion can consistently drive innovation, which fosters consistent economic growth, technological advancement, and sustainable development; however, our systematic review revealed a significant gap on this research topic. The current research gathers comprehensive insights into the topic and at the same time offers directions for prospective research that can expand the understanding of how entrepreneurial passion may further influence innovation.

Keywords: entrepreneurial passion, passion, innovation, innovative behaviour.

1. Introduction

Numerous renowned entrepreneurs, such as Steve Jobs of Apple, Bill Gates of Microsoft, Kiran Mazumdar-Shaw of Biocon, and Elon Musk of Tesla, and SpaceX, among others, have spoken about the critical role of passion in fueling innovation and entrepreneurial endeavors. The study of passion has increased our understanding of entrepreneurs, their behaviour, feelings, emotions, decision-making pattern to aid success, and how they operate within their venture (Baum and Locke, 2004; Cardon *et al.*, 2009a; 2009b; Vallerand *et al.*, 2003). Passion within entrepreneurship has been shown to be related to several entrepreneurial factors linked with attitudes, entrepreneurial efforts, angel investing, preparedness, performance, and organisational outcomes in relation to the organisation's success or failure (Allison *et al.*, 2022; Cardon *et al.*, 2009a;

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Omoredede, 2014a; Omoredede, 2014b; Zhao and Liu, 2023; Mueller *et al.*, 2017; Murnieks *et al.*, 2016).

Several authors have defined the concept of passion within organisational work-life research, entrepreneurship research, and psychology. For instance, Baum and Locke (2004) define passion as the emotions of love, attachment, and longing for work. Vallerand *et al.* (2003) defined passion as “a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy” (p. 757). Within the domain of entrepreneurship, Chen, Yao, and Kotha (2009) defined passion as “an entrepreneur’s intense affective state accompanied by cognitive and behavioural manifestations of high personal value” (p. 199). A definition that has currently taken dominance in entrepreneurship research is that of Cardon *et al.* (2009b) who defined passion as “consciously accessible, intense positive feelings experienced by engagement in entrepreneurial activities associated with roles that are meaningful and salient to the self-identity of the entrepreneur” (p. 517). This definition focuses on two important aspects. First, that passion involves the experience of intense positive feelings (IPF). Second, that passion focuses on identity centrality (IC). Notwithstanding, a common thread runs between all the above definitions – *the feelings attached to a task or an activity*.

Research into how passion influences entrepreneurial endeavours has identified three key roles that encompass a range of tasks (Cardon *et al.*, 2009b; 2013). Despite the individual experiences of different entrepreneurs, these roles are generally fundamental to the process of entrepreneurship. These are the passion for inventing (new products, processes, or services); the passion for founding (new organisations), and the passion for developing (existing organisations for continuous success and growth) (Cardon *et al.*, 2009b).

Entrepreneurial passion (EP) has been shown to be important for the entrepreneurial process, flexibility, listening and adaptation of ideas, creativity, idea generation, ability to implement novel and useful ideas, and problem-solving (Cardon *et al.*, 2009a; 2017; Lee and Herrmann, 2021; Thorgren & Omoredede, 2018). All these activities relate to the ability to be able to innovate, invent and develop innovative behaviour. Innovative behaviour, on the one hand, is defined as a multistep process in which an individual recognizes a problem, generates ideas and solutions, works to promote and generate support for them, and produces a prototype or model (Carmeli *et al.*, 2006). Innovativeness on the other hand is defined as the ability to create or adopt, and implement, value-enhancing ideas (Baron *et al.*, 2012, Berent-Braun *et al.*, 2018; Tian *et al.*, 2021; Vladimirov, 2016). Given that innovation deals with how something is created from nothing or how something is improved and refined or re-defined, this may cause passionate individuals who constantly experience a positive level of emotion to be engaged in such innovative activities. Moreover, the previous research on passion emphasises how passion and innovation are strongly linked. Debates suggest that since passion ignites a person’s enthusiasm for pursuits like idea creation, they

tend to dedicate more time, which often results in the development of a concrete output from that idea (Cardon *et al.*, 2009b; Vallerand *et al.*, 2003).

As a constant and intense feeling, passion offers varying degrees of motivation for people, to not only conceive or generate ideas but also to use several levels of creativity to nurture these ideas into novel and innovative outcomes, all while persisting in the face of challenges and obstacles. For an innovative process to succeed, this degree of commitment and perseverance is crucial. Despite the widespread assumption that passion plays a crucial role in innovativeness and innovation, research shows relatively few studies exploring the relationship between passion and innovation (e.g., Cardon *et al.*, 2013; Kang *et al.*, 2016), which could be due to several reasons.

First, a variety of scales and metrics to precisely measure the experience of passion in the context of innovation are lacking. Only a small number of researchers have evaluated and validated scales for passion (Cardon *et al.*, 2013; Vallerand *et al.*, 2003). Cardon *et al.* (2013) developed a measurement for passion within entrepreneurship that evaluates passion for inventing, founding, and developing. Each of these processes requires certain levels of innovation. The scale has been used in numerous research to examine the role of passion in entrepreneurship and has demonstrated strong reliability and construct validity; nevertheless, there may be some limits when applying it to innovation. For instance, it does not capture significant factors such as curiosity, creativity, or risk-taking. Moreover, it fails to measure the innovative outcomes and consequences, therefore it cannot determine whether inventions result in successful commercialization. Regardless, it provides significant insights into the relationships between passion and innovation through the items measured in the scale.

Second, most of the research on measuring innovation performance has been on more tangible and quantitative measures, such as patents, R&D expenditures, and product and process development, among others (Hagedoorn and Cloudt, 2003; Katila, 2000). Although passion is acknowledged as an important component of invention, these other, perhaps more concrete, aspects may take precedence, thereby overshadowing studies related to passion and how it may contribute to innovation performance.

Third, there is limited research investigating the interdisciplinary nature of entrepreneurial passion and innovation research. This limitation presents more possibilities for collaborations between the field of entrepreneurship and innovation (Hölzle, 2022) because both the phenomenon of EP and innovation in themselves are complex and may require such interdisciplinary research to fully understand their relationships and interconnections.

Although the body of knowledge about the role of passion in entrepreneurship is expanding, more academic focus is still needed to fully understand the relationships between these concepts as well as the significant role that EP plays in driving innovative processes. This oversight, we contend, is significant to investigate. As an intense positive feeling (Cardon *et al.*, 2009b;

2013), we argue that passion is an inherent factor when it comes to the level of influence it has on creativity, perception, opportunity creation, opportunity exploration, and exploitation. Additionally, research discussions on passion highlight the specific types of passion, which in consequence, strongly relate to innovation, innovative behaviour, and innovative capabilities for a firm. Even with these descriptions and the potential for the study of EP, the current research indicates that only a handful of research has looked at how EP may or may not influence innovation. This study seeks to understand and address this issue by gathering insights into the existing state of knowledge and making recommendations for the growth and future direction of this field of study.

Although several literature reviews on entrepreneurial passion have been conducted (Lee and Herrmann, 2021; Newman *et al.*, 2021; Zhao and Liu, 2023), none have explicitly focused on synthesizing and assessing the relationship between entrepreneurial passion and innovation. This study makes three significant contributions to the literature. First, this study provides the first systematic literature review that specifically examines how entrepreneurial passion influences innovation, focusing exclusively on studies that use passion as an independent variable rather than as a dependent variable or moderating variable. This specific focus allows us to clearly understand the direct and indirect mechanisms by which entrepreneurial passion drives innovation, innovative behaviour, and innovation capabilities. Second, as a result of the systematic analysis, we identify various dimensions of innovation (e.g., radical, explorative, exploitative and organizational innovation) that are influenced by entrepreneurial passion. Third, we establish an integrative framework that synthesizes existing knowledge and identifies promising directions for future research, including the potential application of diverse theoretical perspectives and the necessity for interdisciplinary approaches to enhance understanding of this relationship.

2. Review Methods

We conducted a systematic literature review to get an understanding of the studies that have been done within the areas of EP and innovation (Denyer and Tranfield, 2009). Our aim for conducting a systematic review was to get a transparent, well-defined scientific overview and to achieve a rigorous search to ensure replications for future research (Jones *et al.*, 2011). In addition, the systematic review provided a rigorous and comprehensive way to address the identified gap in our understanding of how entrepreneurial passion influences innovation. Moreover, the review also provided incentives for suggestions on future research agendas (Popay *et al.*, 2006).

We began our systematic review by doing a public search on several databases. The searches were conducted between January 4th, 2022, and January 30th, 2023. We decided to focus on three databases – JSTOR, Scopus, and ISI Web of Science (WoS). The motivation for focusing on these three is because

they are the most comprehensive databases and include a massive amount of journal publications, books, conferences, and other presentations or published works. We began by searching with the keywords '*passion AND innovate**'. Given that this was very broad and gave large and mostly non-relevant hits, we narrowed down our search using the keywords '*ent*passion AND innovat**'.

After the first search, a total number of 3042 hits were found. We narrowed down this number at our second stage of elimination to seek the most relevant articles. In the second stage, we eliminated publications that were not relevant to either entrepreneurial passion or innovation, publications that were not written in English, non-peer-reviewed publications, subjects, and/or research fields not relevant to social science and humanities research (for instance, medicine). This yielded a total number of 334 publications. In the third stage, we read all the titles and abstracts and further eliminated articles that did not relate to our general theme. This elimination stage yielded a total of 263 publications (Thorpe *et al.*, 2005).

We concluded our elimination process by reading through the articles and evaluating them for methodological quality and conceptual fit. We further refined our selection to include only studies examining entrepreneurial passion as an independent variable rather than a dependent or moderation variable, as our research specifically aims to understand how entrepreneurial passion influences innovation outcomes. Articles that did not focus on the influence of entrepreneurial passion on innovation were further eliminated from the entries. Since there were limited articles remaining after the last elimination round, we relied on the snowball technique, where we read through references of the most cited relevant papers, we previously evaluated. This yielded an additional 4 publications bringing the total number of our analysed papers to 30.

Out of the 30 relevant papers found, there were 2 conceptual papers and 28 empirical papers. The empirical papers consisted of 1 qualitative paper, 25 quantitative papers, and 2 papers that used mixed methods. Figure 1 shows the breakdown of how we selected the final relevant papers used in the literature review.

3. Discussion and Findings from the Review

3.1. A slow but growing stream of research

A significant finding (see Figure 1) is that although research on entrepreneurship has emphasized the importance of passion for the innovation process and outcome (e.g., Cardon *et al.*, 2009a; 2009b; 2013; 2017), the number of articles qualifying for the review was minimal. Thus, it highlights the limited attention that has been given to this vital stream of research within entrepreneurship. Furthermore, showing that most of the articles were published in the last 7 years indicates that the interest in understanding the influences of EP within the different activities

involved in innovation is growing. Figure 2 presents the number of relevant papers according to year of publication.

Figure 1. Summary of the relevant articles

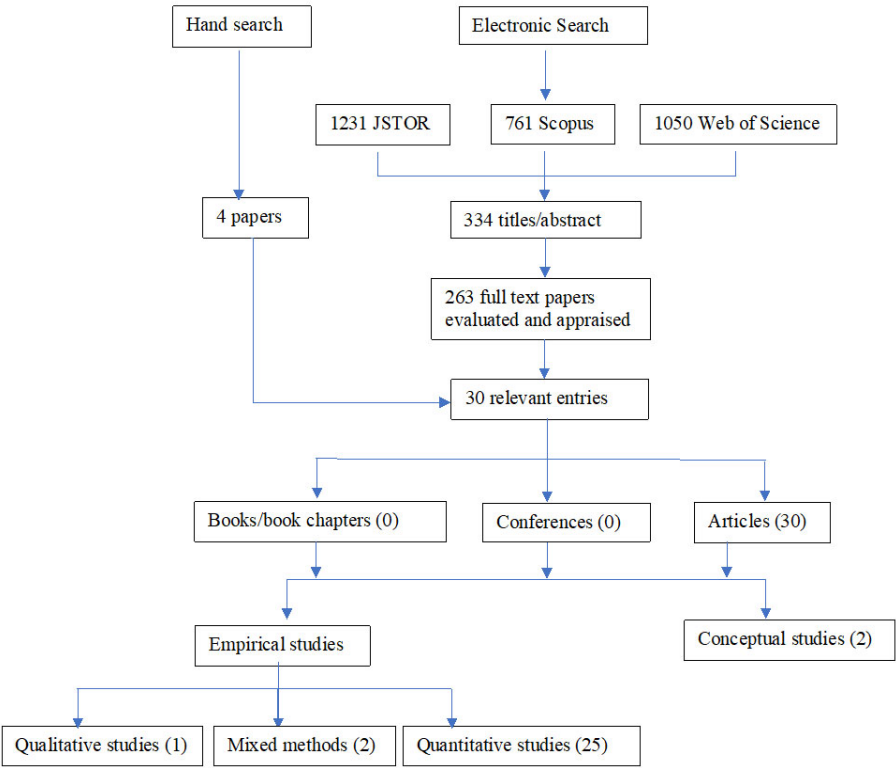
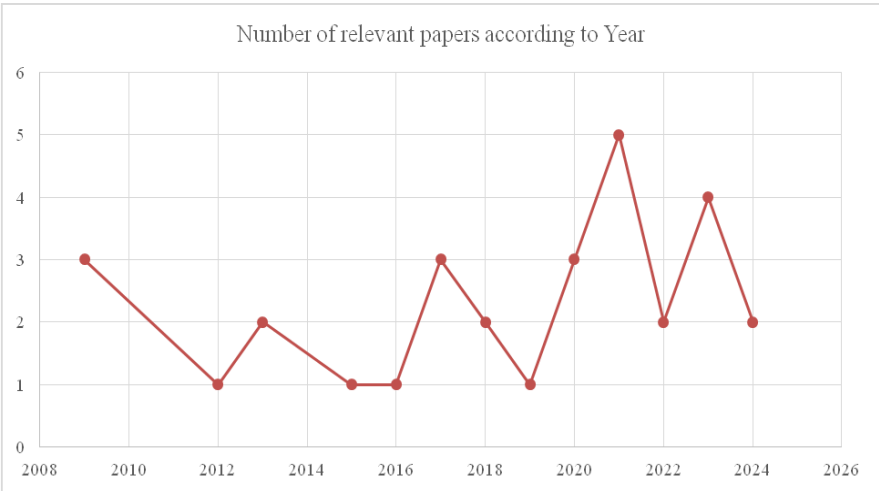


Figure 2. Number of relevant publications according to year of publication



Furthermore, the reviewed articles are predominantly empirical ($n= 25$ quantitative studies, $n= 2$ mixed methods, and $n= 1$, qualitative research). Given that EP already has suggested measures that can be adapted, it is justifiable that most of the research seeking to understand the impact of EP on innovation is quantitative research. This opens room to add other variables (moderation and mediation) to understand several interactions between the two concepts. Nonetheless, research must dive into the nuances of the situations that accelerate or impede creativity for persons driven by passion, studying the exact hows, whens, and whys of this dynamic. Such understanding would call for more qualitative research, which is shown to be lacking.

3.2. Foundations, definitions, and measures of entrepreneurial passion

The current analysis shows two main definitions of passion used in predicting and analysing innovation and innovation behaviour. First, passion was described following the dualistic model of passion (Vallerand *et al.*, 2003). Vallerand and colleagues distinguished between two types of passion that have been tested and validated – harmonious passion (HP) and obsessive passion (OP). HP is “an autonomous internalization that leads individuals to choose to engage in the activity that they like” and obsessive passion (OP) is “a controlled internalization of an activity in one’s identity that creates an internal pressure to engage in the activity that the person likes” (Vallerand *et al.*, 2003, p. 756). OP has been shown to lead to maladaptive behaviour, such as compulsive activities integrated into one’s identity, internal pressure and conflicts with other life domains, and the experience of negative emotions when prevented from engaging in passionate activities (Vallerand *et al.*, 2003). Moreover, OP may also lead to negative outcomes in terms of entrepreneurs’ relationship to their networks (Ho and Pollack, 2014), lower well-being, and entrepreneurs’ burnout and negative emotions (Curran *et al.*, 2015). Nevertheless, entrepreneurship research also shows that obsessive passion leads to enhanced venture performance, drives creativity and innovation, and drives opportunity recognition (Tu *et al.*, 2023; Ho and Pollack, 2014); Omorede, *et al.*, 2013. The empirical research analyzed in this review, which considers passion as harmonious (HP) and obsessive (OP), associates it with predicting the impact of passion on innovation, innovative behaviors, self-esteem, and cognitive absorption (Shi, 2012; Klaukien *et al.*, 2013; Salas-Vallina *et al.*, 2020; Schenkel *et al.*, 2019; Ye *et al.*, 2021). While the dualistic model of passion is largely indicative of entrepreneurial behavior, encompassing innovation, the review further introduces a different depiction of passion that equally influences entrepreneurial activities.

Second, studies of passion as an intense positive feeling cast EP as a relatable and stable intense feeling (Cai *et al.*, 2023; Cardon *et al.*, 2009b; 2013; Chebo and Kute, 2018; Kiani *et al.*, 2022). These studies tend to draw on aspects of EP that relate to the entrepreneur’s identity, and how salient these identities are for the

entrepreneurial activity. Further, these studies espouse largely the positive connotations of EP as an essential mechanism for innovation to occur. More specifically, in relation to its influence on innovation, the review articles had more interest in two of the three entrepreneurial role identities – passion for inventing and passion for developing, where inventing is associated with “identifying, inventing, and exploring new opportunities”; and developing is associated to “nurturing, growing, and expanding the venture” (Cardon *et al.*, 2009b, p. 516). These studies relate EP to exploratory and exploitative innovation, radical innovation, the ability to be creative, the entrepreneur’s level of passion and passion transfer and its consequences on innovation (Cai *et al.*, 2021; 2023; Luu and Nguyen, 2021; Syed *et al.*, 2020).

Consequently, the studies in the review analysis also focused on using the measures suggested, evaluated, and tested by the respective authors. More specifically, studies defining passion using the dualistic model of passion focused on using measures suggested by Vallerand *et al.* (2003), and studies defining passion as an intense positive feeling, focused on using suggested measures by Cardon *et al.* (2013) for their data collection and analysis.

3.3. Findings on the influence of entrepreneurial passion on innovation

Exploring entrepreneurial passion (EP) in the context of innovation requires a thorough analysis that takes into account many aspects of innovation. The measures for innovation vary between radical innovation (Kiani *et al.*, 2022), explorative versus exploitative innovation (Cai *et al.*, 2021), innovativeness (Chebo and Kute, 2018), innovation behaviour (Schenkel *et al.*, 2019), creativity leading to innovation (Cai *et al.*, 2023), invention as a result of innovation, technological innovation (Kiani *et al.*, 2022), business model innovation (Zou, 2022) and organisational innovation (Li *et al.*, 2024; Ma *et al.*, 2017a; 2017b).

3.3.1. Radical innovation

Research on EP in relation to *radical innovation* shows that EP has a direct relationship with radical innovation (Kiani *et al.*, 2022). This is due to the fact that EP is characterized by intense positive feelings experienced when individuals are deeply engaged in activities salient to their fundamental and core identity (Cardon *et al.*, 2009b). This relationship is shown by the finding that innovators who are passionate about their ideas are more likely to participate actively in critical innovation processes (Kiani *et al.*, 2022), making this relationship particularly evident. More specifically, Strese *et al.* (2018) further deduce that in relation to radical innovation entrepreneurs who have a passion for inventing are more likely to be actively engaged in dealing with the development of new and improved ideas, conducting opportunity exploitation activities, and providing innovative solutions to problems, which leads to the creation of radical innovation. These activities, as they express, will have the potential to collectively contribute to the creation of radical innovations that challenge established paradigms.

Moreover, the research findings indicate that certain facilitating factors play a crucial role in mediating the relationship between EP and radical innovation. Two such factors are exploratory learning and a shared vision (Kiani *et al.*, 2022; Strese *et al.*, 2018), which show they are strong indicators for driving radical innovation within entrepreneurial organisations. More specifically, exploratory learning, on the one hand, encourages entrepreneurs to venture into new domains, cultivating a culture of continuous flexibility and adaptability. It engages them to explore different avenues regarding novel ideas and embrace the vulnerabilities innate in revolutionary advancement for those to result in radical innovation. A shared vision on the other hand, simultaneously aligns individuals within a team to collectively aspire and put efforts toward the pursuit of radical innovations. This cohesive vision not only provides a sense of purpose but also enhances collaboration and synergy within the entrepreneurial organisation (Kiani *et al.*, 2022; Strese *et al.*, 2018).

3.3.2. *Explorative and exploitative innovation*

In the studies that look at EP and innovation, innovation within entrepreneurial pursuits has broadly been categorized into two paradigms: explorative and exploitative innovation. Explorative innovation typically deals with long-term performance, novelty, experiments, and endeavours that may not yield immediate financial return but forge new pathways for the future. In contrast, exploitative innovation involves short-term efficacy, refinement of existing processes, products, or services, and stable returns (He and Wong, 2004; Hou *et al.*, 2019; Jansen *et al.*, 2006; Kammerlander *et al.*, 2015).

The interplay between these two kinds of innovation brings to light the entrepreneur's role as a core, particularly in the context of their passion. More specifically, findings suggest that the entrepreneur's passion promotes both exploratory and exploitative innovation and its strategies in environments that deal with high levels of uncertainties (Cai *et al.*, 2021; Luu and Nguyen, 2021). In such environments, research expresses that passionate entrepreneurs tend to exhibit an inclination towards ambidexterity, where they effectively balance exploration and exploitation activities to harness optimal benefits from both innovation pathways (Aziz and Kang, 2021). The findings also show that the relationship between entrepreneurial passion and exploratory and exploitative innovation gets stronger where there are uncertainties such as market turbulence. Simply put, to enhance the efficiency and sustainability of their ventures in the face of market fluctuations, the energy and commitment that comes from passion can create a stronger link between the entrepreneur and his innovative activities. However, it is also important to note that, under technical turbulence scenarios, this relationship tends to weaken (Cai *et al.*, 2021).

Digging deeper, Ahsan *et al.* (2023) showed that a passion for inventing and developing has been correlated with an increased level of performance improvement and innovativeness in new ventures. This relationship is not

unilaterally, it's symbiotic and significantly influences the activity in both explorations and exploitative activities (Ahsan *et al.*, 2023). As a result, passionate entrepreneurs who seek innovation benefit from distinctive advantages as well as suffer from challenges in the divergence between exploratory and exploitative innovations. In addition, in today's climate of uncertainty and volatility, entrepreneurial passion plays a crucial role because both types of innovation (exploratory and exploitative) impact commercial and organisational performance as well as sustainability. Thereby reinforcing the key role they play in bridging the gaps that result from discovery, exploitation, and subsequent innovative success.

3.3.3. *Harmonious passion (HP) and Obsessive passion (OP)*

The study of Harmonious Passion (HP) and Obsessive Passion (OP) (Vallerand *et al.*, 2003) explores how these two types of passion influence innovative activities and innovative behaviours. On expanding upon this foundation, Ye, Liu, and Tan (2021) illustrate the well-founded influence of innovation passion (IP) on innovative behaviour (IB). More specifically, the result indicates a positive correlation between IP and IB which reveals that an individual's passion for innovation directly strengthens their innovative actions and outcomes. Additionally, the dynamics of HP show that various components, such as for instance creative self-efficacy, can dictate the extent of time and effort an individual commits to innovation, which, in turn, has a strong prediction for innovative activities and outcomes from such activities (Schenkel *et al.*, 2019). Thereby indicating several variations that occur between HP and innovation. In addition, Shi (2012) found that passion goes beyond merely workplace activities and that individuals' zeal for their innovative actions is not isolated to their job responsibilities but is intrinsic to their personality, leading to increased levels of self-esteem. As a result, individuals tend to be passionately enthusiastic about their innovation activities and this makes them feel more confident.

Moreover, HP has also been shown to improve individuals' innovative work behaviour and their likelihood to exploit opportunities. Research by Klaukien *et al.* (2013), complemented by Salas-Vallina *et al.* (2020), found that HP acts as a catalyst for opportunity exploitation by enhancing an individual's innovative tendencies at work. Moreso, people driven by HP are more able to identify and capitalise on available opportunities.

When considering OP, however, a different narrative evolves. It appears that OP shows no significant influence on the likelihood of opportunity exploitation and thus differs fundamentally from HP. Research shows that when linked to innovation, OP negatively relates to innovative behaviour and organization-based self-esteem (OBSE) as a result of lack of concentration, rigid and conflicted job pursuits, pressure and conflicts with other roles as well as potential risk avoidance where employees may "play it safe" and avoid innovative behaviors (Shi, 2012). Additionally, Klaukien *et al.* (2013) emphasised that for organizational managers,

OP did not directly drive innovation decisions on its own, but when managers felt excited, their OP made them more likely to pursue new product opportunities without fully evaluating the risks; this happened because excitement amplified OP manager's focus on gaining social approval and maintaining their innovative image rather than carefully assessing whether the opportunity makes business sense.

Focusing on team dynamics, HP exhibits promising outcomes by positively influencing team-wide innovation via the augmentation of team reflexivity (Wei *et al.*, 2024). This mechanism makes it possible for teams to determine their own approaches and adjust them accordingly. To be more specific, Wei *et al.* (2024) found that HP generally had a positive effect on team reflexivity and innovation. However, when team members varied greatly in their levels of HP (high HP diversity), these positive effects were weaker. In contrast, OP typically had negative effects on team reflexivity and innovation, but these negative effects were reduced when team members had varying levels of OP (high OP diversity). The innovation landscape for individuals and teams is undoubtedly driven by the complex fusion of passion, both harmonious and obsessive.

3.3.4. *Passion's influence on organisational innovation*

When looking at the relationship between passion and innovation at the organisational and/or firm level, several mechanisms may influence organisational leadership's passion for innovation. The following studies in this section will explore the vital role that passionate leaders play in driving corporate performance and firm sustainability. One study looking into organisational innovation is Makino *et al.* (2020) who found the importance of passion contagion for innovation within a firm. More specifically, they found that with a successful transfer of a leader's passion to their subordinates, a significant and positive shift is observed in innovation at the organisational level, which also applies to several entrepreneurial domains. Furthermore, research by Ma *et al.* (2017a; 2017b), in their studies of new ventures in China, found a positive relationship between entrepreneurial passion and organisational innovation. Moreover, they found a moderating role of the regulatory focus (promotion or prevention focus) of the entrepreneurs (Ma *et al.*, 2017b). The way entrepreneurs focus on their goals, either by aiming for growth and new opportunities (promotion focus) or by avoiding risk and focusing on safety (prevention focus), has a considerable impact on the relationship between their passions and organisational innovation. In particular, Ma *et al.* (2017b) emphasize that the relationship is stronger for entrepreneurs who have a more noticeable promotion-focused or unnoticeable prevention focus. A promotion focus thus tends to enhance the relationship between entrepreneurial passion and organisational innovation, creating an avenue that is particularly conducive to innovation.

Another study by Ma *et al.* (2017a) strengthened our understanding of the relationship between entrepreneurial passion and new venture performance,

showing both a correlation and mediated relationship, revealing crucial channels – such as organizational innovation and the entrepreneur's Zhong-yong cognitive style – as key mechanisms through which passion translates into tangible organisational success. Specifically, they indicated that for entrepreneurs, a traditional Chinese philosophical thinking style which symbolizes moderation and balance (the Zhong-yong thinking style), could be a powerful enhancer in the relationship between entrepreneurial passion and organisational innovation. The Zhong-yong thinking style, according to the authors, has the potential to ensure that passion is effectively channelled to nurture the development of organisational innovation. Finally, Luu (2023) found EP to directly enhance firms' innovative performance and indirectly through entrepreneurial alertness and self-efficacy. More specifically, her findings illustrate how passion can be fostered and harnessed within the organisation to ignite innovation, thereby extending, and enhancing performance and sustainable growth in the entrepreneurial firm.

3.3.5. The dynamic and nonlinear interplay of entrepreneurial passion and innovation

Research included in the analysis indicates that the link between EP and innovation shows linear or direct connections and at the same time shows several indirect relationships. Although several studies sought to look for direct relationships between passion and different domains of innovation, other studies from the analysis, however, highlighted that this relationship is often redirected by several moderation and mediation variables that link them and provide diverse explanations of why the relationship exists.

For instance, a study by Cai *et al.* (2023) investigated the role of the top management team's (TMT) creativity in the dynamics between an entrepreneur's (specifically, CEO's) passion and innovation within an organisation. Their findings show that TMT creativity acts as a mediating relationship between a CEO's passion and innovation. They further found that a moderation relationship exists between culture and both the CEO's passion and innovation. This, therefore, sheds light on the influence of organisational culture on these dynamics. Additionally, they found a positive relationship in the indirect effect of CEO passion on firm innovation via TMT creativity. Likewise, they found that flexibility-oriented culture positively moderates the relationship between CEO passion and TMT creativity, and negatively moderates the relationship between TMT creativity and firm innovation. Indicating that when an organisation nurtures a flexibility-oriented culture, it does not just enhance the positive link between CEO passion and TMT creativity but may also diminish the positive association between TMT creativity and the firm's levels of innovation. Moreover, Li *et al.* (2024) contribute another dimension to this discourse. Their findings suggest that the positive impact of entrepreneurial passion for innovating on organizational innovation is amplified when entrepreneurs face

events that are both novel and critical to their business. Additionally, entrepreneurs' competence to identify and capitalize on opportunities arising from these events (that is, their opportunity competence) further strengthens the relationship between their passion and organisational innovation. In other words, entrepreneurial passion is most effective in driving innovation when the external environment poses both new and important challenges, and the entrepreneur has the capability to recognize and exploit those challenges as business opportunities. These findings imply specific scenarios where the impact of entrepreneurial passion is intensified.

Furthering this line of discussion, Chebo and Kute (2018) highlight the importance of entrepreneurial commitment and environmental unpredictability in shaping the relationship between EP and innovativeness. They found that entrepreneurial commitment positively moderates the relationship between EP and innovativeness, such that commitment strengthens the positive impact of EP and innovativeness. Thereby emphasizing the critical role commitment plays in directing passion toward innovation. However, environmental unpredictability was found to moderate this relationship negatively, diminishing the effectiveness of EP in driving innovativeness when the business environment is highly unpredictable. Finally, Zou (2022) added another dimension to this relationship by indicating the nature of EP and how it influences two key elements: entrepreneurial learning and business model innovation. They found that EP positively influenced entrepreneurial learning and business model innovation, where entrepreneurial learning was found to mediate the relationship between EP and business model innovation. They further found that curiosity moderates the relationship between EP and business model innovation. These moderations, and mediation variables indicate that the relationship between EP and innovation may either be strengthened or weakened when several factors come into play.

4. Agenda: Future Research Directions

4.1. Research in relation to the importance of passion for innovation

It is important to explore more on the different dimensions of innovation. For instance, the articles in the review focused on several aspects of innovation such as radical innovation, technology innovation, innovation behaviours, and explorative and exploitative innovation. It may be interesting to examine questions relating to passion and other aspects of innovation as well, for instance in the growing stream of digital entrepreneurship (Nambisan, 2017; Omoredede, 2023; Zaheer *et al.*, 2019). Since digital entrepreneurship deals with a significant level of innovation, it may be interesting to see if entrepreneurs who start purely digital firms are passionate about innovation and if they are, how their passion was ignited and how it influenced the kind of digital innovation created and the

firm they started. Furthermore, other aspects of innovation such as incremental innovation (Dewar and Dutton, 1986), may also be of interest to study and understand if entrepreneurs, especially those who run bigger organisations, can influence their employees into continuously improving on already existing innovations. Likewise, studies can look at the possibly distinct roles of passion in the different stages of the innovation process, from idea generation to the implantation of innovation outcomes.

4.2. Research employing theories to develop the relationship between passion and innovation

Identity theory and role identity: Cardon *et al.* (2009b) highlight the importance of entrepreneurial activities linking to one's identity. Although this is a substantial part of EP, none of the empirical studies addressed the identity and role identity theory in relation to EP. Stets and Burke (2000) highlight that some form of interaction and reciprocity is involved in role-based identity. Studying the relationship between EP and innovation from the lens of the identity and role identity theory may help researchers understand better how group passion is formed and how this passion can generate a firm's innovative behaviour.

Self-efficacy: Competence in generating new ideas, inventing, developing, or founding (Cardon *et al.*, 2009b) may yield stronger innovative capabilities and abilities. Self-efficacy is when a person believes in his or her ability to perform and complete a task (Bandura, 1994). Previous research found that the relationship between self-efficacy and persistence is mediated by the passion for inventing and the passion for founding (Cardon and Kirk, 2015). This indicates that there is more to explore that goes further than persistence such as how self-efficacy can mediate or moderate the relationship between passion and innovation, which may be an interesting avenue for future research.

Flow theory: Flow shares some similarities with passion, in the sense that they both focus on motivational investment in an activity that tends to be self-rewarding. Flow, however, addresses a state of experience that an individual is in at a specific point in time (Csikszentmihalyi, 1990). Unlike passion which focuses on the intense positive feeling of an individual in relation to certain (entrepreneurial) activities. Being in a state of flow has been shown to be related to positive emotions and positive feelings. Future research may find it of interest to see the interactions between EP, flow, and innovation and how one may influence the other or if one factor is a stronger predictor for innovation outcomes.

Self-determination theory (SDT): As a theory of human motivation, SDT focuses on satisfying three psychological needs for individuals to reach a sense of self-determination. These needs are need for competence, autonomy, and relatedness.

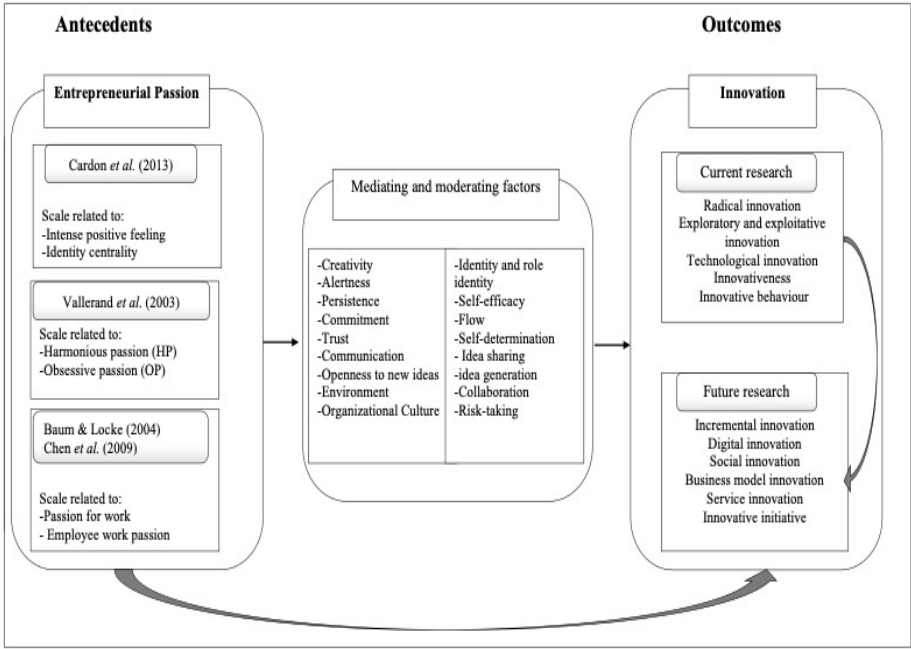
Research has highlighted that when these needs are met, individuals perform and function better as the activities engaged in will be more in line with their self-identity (Ryan and Deci, 2000). This presentation also shows some similarities to the concept of EP. Therefore, studying SDT in the relationship between EP and innovation may be something that future research may find to be of interest.

4.3. Interdisciplinary approaches to understanding the link between EP and innovation

To identify other factors that may be important in addressing the relationship between entrepreneurial passion and innovation, multidisciplinary and interdisciplinary research studies and approaches should be considered. For instance, the integration of research fields such as business, sociology, psychology, and even the studies of brain sciences (neurology) as well as the integrations of several research techniques, tools, concepts, and means of data collection would provide deeper understanding on the influence of EP on innovation. More specifically, these interdisciplinary and multidisciplinary approaches will not only contribute to understanding the motivations and cognitive processes of entrepreneurs but also provide an understanding of the skills and competencies of entrepreneurs, significant strategies for organisational leaders and intrapreneurs, financial aspects linked to investments and profits, and organisational operations that link EP and innovation. Furthermore, such interdisciplinary research can focus on how cultural norms and practices as well as social relations such as networks can support entrepreneurs' passion and their innovative processes. Finally, an interdisciplinary research approach in a subject area such as neuroscience can be relevant for entrepreneurship research, which can provide a further understanding of the implications of neurological rationales for entrepreneurial passion and innovative capabilities in individuals. Thereby providing a deeper understanding of the biological basis of entrepreneurial behaviour.

We present a conceptual framework of entrepreneurial passion and innovation in Figure 3. Figure 3 highlights research that is currently in progress as well as suggestions for factors that future research can explore.

Figure 3. A conceptual framework on suggested research for entrepreneurial passion and its influence on innovation



5. Conclusion

The current study presents a systematic literature review on the relationship between entrepreneurial passion (EP) and innovation. As a driving force that compels entrepreneurs to create, innovate, and adapt, EP has been shown to drive innovation and innovation behaviour within an organisation. The results from the study show that EP drives radical innovation and in addition is important for explorative and exploitative innovation. Specifically, passion for inventing was shown to play an important role in increasing both exploitative and explorative strategies that drive innovation indicating that passion augments the interconnectedness and influence of these innovation types. Furthermore, the current literature review showed that harmonious passion (HP) promotes a conducive environment for opportunity identification and exploitation, while also positively influencing team innovation and time spent on innovation. In contrast, obsessive passion (OP) impacts team dynamics in a different way, potentially leading to negative repercussions on reflexive capabilities and innovation.

Within the organisation, organisational innovation was shown to be influenced by passionate leaders and thereby drives organisational success. Likewise, factors such as top management team (TMT) creativity, cultural

factors, entrepreneurial commitment, and environmental unpredictability, play significant roles in either strengthening or weakening the link between EP and innovation pursuits in organisations. Finally, although the current body of literature offers a significant understanding of how passion drives innovation, future research can further address how various dimensions of EP (e.g., HP, OP, passion for inventing, founding, and developing) can influence innovations within diverse cultures and social and economic contexts. In doing so, future research can further investigate the relationship between EP and social innovation, technological advancements, and the possibly distinct roles of passion in the different stages of the innovation process. Employing theories such as self-efficacy, flow, and self-determination in this interaction cannot just contribute to understanding the role of several psychological and behavioural aspects such as risk-taking propensity, persistence, and resilience but also contribute to different patterns of innovation and organisational innovation specifically and to sustainable outcomes in general.

5.1. Scope of the research

The present study shows that the literature on the influence of entrepreneurial passion on innovation is continuously growing, however, this growth is slow. The study shows 30 articles that have looked at this specific relationship. One reason for the limited number of articles is that when analysing the impact of passion, the selection only focused on publications that used entrepreneurial passion as the independent variable and not as the moderating, mediating, or dependent variable. This feature is linked to the study's objective that explores how entrepreneurial passion influences innovation and did not focus on other relationships that see how entrepreneurial passion is influenced by other factors, thereby excluding studies that use entrepreneurial passion as the dependent variable.

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