

The importance of entrepreneurs' traits in explaining start-ups' innovativeness

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Abstract

Purpose of the paper: several studies prove the existence of a relationship between entrepreneurs' personality traits and firm performances. However, few of them focus on how these personality traits can be correlated with start-ups' innovativeness. We focus on start-ups because entrepreneurs play a crucial role in managing them: their personality strongly influences business decisions. The main personality traits we consider are narcissism, the Big Five (i.e. extraversion, agreeableness, conscientiousness, neuroticism, openness to experience), and locus of control. We aim to shed light on how these traits impact on start-ups' innovativeness and we draw propositions that hypothesize such impact.

Methodology: being a theoretical paper, we carry out a thorough literature review and we propose some propositions.

Findings: we suggest that entrepreneurs positively influence start-ups' innovativeness whenever they are narcissistic and have a high level of extraversion, agreeableness, conscientiousness, openness to experience, and internal locus of control. Otherwise, entrepreneurs with a high level of neuroticism and external locus of control negatively influence start-ups' innovativeness.

Limitations: considering the theoretical nature of the paper, we have not tested our propositions yet; future research will involve testing them in an empirical business context.

Implications: this paper makes significant contributions to two different literatures: entrepreneurship literature and innovation literature.

Originality of the paper: this paper tries to fill a gap in the literature by analysing the relationship between start-ups' innovation and entrepreneurs' traits.

Keywords: personality traits; narcissism; Big Five; locus of control; entrepreneurship; start-ups' innovation

1. Introduction

According to Rosenbusch *et al.* (2011), start-ups' success is linked with their innovation capabilities: they are called to exploit and realize innovation opportunities. Existing literature shows a relationship that is both negative and positive between innovation and start-ups' growth and survival. Samuelsson and Davidsson (2009) demonstrate the existence of a negative relationship in this sense because design innovations involve risks and complications due to limited resources availability and initial competitive disadvantages. Bruderl and Schussler (1990) assert that there is a positive

relationship because start-ups have less rigid routines that allow them to adapt to any changes in the operating environment and in clients needs more quickly. Groenewegen and de Langen (2012) identify three main factors that determine start-ups' growth and survival: innovations' uniqueness, organizations' characteristics and entrepreneurs' characteristics. In this paper we consider and investigate the first and the third factor, because we are convinced that studying the relationship between these variables is important for the growth and the survival of star-ups. We focus on start-ups because entrepreneurs are both founders and top management team leaders, therefore they play a central role in these realities.

Start-ups' innovativeness is related to the degree by which start-ups are innovative or not. Innovative start-ups are those that implement product/service, and process innovations (Damanpour, 1996, Utterback and Abernathy, 1975). Product/service innovations refer to the introduction of new products/services to fulfil user or external market needs. Process innovations are related to the way by which an organization conducts its business. Not innovative or imitative start-ups implement only incremental innovations: for these reasons they have low innovative performances (Samuelsson and Davidsson, 2009). However, the empirical identification of innovative start-ups is a delicate task; according to Fritsch (2011), we can use various methods: (i) the sharing of inputs or added value devoted to R&D, if data on individual firms are available; (ii) the degree of innovativeness of products or production processes, although the lack of a clear definition of a new product or new process makes it difficult to use; (iii) industry affiliation, that is a classification based on the knowledge and R&D intensity of industries as well as on the innovativeness of their product programs (high-technology, medium-high-technology, medium-low-technology and low-technology industries); (iv) venture capital investment, since venture capitalists generally finance only innovative start-ups.

In regards to entrepreneurs' characteristics, many scholars state that the personality traits of start-up entrepreneurs have strong influence in business decisions (Dyer and Handler, 1994, Rauch and Frese, 2007, Baron and Markman, 2003, Green and Binsardi, 2015). Several authors show that those who establish and manage new business ventures should have certain capabilities: he/she should be innovative and a risk taker, he/she should develop, recognize, evaluate and exploit opportunities and should be able to make rapid decisions under conditions of uncertainty and in a resource constrained environment (Ardichvili *et al.*, 2003, Chen *et al.*, 1998, Corbetta, 2011). Previous studies have primarily focused on the observable characteristics of entrepreneurs (such as age, sex, previous experience and personal income) and their effects on strategy and performance; however this approach does not explain why some entrepreneurs are more successful than others (Boone *et al.*, 1996). For these reasons, we use a personality approach that concerns the "characteristics of individual psychological traits that define an entrepreneur". Personality traits are characteristics of individual behaviour which clarify why people act differently in similar situations (Nga and Shamuganathan, 2010, Llewellyn and Wilson, 2003). Examples of traits are need for achievement, innovativeness, proactive

personality, generalized self-efficacy, stress tolerance, need for autonomy, locus of control, and risk taking.

Several studies in the entrepreneurship field have recently addressed the relationship between entrepreneurs' traits and firms' performances. Some take into account entrepreneurial orientation and risk-taking behaviour (Choe *et al.*, 2013, Hafeez *et al.*, 2012, Zhao *et al.*, 2010), others investigate entrepreneurs' narcissism (Chatterjee and Hambrick, 2007, Wales *et al.*, 2013), and the majority considers the Big Five traits (i.e. openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism), characteristics which represent the basic structure behind all personality traits (Zhao and Seibert, 2006, Ciavarella *et al.*, 2004). Baum and his colleagues demonstrate that motivation, strategic choice, growth goals, and vision communication improve new venture performance (Baum *et al.*, 2014, Baum and Locke, 2004). Other studies show that the personality traits of entrepreneurs are positively related to business creation and business success (Rauch and Frese, 2007).

Few studies analyse how entrepreneurs' traits affect firms' innovativeness (Rauch and Frese, 2007). Innovativeness is influenced by certain characteristics of the entrepreneur such as risk appetite, optimism, logical mind, higher education, previous work and experience in the field (Groenewegen and de Langen, 2012). Kickul and Gundry (2002) show that proactive personality (i.e. the ability to identify opportunities, take initiatives, and act) associated with strategic orientation allow the identification of opportunities for developing new products or markets. These characteristics also facilitate firm growth and success through changes and transformations within organizational structures. Other scholars investigate how the personality traits of social entrepreneurs influence innovative capabilities in their start-ups. They consider the Big Five characteristics and claim that only three factors influence innovation capabilities (openness to experience and agreeableness have positive influence, while neuroticism has a negative one) (Song *et al.*, 2008, Nga and Shamuganathan, 2010).

In general, previous studies showed that if entrepreneurs do not have certain levels of education and training linked with innovativeness, they cannot transform customers' needs into new products and services (Zhao *et al.*, 2010); if entrepreneurs are not creative and skilful in discovering innovative methods, they cannot protect their firms from competition (Ciavarella *et al.*, 2004); and if strategic decisions are framed within family constraints and individual goals, or if entrepreneurs are risk-averse and conservative, their innovative capabilities and those of their start-ups will be blocked (Dyer and Handler, 1994).

In our propositions, we claim that start-ups are innovative or not based on whether their entrepreneurs have or do not have certain personality traits.

In the following sections we analyse the method we use, we develop our research model and we delineate our propositions. The paper closes with a brief conclusion, in which we discuss some practical implications and address limitations and avenues for future research.

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2. Methodology

This is a theoretical paper. We conducted a deep literature review through Google Scholar and we collected and analysed relevant studies in the field. On the basis of our study, we focused on the relation between personality traits and start-ups' performance and survival, while also considering the influence of innovativeness on this relation. In deciding on the inclusion or exclusion of references, we considered the following research question underlying this study: what is the role of entrepreneurs' personality traits in start-ups' innovativeness?

After that, we focused on the identification of appropriate keywords; these were selected on the basis of a careful examination of the literature included in the field. This process yielded a final list of 10 keywords, 5 of which were associated with the concept of "start-ups' innovativeness" and 5 related to the term "entrepreneurs' personality traits". Following the definition of our search strategy, we developed valid criteria for the inclusion and exclusion of papers. As Meier (2011) has suggested, we limited our sources to peer-reviewed journals, which have the highest Impact Factor in the field. The main fields that we considered were Entrepreneurship and Small Business Management, Psychology, Innovation.

Table 1 summarizes the facets and behaviours related to each trait taken into consideration in this paper.

Tab. 1. Facets and behaviours related to entrepreneurs' personality traits

Personality traits	Facets	Behaviours
Narcissism	- Positive Self-view - Attractive - Charismatic - Creative - Visionary	Self-admiration: vision of themselves as perfect, special, and unique. Self-centred: need of attention, inability to listen to others, no empathy for peers. Innovative: idea generator.
Extraversion	- Sociable - Energetic - Adventurous - Enthusiastic - Outgoing	Ambition: impetuous, seeks leadership roles, persuasive. Sociability: talkative, enjoys meeting people. Individuality: enjoys taking chances and stirring up excitement. Individuality: enjoys taking chances and stirring up excitement.
Agreeableness	- Confident - Altruist - Disciplined - Modest	Cooperative: helps others, trustful of others. Considerate: good-natured, cheerful, forgives others easily.
Conscientiousness	- Efficient - Organized - Not lazy - Not impulsive	Industriousness: strives to do his/her best, does more than planned, hardworking. Efficiency: plans in advance, is rarely late for appointments.
Neuroticism	- Anxious - Irritable - Depressed - Impulsive	Security: feels secure about self, not bothered by criticism.
Openness to experience	- Curious - Imaginative - Have wide interests - Unconventional	Open: cultured, try new and different things; enjoys art, music, and literature.
Internal Locus of control	- Active agent - Problem-solving capacity - Persuasive	Takes one's fate into his/her hands. Modifies and improves any situation.
External Locus of control	- Passive agent - Rules by fate - Stressed - Illness - Imposing	Uncertainty: hates ambiguity and new situations.

Source: Our elaboration based on Costa and McCrae (20087), John and Srivastava (1999), and Ciavarella *et al.* (2004)

The table was designed starting from the works of Costa and McCrae (2008), John and Srivastava (1999), and Ciavarella *et al.* (2004), and it allows a better understanding of each personality trait because it shows the main characteristics of each trait and links these characteristics to people's personalities and behaviour.

In particular, facets are specific and unique aspects of a broader personality trait (McCrae and Costa, 2003), while behaviours are the expression of the trait, something that allows us to see the traits through a person's actions (McCrae and Costa, 2003).

On the basis of this literature review we advance some propositions that will be discussed throughout the paper. Firstly, we analyse the relationship between narcissism and start-ups' innovativeness; secondly, the relationship between the Big Five and start-ups' innovativeness, and finally the relationship between the locus of control and start-ups' innovativeness.

3. The relationship between narcissism and start-ups' innovativeness

The term "narcissism" derives from the story of Narcissus, taken from Greek mythology, which is about a man who refuses others because he is madly in love with his reflection in a water pond. Narcissism is generally considered a personality disorder or a pathology but subsequent studies have showed that it can be diagnosed as personality disorder only in extreme cases (Lubit, 2002, Humphreys *et al.*, 2011). Normal levels of narcissism are reflected in strategies used to promote a positive self-image and facilitate relations among psychologically well-adjusted individuals (Campbell *et al.*, 2004, Wales *et al.*, 2013). Usually, narcissistic individuals have "positive and inflated self-view, such as personal form of admiration or perverse self-love, and a self-regulatory strategy to maintain and enhance this positive self-view" (Ackerman *et al.*, 2010). Accordingly, they fantasize about fame and power, they think they are special and unique and they see themselves as more intelligent and attractive (Campbell *et al.*, 2004, Mathieu and St-Jean, 2013, Raskin and Novacek, 1991, Humphreys *et al.*, 2011, Rosenthal and Pittinsky, 2006). Nevertheless, they need attention and admiration, they fail to listen attentively others, and they have little empathy for their peers (Gabriel *et al.*, 1994). Nevertheless, narcissistic individuals tend to emerge as leaders in organizations, for they have compelling, even gripping, visions for firms (e.g. they do not try to understand the future, rather they attempt to create it), and they have the ability to attract followers through their public speaking, which makes them charismatic (Goncalo *et al.*, 2010; Maccoby, 2000).

According to Gardner and Avolio (1998) "charismatic leaders are exceptionally expressive people, who employ rhetoric to persuade, influence, and mobilize others", and this allows them to improve their levels of creativity and innovation. Narcissists bring benefits to organizations thanks to their visionary and innovative qualities (Goncalo *et al.*, 2010, Maccoby, 2000, Maccoby, 2003). Many papers analyse the effects of narcissistic personality on business performance: Chatterjee and Hambrick (2007) and Wales *et al.* (2013) claim that narcissistic CEOs tend to generate extreme performance,

both positive and negative. Furthermore, Chatterjee and Hambrick (2007) add that these CEOs also have wide fluctuations in performances from one period to another. According to Pinto and Patanakul (2015), entrepreneurs' narcissistic behaviour facilitates new product development, new operational initiatives and new project ventures. However, the relationship between narcissistic entrepreneurs and start-ups' innovation has not been addressed; therefore, by analysing all the features possessed by narcissistic subjects, we suggest that:

Proposition 1 (P₁): Narcissistic entrepreneurs positively influence start-ups' innovativeness.

4. The relationship between the Big Five factors and start-ups' innovativeness

The most popular approach for studying and organising personality traits is the Big Five model; this is composed by neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (McCrae and Costa, 1985, McCrae and Costa, 1987). According to many authors, this model allows a confusing variety of personality variables to be organized into a meaningful and comprehensive set of personality traits. Moreover, it contains broad personality constructs that allow a better understanding of entrepreneurial behaviour (Rauch and Frese, 2007, McCrae and John, 1992, John and Srivastava, 1999). Brandstätter (2011) claims that the entrepreneurial role is strongly influenced by the personality of entrepreneurs: he shows that emotional stability has an impact on new venture creation; openness to experience allows entrepreneurs to find new opportunities and ways to structure and develop firms; achievement motivation, namely a component of conscientiousness, which allows entrepreneurs to work hard and be persistent in striving towards his or her goal; extraversion is fundamental in establishing a social network; and risk propensity, namely a combination of emotional stability, openness, and extraversion, allows taking the risk of failure. The remaining part of the section is organized as follows: we briefly illustrate each factor from a psychological point of view, then we place it in an entrepreneurial context and formulate our propositions.

Extraversion represents the tendency to be outgoing, assertive, active, enthusiastic, and excitement seeking. People with a high level of extraversion are dominant in social situations, optimists, and inspire positive feelings (Zhao *et al.*, 2010, Rothmann and Coetzer, 2003, Brandstätter, 2011). Costa *et al.* (1984) state that extravert people are attracted by enterprising occupations (i.e. business), and Zhao *et al.* (2010) claim that extraversion is positively related to entrepreneurial intention. Other authors show that entrepreneurs with high levels of extraversion are considered charismatic leaders by employees (Judge and Bono, 2000, Vecchio, 2003). Entrepreneurs' extraversion is also positively related to firm performances; high levels of extraversion facilitate entrepreneurs' social interaction with stakeholders and this enables the improvement of

performances (Zhao *et al.*, 2010, Rothmann and Coetzer, 2003, Baron and Markman, 2003). Accordingly, we expect that extraversion positively relates to start-ups' innovation; therefore we suggest that:

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Proposition 2 (P₂): Entrepreneurs with a high level of extraversion positively influence start-ups' innovativeness.

Agreeableness is the tendency to be kind, altruistic, trusting, and modest (Zhao *et al.*, 2010). An agreeable person shows sympathy, cares about the needs of others and tries to restore peace in case of disputes (Rothmann and Coetzer, 2003). Many scholars argue that agreeableness is negatively related to firms' performances, because entrepreneurs should be able to benefit from opportunities, think of their own interests, and manipulate situations in order to allow firms' survival and growth (Zhao and Seibert, 2006). However, other scholars argue that a minimum level of agreeableness is necessary to receive the required support to start a new venture, and moreover Ciavarella *et al.* (2004) claim that entrepreneurs that have trusting, flexible, and courteous relations with customers should expect to have high profits. According to Ross and Offermann (1997) there is a positive relationships between some aspects of agreeableness and charismatic leadership; charismatic leaders tend to be generous and attentive towards others and tend to cooperate to secure capital and future support from venture capitalists, thus increasing the chance for the long-term survival of the venture (Shane and Cable, 2002, Cable and Shane, 1997, Hogan and Shelton, 1998). Since we are considering start-ups' entrepreneurs, who are motivated and extremely creative, and given that these characteristics are at the basis of innovation, we suggest that:

Proposition 3 (P₃): Entrepreneurs with a high level of agreeableness positively influence start-ups' innovativeness.

Conscientiousness includes thinking before acting, being respectful of rules and laws, as well as planning and organizing tasks. The main features of entrepreneurs are hard work, goals orientation, and perseverance (Zhao *et al.*, 2010); these allow the entrepreneur to achieve higher productivity and to benefit from greater efficiency and effectiveness within the firm (Ciavarella *et al.*, 2004). Many authors state that consciousness derives from entrepreneurs' need for achievement that, for this reason, creates a new venture (Baum and Locke, 2004, Zhao and Seibert, 2006). Accordingly, "higher levels of conscientiousness play a pivotal role in the entrepreneur's ability to lead his/her new venture to long-term survival" (Ciavarella *et al.*, 2004). In the light of previous studies, we expect conscientious entrepreneurs to invest more in innovation and to facilitate the development and growth of their own start-ups. Therefore, we suggest that:

Proposition 4 (P₄): Entrepreneurs with a high level of conscientiousness positively influence start-ups' innovativeness.

Neuroticism is the tendency to be anxious, fearful, depressed, and moody. People with high levels of neuroticism lack self-confidence and self-esteem and hardly want to take on the personal responsibilities and strains

associated with the entrepreneurial role (Zhao *et al.*, 2010, Judge and Bono, 2000). If they decide to start a new venture without changing their negative behaviour (i.e. without any optimism), they could compromise the performance of their ventures and have problems maintaining the relationships that facilitate the entrepreneur's long-term success (Hurtz and Donovan, 2000, Ciavarella *et al.*, 2004). Thus, we propose that:

Proposition 5 (P_5): Entrepreneurs with a high level of neuroticism negatively influence start-ups' innovativeness.

Openness to experience represents the tendency to be creative, imaginative, intelligent, and perceptive (Chang *et al.*, 2014). People with a high level of openness tend to be unconventional and have new ethical, social and political ideas (Rothmann and Coetzer, 2003). All the adjectives listed so far should basically be owned by entrepreneurs who want to start a new venture because they should explore new ideas, use their creativity to solve problems, and adopt an innovative approach to products, business methods, or strategies (Ciavarella *et al.*, 2004, Zhao and Seibert, 2006, Zhao *et al.*, 2010). In particular, in dynamic markets, entrepreneurs should be ready to change products/services and technologies in order to compete; this requires intelligence and creativeness to acquire new knowledge on technological advances and solve day-to-day problems (Ciavarella *et al.*, 2004, Zhao *et al.*, 2010). Therefore the link between openness to experience and creativity, and the previously analysed link between creativity and innovation leads us to assume that:

Proposition 6 (P_6): Entrepreneurs with a high level of openness to experience positively influence start-ups' innovativeness.

5. The relationship between locus of control and start-ups' innovativeness

The last variable we take into consideration is locus of control. According to Rotter (1966), locus of control indicates the way in which an individual believes that life events are produced by his or her behaviour (internal locus of control), or by external causes beyond his or her control (external locus of control). In general, people with an internal locus of control see themselves as active agents so they know that their destiny is not predetermined and that they can change it; they are also able to influence the environment that surrounds them thanks to their skills and efforts. In contrast, people with an external locus of control see themselves as passive agents and believe that events in their lives are uncontrollable because they stem from reasons of force majeure (i.e. luck, fate, powerful people or institutions) (Boone *et al.*, 1996, Rotter, 1966).

In general, entrepreneurs with internal locus of control have different characteristics than those with external locus of control. Many scholars claim that the locus of control trait alleviates the relationship between stress and illness (Boone *et al.*, 1996, Kobasa *et al.*, 1982, Lefcourt, 2014).

If entrepreneurs are facing very stressful periods and have an external locus of control, they react by feeling psychologically and physically ill (e.g. depression, herpes). In contrast, entrepreneurs with an internal locus of control react in a problem-solving way because they know that they can solve them (Boone *et al.*, 1996). There is also a relation between locus of control and the prerequisite to take action, which may result in the ability to become or not an entrepreneur in our case. Krueger (1993) suggests that the predisposition to act is an essential element when deciding to build up a start-up; individuals who perceive an entrepreneurial opportunity as desirable and achievable will start a new venture only if they are psychologically prepared. Accordingly, "internal locus of control orientation increases the likelihood that a potential entrepreneur will implement their entrepreneurial intentions" (Julian and Terjesen, 2006). Many researchers state that locus of control influences entrepreneurs' behaviour; entrepreneurs with an external locus of control will most likely not implement activities involving innovation and risk taking because they are characterized by uncertainty and ambiguity (Miller, 2011, Miller *et al.*, 1982, Begley and Boyd, 1988). Finally, entrepreneurs' locus of control has consequences in their relationship with employees: many scholars show that entrepreneurs with an internal locus of control employ persuasion tactics to influence the behaviour of their employees while entrepreneurs with external locus of control prefer to give orders (Goodstadt and Hjelle, 1973, Mitchell *et al.*, 1975).

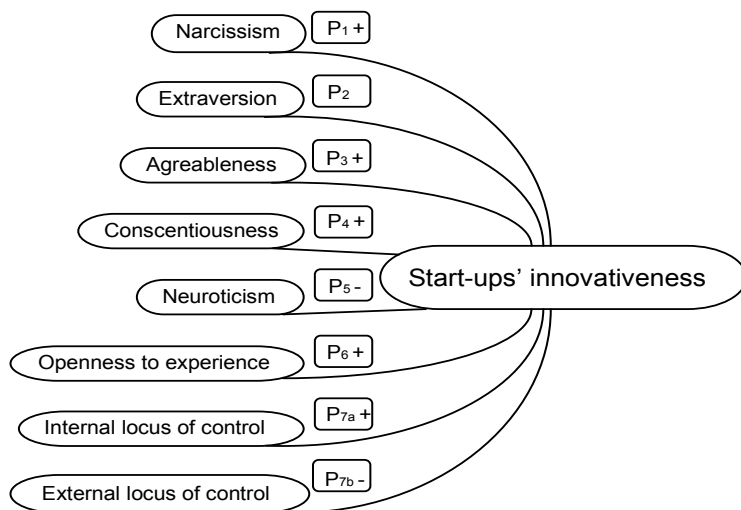
Previous research has analysed how locus of control impacts on business performances and new ventures creation; many studies show that ventures led by entrepreneurs with internal locus of control perform better than firms headed by entrepreneurs with an external one (Boone *et al.*, 1996, Howell and Avolio, 1993). Other studies show that start-ups created by entrepreneurs with internal locus of control are more successful and possess more survival capacity than start-ups created by entrepreneurs with an external locus of control (Van de Ven *et al.*, 1984, Gatewood *et al.*, 1995). However, few studies analyse the link between locus of control and innovation; Miller and colleagues analyse the relationship between CEOs' locus of control and the implementation of innovation strategies (Miller and Toulouse, 1986, Miller *et al.*, 1982). They state that CEOs with internal locus of control implement innovation strategies, introduce new products, and engage in R&D. Thus, in the light of previous studies, we can suggest that:

Proposition 7a (P_{7a}): Entrepreneurs with a high level of internal locus of control positively influence start-ups' innovativeness.

Proposition 7b (P_{7b}): Entrepreneurs with a high level of external locus of control negatively influence start-ups' innovativeness.

All previously identified relationships led us to design our analytical model (Figure 1).

Fig. 1: *Entrepreneurs' personality traits and start-ups' innovativeness*



Source: Our elaboration

6. Conclusion

This study sheds light on how entrepreneurs' personality traits influence entrepreneurs' behaviour inside firms, and consequently start-ups' innovativeness.

Table 1 provides a comprehensive understanding of each personality trait, its characteristics and how it can improve innovativeness or not. Therefore each trait could have a positive or negative influence on start-ups' innovativeness.

A primary theoretical contribution of this work consists in a new vision of narcissist entrepreneurs' capabilities. We argue that entrepreneurs' narcissism positively influences start-ups' innovativeness because their innate creativity and their capability to be risk-takers and have grandiose vision will improve innovation inside start-ups. Another important contribution of this paper is the investigation of more common personality traits compared to innovative performance. In general, traits like the Big Five or locus of control are investigated only in relation to firm performance; this allows us to advance prior research by demonstrating that these traits are also related to start-ups' innovativeness.

The proposed analytical model provides significant contributions to two different literatures. First, it contributes to entrepreneurship literature because, by exploring the main personality traits shared by entrepreneurs, it allows us to underline that personality traits influence firms' growth and survival. Secondly, it contributes to innovation literature because, by exploring entrepreneurs' traits, we can know whether or not firms will have high innovation performances.

More work is needed to test these propositions. As a result, future research will involve the testing and the replication of our study to see

if the influence of time and life events can interfere and/or smooth the personal traits of entrepreneurs. We could also include some moderators in our model, such as entrepreneurs' motivation and innovativeness, to check if they interfere with the final result.

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