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Happiness as a driver of entrepreneurial initiative and innovation capital

Antonio Usai
Department of Economics and Business, University of Sassari, Sassari, Italy
Beatrice Orlando
Department of Economics and Management, University of Ferrara, Ferrara, Italy, and
Alberto Mazzoleni
Department of Economics and Management, University of Brescia, Brescia, Italy

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Abstract

Purpose – This study aims to extend the knowledge in the domain of intellectual capital and entrepreneurship by investigating whether happiness may have a positive influence on entrepreneurial initiative and intellectual property or not.
Design/methodology/approach – The used large-scale dataset for 2018 is drawn from the Eurostat. It includes information on individual happiness, sustainability, start-ups, creativity, intellectual property and quality of life, grouped by European countries. Hypotheses are tested through using the linear regression method.
Findings – The findings confirm that happiness, along with creativity, fosters both entrepreneurial initiative and intellectual property.
Research limitations/implications – Future studies should test the model by extending the analysis to different world regions and by considering further variables, such as country culture.
Practical implications – The study suggests that policy makers have to focus on improving life conditions and sustainability as a means to foster local economies and communities.
Originality/value – This cutting-edge study is unique in its genus, because the prior literature never focused on these topics jointly. At an academic level, it ties happiness to creativity and to "the entrepreneurial spirit", thus opening up to a new and vast domain of researches.

Keywords Sustainability, Entrepreneurship, Entrepreneurial initiatives, Happiness, Start-up, Quality of life, Intellectual capital, Intellectual property

Paper type Research paper

1. Introduction

The purpose of this study is to understand how emotions influence entrepreneurial initiative and the generation of intellectual property.

The term emotion indicates a subjective feeling (Barsade, 2002) and a status of pleasure or displeasure (Barrett *et al.*, 2007).

Across centuries, the impact of emotions on human decisions was surely one of the most fascinating conundrums that puzzled scientists, philosophers, writers, policy makers and, basically, the whole society so far.

Despite the huge scientific advancements that were made in the last century, we still know a little about how emotions interplay with the birth and the development of businesses.

As a matter of fact, for long time traditional economists completely skewed the consideration of the impact of feelings on business decisions. Their very concern was the maximization of the utility function, based on the assumption of actors' perfect rationality (Wald, 1939). This belief started creaking when De Finetti (1937) proposed that probabilities might be subjective (De Finetti, 1937).

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It took almost another two decades for managerial scholars to acknowledge that rationality is bounded (Simon, 1955) and that human's choices are subjectively biased (Savage, 1950; Allais, 1953; Ellsberg, 1961).

Almost 40 years ago, scientific enquires in the decision theory field started paying attention to the impact of emotions on the perception of risk. In this sense, the prospect theory (Kahneman and Tversky, 1979) represents the milestone of the research domain. Tversky and Kahneman (1991, 1992) revolutionized the existing knowledge on the role of expectations, by explaining how attachment to status quo affects the evaluation of future prospects. Actually, the surge of scholars' attention for the happiness economy is a relatively recent phenomenon (Sen, 1993; Frey and Stutzer, 2002; Kahneman and Deaton, 2010). During the 90's of past century, Sen (1993) introduced the concept that happiness unlocks capabilities and freedom of choices. The impact of his work was such that the World Bank started the United Nations Development Programme (UNDP), aimed at improving progress and well-being worldwide.

Differently, Kahneman and Deaton (2010) explained how objective happiness determines the value – or utility function – of specific situations. They also noted how happiness is related to quality of life and resilience (Kahneman and Deaton, 2010).

Over time, the relevance of happiness for economy, business and society became increasingly evident.

As instance, there is a crucial field of studies which examines the role of emotion in information systems (Shim *et al.*, 2002; James *et al.*, 2017; Wallace *et al.*, 2017).

Though, there is still a scarce knowledge of how emotions are tied to business growth and how they influence entrepreneurial initiative, intellectual capital and innovation.

Often, antecedent works adopted a partial view of the phenomenon that inhibits the extension of these models to the broader managerial field. According to Sen (1993) happiness is a sort of contextual commodity that is required for unleashing a potential. For Kahneman and Deaton (2010), happiness only matters as a cognitive anchor for the definition of a judgemental value. In both cases, they only take into consideration objective happiness, which is measured by contextual factors.

By and large, sentiments such as anger or happiness are deemed to influence opportunity identification and evaluation (Shane and Venkataraman, 2000), and, then, vicariously, the entrepreneurial initiative. This insight is derived from the fact that emotions interplay with cognition (Baron and Tang, 2011).

In a study conducted by Foo (2011), the authors found that anger and happiness may lower the perception of risk.

Especially in the last 5 years, the emotional sphere of the entrepreneur became one of the hottest topics under the research radar. This stream of research acknowledges that the entrepreneurial endeavour is an emotional process (Cardon *et al.*, 2012). The same conception is remarked by Baron (2008), who concludes that affect is a prominent variable throughout the entrepreneurial process. As instance, emotions determine the way an entrepreneur reacts to failure (Wolfe and Shepherd, 2015) or to other negative personal circumstances (Miller and Le Breton-Miller, 2017). In a similar vein, a new stream of study explores the link between resilience and entrepreneurial behaviour (Korber and McNaughton, 2018). Not always very convincingly, though, some scholars argue that extremely adverse conditions are the trigger for entrepreneurship (Miller and Le Breton-Miller, 2017). Adverse conditions should be considered the exception, rather than the real trigger of entrepreneurship.

By contrast, happiness may create the climate for creativity and trusts among employees, thereby fostering the intellectual capital creation (Mitchell, 2001; Chaharbaghi and Cripps, 2006; Isaac *et al.*, 2009) and competitiveness of firms.

Above considerations provided robust motivations and rationales for current research.

In a nutshell, studies published in the last thirty years progressively uncovered that well-being is so vital for the development of economies and society that, from 2010, the United Nations started releasing the World Happiness Report. Accordingly, it was also defined the Gross National Happiness index, based on 17 Sustainable Development Goals.

These evidences provided ground for deepen the knowledge on the impact of happiness on businesses.

Also, previous studies suffer from some gaps and criticisms. First, they seldom use subjective well-being as a measure of happiness. Second, they are mostly concerned with drivers of happiness rather than with consequences of happiness. Third, to the best of our knowledge, no previous studies examined jointly whether and how happiness is related to entrepreneurial initiative and intellectual capital.

Therefore, we defined the following research questions: is subjective well-being influenced by objective happiness, measured in terms of contextual and exogenous factors, such as quality of life and sustainability? Are both objective and subjective happiness among the relevant predictors of entrepreneurial initiative? And, finally, do happiness and creativity foster intellectual property?

Current study attempted to tackle those gaps by assuming that subjective well-being, along with creativity, may foster both entrepreneurial initiative and firms' intellectual capital. We also tried to bridge the gap between subjective well-being and objective happiness by uncovering the exogenous dimensions that are able to influence subjective happiness. In this sense, the paper adopted an ecological perspective, because it merged micro-factors – subjective well-being – with the logic of adaptation to the environment of the contingency theory (Hannan and Freeman, 1977; Burns and Stalker, 1961; Thompson, 1967). In this case, sustainability and quality of life are the contingent factors.

Differently from before, we aimed to offer direct and extensive evidences and explanations of the phenomenon by testing our hypotheses on a large-scale sample of European firms and individuals. A wealth of reasons led us to choose Europe as the target of our analysis. First, European quality of life is generally good, thanks to factors such as the free access to medical cares, increasing investments in sustainability, the free access to education and several other similar motives. Second, over-time there were many programs aimed at fostering entrepreneurship. Despite all the efforts, a happiness-divide between European countries still exists. As instance, according to the World Happiness Report 2020, the first positions of the happiness ranking are occupied by European countries, such as Finland, Denmark, Iceland and Norway. In this list, Italy ranks only 30th, whilst Greece even holds the 77th place.

Consistently, the divide is useful to understand whether happiness discrepancies also led to dissimilarities in the degree of entrepreneurial initiative and innovation capital or not.

The results of the multiple linear regression support, at a level of statistical relevance, the hypothesis that happiness is among the main predictors of entrepreneurial initiative. Similarly, intellectual property seems to be related to creativity and happiness. In brief, subjective well-being is largely influenced by objective happiness, in terms of quality of life and sustainable living conditions. Subjective well-being, objective happiness and creativity are important predictors of entrepreneurial initiative and innovation capital.

As the main implication, this result seems to suggest that entrepreneurial initiative and the rise of firm's intellectual property are more likely when people are feeling fine and they have a good quality of life. To the end of supporting progress and the birth of new ventures, policy makers and firms' decision makers may leverage on sustainable living conditions, because it is one of the most important drivers of happiness. Though, as the results also dig to light, the effect of happiness and creativity is partial, or, better to say, it is inversely curvilinear. Other factors have a relevant influence on the examined relationships. As instance, lean governance factors may impact open innovation collaborations (Dezi *et al.*, 2018), the presence of technological alliances and knowledge management capabilities or

knowledge-driven preferences also affects intellectual property (Scuotto *et al.*, 2017; Ferraris *et al.*, 2018; Bresciani *et al.*, 2018),

In addition, the effect of happiness and creativity is limited, because there are structural constraints to entrepreneurial initiative and intellectual property. Finally, a component of subjective well-being is untied from contextual factors, and it cannot be controlled by policy makers. Further implications for the strategic planning of policy makers are later discussed. For the remainder, the paper is structured as follows: first, we review the main literature on this research theme; second, we design the empirical analysis and we present our results and discussion; finally, we propose our conclusions.

2. Literature background and hypotheses

2.1 Happiness and quality of life

In the 1983, with a disruptive work on happiness in the work environment, Hochschild (1983) opened up to a whole new research stream in the managerial area through recognizing the relevance that emotions have on human productivity. This study was rapidly followed by a series of contributions, focussing on different levels of analysis – micro, meso and macro levels (Weiss *et al.*, 1999; Harter *et al.*, 2002; Diener *et al.*, 2002).

Happiness is a complex and controversial construct that evolved over time, and it has been associated with several determinants.

One example of controversies on the determinants of happiness is related to findings of the studies on the relationship between happiness and individual income. According to the Easterlin paradox (1974), a general increasing of income improves individual happiness. Though, as far as income continues to grow, happiness does not increase likewise. So, social security might not be a real driver of happiness (Veenhoven, 1996).

By contrast, Kahneman and Deaton (2010), Dunn *et al.* (2011), Glaeser *et al.* (2016) found that money gives happiness, indeed.

Employment and self-employment have both a positive effect on happiness (Stam *et al.*, 2016; Binder and Coad, 2013), along with freedom (Frey and Stutzer, 2000) and many other factors. All these studies focused on objective measures of happiness, as provided by context factors.

Notably, in positive psychology, happiness has been generally described as a sense of subjective well-being and it is tied to leisure (Newman *et al.*, 2014).

More precisely, literature distinguished two different forms of happiness, the hedonic and eudaemonic happiness (Ryan and Deci, 2001): "Hedonic well-being refers to happiness in terms of pleasure attainment and pain avoidance. Eudaemonic well-being is defined as an individual being fully functioning and self-realized (Hahn *et al.*, 2012, p. 98). Clearly, happiness is under the influence of many components, such as the adaptation ability and long-term orientation, achievements of goals, the temperament underpinnings and culture (Diener, 2000). AQ: 6

Hedonic happiness has two main components: "judgments of life satisfaction and affect balance, or having a preponderance of positive feelings and relatively few or rare negative feelings" (Fisher, 2010, p. 385). Thus, it swings between two extreme states, pleasantness and unpleasantness (Watson *et al.*, 1999). Eudaemonic happiness entails the research of the good in life and it is a multi-dimensional conception of subjective well-being tailored on personal values (Seligman, 2002). As a matter of fact, the etymology of eudaemonic indicates the existence of the lead of a good spirit. As prior evidences show, the two forms of happiness go hand in hand (Waterman, 2008).

Although it may seem that the two concepts of happiness and quality of life overlap, they differ between each other. Quality of life can be a source of subjective happiness (Shin and Johnson, 1978; Brajša-Žganec *et al.*, 2011).

Previously, the interplay between happiness and human capital mostly catalysed managerial scholars' attention as a means to evaluate productivity at work (Grant *et al.*, 2007; Rego and Cunha, 2008), rather than entrepreneurial initiative and innovation. In general, the study of the effect of happiness on intellectual capital is still in its infancy. Antecedent researches often adopted a single measure of happiness rather than searching to bridge the gap between subjective and objective sources of well-being.

2.2 Entrepreneurial initiatives and happiness

The role of emotions in the entrepreneurial process is a young and promising research field. Curiously, most studies on entrepreneurial emotions gravitate in the negative domain because entrepreneurs often experience failure throughout their life. Also, being an entrepreneur implicitly entails to confront with significant challenges, till the length of learning how to cope with despair (Haynie and Shepherd, 2011; Miller and Le Breton-Miller, 2017) and how to persist after the dire (Kendall *et al.*, 2006). In the aftermath of a failure, the entrepreneur experiences grief and a sense of loss (Shepherd, 2004). So, according to these scholars repeated exposition to negative circumstances and emotions goes hand in hand with a greater tolerance to risk and failure. Questionably, they argue that mastery over negative feelings generates resilience and facilitates entrepreneurial initiative.

However, recent advancements on learning and resilience, along with anecdotal evidences on entrepreneurial initiative, posit some doubts on the validity of prior constructions.

First, "learning" is a learnt behaviour (Boser, 2017). Negative feelings rob us the ability to learn (Bandura and Walters, 1977).

Second, whilst perseverance is a predictor of success, and it is indeed a quality of resilient persons (Bazelais *et al.*, 2016), having grit does not solely depend on being exposed to negative circumstances. By contrast, perseverance and resilience are an effect of individual cognition and of the capability to make meaning of circumstances (Coutu, 2002). Passion may lead to entrepreneurial perseverance indeed (Cardon and Kirk, 2015) and so does having solid values (Coutu, 2012). So, if resilience can be learnt, we argue that learning more likely and easily occurs in happy times.

This assumption is consistent with the broaden-and-built theory, for what positive emotions broaden the repertoires of people actions and build their capacity to endure and surviving to hardship (Hahn *et al.*, 2012; Fredrickson, 1998).

Generally speaking, entrepreneurial initiative is deemed the result of entrepreneurial orientation and it has been described as the interaction of three different behaviours: self-starting behaviour, proactive behaviour and overcoming barriers behaviour (Hahn *et al.*, 2012). The first one refers to the cognitive capability of identifying and pursuing opportunities, the second one to long terms orientations and the last one to persistence (Schumpeter, 1935; Lumpkin and Dess, 1996; Hahn *et al.*, 2012).

Whilst part of the literature seems to believe that there exists a sort of entrepreneurial gene or DNA which determines entrepreneurial orientation and initiative, by contrast we argue that entrepreneurship is a learnt behaviour, primarily affected by contingency factors and by individual cognitive abilities. Such cognitive abilities are under the strong influence of emotions (Baron, 2008), which, in their turns, are also shaped by contingencies. An emotionally wretched person is more likely to lose opportunities rather to seize them, because negative feelings alter the perception of reality and acts as impediments to resilience. In a nutshell, being unhappy is an obstacle to a down-to-heart vision.

Contingency factors, such as high quality of life or the achievement of sustainable development goals, may create a sort of shield that equips people to better endure over gruelling situations. These factors determine an environmental positive reinforcement.

Hence, we argue that high standards of living conditions may positively affect self-perceived happiness.

Thus, we derive our hypotheses consistently:

Hp1. Subjective well-being (happiness) is positively related to quality of life and to the achievement of sustainable development goals.

Second, we hypothesize that:

Hp2. Entrepreneurial initiative is positively related to individual happiness and quality of life.

Differently from prior studies in the research field, the model is focused on the interplay between subjective well-being and objective happiness. Thus, unprecedently, we study the impact of both of them on entrepreneurial initiative.

2.3 Happiness, creativity and innovation capital

Intellectual capital is deemed a primary source for wealth creation (Bontis *et al.*, 2009). By and large, intellectual capital can be described as the set of intangible assets of a firm and, commonly, it has been recognized that it includes three main components: human capital, relational capital and structural capital (Edvinsson, 1997; Bontis *et al.*, 2009). The human capital refers to the bundle of knowledge embodied in employees. This knowledge is related to the so-called soft dimension (Guzman and Wilson, 2005), that includes, as instance, employees' skills, competences, innovativeness, etc. (McGregor *et al.*, 2004).

The relational or social capital refers to the wealth generated through having relationships with customers, stakeholders and other social categories (Bontis, 1999; Tymon and Stumpf, 2003). Finally, the structural or organizational capital refers to all those technologies and support systems that allows employee to accomplish their job (Bontis *et al.*, 2009).

Intellectual property is part of the intellectual capital of firms, and, precisely, it is a form of structural capital that is tied to the innovation capital (McElroy, 2002). Specifically, intellectual property refers to firm's legal rights to control some knowledge for monetary purposes (Dreyfuss, 1989). Edvinsson and Malone (1997) defined the innovation capital as the set of firm's renewal capabilities. These capabilities serve the purpose of creating new products and services for commercialization.

Thus, intellectual property is a key element for the success of entrepreneurial initiatives (Pena, 2002; Caputo *et al.*, 2016). Previous evidences proved that the innovation capital is associated with the human capital of a firm and also with creativity (Kleysen and Street, 2001; Dakhli and De Clercq, 2004; Carson *et al.*, 2004; Chaharbaghi and Cripps, 2006; Wu *et al.*, 2008; Chen *et al.*, 2008; Lee *et al.*, 2010; Shih *et al.*, 2010; Kianto *et al.*, 2010). More precisely, creativity exists in employees' mindset (Lerro *et al.*, 2014; Caputo *et al.*, 2019). Among other findings, there are evidences that prove the moderator role of human capital in the relationship between innovation performance and knowledge acquisition (Papa *et al.*, 2018).

One way to understand the interplay between happiness, creativity and innovation capital is to examine the human component of intellectual capital in light of the socio-emotional wealth (SEW) theory (Berrone *et al.*, 2012, Le Breton-Miller and Miller, 2013, Deephouse and Jaskiewicz, 2013, Schepers *et al.*, 2014). The SEW theory integrates the prospect theory with the behavioural theory and the agency theory (Berrone *et al.*, 2012). According to SEW, the principal's reference point informs the firm's pathways. However, the principal choices are led by the need for self or family preservation and fulfilment, rather than by economic motives. Generalizing, individual choices are dragged and biased by both emotions and cognitive factors, such as creativity.

In particular, creativity occurs as the generation of novels ideas or solutions that can be applied to the productions of goods, services, procedures and processes (Rogers, 1954; Stein, 1974; Amabile, 1988; Rego *et al.*, 2012). Creativity is largely deemed an important driver of

innovation (Amabile, 1988) and of entrepreneurship (Heunks, 1998), along with knowledge (Yusuf, 2007). Studies on the origin of creativity link this characteristic with social and environmental factors determining individual enjoyment and satisfaction (Hennessey and Amabile, 1988). In other words, it seems that positive affect encourages individual creativity (Amabile *et al.*, 2005). For others, creativity is the results of three factors: presence of cultural reinforcements, such as the promotion of learning; health and well-being, knowledge specialization (Yusuf, 2007). As Yusuf (2007) suggested, it emerges an overlap between economically competitive countries and countries with a high ranking for individual satisfaction of life.

Despite creativity and happiness are important drivers of the firm's innovation capital, quantitative studies on such theme are seldom (Baccarani and Bonfanti, 2016). Also, antecedent scholars mostly search for understanding whether happiness might be a driver of creativity, rather than studying their joint effects on innovation.

Originally, we assume that both happiness and creativity play and important role on the formation of the innovation capital and, thus for intellectual property, so we hypothesize that:

Hp3. happiness and creativity are positively related to firm's intellectual property.

3. Empirical analysis

3.1 Sample

Data were drawn from happiness and other related statistics published by the Eurostat, the central statistical office of the European Union.

We considered the happiness survey and other data related to indicators that monitor social/environmental progress.

These statistics are based on the concepts of subjective well-being and sustainability. In this sense, wellness is described as the achievement of inclusiveness of current generation, without compromising the ability of future generations to meet their needs. Quality of life indicators are multidimensional and include: overall life experience, material living conditions, productive or main activity, education, health, leisure and social interactions, economic and physical safety, governance and basic rights, natural and living environment. Notably, we originally considered both subjective well-being, as measured by the survey on overall life experience and leisure and exogenous determinants of happiness, represented by contextual factors.

Subjective well-being is typically measured through the use of self-reported surveys. Differently, objective happiness is measured in terms of factors such as education or income (Van Praag, 1971; Graham, 2005; Blanchflower and Oswald, 2004).

Consistently with prior research, we performed a cross-sectional analysis of large data samples across nations (Graham, 2005; Blanchflower and Oswald, 2004). Thus, we extracted those indicators that were updated at 2018.

Second, consistently with the idea of the Gross National Happiness index and the United Nations Development Programme, we also drawn data related to sustainable development goals in the European zone. Similarly, data are drawn from Eurostat for the year 2018. Sustainable development data refer to a set of indicators measuring the 17 goals relevant in the EU zone, mainly in the areas of climate, energy consumption, education, poverty and employment. For each of the goal there are several indicators provided. Then, we considered entrepreneurial initiative by studying business demography. Also in this case, we used data collected from Eurostat-OECD entrepreneurship indicator programme for 2018. The population of this dataset includes all Eurozone firms operating in NACE Rev. 2 sectors of activity, except activities of holding companies. Descriptive statistics are reported in Table 1.

Table 1.
Descriptive statistics by factor

	Birth rate	Survival rate 3 years	Survival rate 5 years	Population by educational attainment level, sex and age (%)	Employment rates by sex, age and educational attainment level (%)	Unemployment rate	Main GDP aggregates per capita	Employment rate of recent graduates by sex (%)	Always (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	Most of the time (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	Sometimes (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	Rarely (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	Never (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)
Mean	10.67769	58.37154	46.52692	29.73846	74.52308	5.969231	19165.38	83.22692	11.35769	47.97692	27.92692	10.16923	2.580769
Standard	0.655448	3.347826	3.971487	1.448554	0.956907	0.53366	1271.449	1.518629	0.883179	2.284862	1.71602	1.071602	0.349506
error													
Standard deviation	3.342142	17.07063	20.25069	7.386208	4.879287	2.721142	6483.144	7.743516	4.503347	11.65056	8.75002	5.464121	1.782138
Variance	11.16991	291.4064	410.0905	54.55606	23.80745	7.404615	42031154	59.96205	20.28014	135.7354	76.56285	29.85662	3.176015
Interval	12.58	104.13	118.55	25	19.6	13.1	32,100	38.3	16.3	40.2	33.7	20.2	7.2
Minimum	6.24	0	0	15.5	63	2.2	0	56.5	4.7	25.9	13.3	3.1	0.6
Maximum	18.82	104.13	118.55	40.5	82.6	15.3	32,100	94.8	21	66.1	47	23.3	7.8
Sum	277.62	1517.66	1209.7	773.2	1937.6	155.2	498,300	2163.9	295.3	1247.4	726.1	264.4	67.1
Count	26	26	26	26	26	26	26	26	26	26	26	26	26
Confidence interval (95.0%)	1.34992	6.894976	8.179431	2.983354	1.970787	1.099093	2618.598	3.127674	1.818941	4.705761	3.534209	2.207006	0.719821

Data related to intellectual property and creativity are drawn from the Community Innovation Survey for the year 2018.

At large, a wealth of studies used the same archival sources for investigations on related topics (Saikku *et al.*, 2008; Ferreira *et al.*, 2013; García, 2014; Musikanski, 2015; Aassve *et al.*, 2015; Bögenhold and Klinglmair, 2015).

3.2 Method and models

Our assumptions are based on the main idea that happiness, quality of life and achievement of sustainable development goals are predictors of entrepreneurial initiative and innovation capital. Consistently, we used two main methods for testing the hypotheses: analysis of variance (ANOVA) and multivariate multiple linear regression (Graham, 2005; Blanchflower and Oswald, 2004). In addition, we also test for non-linear regressions.

Traditionally, the micro-econometric equation of happiness is linear and it has the following standard form (Graham, 2005; Blanchflower and Oswald, 2004):

$$w_{it} = \alpha + \beta x_{it} + \varepsilon_{it}$$

Where i refers to the number of individuals, t is the time, w refers to happiness, α is the constant, β is the parameter, x is the vector of known variables, including socio-demographic and economic characteristics, e is the error.

The use of variance decomposition methods, in particular of ANOVA, in business studies is largely common (Ralston *et al.*, 1993; Henriques; Sadorsky, 1999; Adner and Helfat, 2003). The purpose of analysis of variance is to figure out whether the alternate hypothesis can be accepted and results of the analysis are significant at a statistical level.

Similarly, the use of linear regression methods was largely employed by managerial scholars (Beekun *et al.*, 1998; Malesios *et al.*, 2018). In particular, prior investigations on happiness adopted similar methodologies (McBride, 2010; Shokravi, 2014).

First, after measuring general descriptive statistics, we checked the correlation among factors. Second, we tested the hypothesis that quality of life and happiness are antecedents of entrepreneurial initiative with the use of one-way ANOVA. Thus, we performed three different linear regressions. In the first model, happiness is the dependent variable of quality of life and sustainability. We used the linear equation of happiness, as reported above. Quality of life and sustainability are the explanatory factors.

We also used similar equations for the second and the third models. However, for the third model we further performed a non-linear regression, to verify whether the relationship was curvilinear or not.

In the second model, we consider whether entrepreneurial initiative depends on happiness and on quality of life. In the third model, intellectual property is the outcome variable, whilst happiness and creativity are the independent variables. Precisely, for the third model we also considered a quadratic function, whose general equation is the following:

$$Y' = a + b_1 X_1 + b_2 X_1^2$$

3.3 Variables

3.3.1 Quality of life. Among the multiple dimension used by Eurostat indicators, we selected the following information: Main GDP aggregates per capita (material living conditions, expressed as actual individual consumption at current prices and purchasing power standard per capita), employment (people from 20 to 64 years old), unemployment (people from 15 to 74 years old) rates by sex, age and educational attainment level (%) (productive or other main activity) and population by educational attainment level (people from 15 to 64 years old), with tertiary education – level from 5 to 8 – expressed as percentage of the total European

population, grouped by country, sex and age (%)—main indicators (education). Such indicators were largely adopted by prior scholars (Diener and Suh, 1997, Schalock *et al.*, 2005).

3.3.2 Happiness. Despite happiness is a part of the general set of quality of life indicators and, precisely, that part which considers the overall experience of life, we decided to treat happiness as a different variable. Happiness was measured as the frequency of being happy in the last 4 weeks by age, sex and educational attainment level. This measure corresponds to the hedonic definition of happiness (Fisher, 2010) and it is consistent with measures suggested by Diener (2006). In particular, respondents had to round their happiness on a scale of three alternatives – very happy, pretty happy, not too happy – (Bond and Lang, 2018).

3.3.3 Sustainable development goals. Sustainable development proxies refer to a set of multiple indicators (Azapagic, 2004). We chose to consider a single main indicator due to a lack of updated information: quality education (proxy measured through the employment rates of recent graduates by sex, expressed as a percentage of the total population aged 20 to 34 with at least upper-secondary education).

3.3.4 Entrepreneurial initiative and performance. Following the prior literature (Ahmad and Hoffmann, 2008; Rauch *et al.*, 2009, Casero *et al.*, 2013), we used a set of proxies to measure entrepreneurial initiative.

The following proxies were used to study entrepreneurial initiative and performance: enterprises birth rate and survival rate after 3 and 5 years.

Enterprises' birth rate was measured as the number of enterprise births in the reference period (t) divided by the number of enterprises active in t (in percentage). The survival rate after 3 years is calculated as the number of enterprises in the reference period (t) newly born in t-3 having survived to t divided by the number of enterprise births in t-3 (in percentage). Similarly, the survival rate after 5 years is given by Survival rate 5: number of enterprises in the reference period (t) newly born in t-5 having survived to t divided by the number of enterprise births in t-5 (in percentage).

3.3.5 Intellectual property and creativity. Measures of intellectual property and creativity were defined according to Oslo Manual.

Intellectual property is measured as the total number of patents, trademarks, utility models, industrial design, trade secret and copyright per country.

Creativity is obtained as the average value for the following categories: brainstorming sessions, financial incentives for employees to develop new ideas, job rotation of staff, multidisciplinary or cross-functional work teams, non-financial incentives for employees and training employees on how to develop new ideas or creativity.

These categories were included in the survey questionnaire as a means for identifying those methods that are successful at stimulating creativity, as perceived by individual respondents—owners or managers.

Finally, we controlled the sample for a number of factors: age, sex, income per capita, country, sector of activity, age of the firm, survival rate and turnover.

3.4 Results

Table 2 reporting main correlations, clearly shows that the underpinnings of the current work are strong. At large, individual happiness seems to be highly correlated with quality of life, and in particular, with receiving an adequate education and being employed. T2

As hypothesized, the results of the ANOVA, Tables 3 and 4, indicate that happiness is a driver of entrepreneurial initiative. As a matter of fact, there is a statistically significant difference between our group means. The significance value of the difference is 0.000 (i.e. $p = 0.000$), which is below $p = 0.05$. Thus, F distribution for 2 and 75 degrees of freedom, $F_{2.75} = 212.48 > F\text{sig}_{2.75} = 3.11$, confirms a large statistically significant difference between our group means. So, the alternative hypothesis can be accepted. T3, 4

	Population by educational attainment level, sex and age (%)	Employment rates by sex, age and educational attainment level (%)	Unemployment rate	Main GDP aggregates per capita	Employment rate of recent graduates by sex (%)
Main GDP aggregates per capita	0.616520064	0.354882159	−0.08425037	1	
Always (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	0.436696667	0.052856173	0.218230109	0.560739875	0.17777099
Most of the time (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	0.576475894	0.306041382	−0.25581127	0.691344223	0.513599675
Sometimes (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	−0.54007377	−0.29453991	0.208721182	−0.7210988	−0.49279167
Rarely (Frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	−0.6162266	−0.20634103	−0.02099616	−0.6503914	−0.33763718

Table 2.
Main correlations

Groups	Count	Sum	Mean	Variance
Always (frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	26	295.3	11.35769	20.28014
Most of the time (frequency of being happy in the last 4 weeks by age, sex and educational attainment level)	26	1247.4	47.97692	135.7354
Birth rate	26	277.62	10.67769	11.16991

Table 3.
ANOVA comparison test

That means the null hypothesis is false and it can be rejected, with a probability of a type I error – accept the null hypothesis if it was true – lower than 5%. A one tailed 5% rejection ($\alpha = 0.05$) is marked off at $F = 3.11$.

Model 1 considers happiness as a dependent variable of quality of life and sustainability. Tables 5 to 7 report the results of the linear regression for model 1. We hypothesized that this curve passes from the origin, since we assumed that happiness is zero when all conditions of well-being are missing. Thus, we performed the linear regression. As the results largely confirm, happiness truly depends on the two aforementioned factors. The model fit is high, with an *R*-multiplot of 0.95 and a *R*-squared of 0.93. T5–7

However, one curious result is that happiness is negatively related to being employed and positively related to being unemployed. Counterintuitively, this depends on the individual availability of time. Being employed is time consuming, for that people can rely on little amounts of spare time for self-fulfilment, sociality, entertainment and other related activities. This effect disappears in the group of recent graduates, who are, presumably, young individuals willing to realize themselves through the career path. Also, the young age may impact the perception of time, since young individuals are prospect-oriented, and they see the future all in front of them.

Differently, Model 2 is aimed at verifying whether happiness and quality of life can predict entrepreneurial initiative or not. We used linear regression to test this hypothesis. We assumed that also in this case entrepreneurial initiative should be zero when someone is in a negative state of mind and in lack of contextual conditions. As the analysis confirms, happiness and quality of life are predictors of entrepreneurial initiative indeed, with an *R*-multiplot of 0.95 and an *R*-squared of 0.93. All results are reported in Tables 8–10. Consistently, both GDP per capita and being already employed impact negatively on T8–10

Table 4. Results of the ANOVA test

	Sum of squares	Degree of fredom	Mean square	*F*	Sig	*F* sig
Between groups	23683.08001	2	11841.54	212.4863	0.0000	3.118642
Within groups	4179.637477	75	5.7285			
Total	27862.71749	77				

Table 5. Fit of Model 1, with $p = 0.05$ and confidence interval at 95%

Model fit	
R-multiplot	0.964103
R-squared	0.929495
Adjusted *R*-squared	0.868447
Standard error	3.600352
Observations	26

Table 6. ANOVA test model 1

	Degree of freedom	Sum of squares	Mean square	*F*	Sig
Regression	5	3588.717	717.7434	55.37061	4.97E-11
Residual	21	272.2132	12.96253		
Total	26	3860.93			

	Coefficient	Standard error	Stat t	Sig	<95%	>95%	<95.0%	>95.0%
Intercept	0							
Population by educational attainment level, sex and age (%)	0.036276	0.132436	0.273913	0.786828	−0.23914	0.311691	−0.23914	0.311691
Employment rates by sex, age and educational attainment level (%)	−0.31297	0.192433	−1.62639	0.118781	−0.71316	0.087216	−0.71316	0.087216
Unemployment rate	0.618555	0.273871	2.258565	0.034675	0.049009	1.188101	0.049009	1.188101
Main GDP aggregates per capita	0.000349	0.000143	2.439379	0.023672	5.15E-05	0.000647	5.15E-05	0.000647
Employment rate of recent graduates by sex (%)	0.279136	0.167097	1.670505	0.109658	−0.06836	0.626633	−0.06836	0.626633

Table 7.
Results of the linear regression of the model 1, with the curve passing from the origin

entrepreneurial initiative. Intuitively, if someone is already engaged in a prior job activity and it is satisfied with it, he/she is less willing to undertake an entrepreneurial initiative and he/she is less risk lover. Finally, Tables 11 and 12 show results of the third model. The ANOVA test confirms model's hypothesis, with $F_{2.11} = 14.18447 > \text{Fcrit}_{2.11} = 0.0009$. T11, 12

The regression model has a high fit, with *R*-multiplot = 0.85 and *R*-squared = 0.71.

Surprisingly, the analysis also shows that there is a curvilinear relationship between intellectual property and the two independent variables, happiness and creativity. As Table 12 reports, the intercept is negative. Although the analysis confirms that happiness and creativity have a positive influence on intellectual property, the dynamic is curvilinear. Intellectual property formation is partly independent from both happiness and creativity. Other variables, not currently under analysis, influence intellectual property. Increasing levels of happiness and creativity have a strong positive effect on innovation capital. Though, after a given threshold, whilst happiness and creativity may further increase, by contrast, intellectual property does not trend upward likewise. On the opposite, once reached the threshold, further happiness and creativity dim intellectual property and the curve becomes steeply negative.

This effect could be explained by the presence of structural and market limitations.

A graphical representation of the relationship between variables is drawn in Figure 1. F1

3.5 Discussion

Entrepreneurial initiative has been largely investigated under different perspectives and using a vast array of theories (McGrath, 1999; Lee and Peterson, 2000; De Clercq *et al.*, 2011). Undoubtfully, the most critical resource for entrepreneurship still remains knowledge (Li *et al.*, 2015; Chang and Lin, 2015; Del Giudice and Della Peruta, 2016; Inkinen, 2016; Mariano and Awazu, 2016).

However, what makes the bed for the entrepreneur?

Our work springs from the critique to those scholars' who argued that there exists a sort of entrepreneurial DNA (Etzkowitz, 2003). Such statements are in contrast with recent scientific advancements proving that entrepreneurship can be taught and learnt (Sheperd, 2004; Löbler, 2006; Souitaris *et al.*, 2007). Our research questions emerged from the stigmatization of the deterministic culture of entrepreneurship: are happy people more likely to engage in entrepreneurial ventures? What makes them happy?

Table 8.
Fit of the model 2, with $p = 0.05$ and confidence interval at 95%

Model fit	
R-multiplot	0.964513
R-squared	0.930285
Adjusted *R*-squared	0.869387
Standard error	3.281452
Observations	26

Table 9.
ANOVA test of the model 2

	Degree of freedom	Sum of squares	Mean square	*F*	Sig
Regression	5	3017.462	603.4925	56.04538	4.45E-11
Residual	21	226.1264	10.76793		
Total	26	3243.589			

	Coefficient	Standard error	Stat *t*	Sig	<95%	>95%	<95.0%	>95.0%
Intercept	0							
Population by educational attainment level, sex and age (%)	0.193606	0.186861	1.036095	0.311942	−0.19499	0.582204	−0.19499	0.582204
Employment rates by sex, age and educational attainment level (%)	0.001862	0.120321	0.015475	0.987799	−0.24836	0.252084	−0.24836	0.252084
Unemployment rate	0.185644	0.041523	4.470843	0.000211	0.099292	0.271997	0.099292	0.271997
Main GDP aggregates per capita	−0.0343	0.240363	−0.14269	0.887892	−0.53416	0.465564	−0.53416	0.465564
Employment rate of recent graduates by sex (%)	−0.00027	0.000147	−1.84875	0.078624	−0.00058	3.39E-05	−0.00058	3.39E-05

Table 10.
Results of the regression of the model 2

This study ties happiness to quality of life and to sustainable development goals. The findings show that happiness is an ingredient of entrepreneurial initiative, indeed. This statement is supported by both results of the ANOVA and of linear regressions.

Prior entrepreneurial researches in the field of hedonic psychology argued that entrepreneurs make rational decisions to maximize their happiness (Kato and Wiklund, 2011). Differently, we assume that happiness is the antecedent, rather than the consequence, of entrepreneurial action, and we explain subjective well-being as the result of contingency factors. This one-of-a-kind study disrupts the way we are used to imagine entrepreneurship. Happy people are more likely to engage in new ventures.

We argue that nobody is born entrepreneur. Local conditions and positive reinforcements from the environment make the real difference. These factors have a twofold value: they stimulate individual cognition, feeding the ability to identify and seize opportunities, and they build self-confidence. Self-confidence prepares individuals to bear and to resist to extreme levels of gruelling conditions, such as risk, uncertainty and ambiguity (Krueger and Dickson, 1994; Dumont and Provost, 1999; Cheng and Furnham, 2002 Duckworth *et al.*, 2007). So far, grit, which is associated with long term orientation and goals, was deemed a non-learnt characteristic (Duckworth *et al.*, 2007). Also, most authors seem either to believe that exposition to hardship shapes individual resilience or that resilience is typical of optimists (Coutu, 2002).

By contrast, we suggest that perseverance and resilience are built through a happy life. Thereby, they vicariously foster entrepreneurial initiative. The results of this study dissolve the fog by indicating that happiness is very likely the result of high standards of quality of life. Education, most of all, plays a crucial role to improve quality of life and happiness of individuals. It also expands individual cognitive capacity, preparing the bad for entrepreneurial initiative. Consistently, we provide evidences of this solid marriage. In addition, we tried to solve a further riddle: does happiness and creativity impact innovation capital? At large, the analysis indicates that there exists a curvilinear relationship between variables. Innovation capital seems to be partially untied from emotions and individual creativity, despite having a positive effect to a certain degree.

However, many other factors influence the creation of innovation capital. Excess happiness or creativity is, at least, useless. Also, they can be value destroying.

4. Conclusions

Is the quality of life a predictor of individual happiness and of entrepreneurial initiative? Does it contribute to the creation of intellectual capital? As our explorative analysis confirms, happiness seems to be a key element in these processes. To date, we barely knew how affection, state of minds, attachment and the entire range of emotions influence the entrepreneurial process. As a matter of fact, this research stream is still burgeoning. Nonetheless, its importance is paramount, because there is a need to reconnect managerial science to the micro-level. As Cardon *et al.* (2012) previously suggested, managerial scholars cannot limit themselves to import theories from psychology. On the contrary, they have the opportunity to give back, developing and extending new theories that can be imported in

Table 11.
ANOVA test of the model 3, with $p = 0.05$ and confidence interval at 95%

	Degrees of freedom	Sum of squares	Mean square	*F*	*F* sig
Regression	2	2.45E+08	1.23E+08	14.18447	0.0009
Residual	11	95190023	8653638		
Total	13	3.41E+08			

	Coefficients	Standard error	*T*	Sig	<95%	>95%	<95.0%	>95.0%
Intercept	−639609	1186125	−0.53924	0.600464	−3250254	1971035	−3250254	1971035
Happiness	159741	296503.6	0.538749	0.600793	−492859	812341	−492859	812341
Creativity	12.38116	2.420097	5.115978	0.000336	7.054567	17.70776	7.054567	17.70776

Table 12.
Results of the regression of the model 3, with *R*-multiplot 0, 85; *R*-squared 0.71

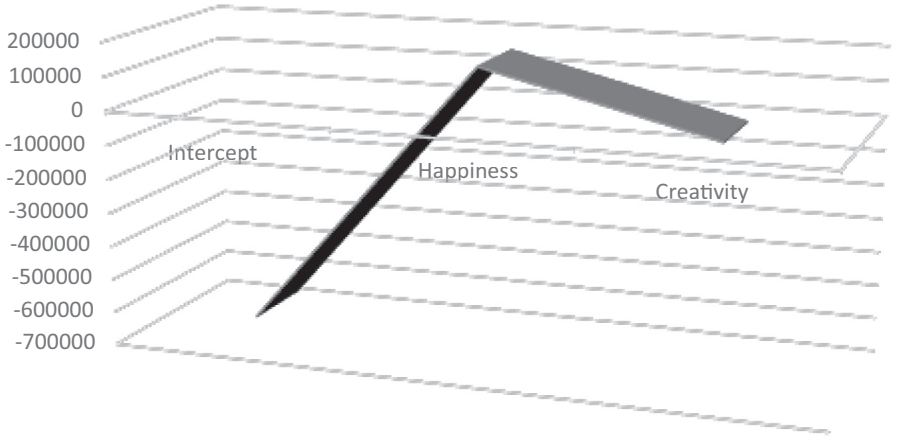


Figure 1.
Intellectual property, happiness and creativity curvilinear relationship

other disciplines. Studies on these themes such as those proposed in current work can be easily transferred to other scientific contexts, because they are multidisciplinary by nature. In an instable, fast changing world, where most economies suffer from long term crisis and struggle to lift up the head again, whilst new economies experience harsh times for extreme unemployment rates, entrepreneurship can be the key to figure out such problems. A heavy burden weighs on the shoulder of policy makers, who are called to find effective solutions and to limit losses. Relatively recently, the idea that entrepreneurship can be a learnt behaviour was catching on. Investing in education, in a broad sense, stimulates individual cognition, knowledge and wellness. This condition can become the springboard for entrepreneurship and for fostering development. In addition, policy makers are called to action for improving the quality of life. This new recipe for entrepreneurship may foster growth, as the result of this analysis proved, indeed. One of the most important predictors of happiness is having solid and long-lasting relationships with a small group of peers (Grant *et al.*, 2007). In future, value creation will be more and more tied to social capital. So, policy makers will soon be called to pay attention to the dynamic between subjective well-being, social capital and entrepreneurship.

5. Limit of the analysis, future research avenues and implications for theory and practice

The limits of current investigation are discussed in detail, for they open up to different research paths that are worth seeking in future.

One main limit of the analysis is related to happiness measures. As Bond and Lang (2018) previously noted, the use of scale measures for happiness leads to rounded results. In other words, scale measures flat and smooth the results.

Happiness is a blurred variable and there is a scarcity of useable proxies. We limited our analysis to hedonic happiness. Hedonic happiness is expressed as the presence or absence of pleasantness over time, in terms of frequency. Clearly, this measure does not capture the vast array of belief and values that might influence subjective well-being. More fine-tuned results can be obtained by focussing on eudaemonic happiness. Thereby, future scholars should investigate how eudaemonic happiness influence entrepreneurial initiative using *ad-hoc*

samples and surveys or experiments. Also, a case study analysis may help to gain more accurate and extensive information on the narrative and the dynamics that link happiness to entrepreneurial initiative and quality of life. However, for both types of research design, whilst they deepen the knowledge on this theme, they also reduce the possibility of replication studies. Differently, current analysis, based on the use of archival sources, stimulates future replications, which is a needed type of future study. As instance, the analysis should be replicated in different countries and regions, characterized by living conditions and cultural models that are different from European ones. The consideration of happiness also entails other problems. First, happiness is strongly tied to locus of control (Denny and Steiner, 2009). Current analysis does not consider the locus of control, but we may assume that, as instance, different employees' statuses are associated with different locus of control. So, the effect of happiness and creativity on entrepreneurial initiative and innovation capital may also depend on the hierarchical position of the individual and his/her freedom to make meaningful choices. Second, happiness has a high hedonic adaptation (Kahneman *et al.*, 2006), which means that it often varies according to changes in circumstances. In addition, happiness is poorly linked to external factors and mostly dependent on endogenous motives, such as DNA. In this sense, policy makers can do relatively little to improve the happiness of people, because they can only improve contextual factors, such as quality of life. All these matters are relevant future avenues of research.

Another limit of current analysis is that differences between EU countries are flattened. However, we do know that cultural differences and disparities between EU countries exist and are strong. Similarly, differences and gaps exist at a local level, within the same country. Our model cannot capture such nuances. Future scholars are called to analyse in-depth aforementioned disparities.

Besides, entrepreneurial initiative and innovation capital are influenced by multiple factors, many of which are not currently analysed. It might be useful to enrich and extend the model in future.

The role of GDP per capita deserves a particular attention. Despite the analysis shows that this variable negatively affects entrepreneurial initiative, we guess that the relationship can be far more complex. Perhaps, it can be of a non-linear type, with dual effects on entrepreneurial initiative. Also, it can be of extreme interest to explore what happens in both extremely negative and extremely positive living conditions, which means to deepen the dynamic of outliers. Whilst the impact of emotions on risk perceptions has received a greater attention from scholars (Foo, 2011), not such was the study of outlier behaviours.

Apparently, the analysis opens up to an extremely vast fan of future researches of primary interest for academics, policy makers and for scientist in general. As instance, in multidisciplinary researches, new brain scanning methods can help to understand what really happens to our entrepreneurial behaviour in case of happiness. Another promising research stream ties happiness, quality of life and the study of individual risk behaviour. Our analysis showed that young individuals may act differently from older people, though it does not offer explanation of the motive. Gender differences may also exist. This could be a further territory to be explored in future. One of the most important results is that the analysis offers some precious cues on how people value time. There are many considerations that can be derived from such hints. What emerges is that happiness is extremely linked to have availability of time. At a social level, this condition has huge implications for the scientific community, practitioners and policy makers. Working long and odd hours, despite how much someone can earn, reduces individual happiness. Thereby, even productivity may be reduced. Balancing working time and spare time can help to increase individual productivity, improve the quality of life along with individual happiness.

Besides, happiness and entrepreneurial initiative can be also affected by dispositional affect, or individual orientation towards optimism or pessimism. Future research should

extend current framework by including the consideration of dispositional effect on entrepreneurial initiative.

At a policy maker's level, the study suggests that an accurate strategic planning activity may impact the well-being and the development of countries starting from local actions. In general, investing in sustainability and for improving the quality of life of citizens, will improve their experience of life. Since our study shows that happiness is a predictor of entrepreneurial initiative along with quality of life, meant that local and country development are strictly correlated to individual well-being. In other words, investments for the improvement of life conditions, such as those in education, security, health, and a clean and wholesome environment, directly affects the well-being of individuals and indirectly generates future opportunities of development. Most importantly, this study underscores that development starts locally.

At a scientific level, our paper contributes largely to the literature.

First, the research novels the knowledge in the field of entrepreneurial initiative studies by explaining that happiness is the real springboard to action.

In addition, we originally bridged the gap between subjective well-being and objective measures of happiness.

Second, the work contributes to the well-being and sustainability literature by extending implications for local development.

In addition, the study contributes to advance the understanding on the formation of the intellectual capital.

Finally, we also advance the understanding in the domain of positive psychology, by linking hedonic happiness to structural conditions, such as quality of life and sustainable development goals.

With the COVID-19 global crisis, the moral of people dramatically dropped and quality of life worsen beyond saying. Entrepreneurial initiative mostly stopped, but there was a huge effort to introduce innovations. As the consequence, the model proved itself, because the global pandemic confirmed that innovation capital is partially untied from emotions and creativity.

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About the authors

Antonio Usai undertook managerial economics studies, and he also attended enhancement courses in the United States (2008) as well as research periods in China (between 2009 and 2013). He is a senior researcher of Economics and Business Management, and he teaches Strategic Marketing for Tourism and Digital Marketing and Revenue Management at the Department of Economics and Business of the University of Sassari. He is the founder of Tourism Plus (spin-off of the University of Sassari), which is specialized in innovation, research and development in the tourism sector.

AQ: 3 beatrice.orlando.uni@gmail.com

Alberto Mazzoleni is an associate professor of Business Administration and he teaches accounting and crisis management in the University of Brescia. He is specialized in financial accounting, financial communication, innovation and crisis management.

Beatrice Orlando completed her Ph.D. in Business Management and Corporate Finance at the Sapienza University of Rome, where she also finished her Master in Finance. Currently, she is a senior researcher at the University of Ferrara. Her research areas cover topics such as innovation adoption, open innovation and firm's strategy. She has published numerous articles in leading scholarly journals, such as Production, Planning and control, Technology Analysis and Strategic Management, Corporate Social Responsibility and Environmental Management, Journal of Intellectual Capital and Technology Forecasting and Social Change. Beatrice Orlando is the corresponding author and can be contacted at:

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