

## Are Italian Start-Ups 'Born Sustainable'? A Systems Approach to Sustainability Challenges

FRANCESCA IANDOLO

francesca.iandolo@uniroma1.it

*Sapienza University of Rome*

SILVIA COSIMATO

silvia.cosimato@unina.it

*Università of Naples Federico II*

PIERO FERRARI

piero.ferrari@aceaspa.it

*ACEA Group*

### Abstract

A number of intricate problems affect the current socio-economic scenarios, which have engaged policy-makers and, above all, entrepreneurs in finding sustainable solutions. Thus, embracing the service system perspective, this work aims at understanding if start-ups have an inner orientation towards sustainability as well as the main element that boost it. To this end, the authors embraced a service ecosystem approach, considering these companies as one of the actors (e.g., employees, customers, incubators, venture capitalists, institutions, etc.) that populate the Italian start-up service ecosystem and which interactions contribute to the ecosystem surviving in the long run. To this end, an empirical and explorative analysis has been conducted to better understand if Italian start-ups are inherently oriented towards sustainability, highlighting the main sustainability drivers that these companies should have since their origin. Although this work represents one of the first attempts to investigate start-ups' inner disposition towards sustainability, it is somewhat limited by the nature of the analysis, which let to grasp just the economic and social drivers of sustainability. Finally, an agenda for further research has been defined to further advance the achieved results.

### 1. Introduction

Over the time, a lively debate on entrepreneurship engaged both scholars and practitioners (Hodgetts and Kuratko, 2001; Kuckertz and Wagner, 2010; Kuratko, 2016), who considered entrepreneurial activity one of the essential drivers of socio-economic development (Audretsch, 2009; Hechavarria and Ingram, 2014) and more recently of sustainable development. Consequently, much research effort has been dedicated to the contribution of

entrepreneurship to the transition towards a sustainable society (Schaper, 2016); thus, it has recently added to its conventional economic purposes (Schumpeter, 1942; Kirzner, 1973) social and environmental one (Westley *et al.*, 2011).

The literature approached entrepreneurial activity as intended to trigger the emergence of innovation in products, services and even in business models (Araya and Peters, 2010; Holt and McPherson, 2010). This implies entrepreneurs' ability in detecting and responding to fast and often-unexpected socio-economic demands even through new venture creation. Therefore, this has led to often consider entrepreneurship as equated with start-ups, which are new and existing companies "looking for ways to thrive in a competitive environment with innovative business models while respecting society and avoiding actions that harm the planet" (Todeschini *et al.*, 2017: 761). More in details, start-ups are considered as one of the major sources of innovation (Kohler, 2016), because their activities are mainly intended to develop new products, services, process and/or business models under conditions of extreme uncertainty (Mook, 2012). Therefore, uncertainty as well as market complexity – mainly due to decreasing entry barriers, increasing competition, shorter (product/service) life cycles and increasing risks (Evanschitzky *et al.*, 2007) – makes even more difficult for these companies survive also through the pursuit of sustainable development principles. It follows that this topic still calls for further research (Hall *et al.*, 2010; Halberstadt and Johnson, 2014; De Lange, 2017); thus, the present work aims at contributing to bridging this gap understanding how start-ups approach sustainability and if they can be considered 'born sustainable'. This implies understanding if a sustainable orientation to entrepreneurship can make their business practices sustainability-oriented from the very beginning of new business ventures (start-up phase) (Cosenz and Noto, 2018). Being explorative in its nature, the theoretical evidence of this analysis has been further supported investigating whether Italian start-ups are inherently oriented towards sustainability or not. Therefore, consistently with the aim of this paper, we compared the start-ups of the different industries within the Italian scene.

However, to grasp the complexity in which start-ups currently act, more holistic approaches are needed to capture the many different and connected elements at the core of the complexity itself (Polese *et al.*, 2014; Mele *et al.*, 2015). In this sense, Systems and Service Theories, such as the Viable Systems Approach or VSA (Golinelli, 2000; Barile, 2009; Golinelli, 2010), Service Dominant (SD) Logic (Vargo and Lusch, 2008, 2017) and Service Science (SS) (Maglio and Spohrer, 2008) have been embraced.

The remainder of the paper has been organised as follows. Section 2 offers a brief investigation of the theoretical background at the core of the analysis. Then, Section 3 describes the methodology implemented for analysing the issues at the core of the study and presents the achieved findings. Finally, Section 4 discusses the results of the analysis, presenting some theoretical and managerial implications as well as a future research agenda.

## **2. Theoretical background**

### **2.1. Sustainable entrepreneurship and start-ups: why they can be 'born sustainable'**

Starting from the years of Brundtland Report, which stated that sustainable development should meet "the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987: 39), sustainability gained momentum

among organisations, scholars, practitioners and individuals (Baumgartner and Rauter, 2017; Singh, 2018). It follows that in recent years sustainability became a primary goal for several companies, which integrated it in their mission and vision, forcing themselves “to change the way they think about products, technologies, processes, and business models” (Nidumolu *et al.*, 2009). Therefore, also entrepreneurial activities are even more focused on environmental, social and economic issues as well as on business activities transition towards sustainability (Parrish, 2010; O’Neil and Ucbasaran, 2011; Shepherd and Patzelt, 2017). This led to the recent conceptualisation of sustainable entrepreneurship, which is holistically and equally intended to address social (e.g., stakeholders’ needs) and environmental issues (e.g., long-term environment protection) as well as economic ones (e.g., business activities able to merge and respect the previous two dimensions) (Tilley and Young, 2009). In this sense, Shepherd and Patzelt (2011) defined sustainable entrepreneurship as a new activity dealing with future-proofed products, processes and services for gaining economic success and, at the same time, preserving nature, life and community integrity. These characteristics led often to new venture or start-ups creation, which can assume different forms traditional or not, such as L3C Statute (Low Profit Limited Liability Company), the Flexible Purpose Corporation in the United States, the CIC Regulations (Community Interest Corporations) in the United Kingdom, the Social Purpose Company in Belgium and the most common Benefit Corporations.

The entrepreneurial literature defined start-ups as human institutions designed to deliver a new product or service under conditions of extreme uncertainty” (Ries, 2011: 17). These companies are different from traditional ones in several areas, such as the potential growth rate, the innovativeness of their business model, the role that technology plays in their growth (Blank, 2013) and often sustainability orientation. Therefore, recently to gain a competitive advantage, start-ups have approached sustainability as an integral element of their development, considering it as an inspiring principle coming from entrepreneurs’ values. In fact, these companies often demonstrate an ethos of sustainable entrepreneurship, which makes them oriented to develop, fund and implement social, environmental and economic issues. This inspired the so-called ‘born sustainable’ start-ups, which are those young companies created with sustainability in their core (Todeschini *et al.*, 2017) and striving for meeting people-planet-profit aspirations (Fisk, 2010). In this vein, sustainability might be considered one of the main driver of start-ups social (e.g., fair employees’ treatment and development, gender policies, initiatives of social security, etc.) (Eizenberg and Jabareen, 2017), economic (e.g., strong economic development potential, well-educated labour force, balanced structure, the rethinking of the whole supply chain) (Troisi and Cosimato, 2015; Tseng *et al.*, 2016) and environmental orientation (e.g., the strive for energy efficiency, the reduction of the dependence on fossil fuels, the reuse of waste materials, etc.) (Baland *et al.*, 2018).

## **2.2. The evolutionary path of start-ups from surviving to sustainability: an (eco)system approach**

Size, complexity and unpredictability of current markets have made companies’ and especially, newer and younger ones (e.g., start-ups) survival even more threatened. However, focusing on start-ups, some scholars (Boyer and Blazy, 2014; Battistella *et al.*, 2017) pointed out that their survival can benefit from network collaboration and cooperation with other organisations or institutions (e.g., accelerators, incubators, research centres, universities, etc.).

In this way, several different forms of cooperation can be established, enhancing their competitiveness and sustainability, which is their ability to survive over time (Cantamessa *et al.*, 2018).

Assuming a service system orientation (Maglio and Spohrer, 2008), start-ups can be considered service systems being oriented to collaboratively interact with other entities (e.g., employees, customers, incubators, research centres, venture capitalists, institutions, etc.) to create mutual benefits, essential for their long-run survival (Valkokari *et al.*, 2017). In this sense, the VSA emphasises the influence that *consonance* – or the structural *contiguity* existing between the different entities of a system – that may evolve in *resonance* – a spread harmony that drive the afore-mentioned entities towards a common goal – can have on systems' viability (Barile, 2009; Barile and Polese, 2011) and, therefore, on their sustainability (Barile *et al.*, 2013). More in details, on the one hand, the VSA approached viability as systems' disposition to adapt to environmental changes, adjusting the role they perform in each context or the way they respond to the expectations of other entities or systems (Barile *et al.*, 2016). On the other, sustainability has been holistically approached in order to merge socio-economic needs with the environmental ones (Barile *et al.*, 2014; Saviano *et al.*, 2017). This implied a focus shift from the mere processes' efficiency, towards the achievement of system effectiveness, based on the influence that processes' outcomes can have systems' sustainability (Barile *et al.*, 2016; Saviano *et al.*, 2017). It follows that systems can be considered sustainable when they survive in the long-run co-evolving with the context they belong, which offer three resources essential for acting in an efficient and effective way, shaping new sustainable opportunities (Barile and Saviano, 2018; Saviano *et al.*, 2019).

In their evolutionary path, systems and service theories have further developed the initial concept of service systems, which Spohrer *et al.* (2007) defined as “people, technology, internal and external service systems connected by value propositions, and shared information (such as language, laws, and measures)” (Spohrer *et al.*, 2007: 73) into the so-called service ecosystems. Thus, according to Vargo *et al.* (2010), ecosystems offer a framework for better investigating service systems and, in particular, the multiple interactions occurring among different service systems for co-creating value. It follows that service ecosystems are “relatively self-contained self-adjusting systems of resource-integrating actors connected by shared institutional logics and mutual value creation through service exchange” (Vargo and Lusch 2011: 63). In sum service ecosystem perspective offers “a robust and dynamic approach for studying resource integration, value co-creation, and the (re)formation of service systems, and provides important insights for systematically innovating service” (Vargo and Akaka, 2012: 208). In this sense, enabling actor-to-actor (A2A) collaboration for co-creating value (Lusch and Nambisan, 2015), service ecosystems can boost start-ups and other ecosystem actors development and long-run viability (Chew, 2016). This implies that a networked and collaborative environment (ecosystem) is essential for triggering co-creative paths able to meet start-ups strive for development as well as other actors (stakeholders) expectations now and in the future (Ruokolainen *et al.*, 2011). Thus, start-ups can be considered ‘born sustainable’ or sustainability-oriented when they act– inspired by entrepreneurs' mind-set and values – taking into account sustainability and value implications at different ecosystem levels (micro, meso and macro) and for different individuals and/or collective actors (or stakeholders) (Voinea *et al.*, 2019). However, it worth noting that further research is still needed to better understand how start-ups engage and, thus, interact with other ecosystem actors (e.g.,

incubators, research centres, institutions, clients, etc.), in order to define the most suitable approach to social, environmental and economic issues.

### 3. The Italian start-up scene/ecosystem

In 2012, the Italian Ministry of Economic Development promulgated a decree-law on “Further urgent measures for Italy’s economic growth” to supply specific regulations and characteristics for the definition and promotion of innovative start-ups. The importance of this decree was related to the fact that, for the first time, the Italian Government considered this kind of businesses relevant.

The main purpose of these policy measures was to stimulate “sustainable growth, technological advancement and, in particular, to create favourable conditions for the development of a new business culture inclined towards innovation. Other explicit goals of this policy are enhancing social mobility, generating new employment, especially for the youth, reinforcing the links between universities and businesses, and increasing the capacity of Italy to attract foreign capitals and talents” (MISE, 2017: 4). Moreover, the condition that start-ups usually develop within an ecosystem might also boost the birth and growth of other companies, social mobility and technological innovation, as well as encourage the relationships between university education and industries. The contribution of this kind of companies to the sustainable growth of the Country reflects into the legal characteristics required to Innovative start-ups. Under article 25 of law decree no. 179/2012, an innovative start-up is an unlisted and limited liability company, including cooperatives possession of some specific requirements. Therefore, an Italian start-up: 1) is newly established or established for less than 5 years; 2) is based in Italy or another EU member state or a country belonging to the European Economic Area, but at least one production site in Italy; 3) is characterised by an annual turnover of fewer than 5 million euros; 4) does not distribute profits; 5) has an exclusive or prevalent corporate purpose (e.g., the development, production and marketing of innovative goods or services of high technological value); and 6) it does not derive from a merger, a spin-off or a sale of a company or a business unit. Finally, a start-up must have at least one of the following three indicators:

1. a share equal to 15% of the maximum value between annual turnover and annual costs attributable to research and development activities;
2. the total workforce is composed of at least 1/3 of PhD students or researchers or at least 2/3 of members or other collaborators with a master’s degree;
3. to be the owner, custodian or licensee of a registered patent or of a registered software (InfoCamere, 2019).<sup>1</sup>

#### 3.1. The sample

Starting from the above-cited considerations, we performed a descriptive analysis using Stata™ software on the Italian innovative start-ups’ scene, retrieving all data from “Registro Imprese”, the Italian official database, with reference the end of the second quarter of 2019. The dataset was built from data accessed on July 1, 2019. The total number of Italian start-ups

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<sup>1</sup> See <http://startup.registroimprese.it/isin/home> (last accessed: April 15, 2019).

on that date was 10426, with an increase of 351 units (+ 3.48%) compared to the previous semester. The total subscribed share capital amounted to 546.4 million euros, with an increase of 3.7% compared to the end of March, while the average share capital per company was 52,411 euros.

According to data summarised in Table 3.1.1, nearly 77% of the total is concentrated in the B2B services sector, with different types of services provided to businesses. Nearly 18% of innovative start-ups operate in the industry and crafts sector, mainly producing machinery, computers and other electronic products. Finally, trade accounts for just 3.8% of the total, while tourism and the primary sector (i.e., agriculture, fishing) account for 0.94% and 0.67% respectively (InfoCamere, 2019).

The discrepancy between the total number of registered start-ups (10.426) and the total in Table 3.1.1 (10.393) highlights that 33 start-ups have not indicated an [A1] industry, as they declared no-profit finalities and associative characteristics.

Starting from the above, and consistently with the aim of this paper, we compared the start-ups of the different industries within the Italian scene.

Industry	Freq.	Percent
Agriculture/Fishing	70	0.67
Trade	395	3.8
Manufacturing/craftsmanship	1.846	17.76
<b>Services</b>	<b>7.984</b>	<b>76.82</b>
Tourism	98	0.94
<b>Total</b>	<b>10.393</b>	<b>100</b>

Table 3.1.1. Classification of the sample by Industry

### 3.2. Data description and analysis

To understand if these service start-ups are oriented towards sustainability, we analysed how the sample is distributed according to the dimensions that can qualify ‘sustainability’.

As described in the previous section, Italian start-ups should possess a variety of specific requisites to be qualified so; among the variables of the dataset, we focused on the following four, that are related to sustainability:

1. *social enterprises* - according to Italian law, social enterprises are those that have a social vocation as they operate the sectors identified by the social enterprise discipline. Differently from the 33 above-cited enterprises that belong to the no-profit industry, these are for-profit and may also belong to other innovative sectors with a high technological content but which may impact on the well-being of the community. Annually they are legally required to prepare a report on social impact and account for their activity;

2. *female prevalence* - based on the percentage of share capital and the percentage of the board of directors, this indicator describes how many start-ups have:
  - no female prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 \leq 50\%$ ; Registro Imprese, 2019);
  - majoritarian female prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 > 50\%$ ; Registro Imprese, 2019);
  - strong female prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 > 66\%$ ; Registro Imprese, 2019);
  - exclusive female prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 = 100\%$ ; Registro Imprese, 2019).
  
3. *youth prevalence* - based on the percentage of share capital and the percentage of the board of directors, this indicator describes how many start-ups have:
  - no youth prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 \leq 50\%$ ; Registro Imprese, 2019);
  - majoritarian youth prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 > 50\%$ ; Registro Imprese, 2019);
  - strong youth prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 > 66\%$ ; Registro Imprese, 2019);
  - exclusive youth prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 = 100\%$ ; Registro Imprese, 2019).
  
4. *foreign prevalence* - based on the percentage of share capital and the percentage of the board of directors, this indicator describes how many start-ups have:
  - no foreign prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 \leq 50\%$ ; Registro Imprese, 2019);
  - majoritarian foreign prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 > 50\%$ ; Registro Imprese, 2019);
  - strong foreign prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 > 66\%$ ; Registro Imprese, 2019);
  - exclusive foreign prevalence ( $[\% \text{ of share capital } + \% \text{ Directors}] / 2 = 100\%$ ; Registro Imprese, 2019).

For what concerns the first variable, we analysed how many start-ups can be classified as social enterprises; Table 3.2.1 reports the description of the results on the total.

No	10,213	97.96
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Table 3.2.1. Social enterprises in the total number of Innovative start-ups (source: authors' elaboration).

Only 2.04% of the total sample can be classified as a ‘social enterprise’, according to the requisites defined above. Table 3.2.2. compares social enterprises according to the different industries.

Industry	No	No %	Yes	Yes%
Agriculture/Fishing	68	97.14%	2	2.86%
Trade	393	99.49%	2	0.51%
Manufacturing/craftsmanship	1,833	99.30%	13	0.70%
<b>Services</b>	<b>7,794</b>	<b>97.62%</b>	<b>190</b>	<b>2.38%</b>
Tourism	95	96.94%	3	3.06%
<b>Total</b>	<b>10,183</b>	<b>97.98%</b>	<b>210</b>	<b>2.02%</b>

Table 3.2.2. Social enterprises compared by industry (source: authors’ elaboration).

Since service start-ups are the absolute majority of the sample, also most of the social enterprises belong to this group, though with a low percentage of only 2.38%.

For what concerns the second dimension, female prevalence, we analysed it both in terms of equity share and in terms of participation to the boards of directors. From Table 3.2.3, that reports results of female prevalence for the total number of start-ups, it emerges that 86.06% of the total number of Italian start-ups don’t have female presence represent the boards of directors.

	Freq.	Percent
Exclusive	456	4.73
Strong	627	6.5
Majority	261	2.71
No	8,300	86.06

Table 3.2.3. Female prevalence in the total number of start-ups (source: authors’ elaboration).

Data comparing the different industries are reported in Table 3.2.4. We can observe that, consistently with the general percentages, service start-ups have the absolute majority (86.21%) of companies that don’t have a female presence in their equity and board of directors.

	Exclusive	Strong	Majority	No	TOTAL
Agriculture/Fishing	1	3	3	60	67
<i>Percent</i>	1.49	4.48	4.48	89.55	100.00
Trade	33	40	5	303	381
<i>Percent</i>	8.66	10.50	1.31	79.53	100.00
Manufacturing/craftsmanship	81	106	35	1,499	1,721

	Exclusive	Strong	Majority	No	TOTAL
Percent	4.71	6.16	2.03	87.10	100.00
<b>Services</b>	<b>336</b>	<b>462</b>	<b>216</b>	<b>6,340</b>	<b>7,354</b>
<b>Percent</b>	<b>4.57</b>	<b>6.28</b>	<b>2.94</b>	<b>86.21</b>	<b>100.00</b>
Tourism	5	12	2	73	92
Percent	5.43	13.04	2.17	79.35	100.00
Total	456	623	261	8,275	9,615
Percent	4.74	6.48	2.71	86.06	100.00

Table 3.2.4. Female prevalence compared by industry (source: authors' elaboration).

Moreover, for what concerns youth prevalence, we analysed the variables both regarding the total number (Table 3.2.5) and regarding the different industries (Table 3.2.6).

	Freq.	Percent
Exclusive	822	8.47
Strong	797	8.21
Majority	260	2.68
No	7.83	80.65

Table 3.2.5. Youth prevalence in the total number of start-ups (source: authors' elaboration).

Also, the requisite of youth prevalence is totally absent from 80.65% of the total number of start-ups, and this percentage is confirmed if we analyse data per industry.

	Exclusive	Strong	Majority	No	TOTAL
Agriculture/Fishing	5	5	0	56	66
Percent	7.58	7.58	0.00	84.85	100.00
Trade	39	44	9	291	383
Percent	10.18	11.49	2.35	75.98	100.00
Manufacturing/craftsmanship	137	114	45	1,441	1,737
Percent	7.89	6.56	2.59	82.96	100.00
<b>Services</b>	<b>628</b>	<b>625</b>	<b>204</b>	<b>5,946</b>	<b>7,403</b>
<b>Percent</b>	<b>8.48</b>	<b>8.44</b>	<b>2.76</b>	<b>80.32</b>	<b>100.00</b>
Tourism	11	9	2	69	91
Percent	12.09	9.89	2.20	75.82	100.00
Total	820	797	260	7,803	9,680
Percent	8.47	8.23	2.69	80.61	100.00

Table 3.2.6. Youth prevalence compared by industry (source: authors' elaboration).

Finally, for what concerns the composition of equity and boards according to the foreign presence, data in Table 3.2.7 shows that 96.73% of the total number of start-ups have no foreign presence at all.

	Freq.	Percent
Exclusive	123	1.26
Strong	132	1.35
Majority	65	0.67
No	9,453	96.73

Table 3.2.7. Foreign prevalence in the total number of start-ups (source: authors' elaboration).

In the following Table 3.2.8, foreign prevalence has been described by industry; as we can see, the data of service start-ups confirm the general percentages.

	Exclusive	Strong	Majority	No	TOTAL
Agriculture/Fishing	0	0	0	67	67
<i>Percent</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>100.00</i>	<i>100.00</i>
Trade	7	8	3	370	388
<i>Percent</i>	<i>1.80</i>	<i>2.06</i>	<i>0.77</i>	<i>95.36</i>	<i>100.00</i>
Manufacturing/craftsmanship	25	20	18	1,680	1,743
<i>Percent</i>	<i>1.43</i>	<i>1.15</i>	<i>1.03</i>	<i>96.39</i>	<i>100.00</i>
<b>Services</b>	<b>89</b>	<b>103</b>	<b>44</b>	<b>7,217</b>	<b>7,453</b>
<b><i>Percent</i></b>	<b><i>1.19</i></b>	<b><i>1.38</i></b>	<b><i>0.59</i></b>	<b><i>96.83</i></b>	<b><i>100.00</i></b>
Tourism	2	1	0	90	93
<i>Percent</i>	<i>2.15</i>	<i>1.08</i>	<i>0.00</i>	<i>96.77</i>	<i>100.00</i>
Total	123	132	65	9,424	9,744
<i>Percent</i>	<i>1.26</i>	<i>1.35</i>	<i>0.67</i>	<i>96.72</i>	<i>100.00</i>

Table 3.2.8. Foreign prevalence compared by industry (source: authors' elaboration).

#### 4. Discussion, implications and final remarks

As said at the beginning of the previous section (see Section 3), the relevance of introducing a specific decree on Italian start-ups was related not only to fostering the overall economic development of the country, but mostly to the start-ups' contribution to sustainable development, technological growth, and youth employment (Piccarozzi, 2017). However, the results of the descriptive statistics reported above showed that the Italian start-up

scene/ecosystem seems to be not consistent with the objectives of the legislator. Although this category of enterprises, innovative by definition, should support the diffusion and adoption of specific practices for boosting sustainable growth, even though it seems that this result is still far away. In this sense, data are not comforting. In fact, the results presented above demonstrated that Italian start-ups still lack an inner sustainability orientation; thus, this is also because in this country sustainable entrepreneurship is still in its infancy, as the numbers of national social enterprises (2.04% of the total sample) demonstrated. Moreover, the sample companies demonstrated a far complete absence of women into their boards as well as of young people in their structure. In fact, focusing on female presence, even though it has been considered a key asset for national and international development, resources and programs that Italian government dedicated to its enhancement seem to be just a first step toward a real improvement (Del Baldo, 2014). Thus, women have still to face much more socio-economic difficulties than men do in developing and running their own companies (Dal Mas and Paoloni, 2019). Drawing on young people presence in start-ups' boards, the achieved results are not in line with literature as well as with policymakers intentions and actions. Thus, even though an Italian law (the 'Italian Startup Act', nationally known as 'Decreto Crescita 2.0') defined start-ups as young, small firms with a strong commitment to research and innovation, currently they still lack of a significant presence of young people in their board (Antonietti and Gambarotto, 2018; Giraudo *et al.*, 2019).

Finally, also the factor "foreign presence" had negative results; thus, in almost all sample start-ups foreign people are completely absent (96.73% of start-ups have no foreign presence at all). This result is might due to lack of concrete results of the integrated national initiatives of policymakers, universities and business intended at attracting both investments and talented people from abroad (Colombelli, 2016). In this sense, it worth noting that the progressive loss of socio-economic attractiveness of Italy negatively affects this situation due to structural problems already plaguing national economy and society (Talani, 2017; Odoardi and Muratore, 2019). However, some of the most troubling problems are among others socio-economic exclusion, ethnic tension and unemployment rate, the lack of adequate job opportunities especially for young people, the population ageing and the enduring political instability (Tardivo and Viassone, 2009). It follows that the current strategic measures envisaged by the legislator, together with the characteristics deemed important for innovative start-ups, should be further supported by complementary socio-political and economic measures and/or actions (Bocken, 2015). These measures should aim to ensure an adequate network of infrastructure to support the role of start-ups in promoting sustainable growth, support for a system of measures that favours the adoption of virtuous practices, with awareness actions and creating governance shared public-private (Lukeš *et al.*, 2019). However, further investigation is needed in order to better understand which government programmes and/or policies are most appropriate for supporting and promoting the rising, the development and the long-run viability of start-ups (Audretsch, 2004) and other actors belonging to the same ecosystem. Moreover, the intricate pathway that the numerous initiatives created and promoted by each involved actor, even if able to positively promote their engagement (Retolaza *et al.*, 2009), has generated fragmentation, showing the need for integrating the multiple and often overlapping efforts at global scale (Weiblen and Chesbrough, 2015). It worth noting that the approach has changed over time, progressively recognising the need for a more decisive shared effort and, therefore, for a systemic approach, able to consider the different dimensions at the core of sustainability (Saviano *et al.*, 2017). This

calls for going beyond a mere corporate social responsibility perspective (Carroll, 1999; Balmer *et al.*, 2011), for supporting the creation of new and more sustainable business models able to create more inclusive outcomes (Barile and Saviano, 2018). In fact, the long-run viability of start-ups is deeply intertwined with their ability to contribute to the well-being of a large number of actors (individuals, organisations and/or institutions), which interactions contribute to personal and ecosystem sustainability. This is in line with the growing interest that systems and service research is paying to sustainability (Saviano *et al.*, 2017; Barile and Saviano, 2018). However, promoting start-ups' inner orientation it – thorough both institutional and business initiatives – or the rising of 'born-sustainable' start-ups could trigger a general sustainable restructuring of the industries and progressively of the whole society (Halberstadt and Johnson, 2014). Therefore, further research will be devoted to deeply investigate the influence of entrepreneurs' on determining – since from the beginning – whether or not start-ups put into practice sustainable measures and processes.

To sum up, the results of this explorative analysis offer some insights into the complex sustainability issues that affect start-up processes in Italy. However, much research effort is still needed to better understand the Italian start-ups' pathway towards sustainability as well as of the other actors (e.g., employees, customers, incubators, venture capitalists, research centres, universities, institutions, etc.) which populate the related ecosystem. Therefore, this study represents just a preliminary step along this research path.

### Keywords

start-ups; sustainability; sustainable entrepreneurship; service and systems theories

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