

sinergie

italian journal of management

Innovation, performance
and social concerns

VOL. 37
Issue 3

SEPT-DEC
2019



Italian Society of
MANAGEMENT



Official Journal of Italian Society of Management

sinergie

italian journal of management

Official journal of Italian Society of Management

VOL. 37 ISSUE 3 N. 110	Innovation, performance and social concerns	SEPT-DEC 2019
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Sinergie Italian Journal of Management is a peer-reviewed scholarly publication focusing on the principal trends in management studies.

Formerly *Sinergie rivista di studi e ricerche*

Published quarterly

Founded in 1983

ISSN 0393-5108

Open access at www.sijm.it

Indexed in Google Scholar, ACNP, ESSPER



Sinergie Italian journal of management is published by Fondazione CUEIM, a foundation aiming to carry out and to promote scientific research, especially in the fields of business administration and of organizations management, both profit and non profit.



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Sinergie Italian journal of management is the official journal of SIMA, the Scientific Society of Italian Professors of Management, whose aim is to contribute to the development and dissemination of management knowledge in the academic, economic and social fields, on an excellence basis.



The editing activity is sponsored by Consorzio Universitario di Economia Industriale e Manageriale - CUEIM - www.cueim.it



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Aphorisms

1. *We can complain because rose bushes have thorns, or rejoice because thorn bushes have roses.*
(Abraham Lincoln)
2. *Better to light a candle than to curse the darkness*
(Confucius)
3. *A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty*
(Winston Churchill)
4. *The reasonable man adapts himself to the world: the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man.*
(George Bernard Shaw)
5. *Sometimes to understand wath's going on you have to stop thinking*
(Stanislaw Jerzy Lec)

Service innovation in emerging economies: an inclusive perspective¹

Received
20th November 2019

Revised
19th December 2019

Accepted
4th February 2020

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Jay Kandampully

Abstract

Purpose of the paper: *This research aims to examine the changing role of service innovation in emerging economies towards the more inclusive concept of service ecosystems. This perspective allows us to frame service innovation in emerging economies as a complex and dynamic system based on the interplay of social, economic and technological issues.*

Methodology: *We adopt a qualitative in-depth case study to explore in a real life, contemporary bounded system how service innovation occurs in complex service ecosystems, such as the urban contexts in emerging economies. The study was conducted using both documentary and field investigations. It focuses on the analysis of the urban context of Curitiba in southern Brazil, which is well recognised as the world's leading liveable, green, and inclusive city.*

Results: *This study provides some evidence of how emerging economies could design and deliver sustainable service solutions to create service ecosystems. The research specifically emphasises the role of social, institutional and technological drivers that traverse all aspects of society and enable social changes and social practices to positively enhance and uplift the life of many people in society.*

Research limitations: *The main limitation of the study is the single case study, which does not allow generalisation of the results.*

Practical implications: *This paper offers new insights for designing and configuring practices for integrating available resources to enact sustainable and inclusive service innovation.*

Originality of the paper: *This study advances the ongoing conversation on service innovation in emerging economies by combining the service logic framework with an ecosystems perspective. It identifies and operationalises co-responsibility as a scalable and sustainable practice that is rooted in and nurtured by social values (sustainability, solidarity, inclusiveness), specifically with regard to emerging economies.*

Key words: service ecosystem; emerging economies; service innovation; sustainability; actors

¹ Acknowledgements: This publication is a part of the international research project “designing a smart path to rethink and improve sustainable innovation in the urban context” conducted by Angela Caridà during her fellowship at IMED - Faculdade Meridional de Brasil. The authors would like to thank the IPPUC and all its members for their fruitful collaboration in conducting this research.

1. Introduction

In recent years, structural transformations have affected service sectors in emerging economies (i.e., some countries in Southeast Asia, Latin America and South Africa) and have transformed the global competitive landscape.

These economies have posed new questions and challenges in academic discussions on services because they grow at faster rates than developed economies (Reynoso *et al.*, 2015) and are sources of disruptive innovations in many fields (Markides, 2012), particularly in the service sector. However, service innovation is acknowledged as the driving force behind both business organisations and societies in developed and developing countries. In the latter countries, service innovation is considered a particular powerful way to advance societal change for the well-being of both individuals and society collectively (Ostrom *et al.*, 2015; Rubalcaba *et al.*, 2016). Indeed, in emerging economies, services are socially co-created, and the service sector is considered to be highly socially sensitive (Reynoso *et al.*, 2015). The social changes are enhanced by the better use of technology, which can boost value co-creation and social innovation (Pellicano *et al.*, 2017). The Internet and mobile technologies widely affect every aspect of people's daily life and provide new opportunities (Reynoso *et al.*, 2015) that did not exist in the past.

The new conceptualisation of service, the transformative power of technologies in triggering systematic and sustainable service innovation in emerging economies (Reynoso *et al.*, 2015; Demirkan *et al.*, 2008) and the increasing relevance of such economies in the global market have posed new questions in the recent economics and service debate (Carlborg *et al.*, 2014). Hence, conceptualising and operationalising service innovation in emerging economies as in developed economies appears inappropriate. Indeed, in contrast to developed economies, service innovation in emerging economies refers to social innovations that “come from the collaboration of organisations with relevant stakeholders, from users and other companies to local businesses and society as a whole” (Pellicano *et al.*, 2017, p. 104) to provide novel solutions with long-lasting “value” for the entire society rather than for private individuals (Reynoso *et al.*, 2015; Phills *et al.*, 2008).

Service innovation usually entails unconventional solutions that require a “doing more with less” approach (Reynoso *et al.*, 2015; Gebauer and Reynoso 2013) to overcome resource scarcity and to better satisfy the needs of the poorest market segment (Reynoso *et al.*, 2015) by engaging the entire community.

Despite these aspects, the recent experiences from some automotive global players (Sivaprakasam and Srinivasna, 2015) clearly demonstrate the scalability of service innovation in developing markets as well. Although generalisations derived from data gathered in developing markets can be applied to high-income economies, the contrary is not applicable.

Nevertheless, academic debate investigates service innovation in developed economies (Ostrom *et al.*, 2015), whereas studies on service innovation (Aksoy *et al.*, 2019; Carlborg *et al.*, 2014;) and on the role

of technology in supporting it in emerging economies are still limited (Ostrom *et al.*, 2015; Hsu *et al.*, 2019).

Accordingly, scholars have called for the need to broaden the investigation of the role of service innovation in emerging economies “to satisfy the substantial need to be sensitive to - and to capitalise on - different contexts as well as perspectives/paradigms from different parts of the world” (Ostrom *et al.*, 2015 p. 148). From this perspective, Reynoso *et al.* (2015) and Letaifa and Reynoso (2015) proposed the idea of involving the entire ecosystem and networks to create inclusive innovation to benefit the economy overall. Despite these attempts to extend the service innovation perspective in emerging economies, no empirical studies refer to service ecosystems and innovation in emerging economies or to the triggering role of technology in this specific context. On this point, Gallouj *et al.* (2018) identified both the further development of the smart service ecosystem and the need for advanced knowledge about innovation practices in public policies as research priorities for service and social innovation studies.

Accordingly, this paper aims to advance the concept of service innovation in emerging countries towards the more inclusive concept of service ecosystems.

We adopt a qualitative in-depth case study based on the analysis of the urban context of Curitiba in southern Brazil. It is well recognized as the world’s leading liveable, green, and inclusive city (Domareski-Ruiz *et al.*, 2019).

This paper contributes to service innovation literature in emerging economies. Service innovation is conceptualised as a complex and dynamic system involving an active interplay between social, economic and technological issues. The paper identifies co-responsibility framework addressing innovation needs through sustainable, collaborative and scalable solutions (Caridà, 2018).

The paper is structured as follows. First, we discuss previous studies on the topic of service innovation in emerging economies. Second, we present our methodological approach. Third, we discuss the results of the study. Finally, we present the conclusions and the main limitations of this research.

2. Literature review

2.1 Service innovation in emerging economies

Service innovation is a driver of societal change to advance well-being and to alleviate poverty for both individuals and collectives (Gebauer and Reynoso, 2013). Accordingly, investigating service innovation is critical to emerging economies and represents a promising topic for future studies in the field of service marketing (Rubalcaba *et al.*, 2016). Despite the relevance of the topic, few published studies address service innovation in such contexts (Caridà, 2018; Caridà, *et al.*, 2017; Rubalcaba *et al.*, 2016).

Prior studies on service innovation originate from developed and well-established economies (Ostrom *et al.*, 2015; Reynoso *et al.*, 2015;

Carlborg *et al.*, 2014). Although service innovations are cross-cultural and can be applied across different countries and regions, their contents and dynamics are influenced by contextual factors, including the diversity of resources, knowledge, networks of relationships and social structure (i.e., institutions) (Edvardsson *et al.*, 2011).

Service innovation in emerging economies entails solutions that are local in focus (Reynoso *et al.*, 2015) and strongly dependent on the economic, cultural and political context. Often, businesses suffer from a lack of landline telecommunications and poor financial infrastructure (Ostrom *et al.*, 2015), and they primarily rely on offerings of products and services that target customers in the poorest market segment; this is often referred to as the bottom or base of the pyramid (BoP) (Prahalad, 2012).

Within emerging economies, innovation is led by one main actor (Letaifa and Reynoso, 2015) from the public or nonprofit sector, which is forced to break with the conventional approach to overcome the limited budget to innovate (Yunus *et al.*, 2010). These innovations are often rooted in cost reduction, simplicity and creativity (Macedo, 2013). They have the potential to create new products and new market niches for large companies, which can export new solutions to the home base and traditional markets (Sivaprakasam and Srinivasna, 2015). In addition, the goal of service innovation in emerging economies relates more to societal and moral value than to economic value (Pol and Ville 2009). It better fits the concept of open social innovation, which requires an open and collaborative approach to promote the development of new social solutions to satisfy both collective social needs and the needs of the involved stakeholders (Santoro *et al.*, 2018).

To address the needs of emerging markets, the mainstream BoP literature heralds new interdependence among a wider set of actors, including local businesses, public organisations, and government as well as local communities. All these actors act collaboratively to promote the ethical use of resources to implement inclusive social innovation (Gallouj *et al.*, 2018) that enhances both social and economic well-being for all (Reynoso *et al.*, 2015). The inspiring principle of inclusive innovation is to integrate commonly excluded people (Halme *et al.*, 2012), framing local communities not simply as beneficiaries but also as value co-creators and active entrepreneurs (Kandampully *et al.*, 2015; Govindarajan and Ramamurti, 2011).

In emerging economies, collaborative innovation is essential because it bridges the bottom and the top of the economic spectrum (Reynoso *et al.*, 2015). Customers at both ends of the economic spectrum serve as active resources to contribute to the effective innovation and development of society. Therefore, innovation in emerging economies (i.e., open social innovation) can be considered to be co-created "...through the inflows and outflows of knowledge and technologies (inbound and outbound activities) and collaborations between different entities (coupled processes), mobilising actions across boundaries and exploiting ecosystems" (Santoro *et al.*, 2018, p. 30).

Because of its networking implications, service innovation in emerging economies is portrayed by Reynoso *et al.* (2015) as a process that works

according to an ecosystem view. These authors acknowledge the intrinsic complexity of reality and the importance of considering various levels of interaction to grasp the socioeconomic processes that influence service development in this context.

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2.2 Service ecosystem approach to innovation

Innovation overcomes traditional product and service separation (Mele *et al.* 2014; Vargo and Lusch, 2008) and involves a network of social and economic actors - organisations and individuals - that coevolve their capabilities and roles for the advancement and survival of the network itself (Akaka *et al.*, 2012; Vargo and Lusch, 2011).

Innovation is the result of recombining existing resources (Lusch and Nambisan, 2015), which is grounded in the ability of actors to use and integrate their own resources to access additional resources through service-for-service exchanges. This approach suggests that innovation (i.e., service innovation) occurs in service ecosystems that are complex, emergent, dynamic networks of actors and their interactions (Lusch *et al.*, 2016; Akaka *et al.*, 2012) and that value is thus co-created through networks (Sklyar *et al.*, 2019; Siltaloppi *et al.*, 2016; Lusch and Nambisan 2015; Vargo *et al.*, 2015) of multiple actors, which are involved in the value co-creation process at various levels of interaction - micro, meso and macro (Akaka *et al.*, 2013).

The service ecosystem is a relatively self-contained, self-adjusting system of mostly loosely coupled social and economic (resource-integrating) actors connected by shared institutional logics and mutual value creation through service exchange (Vargo and Lusch, 2011). It is characterised by dynamism and self-adjusting properties and by an important role of technology and institutions seen, respectively, as hard and soft infrastructures that influence the interactions and the co-creation of value in ecosystems (Vargo *et al.*, 2015): “*Such a perspective emphasizes the role of IT as an operand resource, specifically in the way digital infrastructures can help hold together diverse actors and enable collaboration in the ecosystem*” (Lusch and Nambisan, 2015).

Similarly, institutions (the set of norms and values) become central to innovation. Indeed, institutions are deeply rooted in the social system and in social structures that affect activities and interactions and constitute the foundation for service innovation: “*Value co-creation necessarily follows social structures and takes place within social systems in which the actors (customers and companies) adopt certain social positions and roles as they interact and reproduce social structures*” (Edvardsson and Tronvoll, 2013 p.330). In the same manner, institutions influence interactions that contribute to the creation and evaluation of value and innovation among multiple actors, even those that result in the rejection of value propositions (Koskela-Huotari *et al.*, 2016; Vargo *et al.*, 2015; Skalen *et al.*, 2014).

Therefore, both technology and institutions are constitutive elements of service ecosystems as they shape the way multiple actors collaborate in value co-creation processes and innovation (Colurcio *et al.*, 2017; Vargo *et al.*, 2016; Akaka and Vargo 2015; Caridà *et al.*, 2015; Akaka *et al.*, 2012)

by recombining their own practices to provide novel solutions for new or existing problems (i.e., at least partial disruption of existing institutions) (Vargo *et al.*, 2015).

The service ecosystem conceptualisation captures the complex and dynamic dimension of service-for-service networks and markets, where innovation emerges as an open-link process based on iterative activities connecting firms, users and organisations (Mele and Russo Spena, 2015; Russo Spena and Mele, 2012). It implies the inclusiveness of different stakeholders in the innovation or transformation process and the convergence of their different interests to pursue the well-being of both individuals and the overall system (Pellicano *et al.*, 2017). Such a perspective offers an interesting framework to capture and understand service innovation in BoP contexts as well as to address its scalability and sustainability (Letaifa and Reynoso, 2015). The scholars propose a BoP service ecosystem framework based on four main features: 1) the multi-actoral context in which all individuals are active operant resources, 2) social embeddedness and the local focus services design, 3) the specific roles actors play according to their competencies and 4) the ecosystemic value, which is value for all beneficiaries and is related to multiple dimensions of social, economic, ecological, and cultural benefits. From this perspective, this paper provides insight into how service innovation practices in emerging economies arise through resource integration in service ecosystems.

3. Research design

3.1 *The research construct and aim*

The service ecosystem perspective allows researchers to broaden the concept of value creation to peripheral and traditionally excluded actors, including people living at the BoP, as well as to analyse various levels of interaction (micro, meso and macro) and the different social roles actors enact that constitute socioeconomic processes and influence service innovation development.

To better understand the driving force that shapes service innovation in complex ecosystems such as urban contexts in emerging economies, the research construct we propose addresses both the individual and collective actors who integrate resources through various levels of interaction (micro, meso, and macro) (Akaka *et al.*, 2013; Beirão *et al.*, 2017) as well as the resource integration mechanisms (Caridà *et al.*, 2019) they enact that result in the development of a sustainable practice to drive societal change and advance the well-being of individuals and collectives (i.e., the service innovation practice in emerging economies).

Our research question hinges on the understanding of the role of service innovation in emerging economies and more specifically:

How does service innovation provide inclusive solutions benefiting the whole community?

3.2 Methodology

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Service innovation in emerging economies is an emergent research area that requires theory-building efforts (Rubalcaba *et al.*, 2016; Ostrom *et al.*, 2015, Reynoso *et al.*, 2015) for which case-based research designs are specifically appropriate (Stake, 2011; Yin, 2009). Therefore, this study adopts a qualitative in-depth case study (Stake, 2011) to explore, in a real-life situation (Siggelkow, 2007), how service innovation occurs in complex service ecosystems such as urban contexts in emerging economies.

To study and report the context as part of the descriptive character of the research (Stake, 2011), we developed a documentary analysis. It involved multiple sources of information and data - reports, newsletters, YouTube interviews and in-depth interviews - to integrate investigations conducted through direct observation or questioning (Hammersley and Atkinson, 1995). The choice of multiple methods for collecting information allowed for data triangulation to establish the reliability and validity of the research construct (Eisenhardt, 1989; Yin, 2009).

The data collection effort was divided into two periods (September 2014-April 2015 and June 2017-July 2018 for the data updating). Table 1 shows the process of data collection and analysis by detailing the tools, focus, content and time of the research activities.

First, one researcher with an operations background spent one year in Brazil (October 2014-November 2015) to outline the main issues covered by studies on service innovation in emerging economies. She collected data through direct observation and in-depth interviews. Specifically, she conducted two Skype interviews with the International Affairs Advisor of the IPPUC (Institute for Research and Urban Planning of Curitiba) to obtain an overview of the concepts of sustainability, smartness and service innovation in Curitiba, one face-to-face interview with the IPPUC public relations manager (November 2014 and April 2015) and two face-to-face interviews with the IPPUC project manager to collect data about the implementation of projects for the sustainable development of Curitiba.

The interview form was designed according to an open and dialogical structure to understand how different actors, including commonly excluded people, are not simply value beneficiaries but are also value co-creators at various levels of interaction (micro, meso, and macro) (Akaka *et al.*, 2013). All interviews were transcribed verbatim and, along with all of the documentary evidence and the theoretical approach, were analysed and grouped into their respective categories to codify the roles of the main actors involved in the sustainable development of Curitiba, the resources they integrated and the actions they implemented at different levels of interaction as well as the resource-integrating mechanism driving service innovation in Curitiba.

Additionally, in June 2017 and July 2018, the IPPUC project manager provided us with documentary evidence and reports describing in detail the characteristics of each focal project. Finally, the researchers collectively identified and explored in depth the resource integration mechanisms that were deemed most important to codify the service innovation practice in emerging economies.

Tab. 1: Data collection and analysis

DATA COLLECTION				DATA ANALYSIS
HOW	WHO	WHAT	WHEN	CODING ACTIVITIES
Documentary Analysis		Reports, newsletters, YouTube interviews	September 2014 to July 2018	Reading, studying and selection of data and documents
Skype Interviews	IPPUC International Affairs Advisor	Open interviews	September 2014	Preliminary conceptualisation and operationalisation of the service innovation pillars in Curitiba. Selection of project/ service solutions engaging the whole community to provide novel solutions with long-lasting value primarily for the entire society rather than private individuals (Reynoso <i>et al.</i> , 2015; Phills <i>et al.</i> , 2008).
Direct Observation	One researcher	Visiting: IPPUC Wire Opera House Curitiba Technopark Botanical Garden Tuboteca Lighthouses of Learning	November 2014 April 2015	Visit of Curitiba City
Face-to-Face Interviews	IPPUC Public Relation Manager IPPUC project manager	In-depth, Problem-centred interviews according to a narrative, text-based research design	November 2014 April 2015	Classification, analysis and interpretation of data according to the elements defined in the research construct: 1. actors' roles 2. the resources actors integrate and the levels of interaction 3 the actions they implement 4. the resource-integrating mechanism driving societal change and advancement of the well-being of individual and collectives.
Documentary Analysis	IPPUC project manager IPPUC International Affairs Advisor	Updating data on content and evolution of the projects previously selected and investigated (i.e., Smart mobility Air Quality in Curitiba - today and tomorrow)	June 2017 July 2018	Selection and integration of data and documents

Source: Our elaboration

4. Curitiba case study

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Curitiba is the capital city of Paraná State - southern Brazil; it is internationally recognized for its creativity (Domareski-Ruiz *et al.*, 2019) in facing common challenges associated with urban development (Reis *et al.*, 2010) and the explosive growth of rural-urban migration - sprawl, environmental degradation, economic inequality, etc. - typically featuring emerging economies (Reynoso *et al.*, 2015). The concept of urban sustainability inspired and shaped Curitiba before it entered the common lexicon and became the only possible alternative for urban development (Macedo, 2013). Since 1970, Curitiba has been referred to as the green, ecological and most sustainable capital of Brazil as well as a city learning model and a collaborative and participatory environment (Arbel, 2012) for creative and low-cost urban solutions (Domareski-Ruiz *et al.*, 2019). After the 1950s, the population doubled every 10 years for 30 years (Macedo, 2013; Arbel, 2012) and the municipality formally started an ambitious and expensive urban planning process (i.e., the *agache* plan) to manage urban expansion (Macedo, 2013). The new urban plan was put into practice in 1971 after a long incubation period of six years. It came from a national urban design competition (six companies were invited to submit proposals for a new urban plan) and a series of public debates during which various plans were discussed and evaluated with the population (IPPUC, 2016; 2009). The new plan focused on a linear model of urban expansion and on the re-use of physical structures as solutions to urban problems (IPPUC, 2014). It sought to integrate the demands of living, moving, working, and recreation into urban services to form an integrated system of mobility, road infrastructure, and land use (Macedo, 2013; Arbel, 2013). This process started during Jaime Lerner's administration with the reconceptualisation of the i) transportation systems as the hub that affect cities' sustainability, environmental quality and economic efficiency and of the ii) city as an organism, a system in which a close relationship between public transportation and land-use legislation acts as a guidance and development tool (ICLEI, 2016, 2013).

The master plan winning team proposed the establishment of a local independent planning agency (the Institute of Research and Urban Planning of Curitiba – IPPUC to ensure the upgrading, management and monitoring of the urban development plan. The IPPUC worked as an advisory institution to the mayor's office to link planning to politics (Macedo, 2013). It contributed to the political continuity and to the success of planning initiatives as it was a source of both professionals (designers, architects, urbanists, engineers) and politics. After five decades of planning, Curitiba is internationally recognised as a global best practice (Hojda *et al.*, 2019; Macedo, 2013; Meyer 2019) that already in 1970 had started a smart city programme with multiple focuses on the economy, environment, people, mobility and governance (Hojda *et al.*, 2019; Ojo *et al.*, 2015).

The fundamental elements driving the transformative process of Curitiba are analysed in the next section. Table 2 synthesises our study in detail. It indicates the main projects addressing the sustainable development of Curitiba, the main actors involved in such projects and the related actions and goals.

Tab. 2: Projects of Curitiba

Project	Actors	Actions	Aim
Typing the Future	<ul style="list-style-type: none"> - Municipality - Apple - Local ICT companies - Social organisations 	<ul style="list-style-type: none"> - Extending free Internet connectivity to city's libraries, secondary schools and favelas - computer labs in secondary schools for free - Computer training activities for adults for free 	<ul style="list-style-type: none"> - To enhance citizens' smart attitudes - To turn citizens into very highly skilled workers - To connect poorer segments with housing and recreation facilities
Curitiba Technopark	<ul style="list-style-type: none"> - Municipality - IPPUC - Universities - IT companies - R&D centres 	<ul style="list-style-type: none"> - Promoting tax reduction - Promoting inter-institutional cooperation/research programme 	<ul style="list-style-type: none"> - To integrate and interconnect universities, IT firms and R&D institutions to increase the culture of knowledge and innovation. - To turn the intellectual output of colleges and universities into innovative technologies. - To transform Curitiba into a high-tech economic centre
Smart Mobility Air Quality in Curitiba - today and tomorrow	<ul style="list-style-type: none"> - Volvo Bus Latin America - Siemens - Ericsson - Consortium between Swedish and Brazilian actors 	<ul style="list-style-type: none"> - Developing fast high-power charging station for hybrid vehicle - Developing smart transport systems - Exploring the deployment of new technologies for sustainable mobility and energy efficiency 	<ul style="list-style-type: none"> - To customise the Volvo's mobility intelligent transport system to the market needs of Latin America - To save money by ensuring low fares for travel, high service quality and extending free Internet connectivity to poorer segments for housing and recreation facilities. - To improve the quality of services in the urban area, reduce environmental impacts and open new areas for development.
Curitiba creative economy online contest	<ul style="list-style-type: none"> - Municipality - IPPUC - Designer - Companies - Citizens 	<ul style="list-style-type: none"> - Submitting project: i) Design; ii) Fashion; iii) Audiovisual; iv) Leisure Software; and v) Computer Games. - Sharing comments, voting, improving project for final evaluation 	<ul style="list-style-type: none"> - To engage individuals and companies in designing new business solutions for the sector of the creative and sustainable economy - To prompt the logic of "doing more with less" (solution based on originality and economic viability) - To improve the effectiveness of both educational initiatives and collaborative activities
Green exchange. Garbage that is not garbage. Ecocitizen.	<ul style="list-style-type: none"> - Municipality - IPPUC - Citizens 	<ul style="list-style-type: none"> - Scavengers' association - Waste and Citizenship Institute - Schools - Day care centres 	<ul style="list-style-type: none"> - Creating and selling artwork from recycled materials - Monetising the garbage - Exchanging garbage for public services and local food products - To educate children and their parents about garbage separation - To involve low-income people in entrepreneurial activities - To transform the entire city into a learning environment - To create social, environmental and economic value

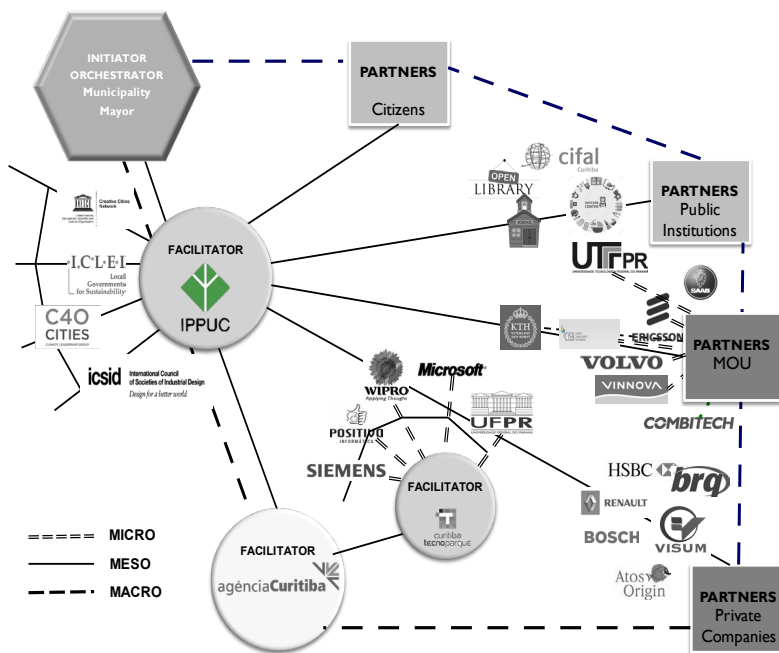
Source: Our elaboration

5. Curitiba service ecosystem innovation

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 emerging economies: an
 inclusive perspective

According to the research construct we propose, Figure 1 provides some insights into the nature of Curitiba's ecosystem. It briefly illustrates the actors (e.g., municipality, mayor, independent municipal authorities, citizens, public/private companies, research institutes), the roles (i.e., the prevailing role) they enact within the ecosystem and their relationships from a multilevel perspective. This map is the result of the analysis of the resources actors integrate, the actions they implement and the resource-integrating mechanism enabling sustainable practice to drive societal change and to advance the well-being of individuals and collectives.

Fig. 1: The curitiba service ecosystem innovation



Source: Adapted from Caridà 2018

All actors in Curitiba act as resource integrators and are both resource providers and value beneficiaries (Figure 1). In addition to these common roles that actors enact (wittingly or not), each of them integrates specific social roles i.e. initiator, orchestrator, facilitator, partner, beneficiary) to co-create new value (i.e., service innovation). Social roles are important resources (Akaka and Chandler, 2011); they enable actors' intended activities (Löbler, 2013) and enact different resource-integrating mechanisms i.e. acupuncture, charette, education and smart technologies. Table 3 provides a synthetic view of the social roles, resources and the actions fuelling the service innovation.

Tab. 3: Social roles, actors, resources and actions

Role	Actor	Resources	Actions
Initiator/Orchestrator	City Mayor - Jaime Lerner	<ul style="list-style-type: none"> - Leader abilities and attributes - Architectural background - Political stability - Citizens' trust - European best practice and knowledge - Master plan based on public transit 	<ul style="list-style-type: none"> - Debating publicly with the population at large on the master plan development - Leveraging immediate action to overcome long-term planning and help jump-start the change process within a community - Educating and making citizens aware through demonstrative action showing new possible projects and current effects
I Level Facilitator (Think tank lab)	Institute of Research and Urban Planning IPPUC	<ul style="list-style-type: none"> - Highly qualified planners, engineers, surveyors, geographers, sociologists and politicians - European best practice and knowledge - Citizens' trust - Strong collaborations with local and international partners 	<ul style="list-style-type: none"> - Involving experts and citizens for multifaceted and systemic solutions through weekly intensive meeting. - Looking for advancing solution to reuse available resources (i.e. buildings from recycled materials). - Mobilising citizens (poor, youth, children) through active and responsible actions (i.e. parking maintaining, putting down protest against master plan, recycling trash). - Planning assistance to other cities (>300).
I Level Facilitator business hub	Curitiba Development Agency	<ul style="list-style-type: none"> - Highly qualified professionals - Strong business relationships with local and international private companies installed or wishing to invest in Curitiba. - Strong collaborations with municipality, foundations, university and other institutions 	<ul style="list-style-type: none"> - Promoting and managing business programmes - Promoting public-private partnerships for developing business - Promoting international business programme exchange - Prioritising the involvement of technicians from the city - Promoting the socioeconomic improvement of the city and its population
II Level Facilitator business attractor	Curitiba Technopark	<ul style="list-style-type: none"> - Knowledgeable actors within specific urban area - Knowledge and innovation culture - Strong research and business relationships with local and international actors 	<ul style="list-style-type: none"> - Attracting productive opportunities of high added value and great competitiveness
Partners/Beneficiaries	Private companies (e.g., Volvo Bus Latin America, Siemens, Ericsson)	<ul style="list-style-type: none"> - Private -public companies' partnership agreements - Private companies' partnership agreements (previously competitors) - Companies' expertise and relationships - ICT solutions 	<ul style="list-style-type: none"> - Extending free Internet connectivity to poorer segments - Promoting smart mobility - Ensuring low fares for travel and high service quality - Customising companies' ICT solutions (e.g., Volvo's mobility intelligent transport system) to the market needs of Latin America - Developing new technologies and enhancing existing products. - Improving extant relationships and developing new ones
	MOU-Consortium Swedish and Brazilian public and private actors	<ul style="list-style-type: none"> - Knowledgeable actors - Knowledge and innovation culture - Strong research and business relationships with local and international actors - Best practice exchange and contamination 	<ul style="list-style-type: none"> - Deploying new technologies for sustainable mobility and energy efficiency - Developing a smart mobility system - Shaping new partnerships to improve the urban services quality - Making daily life smarter
	Citizens	<ul style="list-style-type: none"> - Curitiba cultural heritage - Curitiba pride - Memories - Ideas - Knowledge, skills, commitment 	<ul style="list-style-type: none"> - Developing new business - Exchanging services for services (bus fares or theatre tickets) and for products (fresh fruits and vegetables) - Sharing revenues - Submitting ideas - Celebrating their engagement in active and responsible actions

Source: Our elaboration

Initiators and orchestrators

Within the Curitiba context, the mayor, at the individual level, and the municipality, at the collective level, are the initiators and orchestrators of the urban transformative process. They drive the development of Curitiba by viewing the city as a future-facing planning challenge rather than just an administrative challenge rooted in contingent problems (Arbel, 2012).

The former mayor Jamie Lerner promoted a new concept of the city as a living organism based on three main pillars: i) strong interdependencies and connection between the city's components, ii) a more localised community-based approach, and iii) small-scale and fast interventions showing solutions in action.

The orchestrating role played by Lerner was rooted in his vision and hope:

“There is no endeavour more noble than the attempt to achieve a collective dream. What is important is to have a clear vision of what you want to achieve and be focused on continuously adapting and improving the solutions: a park can be created from a bike lane; a whole transportation system can be developed starting from one dedicated line” (source: Lerner quote, cited in, Arbel 2012).

In addition, Lerner's professional abilities and leadership attitudes (i.e., persuasiveness) were key resources for the success story of Curitiba:

“One of the important roles that leadership can take in this context is to promote a positive public agenda, to help conjure up the shared dream, to focus on it and to demonstrate how this scenario may come to pass” (source: Lerner quote, cited in Arbel, 2012).

The positive results from the social programmes and the social projects promoted by the mayor and the municipality (i.e., the green exchange, garbage that is not garbage and ecocitizens) demonstrate the usefulness of the mayor's vision in managing city changes, that is, the community-based approach.

Specifically, fast work execution, a trial period and the demonstration of valuable solutions in action triggered positive chain reactions for the entire system. Such an approach allows municipalities to avoid bureaucracy and to manage and remove stakeholder resistance and thus to increase the trust of citizens. Citizens' trust represents the main critical resource to mobilise different actors (citizens, public, private sectors and civic society) to collaborate in innovative projects and to increase their sense of belonging to the city and pride in the co-created solution.

Five of the six mayors from 1976 to 1999 were architects, engineers, or planners who promoted the development of the city through a multi-actoral design process grounded in advanced and unconventional solutions to meet the changing needs of the entire community. Indeed, most of the best entrepreneurial solutions, such as the bus rapid transit system, have been implemented by partnerships among private firms, non-governmental organisations, municipal agencies, utilities, community groups and individual citizens (Hawken *et al.*, 1999, p. 290) through multiple levels of interaction (Figure 1).

Since 1965, collaboration and idea sharing between individual actors (e.g., mayors) and institutional actors (i.e., City Hall and IPPUC) to solve city problems have been codified as part of the daily planning exercise (Rabinovich, 1992). After 1979, this approach was extended to wider popular participation, including citizens and public organisations (Rabinovich, 1992).

The initiators/orchestrators established direct or mediated interactions/relationships with the entire local community and with many international actors (i.e., an international consortium). Such interactions also related to independent/dependent municipal agencies (i.e., IPPUC, the Curitiba Development Agency), which act as a nexus for integrating diverse sectors, services and systems to address resource efficiency and sustainable urban development solutions.

In sum, the culture and heritage of the city, the political stability, the technical knowledge of politicians and the opportunity to strengthen good partnerships (public/private-national/international) can be codified as the fundamental resources owned and integrated by the municipality to enact the city's transformative process.

Facilitator

The IPPUC is an autonomous and decentralised municipal autarchy that acts as a technical advisor to the mayor's office and guides the operational arm of the municipal government (Macedo, 2013) by planning, collecting resources and consolidating programmes and projects among the various municipality units and citizens. It is chaired by the mayor and includes a consortium of technicians from each municipality. Since its foundation in 1965, it has acted as a facilitator of the resource integration process by strategically coordinating, monitoring, upgrading and ensuring correct matching between the plan and the community's needs.

Knowledge and technical competences are mandatory resources during the plan design process and its implementation:

“There is no point in making a plan to competent professionals without the accompaniment - both when developing and defining the main lines - of the staff who will run it. Because of this lack, many plans are shelved because those in charge of running them do not know them and do not believe in them” (Source: Mayor Ivo Arzua quote, cited in Lobato, 2013; retrieved April 5, 2016).

The IPPUC acts as a think tank lab based on the constant interplay between planning and implementation activities to create city-wide collaborations that transcend mayoral administrations and provide expertise and channels of communication between actors to implement integrated cross-sectoral and cross-national projects and investments over time. Major and key specialists from different fields are involved in intensive daily meetings (i.e., charette) to quickly sketch multifaceted and systemic solutions to challenging situations.

To facilitate collaboration, in 1989, the IPPUC developed four “social networks” - the Municipal School, the Municipal Daycare Centers, the Municipal PIÁ (short for Integrated Childhood and Adolescence), and the Municipal Health Network - to involve people in learning activities

for the social and economic development of the community. In 1999, the programme “Typing the Future” (Fazzano and Weiss, 2004) established a public network of free Internet access that was accessible through the city’s libraries (i.e., Lighthouses of Learning), the local city hall offices in neighbourhoods and computer labs in secondary schools (Duarte *et al.*, 2014). This project involved Apple and social organisations in providing adults with free computer training activities to enhance their smart attitudes and to prepare very highly skilled workers.

The IPPUC acts as an active partner in many international/national service systems to foster the culture of cooperation. These include i) the UNESCO Creative Cities Network (UCCN), which promotes local and international cooperation with and among cities (116) that have identified creativity and cultural industry as a strategic factor for sustainable urban development; ii) the ICLEI, which is a global network of more than 1,500 cities, towns and regions committed to building a sustainable future; iii) the C40, which is a network of the world’s megacities committed to addressing climate change; iv) The International Council of Societies of Industrial Design (Icsid), an international non-governmental organisation that engages more than 140 member organisations from 40 nations to promote the profession of industrial design to generate a better environment and society through collaborative efforts and provides them with the opportunity to be heard internationally.

Similar to the IPPUC, the Curitiba Development Agency is a mixed semi-autonomous economy corporation working as a resource integration facilitator. It is a business hub and driving institution that was created in 2007 to contribute to the socioeconomic improvement of the city and its population. The agency prioritises the use of technicians from the city to manage business programmes and business relationships with companies installed or wishing to invest in Curitiba. It interacts with many actors (e.g., municipality, private companies, foundations, university, other institutions facilitating business improvement) in public-private partnerships to develop business-related bases and technologically focused infrastructure such as the “Curitiba Technopark”. The Technopark exploits tax reduction and other incentives to integrate and interconnect universities, IT companies and R&D institutions in both the public and private sectors. It concentrates knowledgeable actors within specific urban areas to increase the culture of knowledge and innovation in strategic sectors of high technology by attracting productive opportunities for high added value and high competitiveness. The Technopark works as a second-level facilitator within the service ecosystem and as a business attractor.

Partners/beneficiaries

Business companies and other organisations (e.g., public/private foundations, healthcare centres, educational organisations) act mainly as partners. Private companies collaborate with governmental institutions (e.g., Technopark, the Curitiba Development Agency, the IPPUC) as well as with other private companies to ensure low fares for travel and high service quality (e.g., private bus operators are paid based on performance - by distance travelled - whereas the rest of the money goes to maintaining

and improving transportation systems) and to extend free Internet connectivity to poorer segments in housing and recreation facilities.

Moving to the collaboration among private companies, Volvo Bus Latin America signed partnership agreements with Siemens within a wider project on smart mobility to develop a fast high-power charging station for hybrid vehicles and with Ericsson to develop an ICT system to customise Volvo's mobility intelligent transport system - including traffic management and passenger information - to Latin American market needs.

“Ericsson is contributing its expertise to develop one of our leading-edge technologies and enhance an existing Volvo product. Together, we will improve urban mobility in cities” (Luis Carlos Pimenta, President of Volvo Bus Latin America quote, cited in Volvo Bus Latin America and Ericsson sign partnership to foster urban mobility, press releases from Ericsson Corporate Communications 2015).

In 2013, the Memorandum of Understanding Consortium (MOU) between Swedish and Brazilian actors (Figure 1) was created to explore the deployment of new technologies for sustainable mobility and energy efficiency. It reconceptualises the well-known mobility model of Curitiba towards a smart mobility system within the smart city concepts project in Curitiba.

This project catalyses other initiatives and relationships between Swedish and Brazilian partners to reduce emissions impacts and improve air quality and health (i.e., the project “Air Quality in Curitiba - today and tomorrow”) (Dreier and Silveira, 2016). The consortium acts as partners in a co-responsible effort to improve the quality of services in the urban area, reduce environmental impacts and open new areas for development.

Additionally, citizens take an active role by collaborating as partners in designing and developing new and creative solutions for city development over time. They are involved daily by the leading team in discussions on specific urgent problems to act as problem solvers and solution providers, as shown in the following example cited by Mang (2009):

In the 1990s, the municipality purchased buses that were twice the size with wide doors, redesigned and elevated station to allow boarding without steps, and decreasing the waiting time. Accidents due to the mismatching of the buses stopping and the automatic bus stop doors arose, to solve it, the planning team consulted both Volvo and the local drivers. Volvo wanted to sell us this system. It was almost as expensive as the bus. So I called the chief of drivers of the bus companies and I asked him, ‘Could you park this bi-articulated bus in this boarding tube?’ He said, ‘Of course I can do it.’ ‘You can do it?’ ‘Yes.’ He took a piece of tape and put it on the window of the bus and another piece of tape on the boarding tube. Since then, they’ve never had an accident” (source: Lerner quote, as cited in Mang 2009).

Citizens are also involved in co-responsible activities to promote and maintain the sustainable development of the city. The municipality and the IPPUC, with the support of the four social networks, promoted many social programmes and learning initiatives as a civic engagement tool to integrate all citizens in the urban community. Many social initiatives have been specifically addressed to children, who are often recognised as the most effective agents of change.

For example, children were actively involved in sitting in the streets and painting murals against the anti-pedestrian mall protestors. More than thirty years later, new generations of children still take over the pedestrian mall and paint and draw pictures to celebrate that day (Mang, 2009). In this way, new generations increase their sense of belonging and responsibility for the city and its future.

"I believe that you don't need to invest in a sophisticated and advanced garbage separation system when the citizens can do it themselves (...) the garbage is brought to the plant, which is also built from recycled materials and employs handicapped people, alcoholics, and other underprivileged people. The recyclable items are sold to local industry. Sponges and fabrics are ground up and become stuffing for blankets, given to the poor" (source: Lerner quote, cited in Arbel 2012).

Curitiba has one of the highest recycling rates in the world (approximately 70% of the city's garbage) (Meyer *et al.*, 2019). Since 1989, specific initiatives (e.g., the green exchange, garbage that is not garbage and ecocitizens) on garbage separation and waste recycling have been developed together with schools and day care centres to educate children and their parents about garbage separation and to involve people from favelas in managing waste as a valuable resource.

Homeless and low-income persons are involved in entrepreneurial activities to monetise garbage by creating and selling artwork from recycled materials to souvenir shops as well as collecting and separating garbage from neighbourhoods that are inaccessible by trucks for the exchange of public services (bus tokens, theatre tickets and children's school supplies) and food products (fresh fruits and vegetables) produced by local farmers.

5.2 *The resource integration mechanisms*

Actors use resources to co-create sustainable solutions for the development of Curitiba through different resource integration mechanisms we named: i) acupuncture, ii) charette, iii) education and iv) smart technologies.

These resource integration mechanisms entail both low- and high-tech solutions. Urban acupuncture and charette are useful low-technology methods. The first is a strategic approach focusing on small punctual interventions to produce significant change, whereas the second is its executing mechanism.

Urban acupuncture provides new energy to the city to trigger positive chain reactions for the whole system and assistance during the process of long-term planning. The charette has been adapted from the creative design process developed in the architectural field. It relates to the quick brainstorming of experts, functionaries and citizens to find alternative, inexpensive and creative solutions for contingent and long-planning activities. It leverages the experience of the citizens and the vision, values and ideas of the entire community; ideas are selected and evaluated according to objective and subjective criteria that are clearly established *ex ante* (Mang, 2009). Objective criteria relate to simplicity, speed, and frugality. Solutions that are simple in design, quickly implemented and

inexpensive are more sustainable; furthermore, they increase people's autonomy in their implementation and reduce reliance on experts and professionals in the solutions of ongoing management.

Subjective criteria (i.e., human-scale, landscape, life, memory, and continuity) address the need to revitalise and provide the city with new energy. Accordingly, the selected projects must enable more human interactions, leverage and integrate with the landscape, celebrate the roots of the culture and place (i.e., the identity) and reconnect underutilised or shanty-town areas to urban life. The commitment to the above criteria allows cities to address resource scarcity by increasing creativity.

"If you want creativity, cut one zero from your budget. If you want sustainability, cut two zeroes from your budget" (source: Lerner quote, cited in Arbel, 2012).

The Wire Opera House is one of the most famous symbols of Curitiba. It was built in two months (speed) on the ruins of the abandoned mine in the city (continuity, landscape, identity) using recycled, inexpensive and readily available materials (simplicity, frugality) and with the support of the community as a whole. This cultural centre has an educational role as it symbolises the ability of the city to shift weak points by generating a change that will have far-reaching effects. Wire Opera House execution is a value statement that affects both visitors and citizens; it has the power to make visitors more aware of the value of sustainability and to make citizens aware of what they can accomplish for and through the city (source Lerner quote, cited in Arbel, 2012).

"The city is not a problem, it is a solution (...) So, in a city, you have to work fast. Planning takes time. And I'm proposing urban acupuncture. That means some focal ideas to help the normal process of planning (...)" (Lerner, 2007).

Both acupuncture and charette reconceptualise the community, the environment and the city itself as technological and innovation providers. They make people able to solve problems and to be effectively engaged in the economic and social development of the city. The active involvement of citizens is not a natural mechanism but requires an educational effort. This concept is clearly shown by the true commitment of the municipality to the education of all its citizens regarding the values of sustainability, solidarity and responsibility. These values have been instilled in citizens using a top-down approach to shape cities. The education process allows the transformation of the entire city into a learning environment by encouraging citizens to be active agents of change. At the operational level, education is an effective engagement mechanism to create partners that are aware of what they can and how they must integrate their own resources to create and capture value.

"A society must decide what it wants to invest in - training people for creative life or in jails that they will end up in if they don't get an education and professional training" (source: Lerner quote, cited in Arbel, 2012).

In addition, education is specifically addressed to encourage social integration and social inclusion. The following examples explain how such a concept is practically implemented: i) day centres provided street children living in the favelas with job opportunities (e.g., gardening work)

by engaging them in gardening courses and other educational activities relevant to their lives, ii) old buses were converted into classrooms and were sent on fixed days to various favelas around the city to teach adults basic literacy skills, and iii) the city's network of connectivity was improved, and wireless access points in some public areas has been created through specific projects (i.e., "Typing the Future" in 1999 and the "City of Knowledge" in 2005) to offer free Internet access (Duarte, 2014; Arbel, 2012). Recently, the spread of high-tech resource integration mechanisms related to smart technologies has allowed municipalities to improve the effectiveness of both educational initiatives and collaborative activities.

For example, more e-government services and relations centres have become available to citizens (i.e., the 156 service centre) (Duarte, 2014), and in 2016, the "Curitiba Creative Economy Online Contest" was launched to engage individuals and companies in designing new and creative business solutions in the sector of the creative and sustainable economy (Agencia Curitiba, 2016. Retrieved June 10, 2016).

Technologies have been integrated in and through the existing resource integration mechanism not only to improve service (electromobility, energy efficiency and low-carbon transport services) but to educate, empower, and promote the social inclusion of people and to design scenarios for up-scaling new sustainable solutions.

Open access fibre networks, free Internet access in low-income neighbourhoods, schools, electronic libraries, smart grids, mobility sensors, and new bus technologies perfectly match the collaborative nature of Curitiba by acting as a trigger mechanism to increase the value of collaboration. Accordingly, IT-based solutions positively affect the economic and social development of the urban context when they are integrated with other resources (e.g., city culture and identity, vision, hope, actors ability and skills) to engage citizens and other key stakeholders in co-responsible planning and management.

6. The co-responsibility practice

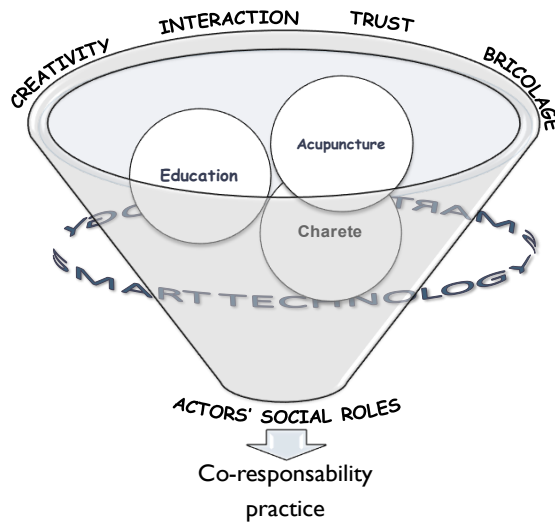
The development of a participatory approach and sharing of responsibility are topical conditions at the basis of service ecosystems innovation of Curitiba. The sharing of responsibility is an intrinsic social component of a resource-constrained context (Letaifa and Reynoso, 2015; Reynoso *et al.*, 2015). It implies a long-term design strategy and a well-planned practice, which we call co-responsibility, to actively and fruitfully mobilise key and knowledgeable stakeholders into both urban solution design and its implementation.

"Every problem in a city has to have its own equation of co-responsibility and also a design" (Lerner, 2007).

"The solutions to big problems like pollution, climate change and poverty are within us. We don't need big money to save us, just a little bit of co-responsibility and thinking outside the box. It can be as simple as just saying no to plastic and walking to the store instead of driving. Everything counts" (source: Lerner, cited in Arbel, 2012).

The practice of co-responsibility (Figure 2) addresses innovation needs through sustainable, collaborative and scalable solutions (Carida, 2018). Service innovation relies on four main resources - creativity, interactions, trust and bricolage - and emerges through the interplay of charette, acupuncture, education and smart technologies. The interplay among these components prompt the practice of co-responsibility through the enactment of multiple social roles i.e initiators, orchestrators, facilitators, partners and beneficiaries. This practice supports the development and diffusion of service innovation in emerging economies.

Fig. 2: The practice of co-responsibility



Source: Adapted from Carida 2018.

Creativity is the key resource to match the best possible quality of life with the lowest possible use of resources to provide alternative solutions to the wider urban context (Domareski-Ruiz *et al.*, 2019); interactions are the key resource to transform cities into living and interconnected ecosystem. Trust-based relationships allow the building of social values, such as identity, belonging, solidarity, and shared vision, and ties among local and international networks (Hojda *et al.*, 2019). Trust nurtures citizens' participation and play a key role to overcome the pervasive social problem of corruption in Brazil. Bricolage is the ability to do more by doing less and it is fundamental to enact sustainable innovation as it is rooted in simplicity, easy and rapid implementation, frugality and resource reuse. The resource integration mechanisms (see sub-paragraph 5.2) match, activate and integrate resources through the multiple social roles actors enact. Actors' social roles are also valuable resources; they are a function of each actor's resources, means, and knowledge and are empowered by the useful implementation of resource integration mechanisms.

Smart technologies have a double role, they act as cross-cutting and triggering mechanisms boosting the effects of both low-tech resource

integration mechanisms and of the fundamental resources deepening the practice of co-responsibility (Caridà, 2018). Smart technologies extend the practice of co-responsibility to the whole community as they allow synergies and interoperability within and across city policy domains and systems (e.g., transportation, energy, education, health and care, utilities) and re-shape citizens' daily lives by upgrading their knowledge and thinking abilities (e.g., Lighthouses of Learning, computer training). Accordingly, the Internet and smart technologies redesign the system of relationships between the government, private sector, nonprofits, communities and citizens.

The co-responsibility practice emerges through the interplay of resources, actors and integrating mechanisms and it allows innovative ways of doing by growing the co-commitment of actors to using and finding new way to integrate existing resources and build new ones. Making actors, including citizens aware of the effects of their involvement ensures both the possibility of development and the diffusion of innovation in emerging e economies

7. Theoretical and managerial implications

This study addresses the service innovation in emerging economies.

It draws on a service ecosystem perspective (Vargo and Lusch, 2011) to enrich the understanding of service innovation in emerging economies and to provide a tangible practice for its development and diffusion (Rubalcaba *et al.*, 2016; Ostrom *et al.*, 2015).

From a theoretical point of view, the service ecosystem perspective (Letaifa and Reynoso, 2015; Vargo and Lusch, 2011) captures the complexity of emerging market and contexts (Reynoso, 2015). It allows us to move beyond the more traditional issues of socially sound companies' innovation in emerging economies. Such a perspective addresses the need to go beyond single solutions and initiatives towards a more systemic approach that connects the entire community and depicts innovation as a new way of doing business in a context of interlinked elements and practice (i.e., actors, resources and integration mechanisms). In emerging economies, service innovation is socially driven and specifically addressed to provide inclusive solutions that benefit the entire community (Rubalcaba *et al.*, 2016; Reynoso *et al.*, 2015). Accordingly, it emerges through the active involvement of a network of actors that act as both resource providers and value beneficiaries.

This paper makes original contributions to scientific and practice debates with implications for scholars, managers and policy makers.

First the paper opens up to the role of multiple actors, including those who are commonly excluded and perceived as passive recipients (i.e., the poorest living at the BoP); these actors are themselves valuable resources. They co-create and capture social and economic value by integrating resources (e.g., knowledge, professional competences, values) in accordance with the social roles they enact (Akaka and Chandler, 2011; Tronvoll, 2017). These roles are initiators, orchestrators, facilitators and

partners and are neither static nor mutually exclusive. They can change and integrate themselves according to the various levels of interaction - micro, meso and macro (Akaka *et al.*, 2013) - through which actors put into practice their intended activities.

Second, the paper provides the co-responsibility practice that address service innovation as emerging through interplay of a complex system involving multiple actors, resources, roles and mechanisms of integration. Service innovation implies the rebundling of diverse resources to create novel resources beneficial to some actors in a given context (Koskela-Huotari *et al.*, 2016; Koskela-Huotari and Edvardsson, 2018; Lusch and Nambisan, 2015),

In resource-constrained contexts, co-responsibility is the main practice for promoting social and economic development. It relies on key elements we identified as integral to service innovation in emerging economies. These elements relate to fundamental resources (e.g., interaction, creativity, trust and bricolage) and resource integration mechanisms, which imply both social and technological issues (i.e., charette, acupuncture, education and smart technologies). Service innovation thus reflects a synthesis perspective (Rubalcaba *et al.*, 2016). It implies promoting changes in a context of interlinked elements, which includes the use of resources, actors' actions and the integration processes.

Third the paper frames practice of responsibility as an institutionalised form of service innovation that is able to economically sustain itself and to address multiple business social issues according to an ecosystem view. Co-responsibility puts actors and the roles they enact at the centre and emphasises collaboration among them as the key to providing low-cost, creative and alternative urban development solutions based on social value and integrated systems. It deals with "doing more by doing less" (Reynoso *et al.*, 2015; Gebauer and Reynoso 2013) and with the enactment of inclusive service as the emergent outcome of innovation activities. The practice of co-responsibility provides an alternative view of service innovation in emerging economies that is rooted in the effective implementation of the sharing of responsibility and the active engagement of the entire community in solution design and implementation processes. It is not limited to the individual perspective of the service provider (public or private) but entails the complexity of the service ecosystem as the key to understanding and developing inclusiveness. In these service ecosystems, technology is an inherent element of social innovation (Hojda *et al.*, 2019; Reynoso *et al.*, 2015), and its inclusive and social roles prevail and affect both the hard and soft dimensions of service innovation in emerging economies. It is specifically tailored to enhance the emancipation of actors, particularly those who live at the BoP, by allowing access to new services and the creation of smart and empowered actors. In this view, technology boosts value co-creation and social innovation and contributes to the proper harmonisation of the different stakeholders' interests for the improvement of the well-being of individuals and the overall system (Pellicano *et al.*, 2017). Because of its role in service innovation practice, we differentiate technology (Sklyar *et al.*, 2019) from other resource-integration mechanisms as it acts as a triggering mechanism that boosts

systemic networking and the development of new social practices, which are perceived by the whole community as the most natural way to improve the collective well-being of society.

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The practice of co-responsibility has also implication from a managerial point of view. In emerging economies, the actors' engagement mechanisms are often designed and developed without the active involvement of the beneficiaries and local actors, thus, the failure of many innovation initiatives depends on the lack of interaction with the intended users and on the resulting mismatch between the solution provided and the ability of the targeted customers to put it into practice (Letaifa and Reynoso, 2015). Co-responsibility practices can support managers to see at innovation as scalable and sustainable practice that is rooted in and nurtured by social values i.e. solidarity, inclusiveness.

Moreover, this study contributes reflections and suggestions on the systemic and recursive nature service innovation and can lead policy makers to elaborate strategies for optimising the development and implementation of new and creative solutions to solve all community problems and increase the well-being of both emerging and developed economies facing economic crises and resource constraints.

8. Limitations and further research

The main limitations of this study are the single case study, which does not allow the generalisation of the results, and the case study, we chose, as Curitiba is an excellent case (although not the only one) within the landscape of developing economies.

This work represents the starting point for further empirical studies to investigate other emerging economies to establish practices for the development and management of service innovation in developing economies.

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sinergie
italian journal of management

ISSN 0393-5108
DOI 10.7433/s110.2019.01
pp. 11-38



Italian Society of
MANAGEMENT

“I am apt to show off”: exploring the relationship between entrepreneurs’ narcissism and start-up innovation

Received
17th December 2018
Revised
24th July 2019
Accepted
22nd October 2019

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Abstract

Purpose of the paper: *In start-ups, innovation strategies are influenced by the entrepreneur’s personality. We aim to investigate such influence by exploring how entrepreneurs’ narcissism affects start-ups’ innovation.*

Methodology: *We integrated survey data on a cross-industry sample of 115 Italian entrepreneurs with secondary data consisting of patents, economic and financial information from a public database. The survey uses the NPI-16 scale to measure entrepreneurs’ narcissism.*

Results: *Results showed a non-linear relationship between entrepreneurs’ narcissism and start-ups’ innovation: high and low levels of narcissism are detrimental to innovation. Moreover, we found a substitution effect between market dynamism and start-ups’ innovation; the higher the level of market dynamism, the more negative the effect of entrepreneurs’ narcissism on innovation.*

Research limitations: *Being based on an Italian sample, the study does not address the impact of narcissism in other cultures.*

Practical implications: *Our study identifies the mechanisms through which entrepreneurs’ narcissism affects start-ups’ innovation and explores how the market scenario affects the relationship between entrepreneurs’ narcissism and innovation.*

Originality of the paper: *We show that narcissism might be positive for firms and identify how entrepreneurs’ narcissism affects start-ups’ innovation. We demonstrate that market scenario affects the relationship between entrepreneurs’ narcissism and innovation, while also showing that contextual factors can reveal important contingencies. From a methodological viewpoint, we applied the Narcissistic Personality Inventory (NPI) scale to a sample of entrepreneurs. Previous work mainly used secondary data consisting of business reports and interviews, or employed the NPI in samples of MBA students.*

Key words: narcissism; innovation; market scenarios; start-ups; entrepreneurship

1. Introduction

Innovation is crucial for enabling firms’ growth and survival because it enhances their ability to face competition, reduces production costs and creates dynamic capabilities (Dahlqvist and Wiklund, 2012; Eisenhardt and Martin, 2000). Start-ups are firms in the early stages of their life cycles, and their small size means that the entrepreneur is often both the founder and Chief Executive Officer (CEO) (DeTienne, 2010; Gatewood

et al., 1995), resulting in the so-called “founder-CEO duality” (He, 2008; Wasserman, 2003). Serving also as CEOs, these founders have formal and informal powers that allow them to devote the necessary resources to explore and implement promising ideas (Abebe and Alvarado, 2013). Previous literature suggests that a firm’s innovative performance is strongly influenced by the entrepreneur’s personality traits, i.e. extraversion, strategic orientation, and openness to experience (Baron and Markman, 2003; Kickul and Gundry, 2002; Marcati *et al.*, 2008). Scholars have examined the relationship between psychological disorders and entrepreneurship (Wiklund *et al.*, 2018), showing positive associations between entrepreneurship and dyslexia (Logan, 2009), bipolar traits (Johnson *et al.*, 2018), ADHD (Wiklund *et al.*, 2017), and mood disorders (Bogan *et al.*, 2014). However, so far there is no empirical evidence on the relationship between narcissism and the firm’s innovative performance.

Drawing on the Upper Echelons Theory (UET), which underlines the importance of the top management team’s traits for firm performance (Hambrick and Mason, 1984), this paper explores how entrepreneurs’ narcissism affects start-ups’ innovation. We consider start-ups to be an ideal empirical context for our study because the entrepreneurs’ personality traits will have a direct impact on the start-ups’ structure and performance, since the entrepreneur is often the founder and the CEO of the firms in start-ups. Start-ups’ routines are less rigid, allowing the firms to adapt more quickly to changes in their operating environment (Bruderl and Schussler, 1990).

The most common definition of a narcissist is an individual who is arrogant, haughty and grandiose, considers him or herself superior and deserving of special treatment, requires admiration, lacks empathy, is authoritarian, takes advantage of others, and overestimates his or her abilities (Campbell *et al.*, 2004; Chatterjee and Hambrick, 2007; Rosenthal and Pittinsky, 2006; Wales *et al.*, 2013). Narcissism encompasses a broad range of entirely negative characteristics and every sort of self-absorbed and self-centered behavior. If the lack of self-knowledge and restraint prevail in the narcissistic leader, there is a danger of unrealistic goals which will be detrimental to the firm’s long-run performance (de Vries, 1994; Maccoby, 2003). However, Maccoby (2003) suggests that narcissism can be productive if it involves a desire to change the world, risk taking, independent action and the passionate and persistent independent pursuit of a strategy and a vision.

We focus on entrepreneurs’ narcissism for three main reasons. Firstly, narcissism (compared to the other personality traits referred to above) tends to prevail among top management, especially since the mid-1990s (Campbell and Campbell, 2009; Engelen *et al.*, 2016; Grijalva and Harms, 2014). Secondly, it has been shown that the strategic choices of narcissistic CEOs differ systematically from those of non-narcissistic CEOs. This is because the former tend to engage in types of strategic actions that destroy the status quo ante rather than in incremental elaboration (Chatterjee and Hambrick, 2007). Thirdly, narcissistic individuals emerge as leaders within groups and are quickly perceived by others to be effective and influential (Engelen *et al.*, 2016; Judge *et al.*, 2006).

Klotz and Neubaum (2016, p. 11) “encourage entrepreneurship researchers to think deeply about what aspects of the entrepreneurial context (i.e., extreme resource constraints or high market uncertainty) will activate certain dispositional tendencies in entrepreneurs”. In line with this, we analyze how some market scenarios can moderate the relationship between entrepreneurs’ narcissism and innovative performance.

We chose to analyze markets with different levels of concentration and dynamism, which affects entrepreneurs’ managerial discretion and the effects of their personality traits on firm-level outcomes (Engelen *et al.*, 2014; Hambrick and Finkelstein, 1987). Market concentration refers to the degree of competition in one market (Jansen *et al.*, 2006; Miller, 1987). Dynamic markets are linked to unpredictability and rapid change in a start-up’s environment (Dess and Beard, 1984; Duncan, 1972). In stable markets, there are fewer price wars and less competition, and firms have greater market power. Stable environments are characterized by minimal changes to customer preferences, technologies and competitive dynamics, while highly dynamic industries are characterized by a high rate of change, instability and decision uncertainty (Jansen *et al.*, 2006; Sørensen and Stuart, 2000; Wallace and Baumeister, 2002).

We based our analyses on a cross-industry sample of 115 Italian entrepreneurs. Our results suggest that there is an inverted U-shaped relationship between entrepreneur narcissism and start-ups’ innovation. We considered the moderating effect of market conditions and showed that market concentration has no significant effect on the relationship between entrepreneurs’ narcissism and start-ups’ innovation. However, we found a substitution effect between market dynamism and start-ups’ innovation in relation to entrepreneurs’ narcissism.

Our study makes important contributions to research on innovation and narcissism. We investigate into the relationship between entrepreneurs’ narcissism and start-ups’ innovation. Previous work has only explored the relationship between narcissism and firm innovation in established firms (Wales *et al.*, 2013).

Our contribution to the narcissism literature is twofold. Firstly, we show that narcissism might be positive for firms and identify the mechanisms through which entrepreneurs’ narcissism affects start-ups’ innovation. Secondly, we demonstrate that the market scenario affects the relationship between entrepreneurs’ narcissism and innovation and show that contextual factors can reveal important contingencies. From a methodological viewpoint, we differ from previous studies by measuring narcissism through the application of the Narcissistic Personality Inventory (NPI) scale to a sample of entrepreneurs. Previous work mainly used secondary data consisting in business reports and interviews (Chatterjee and Hambrick, 2007) or employed the NPI in samples of MBA students (Campbell *et al.*, 2004).

2. Theoretical background and hypotheses

2.1 *The Upper Echelons Theory*

The Upper Echelons Theory (UET) claims that firm performance, organizational change, strategy, and structure are influenced by manager's and entrepreneur's experience and personal traits (Hambrick and Mason, 1984). The proposition underlying UET is that human has bounded rationality, that is the difficulty to access, process, and use information (Hambrick, 2007). Hambrick and Mason (1984) assert that, due to these difficulties, the CEOs' cognitive bases and personality traits impact their abilities to discern (i.e., observe and distinguish the differences), percept (i.e., know reality through the elaboration of external stimuli) and interpret (i.e., give meaning through knowledge). As a result, the CEOs' experience and personality traits impacted on the analysis of the situations they face and consequently on the strategic choices they make (Hambrick, 2007). Those strategic choices refer to the expensive investments that tend to alter the firm's scope because they involve significant risks and are often used to make changes or adjustments to the firm strategy (Wang *et al.*, 2016).

The first studies on UET mainly focused on the composition, characteristics, and behavior of top management teams; however, in recent years, greater attention has been paid to shedding light on how the traits of CEOs and the way they behave impact on strategic and organizational performance (Abatecola *et al.*, 2013). The strategic and organizational outcomes that are most often investigated are diversification, innovation, international alliances and risk propensity or aversion (Abatecola *et al.*, 2013; Carpenter *et al.*, 2004; Finkelstein and Hambrick, 1996; Hambrick, 2007).

Moreover, following the suggestion of Hambrick and Mason (1984), previous studies examine observable characteristics of entrepreneurs as an indicator of their way of behaving (Abatecola and Cristofaro, 2019). Thus, demographic characteristics, such as age, culture, formal education and gender, are used for this purpose (Finkelstein and Hambrick, 1990; Miller and Shamsie, 2001; Westphal and Zajac, 1995). Other demographic characteristics are investigated to display the impact of CEO values (Berson *et al.*, 2008), motivations (e.g., Wallace *et al.*, 2010), cognitive styles (e.g., Miller *et al.*, 1998), and risk propensity (e.g., Kraiczy *et al.*, 2015) on firms performance. Despite the numerous studies that show the importance of CEO demographic characteristics, only recent studies have examined how the impact of non-visible characteristics, such as CEO personality, are related to firm performance (Wallace *et al.*, 2010). The main personality traits that are commonly investigated are the Big Five (Sosik *et al.*, 2012), core self-evaluation (Resick *et al.*, 2009; Simsek *et al.*, 2010), and hubris (Hiller and Hambrick, 2005; Li and Tang, 2010). However, only a few studies have considered the impact of narcissism (Chatterjee and Hambrick, 2007; Chatterjee and Hambrick, 2011; Nevicka *et al.*, 2011; Zhu and Chen, 2015).

2.2 Entrepreneurs' narcissism and start-ups' innovation

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"I am apt to show off":
exploring the relationship
between entrepreneurs'
narcissism and start-up
innovation

Start-ups need entrepreneurs with high levels of innovativeness, proactiveness and willingness to take risks to grow and survive (Piispanen *et al.*, 2017; Wales *et al.*, 2011). Narcissism is one such personal trait. Freud (1914) was the first to discuss narcissism yet he considered it a psychological disorder or pathology. Waelder (1925) suggested that narcissism is a personality trait and defined narcissistic individuals as condescending, absorbed by self-admiration, and prone to experience feelings of superiority and lack of empathy. In the present study, we consider narcissism as a personality dimension that can range between low and high levels, and we do not consider its extreme manifestations due to personality disorder (Emmons, 1987). In fact, we focus on the productive dimension of narcissism and, in line with Maccoby (2003), we define a narcissist a person with a precise vision of how to change the world; a person who acts independently and is competitive and a risk-taker; a person who pursues a vision with passion and perseverance and who has strategic intelligence. Previous papers mostly analyze the impact of entrepreneurs' narcissism on the economic and financial performance of established firms, showing that narcissistic CEOs generally exhibit very positive or very negative performance (Chatterjee and Hambrick, 2007; Ham *et al.*, 2018; Judge *et al.*, 2006; Wales *et al.*, 2013). A few recent papers have begun to tackle the relationship between narcissism and firm innovation. Gerstner *et al.* (2013) illustrate the role of CEOs' narcissism in the context of radical organizational change by considering the adoption of technological discontinuities. They also consider the moderation effect of audience engagement on executive behavior, thus showing that when audience engagement is high, narcissistic CEOs will anticipate widespread admiration for their bold actions and will therefore invest in discontinuous technology. Finally, they consider the effect of executive personality on managerial attention, demonstrating that CEOs' narcissism will influence top managers' attention to discontinuous technology and this is reflected in the firm's investments in the new technological domain. Zhang *et al.* (2017) focus on the relationship between the paradoxical traits of humility and narcissism and firm innovation in China. They show that humility and narcissism interact to enhance CEOs' effectiveness in promoting firm innovation. Kashmiri *et al.* (2017) examine the relationship between CEOs' narcissism and the firm's innovation outcome. In particular, they show that firms that are led by narcissistic CEOs are likely to exhibit a higher rate of new product introduction and a greater proportion of radical innovation in their new product portfolios. However, all these studies focus on established firms, which are different from start-ups, firstly, because in established firms, which are generally very large, the figure of the founder and CEO are not the same person. Secondly, even if they do correspond, the distance between the personality of the decision-making figure and the action that should be undertaken is very high. In fact, the former relationship is mediated by the ideas and personality of the other members of the top management team and can also be influenced by the hierarchical levels that are present in the firm. Moreover, decision-making figures are

more likely to delegate decision authority (Graham *et al.*, 2015). In contrast, in start-ups, which are very small and agile, the entrepreneur is often both the founder and the CEO, and his/her personality has a direct impact on the choices and strategic actions that he/she undertakes (DeTienne, 2010). This because there are very few members in the top management team, or there may not be a top management team, or there may not be any high hierarchical levels that mediate the above relationship. Finally, Smith and Webster (2018) suggest that grandiose narcissism indirectly influences innovation through adaptability (i.e. the emotional control of people in changing environments or in case of crises or ambiguous situations). However, they tested their hypothesis on undergraduate students and working adults, not on entrepreneurs. We therefore claim that there is no empirical evidence of the relationship between narcissism and start-ups' innovative performance.

To explore the role of narcissism in enabling innovation, we identified three mechanisms through which narcissism works: (i) the charisma effect; (ii) the visionary effect; and (iii) the autocratic effect. The charisma effect helps the narcissist to raise capital easily and to obtain reassurance and support from followers. For example, when a narcissist pitches an idea to an investor or to his or her peers, this is invariably rewarded with agreement and support even if it is not particularly outstanding (Goncalo *et al.*, 2010). The audience (e.g., investors) is convinced and reassured by the narcissistic entrepreneur's personal capability (Elsbach and Kramer, 2003; Grijalva and Harms, 2014). This support and the extra financial input in particular, is fundamental in enhancing innovation. Moreover, the charisma effect inspires team members; entrepreneurs intrinsically motivate peers or employees to search for new approaches, solutions and creative ideas (Jung *et al.*, 2003; Keller, 2006; Obschonka and Fisch, 2018; Sosik *et al.*, 1998). However, the charisma effect reaches a turning point when its positive effect turns negative. In particular, risk tolerance and persuasiveness can turn into manipulative behavior, which is detrimental to innovation because being pushed towards a new idea might be negatively perceived by peers and employees, and therefore discourage their innovative activity (Mura *et al.*, 2013). Further, enthusiastic and entertaining behavior can become attention-seeking behavior that distracts both the entrepreneur and the organization from their mission. There is evidence suggesting that narcissists capable of charming their followers become addicted to their devotion and their desire for approval fosters a distortion of reality in order to prolong their "high" (Chamorro-Premuzic, 2012). Finally, extreme creativity, which is revealed when the charismatic effect is exhausted, can allow narcissistic entrepreneurs to think and act in an eccentric manner that can threaten their effective pursuit of business goals (Vergauwe *et al.*, 2018).

The visionary effect refers to how narcissistic entrepreneurs see the future and perceive opportunities. Generally, narcissistic people, since they are creative, are effective at devising novel solutions to complex problems and do not envisage any difficulties (Goncalo *et al.*, 2010). Narcissistic entrepreneurs have a clear vision, which they pursue at any cost; according to Sosik *et al.* (1998), a clear and challenging vision enhances the creative

and innovative output of peers and employees. However, the visionary effect can become negative because high levels of narcissism do not allow for any cessation of entrepreneurs' idea generation. This is detrimental, especially for start-ups, because they need to focus on a single innovative project and too many ideas result in blocked and delayed decisions (Hyytinen *et al.*, 2015; Talaulicar *et al.*, 2005). Moreover, if the ideas of a highly narcissistic entrepreneur are at odds with the start-up's vision, these efforts will focus on different objectives and not on the well-being of the new firm (Maccoby, 2003).

Finally, the autocratic effect refers to the tendency of narcissistic entrepreneurs to act independently and impose their views; a limited form of authority is good for collaborators and employees because it promotes safety and protection. There is evidence that shows that to improve innovation, autonomy should be under managerial control, meaning that managing the interactive relation between autonomy and control is fundamental in improving innovation and also important for controlling employees' motivation and self-esteem (Feldman, 1989; Volmer *et al.*, 2012). However, in this case as well, there is a turning point, in that the higher the level of narcissism, the greater the authority that is exercised, and there is evidence suggesting that high levels of authority, that is, centralization of decisional power, are detrimental to innovation (Damanpour, 1991). The entrepreneur's role is certainly fundamental for start-up growth, but collaboration, knowledge sharing and trust facilitate decision-making and eventual innovation (Talaulicar *et al.*, 2005).

Based on the above, we propose a non-linear (inverted-U shaped) relationship between narcissism and innovation. In particular, at low levels of narcissism we expect this relationship to be negative; at medium levels we expect it to be positive; and at high levels we expect it to become negative again. For these reasons, we hypothesize that:

Hypothesis 1 (H₁): Entrepreneurial narcissism is curvilinearly (inverted U-shape) related to start-up innovation.

2.3 The moderating role of market concentration and market dynamism

The industry is the setting where firms compete and make strategic choices (Yamak *et al.*, 2014). According to the UET, there are some forces inside the industry that may impact on the relationship between CEOs' traits and firm performance. According to Wangrow *et al.* (2015), the environment alters managerial discretion and this is why managers have substantially differing roles in affecting organizational performance across industries. Managerial discretion is the latitude of managerial action that is available to a decision-maker in a given situation (Hambrick and Finkelstein, 1987). Therefore, higher managerial discretion gives CEOs a wider range of options (Campbell *et al.*, 2012) and, at the same time, a greater latitude of action (Hambrick and Abrahamson, 1995). Because CEOs' goals are to sustain and improve firm performance and effectiveness (Barker *et al.*, 2001), it is interesting to investigate the dimensions that could constrain or favor CEOs' influence on organizational outcomes.

Finkelstein (2009) identifies three industry dimensions that impact on the above relationship: complexity, instability (dynamism), and munificence. In this paper, we focus on the impact of the first two dimensions.

In this work, we investigate the first element, industry complexity, by analyzing the market concentration. Market concentration refers to the degree of competition in a single market (Jansen *et al.*, 2006; Miller, 1987). Concentrated markets can affect new entrants' chances of survival due to the associated significant competition (Burke *et al.*, 2007). Firms in concentrated markets have higher margins and are protected by higher barriers to market entry (Hambrick and Finkelstein, 1987; Jansen *et al.*, 2006; Matusik and Hill, 1998). Entrepreneurs with new ventures need to be capable of organizing new, flexible combinations of complementary competencies and exploiting opportunities to cooperate with other (both new and mature) firms in the market (Vickery and Wurzburg, 1996). According to Wangrow *et al.* (2015), highly concentrated and highly regulated markets, as well as powerful external forces such as *competitors*, suppliers, and buyers, may limit managerial discretion. However, narcissists are more sensitive to context, particularly in interactive settings where they have the opportunity to demonstrate their superior performance to others and be acclaimed by their audience (Neveicka *et al.*, 2011). A highly concentrated market allows the entrepreneur to demonstrate his or her abilities to *competitors* (Engelen *et al.*, 2016). In addition, motivating and partnering facilitate innovation in concentrated markets by promoting the forging of strategic alliances and persuading *competitors* to collaborate in the pursuit of a common goal (Dess and Lumpkin, 2005; Wallace and Baumeister, 2002). We can hypothesize a complementarity effect between market concentration and entrepreneurs' narcissism to explain start-ups' innovation according to which, in the presence of a given level of entrepreneur narcissism, higher market concentration will lead to more innovation. We hypothesize that:

Hypothesis 2 (H₂): The inverted-U-shaped relationship between entrepreneur narcissism and start-up innovation is stronger in more concentrated markets compared to less concentrated markets.

Dynamic markets are linked to unpredictability and rapid change in the start-up's environment (Dess and Beard, 1984; Duncan, 1972). Stable environments are characterized by minimal changes to customer preferences, technologies and competitive dynamics, while highly dynamic industries are characterized by high rates of change, instability and decision uncertainty (Jansen *et al.*, 2006; Sørensen and Stuart, 2000; Wallace and Baumeister, 2002). Previous studies on UET have emphasized the role of environmental dynamism and its impact on performance (Henderson *et al.*, 2006; Wallace *et al.*, 2010). According to Ensley *et al.* (2006), start-ups in dynamic environments can achieve high levels of innovation if their entrepreneurs do not want to stand out from the crowd and are able to motivate the firm's employees to work together towards a common goal. Dynamic environments that require extraordinary commitment, focus and effort are well-suited to entrepreneurs who are able to recognize the possible gains of sharing responsibility and rewards with peers.

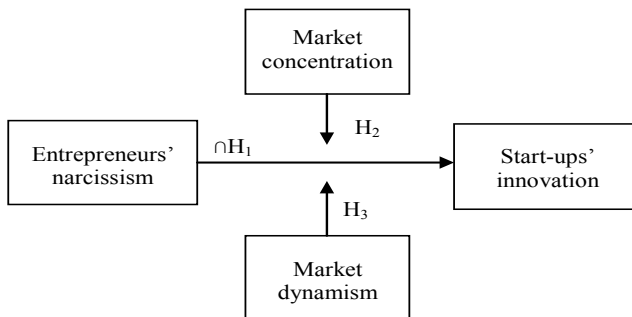
In a context characterized by high market dynamism, we expect the relationship between entrepreneurs' narcissism and innovation to be less productive than in a context of low market dynamism. An entrepreneur with an high level of narcissism motivates and reassures peers and employees while facing high levels of uncertainty in the environment; however, too much security and calmness are not conducive to rapid reactions to market changes and market evolution and can therefore penalize innovation (Baron and Tang, 2011; Judge and Piccolo, 2004). Moreover, independent and systems thinking grants the entrepreneur a high level of discretion in a context of unpredictable outcomes, limited availability of information and uncertainty (Baron and Tang, 2011; Gupta *et al.*, 2004; Judge and Piccolo, 2004); in this case, increased innovation will require team work and the sharing of credit and rewards.

These arguments suggest a substitution effect between market dynamism and the relationship between entrepreneurs' narcissism and innovation, according to which, in the presence of a given level of entrepreneur narcissism, higher market dynamism will lead to lower levels of innovation. Thus, we hypothesize that:

Hypothesis 3 (H₃): The inverted-U-shaped relationship between entrepreneur narcissism and start-up innovation is stronger in less dynamic markets compared to more dynamic markets.

The research model depicted in Figure 1 illustrates the core components of the study and how they are related.

Fig. 1: Research model



Source: Our elaboration

3. Methodology

3.1 Sample and data collection

The data for the analysis consists of survey data and secondary data from a public database, which increases external validity. Our sample is composed of Italian start-ups. The survey data were collected via a questionnaire. The first section in the survey includes the 16 items of the

NPI-16 scale to measure entrepreneurs' narcissism (Ames *et al.*, 2006). The original NPI-16 is in English and we employed a rigorous back-translation technique (Brislin, 1980) to ensure its accurate translation into Italian. The second section asks respondents for personal details such as the entrepreneur's name, age, sex and number of owned firms. We selected start-ups that were listed in the business register of Italian Chambers of Commerce and founded between 2012 and 2015, thus leading to an initial sample of 495 firms.

We contacted the start-up entrepreneurs through two channels. For those registered on LinkedIn, we used our own personal LinkedIn profiles to introduce ourselves and the study: 391 entrepreneurs (79%) responded to our invitation. We sent these 391 entrepreneurs a link to the electronic survey on levels of narcissism. In the case of those with no LinkedIn profile, we contacted them via Facebook or their personal e-mail address. We received 120 responses, 2 incomplete questionnaires, 3 which were anonymous, which meant that we could not link their responses to start-up innovation. We thus obtained 115 usable questionnaires, with a response rate of 23.23%. The survey was administered between January and November 2016; afterwards, we sent three follow-up reminder emails.

Economic and financial information were collected from the Aida database, which is a Bureau Van Dijk database that contains comprehensive information on firms in Italy. Aida data allow the research, consultation, analysis and processing of the financial information, accounts and business of all joint stock companies operating in Italy. We defined each industry using the two-digit ATECO code.

3.2 Measures

Our dependent variable, i.e. innovation, was derived from a different database in order to avoid common method bias. We used secondary data from the Italian register of patents. According to Shan *et al.* (1994), patents are an excellent measure of innovation. We decided to use a dummy variable because start-ups generally have small numbers of patents. Thus, if the value is 1 the start-up has one or more patents and zero otherwise.

We constructed the three independent variables, i.e. narcissism, market concentration and market dynamism, as follows. We measured narcissism using the 16-item NPI-16 scale that was developed by Ames *et al.* (2006) in the five-point Likert scale version (see Gentile, 2013). We conducted a Confirmatory Factor Analysis on the NPI-16 to create a measure for narcissism. To provide an indication of the reliability of our measure of entrepreneur narcissism, we computed Cronbach's Alpha to check the correlation between observed and true values. Cronbach's Alpha is equal to 0.86, above the widely accepted threshold of 0.70 (Nunnally and Bernstein, 1994).

We measured market concentration using the Herfindahl index. The formula is $H = \sum_{i=1}^l S_i^2$, where S represents the revenue market share and i is the index for the individual firm. Data were gathered from Aida and the Herfindahl index was calculated for each industry in the final sample ($\mu=1.073$, $\sigma=3.181$).

Market dynamism was calculated considering the standard deviation of the annual industry (2-digit ATECO code) sales growth rate (Barelds and Dijkstra, 2010). Data for the previous four years were gathered from Aida ($\mu=0.063$, $\sigma=0.096$).

We adopted a multilevel control as control variables. At the firm level, we used the start-up's initial capital, age, number of founders and total number of employees. At the individual level we checked the entrepreneur's age, education and previous experience of entrepreneurship. See Appendix A for more information on the control variables.

4. Results

Table 1 presents the means, standard deviations, and Spearman's correlations for the continuous and categorical variables. We checked for multicollinearity by using two important measures: tolerance and the Variance Inflation Factor (VIF). If the variables had all been completely uncorrelated to one another, tolerance and VIF would have both been 1. In our case however, they were close to 1.

Tab. 1: Descriptive statistics and correlation (N=115)

Variable	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9
1 Entrepreneurs' narcissism	-0.000	0.929	1								
2 Market concentration	1.055	3.156	0.189 ^{**}	1							
3 Market dynamism	0.062	0.096	-0.187 ^{**}	-0.776 ^{***}	1						
4 Start-up initial capital	3.443	0.993	0.060	0.014	-0.046	1					
5 Start-up age	3.817	0.601	0.053	0.243 ^{***}	-0.284 ^{***}	0.127	1				
6 Start-up number of founders	2.383	1.405	-0.118	-0.011	0.051	0.200 ^{**}	0.120	1			
7 Start-up total number of employees	1.139	0.457	-0.111	-0.223 ^{**}	0.238 ^{**}	0.194 ^{**}	-0.135	0.017	1		
8 Entrepreneur age	3.704	0.936	-0.105	0.020	0.041	0.251 ^{***}	-0.230	0.033	0.098	1	
9 Entrepreneur level of education	3.043	1.252	-0.008	0.149	-0.071	0.065	0.191 ^{**}	0.281 ^{***}	0.075	-0.063	1

* p<0.1, ** p<0.05, *** p<0.01

Source: Our elaboration

Since our dependent variable is a dummy variable, we employed logistic regression. Table 2 presents these findings. Model 1 includes the control variables and Model 2 adds the linear and quadratic terms of entrepreneur narcissism. Models 3a and 3b respectively add the effect of market concentration and of market dynamism to Model 2. Models 4a and 4b examine the moderating effects of market concentration and market dynamism on the relationship between entrepreneur narcissism and start-up innovation.

Tab. 2: Results of regression analyses (N=113)

Start-ups' innovation	Model 1	Model 2	Model 3a	Model 3b	Model 4a	Model 4b
<i>Control Variables</i>						
Start-up initial capital	0.481	0.787**	0.732*	0.843**	0.827*	0.870*
Start-up age	0.848	1.325	1.157	0.934	1.045	0.563
Start-up number of founders	0.108	0.026	0.046	0.040	-0.003	0.059
Start-up total number of employees	0.722	0.300	0.546	0.379	0.489	0.718
Entrepreneur age	0.042	0.112	-0.007	-0.003	-0.081	-0.132
Entrepreneur level of education	0.296	0.152	0.242	0.105	0.324	0.357
Entrepreneur previous experience	-0.287	-0.236	-0.057	-0.320	-0.040	0.010
<i>Main effects</i>						
Entrepreneur narcissism		-0.897*	-0.901*	-1.018*	-2.149**	-14.110**
(Entrepreneur narcissism) ²		-1.668**	-1.531**	-1.480**	-2.399**	-7.028**
Market concentration			0.180**		0.187*	
Market dynamism				-1.040*		-15.410***
<i>Two-way interactions</i>						
Market concentration x Entrepreneurs' narcissism					0.308**	
Market concentration x (Entrepreneurs' narcissism) ²					0.114	
Market dynamism x Entrepreneurs' narcissism						-23.270**
Market dynamism x (Entrepreneurs' narcissism) ²						-8.560*
Constant	-8.094**	-9.123**	-9.009**	-7.623	-8.648*	-14.680**
Log likelihood	-48.554	-44.126	-40.877	-41.507	-37.525	-35.300
LR Chi2	11.40*	20.26**	26.76***	25.50***	33.46***	37.91***
Pseudo R ²	0.105	0.187	0.247	0.235	0.308	0.349

* p < 0.10, ** p < 0.05, *** p < 0.01

Source: Our elaboration

Model 2 shows that entrepreneur narcissism has both a significant negative linear effect ($\beta=-0.897$, $p < 0.1$) and a significant negative quadratic effect ($\beta=-1.668$, $p < 0.05$) on start-up innovation. This confirms Hypothesis 1, i.e. that entrepreneur narcissism is curvilinearly related to start-up innovation. To ensure an accurate interpretation of the results, the significance of the inverted U-shaped relationship was assessed by following the three-step procedure proposed in Lind and Mehlum (2010). First, we tested the joint significance of the direct and squared terms of narcissism using the Sasabuchi (1980) inverted U-shape test. Second, we checked whether the slope was sufficiently steep at both ends of the data range; we observed that (i) the effect of entrepreneur narcissism on start-up innovation does not increase at low values of entrepreneur narcissism, and (ii) the effect of entrepreneur narcissism on start-up innovation does not decrease at high values of entrepreneur narcissism. Third, we estimated the extreme point of the effect of entrepreneur narcissism and calculated confidence intervals based on Fieller's standard error and the Delta method (Lind and Mehlum, 2010).

The confidence intervals for both Fieller's standard error and the Delta method indicated that entrepreneurs' narcissism values are within the limits of the data. Table 3 shows that the inverted U-shaped relationship is significant. As a final robustness check, Model 1 includes the cubic term of entrepreneur narcissism to ensure that the quadratic term is of the highest significant to determine the shape of the relationship between entrepreneur narcissism and start-up innovation (results not reported here). However, its inclusion produced no significant results.

Tab. 3: Test of an inverted U-shaped relationship between Entrepreneurs' Narcissism and Start-ups' innovation

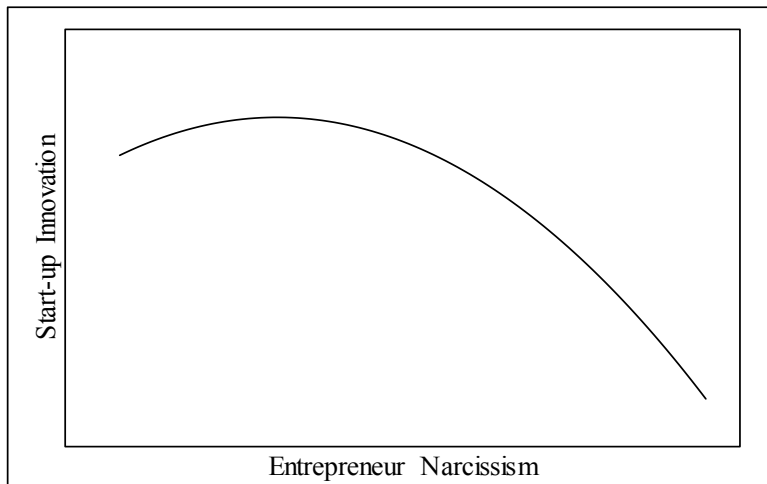
Sasabuchi test for inverse U shape		1.69 [0.0465]
Slope at X_l	$\hat{\beta} + 2\hat{\gamma}X_l =$	7.658 (-2.333)**
Slope at X_h	$\hat{\beta} + 2\hat{\gamma}X_h =$	-59.353 (1.694)**
Extremum point	$-\hat{\beta}/(2\hat{\gamma}) =$	-1.004
95% confidence interval, Fieller method		(-2.067; -0.675)
95% confidence interval, Delta method		(-1.292; -0.717)

Source: Our elaboration

Robust standard errors in parenthesis and p-values in square brackets.

Figure 2 plots the inverse U-shaped effect and shows that both very low and very high levels of narcissism are detrimental to start-ups' innovation, while medium levels of narcissism enhance innovation.

Fig. 2: The nonlinear relationship between entrepreneurs' narcissism and start-ups' innovation



Source: Our elaboration

Model 3a shows a significant positive relationship between market concentration and start-up innovation ($\beta=0.180$, $p < 0.05$). This is in line with the frequent finding on the relationship between a more concentrated market and innovation. In particular, it helps small firms to innovate and increase their innovative output because this small size allows these start-ups to react quickly to market demand (Bhattacharya and Bloch, 2004; Van Dijk *et al.*, 1997).

This is an opportunity for small firms to obtain a share of potential market power through innovation (Lind and Mehlum, 2010).

Model 3b shows a significant negative relationship between market dynamism and start-up innovation ($\beta=-1.040$, $p < 0.1$). In line with Ensley *et al.* (2006), start-ups achieve high levels of innovation in dynamic markets, depending on the entrepreneur's traits. Entrepreneurs should be outward looking, dedicated and hardworking, characteristics that can transform dynamism from being a threat to being an opportunity for a start-up.

Model 4a shows that market concentration has a non-significant moderating effect on the relationship between the quadratic term of entrepreneur narcissism and start-up innovation. Thus, the complementarity effect between market concentration and the predicted relationship between entrepreneur narcissism and innovation is not confirmed by our data; Hypothesis 2 is therefore rejected.

Hypothesis 3 refers to the moderating role of market dynamism on the effects of entrepreneur narcissism.

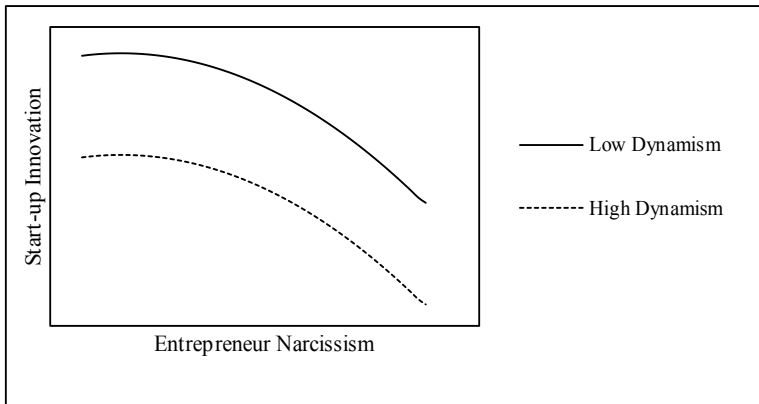
Model 4b shows that the first-order interaction between market dynamism and entrepreneurs' narcissism negatively ($\beta = -23.270$, $p < 0.05$) affects start-up innovation, and the second-order interaction is related negatively ($\beta = -8.560$, $p < 0.10$) to start-up innovation, which indicates that market dynamism weakens the effect of entrepreneur narcissism on start-up innovation (Aiken and West, 1991).

This confirms the presence of a substitution effect and the fact that market dynamism negatively moderates the relationship between entrepreneur narcissism and innovation.

To gain further insight into the interaction effects predicted in Hypothesis 3, we followed the procedure in Aiken and West (1991) to decompose the interactive terms and, following Dawson (2014), we plotted the interaction effect to facilitate interpretation (Figure 3). In the test, we split market dynamism into two groups, low (10th percentile) and high (90th percentile), and estimated the effect of entrepreneur narcissism on start-up innovation for both levels. Figure 3 shows a shift in the turning point of the U-shape toward the left-hand side (Haans *et al.*, 2016); this means that in industries with low annual sales growth, high levels of entrepreneur narcissism are associated to a higher probability of patent ownership, compared to high-sales growth industries.

Fig. 3: Moderation of market dynamism on the quadratic relationship between entrepreneurs' narcissism and start-ups' innovation

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Source: Our elaboration

5. Discussion and conclusions

This study investigated the relationship between entrepreneurs' narcissism and start-ups' innovation and how this varies with the industry context (i.e., market concentration and dynamism). We found support for the hypothesis that the relationship between entrepreneur narcissism and innovation is curvilinear (inverted U-shaped); thus, both low and high levels of narcissism are detrimental to start-up innovation, while medium levels of narcissism can increase innovation in new ventures. In terms of the moderating effect of market conditions, we found that market concentration does not have a significant effect on the relationship between entrepreneur narcissism and start-up innovation, but that market dynamism has an important, significant and negative effect on this relationship. In fact, when market dynamism is high, the relationship between entrepreneur narcissism and innovation is weaker than in the case of low market dynamism.

Our contribution to the literature is twofold. First, we examined unobservable entrepreneur traits. The previous studies investigating the link between CEOs' traits and the firm's innovation are focused on CEOs' age, tenure, and functional background (Finkelstein and Hambrick, 1990; Miller and Shamsie, 2001; Westphal and Zajac, 1995). Only a few papers underline the importance of the personality traits of the CEOs and their impact on the firm's innovation, but they rather generally consider established firms (Gerstner *et al.*, 2013; Kashmiri *et al.*, 2017; Zhang *et al.*, 2017). We fill in these research gaps by investigating entrepreneurs' personality traits, and focusing on the founder-CEOs' duality, as well as their influence on the firm's innovation - particularly in new and small ventures. This is because, in a start-up, the entrepreneur acts as founder-CEO and has a centralized decision-making process, which provides a high level of control over decisions that are made in the firm.

Second, we demonstrated that the importance of the environment in affecting the impact of entrepreneur personality traits on start-up innovation in an effort to enrich previous research. We used a famous paradox to explain our contribution: the “right” people regularly end up in the “wrong” places (Navis and Ozbek, 2016). Therefore, in order to benefit from narcissism, firms that are run by entrepreneurs with medium levels of narcissism should be located in less dynamic markets. Our results show that in the case of high levels of market dynamism, the relationship between entrepreneurs’ narcissism and innovation is weaker than those in which the levels of market dynamism are low.

Our findings have some practical implications for the founders-CEOs entrepreneur of start-ups. They should understand how to develop the self-knowledge that is needed to be successful in business and they should realize the importance of forming teams composed of individuals with different and complementary personalities and strengths. Moreover, they should consider the main features of the market in which they operate because innovation can increase or decrease based on the moderating effect of these features on the entrepreneur’s personality traits.

Entrepreneurs with high levels of narcissism should be aware that the environment will affect the outcomes of their start-ups: for instance, if the new venture is in a very dynamic market, narcissistic entrepreneurs should curb this personality trait or find a trusted colleague who will help to keep them rooted in reality (Maccoby, 2000). The second practical implication is for executive coaches, principally in helping them develop higher education and teaching methods. We hope that this study will help them to establish a developmental and situational view of narcissism. Although individual traits are relatively stable, life changes or role transitions can change self-views or behavioral tendencies (Caspi *et al.*, 2005; Zhang *et al.*, 2017).

According to Hoyle (2013), individuals can regulate their cognitions, motivations or behaviors when the situation requires it; therefore, coaches can consciously train entrepreneurs to adopt complementary cognitions, motivations and behaviors when necessary. Moreover, to foster innovative propensity, executive coaches should encourage individuals with a high creative inclination to apply and organize their ideas so as to apply them in the new business, while less creative individuals should be challenged to think outside of the box.

The present study has some limitations that suggest avenues for further research. Our results are based on an Italian sample, so the study does not address the impact of narcissism in other cultures. Second, the paper focused on innovation and ignored the relationship between entrepreneurs’ narcissism and other measures of performance. Future research could consider the relationship between narcissism and business internationalization or capital raising. Finally, it would be worth investigating how entrepreneurs’ narcissism influences or is influenced by other members of the work team.

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Appendix A: Control variables description

Variable Name	Variable Type	Description	Source
<i>Start-up initial capital</i>	Multinomial variable	1= from 1€ to 5,000€; 2= from 5,001€ to 10,000€; 3= from 10,001€ to 50,000€; 4= more than 50,001€	Aida and Italian register of innovative start-ups
<i>Start-up age</i>	Continuous variable	Reference year 2017	Aida
<i>Start-up number of founders</i>	Continuous variable	Number of founders	Aida
<i>Start-up number of employees</i>	Multinomial variable	1= from 0 to 4 employees; 2= from 5 to 9 employees; 3= from 10 to 14 employees	Aida and Italian register of innovative start-ups
<i>Entrepreneur age</i>	Multinomial variable	1= less than 20 years old; 2= between 20 and 29 years old; 3= between 30 and 39 years old; 4= between 40 and 49 years old; 5= between 50 to 59 years old; 6= more than 60 years old	Survey
<i>Entrepreneur level of education</i>	Multinomial variable	1= high school; 2= bachelor's degree; 3= master's degree; 4= MBA; 5= PhD	Survey
<i>Entrepreneur previous experience</i>	Dummy variable	Did you manage or found other firms? 0= No; 1= Yes	Survey

Source: Our elaboration

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The evolution of agency-client relationships within the communication network in Italy: the perspective of communication partners

Received
1st October 2019
Revised
16th January 2020
Accepted
6th February 2020

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Abstract

Purpose of the paper. Due to the digital revolution, the agency-client relationship has become more complex. Fitting into the recent academic literature on this topic, this study aims to deepen and conceptualise the agency-client relationship evolution in Italy. We adopted a twofold perspective: (i) “transversal”, to acquire the holistic vision of emerging issues of the new communication scenario and their consequent effects on the relational dynamics of agency-client for all the players (i.e., advertising and PR agency, media centre, digital agency) and (ii) “vertical”, to better emphasise the specificities of each category of the agency.

Methodology. Qualitative exploratory research was conducted based on in-depth interviews (n=53) with senior consultants belonging to different categories of players within the communication network. The data were analysed using qualitative content analysis and the cognitive mapping technique.

Findings. By adopting the communication partners perspective, two interpretative frameworks were developed with respect to (1) key emerging issues that define the new communication scenario and (2) consequent effects on the evolution of the agency-client relationship. Specific themes emerged in the relational dynamics of the agency’s various categories.

Research limits. This study shows the limits of qualitative research on the non-representativeness of results.

Practical implications. The holistic interpretation by the various actors of key issues that qualify the new scenario, along with the understanding of their consequent effects on agency-client relationships, could contribute to improving the performance of each player and, in this way, of the entire communication network.

Originality of the paper. The study explores the agency-relationship evolution in Italy, a context that has still not been studied in-depth, while presenting relevant aspects of marketing communication. Additionally, the article proposes a twofold vision of the client-agency relationship evolution, i.e. “transversal” and “vertical”, for the first time.

Key words: communication partners; agency-client relationships; communication network; digital revolution; integrated marketing communication; cognitive mapping technique

1. Introduction

Due to the digital revolution and the consequent transformation of *integrated marketing communication* (IMC) (Mulhern, 2009; Winer, 2009), the topic of agency-client relationships has become more complex (Keegan *et al.*, 2017).

In the market of communication services, several specialised players have appeared, to the point that advertisers have begun to involve a plurality of partners in the development of integrated campaigns, creating multiple relationships that make up the *communication network* (Grant and McLeod, 2007). In this context, significant critical issues emerge in terms of the coordination of various partners, distribution of power, growing conflict among network nodes (Grant *et al.*, 2012; Biraghi, 2017) and progressive deterioration of relationships (Forrester Report, 2010; Thomas, 2015; Diaz-Mendez and Saren, 2019; Mortimer and Laurie, 2019). This communication scenario is made more complex by interrelated phenomena, i.e., the growing centrality of empowered consumers in brand value co-creation (Vollero *et al.*, 2019), the multiplicity of digital and traditional media used in an integrated way, and the need for new solutions to optimise the return on investment in communication, especially in the short term. Considering this complexity, as stated by Taylor (2017), what truly seems central is the construction of a “good” relationship between communication agency and client (or advertiser). This is truer still if we consider the significant role that agencies can play in the development of advertisers’ marketing strategies (Kegan *et al.*, 2017) and in helping clients reap the benefits of IMC (Mortimer and Laurie, 2019), particularly in the new hybrid and interactive communication scenario (Vernuccio *et al.*, 2012).

However, in view of growing interest in the agency-client relationship, there are still several aspects to be explored, as shown by recent calls for research on this issue (e.g., Keegan *et al.*, 2017).

First, it seems relevant to understand whether and how relational dynamics can vary according to the type of agency involved in the relationship (Keegan *et al.*, 2017). Previous research on the evolution of relationships (e.g., Laurie and Mortimer, 2019; Mortimer and Laurie, 2019) considers the “agency” category in a homogeneous way, thus underestimating the variety of types within it or focusing only on advertising and/or PR agency. Less attention is paid to the relational dynamics that involve other partners of the communication network, i.e. the media centre and the digital agency.

Second, given the importance of the *country-specific* cultural perspective in directing the evolution of the relationship, there is an opportunity to explore this issue in countries other than those on which previous studies have focused (mainly the UK and USA) (Keegan *et al.*, 2017).

From this point of view, Italy seems to be an interesting context to investigate for several reasons. First, our country has suffered from the financial crisis more than other European countries, showing a significant contraction in communication spending (Mindshare, 2016; MarketLine, 2019). In terms of the media mix, there has been a progressive increase in

investments in digital advertising, while those in print media have been drastically reduced. Television continues to be the main advertising channel (unlike other countries such as the UK and France), although spending is declining in favour of digital media advertising (IAB Europe, 2018). Today, Italy is in fourth place for advertising investment at the European level and fifth for digital advertising investment (MarketLine, 2019), showing slow growth of the advertising market. Therefore, the digitisation process has seemingly still not reached the level of maturity that has been found in other European countries like the UK, Germany and France.

Finally, almost all of the agencies belonging to large communication networks (e.g., *WPP*, *Omnicom*, *Publicis*, *Interpublic*) operate in Italy, therefore it is possible to easily acquire the point of view of players who know the local market well but have a strong international perspective at the same time.

Based on these factors and in the absence of studies conducted in Italy, this work aims to deepen the agency-client relationship evolution in our country in detail by adopting a twofold perspective:

- (i) *transversal (horizontal)*, to acquire a holistic vision for all players (i.e., advertising and PR agency, media centre, digital agency) and to develop two interpretative frameworks that represent emerging issues of the new communication scenario and their consequent effects on the relational dynamics of agency-client;
- (ii) *specific (vertical)*, to better highlight the specificities of each category of the agency, both traditional (i.e., advertising agency, PR agency, media centre) and new (digital agency).

In this way, we identify the main relational issues and challenges to be addressed in order to improve the performance of each category of players and the entire communication network.

The paper is structured as follows: in the following paragraph, we will describe the literature on the evolution of the agency-client relationship (§ 2.1), and then we will introduce the purpose of the study (§ 2.2). After describing the method (§ 3), the main results will be presented (§ 4). The work ends with the conclusion, which presents the academic contribution of the study (§ 5.1), its managerial implications (§ 5.2), and evidence of its limitations as well as further research (§ 5.3).

2. Theoretical background and research questions

2.1 The evolution of agency-client relationships

Studies on agency-client relationships began to develop in the 1950s, with a growing interest in the subject from the late 1990s onwards (Keegan *et al.*, 2017), when the effects of the digital revolution began to mature and, as a result, the push towards the evolution of IMC emerged (Šerić *et al.*, 2015). The latter is characterised by the shift from the supremacy of traditional *firm-centric* and *push (inside-out)* communication models to the increasing relevance of *consumer-centric*, *pull (outside-in)* and *social (outside-out)* models (Bruhn and Schnebelen, 2017).

The evolution of the consumer's role and the media landscape has led to new strategic and organisational challenges for all communication players (Vernuccio and Ceccotti, 2015) and to new agency-client relational dynamics. According to some authors, the diffusion of social media and "digital proliferation" are at the basis of *the increase of the relational complexity between the advertiser and their communication partners* (Turnbull and Wheeler, 2016; Keegan *et al.*, 2017; Taylor, 2017; Huges *et al.*, 2018; Mortimer and Laurie, 2019).

First, relationships must be rethought in light of growing consumer protagonism and the need to consider the consumer as a partner in the creation of brand value and not as a simple communication target (Gambetti *et al.*, 2016). Moreover, we are witnessing the specialisation of the skills of communication partners and the consequent proliferation of specialised and hyper-specialised agencies (Ceccotti, 2018). Therefore, clients increasingly turn not only to advertising agencies but also to other communication specialists. This has led to the overcoming of traditional dyadic agency-client logic and to the *emergence of the communication network* (Grant and McLeod, 2007) or *specialised network* (Ceccotti and Vernuccio, 2014). The latter includes all the multiple relationships that exist between the advertiser and the various communication partners involved in the development of an integrated campaign (Eagle and Kitchen, 2000): the advertising agency, the media centre and specialised agencies.

In this context, coordination among the various players becomes a central issue (Kitchen *et al.*, 2007; Keller, 2016). However, in the literature, there are no clear positions as to whether the advertiser or the agency should act as the coordinator. While some studies have emphasised the fundamental coordinating role played by the client (Beard, 1996; Kitchen *et al.*, 2009; Kliatchko, 2009), others have highlighted the central contribution provided by the account planner of the advertising agency (Crosier *et al.*, 2003) or the media centre (Grant and McLeod, 2007). Recently, some authors have highlighted the *increasing power of the client within the network*. Indeed, advertisers could have the task of fostering collaboration among the different partners and defining clear remuneration systems that can take into account the individual agency contribution, the commitment to collaboration among agencies and the overall success of the project (Laurie and Mortimer, 2019). However, communication agencies believe that the client has not yet fully taken on this role (Mortimer and Laurie, 2019) and, therefore, conflicts of interest and opportunistic behaviour may prevail within the network (Grant *et al.*, 2012).

The agency-client relationship should be inspired by the logic of medium-to-long-term partnership (Durkin and Lawlor, 2001; Mortimer and Laurie, 2019). This happens when there is continuity in the relationship, high complexity in the consulting service, shared objectives, affinity among the parties (e.g., in terms of size of the advertiser and the agency) and, finally, a dense network of formal and informal contacts between agency and client (Marcati, 1997; Vollero, 2008).

However, studies on the evolution of the agency-client relationship have shown the *progressive deterioration of relational dynamics* and the gradual disappearance of this logic of medium-to-long-term partnership

for different reasons. According to Heo and Sutherland (2015), there has been a reduction in relational transparency, with a reduction of information exchanges among the players (Mortimer and Laurie, 2019). Moreover, there is a divergence in the objectives of the client and the agencies: while the former seems more oriented towards obtaining results in the short term (Vernuccio *et al.*, 2018), the latter are often more inclined towards creative experimentation or triggering mechanisms of co-creation that require a longer time frame (Gambetti *et al.*, 2016). Agencies do not feel very involved in the client's strategic decisions and see the standing of the provided service become progressively reduced (Laurie and Mortimer, 2019). For the client, this can be attributed to some types of partners' low propensity to change, like in the case of advertising agencies that have not been able to evolve proactively and sometimes show signs of resistance to change (Durkin and Lawlor, 2001; Wagler, 2013; Ceccotti and Vernuccio, 2014; Mortimer and Laurie, 2017). Moreover, in the face of the specialisation of some agencies, the client might note the partner's inability to consider the integrated campaign as a whole (Thomas, 2015; Mortimer and Laurie, 2019).

However, the deterioration of the relationship can also be attributed to the evolution of the client, who is more concerned about controlling performance achievement in the short term than about building a stable relationship with the communication partner (Durkin and Lawlor, 2001; Forrester Report, 2010). Moreover, the client is sometimes unable to correctly judge the value of the consulting service provided by the agency due to limited experience. This often happens because of the *junioritisation* process (Diaz-Mendez and Saren, 2019) following the entrance of young managers with high digital skills but inadequate managerial experience (Vernuccio and Ceccotti, 2015). This can trigger a "vicious circle of value depletion" (Diaz-Mendez and Saren, 2019), which leads the agency to become just a supplier instead of a partner (Mortimer and Laurie, 2019).

2.2 Purpose of the study

Although the academic literature has started to analyse the evolution of agency-client relationships in the communication network, in our opinion, some important aspects remain to be examined in depth, in response to recent calls for research (Keegan *et al.*, 2017). First, to date, no systematic, in-depth and transversal analysis has been conducted with respect to all the main communication partners (i.e., advertising agency, media centre, PR agency, digital agency). Indeed, previous studies have focused mainly on traditional players, i.e., advertising and PR agencies (e.g., Kitchen and Schultz, 1998; Valentini, 2015), while paying less attention to other categories, in particular, media centres and digital agencies.

Moreover, given the importance of *country-specific* cultural aspects in orienting the evolution of relationships, it is useful to study this phenomenon empirically in countries other than those considered so far (UK and USA in particular), such as in European and Asian countries, as suggested by Keegan *et al.* (2017). In the absence of studies conducted in Italy, it is important to investigate the evolution of the agency-client

relationship in our country. Italy has some unique characteristics in terms of marketing communication, such as a media mix that still leans towards television advertising and marketing communication digitisation that has not reached full maturity yet (IAB Europe, 2018). Moreover, the impact of the economic-financial crisis on communication spending in Italy has been greater than that in other European countries (MarketLine, 2019), showing a strong correlation with GDP. Though the impact of the crisis on communication spending and media mix has been discussed in previous studies (Picard, 2001; Collesei and Checchinato, 2010), what seems to be missing is the analysis of its effects on the agency-client relationship.

In this context, our research aims to develop two *interpretative frameworks* relating to changes in the communication scenario and consequent effects on the agency-client relational dynamics in Italy by empirically analysing the perspective of Italian communication professionals in a transversal way with respect to the different categories of players.

Therefore, we formulate the following research questions:

RQ1 - What are the *emerging issues*, understood as the key aspects characterising the change in the marketing communication scenario, that have consequences on the evolution of the agency-client relationship?

RQ2 - What are the main (direct and indirect) *consequences* that the emerging issues of the new scenario have on the evolution of the agency-client relationship?

The adopted perspective is that of the communication partners, i.e., those more or less specialised structures that support advertisers in various ways in the ideation, planning, implementation, diffusion and measurement of brand communication. The key players that meet the “demand” for communication services of the advertiser company (Vollero, 2008) include advertising and public relations agencies, media centres and digital agencies.

Unlike previous research (Laurie and Mortimer, 2019; Mortimer and Laurie, 2019), this study goes beyond the agency’s homogeneous view in order to consider the specificities of the various categories of communication partners. As a result, we formulate the last research question:

RQ3 - Are there any *differences in the agency-client relational dynamics* based on the specific category of agency?

3. Methodology

To deepen the evolution of agency-client relationships from the perspective of communication professionals, a qualitative exploratory approach based on in-depth personal interviews was adopted (Creswell, 1998). This choice is also linked to the nature of the object of investigation, which is not suitable for quantitative measurement because it presents blurred and constantly changing outlines (Molteni and Troilo, 2003). A total of 53 professionals in top positions belonging to three macro-groups were interviewed:

- *Traditional agencies* (n=26), i.e., advertising agencies (n=6), integrated agencies¹ (n=7), media centres (n=4), public relations agencies (n=6) and advertising sales agencies² (n=3);
- *Digital agencies* (n=10);
- *“Highest points of view”* (n=17), i.e., trade associations of agencies and advertisers (n=9), large advertisers (n=6) and international networks (n=2). In this case, the objective was to have a more transversal vision of the causes and effects inherent in relational dynamics for the various types of players, thanks to their privileged perspective as observers (trade associations), advanced users (*“big spender”* advertisers) and coordinators (international networks) of the different agencies, both traditional and digital.

For the choice of professionals, the *key informant approach* was adopted (Robson and Foster, 1989), thus inserting only expert profiles in the “theoretical sample” (Dexter, 1970). Only subjects with a leading role within the agency (e.g., CEO, President), advertiser (e.g., Marketing Director, Head of Global Advertising) and trade association (e.g., President, Head of the Study Centre) were contacted. Potential interviewees (n=200) were sent an email inviting them to participate in the study with a summary of the research project³. On average, the respondents have 23 years of professional experience in the field of communication, have worked in four different organisations throughout their careers and are 78% male (see Appendix - Study informants).

The interviews were conducted by telephone or at the interviewee’s office, and lasted between forty and sixty minutes. The data were recorded, transcribed in full and analysed with qualitative content analysis (Langdrige, 2004; Braun and Clarke, 2006). For the elaboration of the interpretative frameworks, the cognitive mapping technique was used (Chaney, 2010), which allows us to highlight the concepts underlying the respondent’s mental representation of the phenomena, as well as the relationships between these concepts. In particular, the phases of the *“documentary coding method”* (Wrightson, 1976) were followed: codification of the text, preparation of the “dictionary” (list of all the concepts used by the interviewees and their related *verbatim*), as well as the *“relationship card”* (to identify the relations between the concepts), and the design of the collective cognitive maps (Swan, 1997). These are holistic models resulting from the systematisation of the positions that transversally emerged from the analysis of the interviews.

With regard to the analysis of the maps, in line with the exploratory and qualitative approach of the study, it was decided not to resort to the structural analysis of the maps but rather to their qualitative reading (Chaney, 2010). A qualitative analysis of the meaning of the nodes

¹ The integrated agency offers consultancy about several marketing communication mix tools (e.g., advertising, PR, direct marketing, digital marketing) (Ceccotti, 2018).

² The interviews with the professionals belonging to the advertising sales agencies were aimed at acquiring a more complete picture of the relationship involving media centres and advertising agencies.

³ The response rate (26.5%) is in line with that found in studies with similar respondents (Waldman *et al.*, 2006; Conte *et al.*, 2017).

(concepts) and of the causal links between them (RQ1, RQ2) was therefore conducted. Finally, the analysis of the content has also allowed the deepening of the specificities of the different partners (RQ3).

4. Results

Based on the qualitative content analysis and the application of the “*documentary coding method*”, two interpretative frameworks were developed: the first represents the emerging issues of the new communication scenario (RQ1), while the second outlines the consequences of these issues on the agency-client relationship (RQ2). The first framework (fig. 1) was developed to transversally analyse the variety of meanings associated with the new scenario for the different players by outlining the main sub-themes (category links) for each macro-theme. The elaboration of the second framework (fig. 2) was guided by the aim of highlighting the effects of these issues on the evolution of the agency-client relationship, outlining the main causal links. In the presentation of the results, the specificities of the relationship between the client and the different types of agencies will be highlighted (RQ3).

4.1 *Emerging issues of the new communication scenario*

On the basis of the communication scenario evolution in Italy, there are two phenomena that are transversally perceived by the respondents: the *digital revolution* at a global level - with the diffusion of the Internet, social media and mobile devices - and the *economic-financial crisis* (fig. 1).

The combination of the digital revolution and the economic-financial crisis has led to six issues (macro-themes) that characterise the new scenario of marketing communication and are at the basis of the evolution of the agency-client relationship in our country (fig. 1): *a) complexity; b) liquidity; c) speed; d) measurability; e) client evolution; and f) budget reduction.*

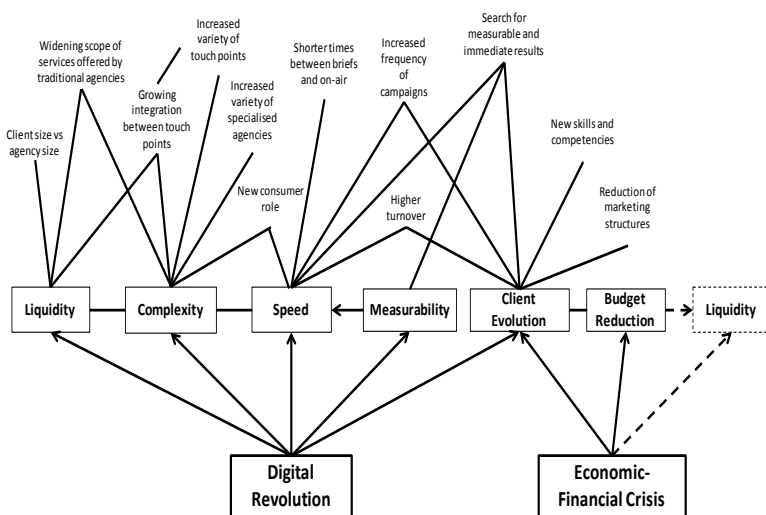
These macro-themes have been broken down into sub-themes by using category links (fig. 1).

- a) *Complexity* is a central issue for the interviewees, who describe the new scenario and the new communication practices as “more complex” than in the past. This theme, which is seen as a direct and exclusive effect of the digital revolution, refers to two main areas: (1) an *increased variety of touch points and specialised agencies* and (2) *the new role of the consumer*. Touch points are increasing in terms of variety and, as we shall see in relation to liquidity, they continue to be less separated from each other and used in omni-channel and integrated logic. The second meaning of complexity, which is especially highlighted by digital and PR agencies, lies in the change in the role of the consumer, who has become the protagonist, *always-on* and multi-channel, seeking a more direct, transparent and “democratic” relationship with brands.
- b) *Liquidity* is generated jointly by the digital revolution and the economic-financial crisis and is a dimension of complexity. The meaning of

this term is not that of the economic and managerial disciplines, but rather more similar to the sociological field (Bauman, 2000). In this case, liquidity is linked to the progressive blurring of well-defined boundaries of “objects and subjects” (Mattiacci, 2014) that operate in the world of communication. In the perception of the interviewees, this theme also presents the following different meanings:

1. The progressive disappearance of the separation between marketing communication tools and media in the logic of a growing integration of touch points;
2. The widening of the scope of services offered by traditional agencies. For example, the advertising agency also combines consulting services in the field of public relations, and the media centre also provides data-driven creativity. This phenomenon can be attributed not only to the digital revolution, but also to the crisis that has forced agencies to look for new business opportunities;
3. The disappearance of the traditional affinity between client and agency size. With regard to the supply of services, large agencies (especially advertising agencies) are also starting to pay attention to smaller clients: even if they are not strategic for the growth of the agency, they at least allow the firm to cover fixed costs in times of crisis. As regards the demand side, there is a growing use of the services provided by small- and medium-sized agencies (especially digital agencies) by large advertisers. Until a few years ago, this choice was linked to the client’s willingness to experiment with new areas of communication starting from a low budget, but today it is mainly due to the search for a highly specialised service, which is provided by more streamlined and flexible structures, that can guarantee the client a higher level of caring.

Fig. 1: Emerging issues of the new communication scenario (RQ1)



Source: our elaboration.

- c) *Speed* is the second dimension of complexity (in addition to liquidity) and relates to the variability of phenomena over time. According to the interviewees, this issue is one of the main consequences of the digital revolution. Speed can be traced back to three fundamental perspectives that concern (1) the consumer, (2) the advertisers, and (3) the agencies. (1) In the case of the consumer, speed refers to the immediacy of reaction to the different communication stimuli, the rapidity in the consumption of the messages, and the exhaustion of attention and interest on the part of distracted individuals who are always in search of new stimuli. (2) With reference to the advertisers, speed refers to the search for immediate results by the managers. This is not only an effect of the digital revolution (which allows accurate and rapid measurements of behavioural communication results), but also of the economic-financial crisis (which has shortened the time in which such returns must be obtained). The increased frequency in the request for communication campaigns by advertisers is linked to the speed of consumption of messages by the consumer and the need to have immediate results by the client. (3) Regarding agencies, speed is associated with the reduction of the time that elapses between the client's *brief* and the campaign's *on-air* exit. This reduction in time is the result of more streamlined decision-making processes, also due to the rapid consumer reactions that require timely responses from the agency, in agreement with the advertiser. In addition to shorter decision-making times, there is a progressive reduction in the time taken to produce messages, which are often reviewed to follow the consumer throughout the different phases of the *customer journey*. Finally, digital media purchase times are shorter: because of automation, they can be planned and purchased in *real time* (*programmatic buying*).
- d) The fourth issue of the new scenario is *measurability*, which derives directly from the digital revolution. The causal relationship between measurability and speed is clear: the latter is made possible thanks to the use of data, which makes decisions and purchasing processes faster and, by this means, the optimisation of digital campaigns in real time. Not only *ex ante* but also *ex post* data availability has completely changed the communication mindset, formerly based on "estimation" and now on the objective measurement of behavioural results.
"The digital revolution has instilled the concept of measurement in the advertiser's mindset. Before there was no such concept... communication was based on estimation, while with the advent of digital [tools] you can measure everything, both before and after. Communication today is more informed because it calls for the use of data in both pre and post. Today, we have the ability to analyse and track consumer behaviour that was previously unthinkable" (CEO, Media centre).
- e) The combined effect of the economic crisis and the digital revolution has an impact on *client evolution*. The crisis has led to tension towards measurable and immediate results and the reduction of marketing structures due to the exit of many professionals from client companies. Alongside this quantitative reduction, several respondents also highlighted the qualitative change in client structures resulting from the

digital revolution, with the acquisition of new skills and competences to manage the more technical aspects of digital communication. Therefore, younger professionals were hired, with a higher turnover than experienced with more “traditional” professionals. However, this higher turnover is also widespread for managers who were not involved in digital activities and who, especially in large multinational companies, are assessed based on their ability to achieve the objectives that are set in the short-medium term.

- f) Finally, *budget reduction*. Although it represents one of the aspects of client evolution resulting from the crisis, in our analysis, its consequences on the evolution of agency-client relationship is important enough to set it apart.

4.2 Consequent effects on the evolution of the agency-client relationship

The new scenario outlined above has several effects on the evolution of the agency-client relationship. In particular, the main relational consequences that emerged from the analysis are as follows (fig. 2): *a) client disorientation; b) increased intensity of the relationship; c) more objectivity in the evaluation of the service provided by the agency; d) greater stability of the relationship (virtuous path); e) greater volatility of the relationship (vicious path); f) changes to the managerial level and experience of the marketing counterparts (client).*

- a) *Client disorientation*. Faced with the fragmentation of the marketing communication network (complexity) and the dilution of the boundaries between the different players (liquidity), there is a risk of disorientation (confusion) on the part of the client, who may not be able to effectively select the “right” agency within the new scenario. Some of the interviewees from the traditional agencies believe that this disorientation is gradually disappearing and that clients are becoming more aware of the specific contribution they should expect from different types of agencies.

“Until recently, we were invited to agency pitch presentations where I wondered ‘why did this invitation come to us?’... We were competing with an agency that had absolutely nothing to do with us. Digital revolution created a lot of confusion for the client. Today, the situation is slowly changing” (Managing Director, PR Agency).

However, respondents working in digital agencies point out that it is still difficult for advertisers to properly assess their contribution especially in the case of branding initiatives: clients expect to obtain results in this area as quickly as they are used to obtaining results from more performance-oriented digital initiatives.

- b) *Increased intensity of the relationship*. This effect derives from the issue of speed and, in particular, from the meaning that is more closely linked to the current *modus operandi* of both agencies (that adopt rapid processes to respond to the speed of the consumer) and clients (that require increasingly frequent campaigns). Such higher intensity is to be understood in terms of opportunities for exchanging information and communication between the parties, who interact more frequently than

in the past, when relational dynamics were marked by few milestones: the brief, the presentation of creative proposals and media planning (in the case of a full-service agency) and the final approval. The relational intensity also increases when the agency tries to start a virtuous path by presenting itself to the client as a strategic business consultant (not only as a communication consultant).

“We are increasingly becoming consultants to our clients...this translates into a relationship that is continuous, which requires many hours a day and many days in our client’s offices...this is the only key to doing business today” (CEO, Digital agency).

c) *More objectivity in the evaluation of the service provided by the agency.* According to some respondents, there is a greater objectivity in assessing the service provided by the agency, thanks to the greater measurability of the communication results. This applies not only to the contribution made by digital agencies but also to traditional agencies, which are increasingly committed to delivering measurable results to their clients. Therefore, it seems to have reduced the importance that is given to the personal and subjective aspects that often guided the choice of the agency and the evaluation of its work by the client in the past.

d) *Greater stability of the relationship (virtuous path).* Faced with a scenario that is becoming increasingly complex, the fundamental role of agencies in simplifying such complexity and providing a high level of consulting services to client companies emerges.

“The more ‘complicated’ the marketing communication is, the more the client needs consultants who can help him to simplify the complexity. On our side, we have to develop in-depth analysis and understand what works, how and when” (CEO, Media centre).

In terms of demand for communication services, the reduction of the client’s marketing structures increases the propensity to delegate efforts to outside consultants who can better guide the communication strategy, safeguarding message consistency by means of various tools and media and, consequently, the value of the brand for each target.

“Clients are looking for a single point of contact because they want to give the agency an advisory role for activities that they once carried out internally” (President, Trade Association).

In relation to this need, the agencies have taken different paths, one virtuous and the other vicious.

The agencies that have grown in recent years are those that have been able to offer significant contribution to their clients as strategic communication partners and business consultants. This path is primarily taken by the media centres, which are perceived by the clients as strategic partners, for various reasons: (1) proactivity to adopt changes triggered by the digital revolution by reducing the complexity of the new scenario for the client; (2) expertise with data to manage communication campaigns in a more effective and efficient way; and (3) financial stability, which allows them to acquire the best talents in the job market.

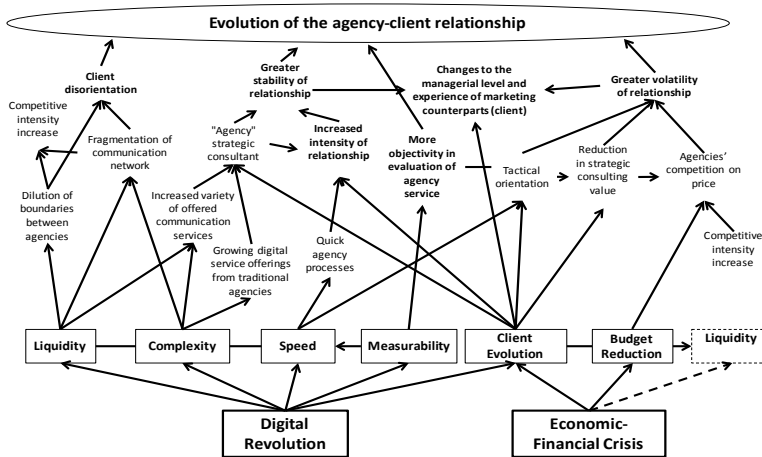
Moreover, in Italy media centres are assuming a central role in the communication network, both as a full-service agency (through the acquisition of skills in *data-driven* creativity) and as an integrated agency. Therefore, this player is assuming the role of coordinator in the specialised network that was mainly played by the client or advertising agencies in the past.

Finally, PR agencies are trying to play an increasingly strategic role: these players have faced the change faster than advertising agencies by acquiring expertise in dialogue and brand content storytelling. Having strong experience in content management, these agencies position themselves as strategic consultants in the construction and maintenance of brand equity and brand reputation. However, this process is still in progress and has very uncertain outcomes.

As regards the new players, this virtuous path also characterises those agencies that position themselves as strategic digital consultants (e.g., *digital enablers* and *system integrators*) by accompanying clients in the overall digital transition.

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Fig. 2: Evolution of the agency-client relationship (RQ2)



Source: our elaboration.

- e) *Greater volatility of the relationship (vicious path)*. This effect is the opposite of the previous one and starts from the fragmentation of the communication network and the consequent increase in the competitive intensity among agencies. This is due to (1) liquidity related to the blurred borders between the players and the lack of the traditional affinity between client and agency size, and (2) complexity, in terms of the growing variety of specialised players. Hence, the client is experimenting with new alternatives, especially when these require smaller investments. As a result, there is greater difficulty in establishing long-term partnership between agencies and clients and, therefore, an increase in the volatility of their relationship. Moreover,

the increase in competitive intensity in a slow-growing market, such as that of marketing communication in Italy, shifts the *focus* of competition among agencies to price.

The increased price competition also depends on the reduction in the perceived value of the consulting services that are provided by some agencies. Indeed, if the agency does not make the leap towards an integrated value proposition and support the client's strategy, the risk of seeing the agency contribution "diminished" becomes high. Moreover, the client is often moved by a tactical orientation, which is based on the search for immediate results. Therefore, the client is not led to correctly acknowledge and pay the value of the strategic consulting service that the partner offers. In such cases, the agency is perceived as a highly fungible supplier: the main criterion for choosing a communication consultant is an economic one, and the client, in the constant search for efficiency, will prefer the agency that offers the requested service at the lowest price.

As mentioned above, this vicious path particularly involves advertising agencies and, to a lesser extent, PR agencies.

"Advertising agencies have not been able to make a qualitative leap forward; they have not been able to maintain their role as consultants alongside the clients, the owners of the brand's know-how. They have allowed themselves to be marginalised and, as a result, instead of maintaining the role of conductor over all the other musicians, they have set themselves at the same level of the others...which is why today's advertising agencies are in competition with everyone to regain this role" (CEO, Integrated agency).

Agencies attribute the responsibility for this vicious circle to clients who, according to some respondents, underestimate the effects of continuous change: although there are no apparent high costs in changing communication partners, there is a risk of weakening brand positioning and losing brand equity in the medium-long term.

- f) *Changes to the managerial level and expertise of the marketing counterparts (client).* The matter of the managerial level of the marketing counterparts (i.e., managers who relate to the agency within the client company) is linked to the type of path (virtuous vs. vicious) of agency-client relationship dynamics. As we have seen, when the agency offers strategic consulting services, it manages to avoid price competition and obtain a more mature and lasting relationship. In this way, the strategic partner manages to have a counterpart in the client company at a higher managerial level. This is especially the case for media centres and digital consulting agencies (that support the client in digital transformation). On the other hand, when agencies undertake the vicious path of relational volatility, there is a reduction at a managerial level of their marketing counterparts. This is most frequently the case for advertising and PR agencies.

An important aspect related to the client concerns the introduction of new digital skills, with a consequent managerial renewal. According to some respondents of traditional agencies, this change may represent a potential relational risk when the specialist (digital) skills of managers

are not supported by adequate managerial experience. If this case, critical relational issues could arise, especially when there is a substantial difference in age and “experience” between the youngest resources (on the client’s side) and the most mature ones (on the communication partner’s side).

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5. Conclusion

5.1 Academic contribution

This study is part of the recent academic literature on the evolution of the agency-client relationship and proposes a systematic analysis of the perspectives of Italian communication professionals on the innovative issues that characterise the marketing communication scenario and consequent effects on agency-client relational dynamics in Italy.

The geographical focus is the first original aspect of the study, which aims to investigate specificities in the evolution of agency-client relationships in a context that had not been studied in-depth yet while presenting unique aspects of marketing communication (§1 and § 2.2).

A second academic contribution concerns the breadth of the adopted perspective, which unlike previous studies (Kitchen and Schultz, 1998; Durkin and Lawlor, 2001; Kitchen *et al.*, 2004), considered the standpoints of different types of agencies, and went even deeper by examining under-researched players (i.e., media centres and digital agencies). The emerging issues of the new communication scenario and consequent relational effects that result from the analysis were represented through two *conceptual frameworks*. The latter contribute to the literature by offering a “transversal” understanding of all players’ perspectives with reference to the main concepts (nodes), the meanings associated with these, and the links that exist among them. Therefore, we proposed an advancement of the literature that has investigated these phenomena “monadically” and not in a holistic way (e.g., Diaz-Mendez ad Saren, 2019; Laurie and Mortimer, 2019; Mortimer and Laurie, 2019).

Moreover, in view of the increasing variety of communication partners (Ceccotti, 2018) and in response to recent calls for research on relational issues (Keegan *et al.*, 2017), this study proposed the first “vertical” reading of agency-client relational dynamics by focusing on the point of view of different categories of agency in terms of heritage and value proposition.

Our analysis identified six fundamental issues of discontinuity that define the new scenario of marketing communication in Italy (§ 4.1): *complexity, liquidity, speed, measurability, client evolution and budget reduction*. These derive from two important phenomena, the digital revolution and the economic-financial crisis. As far as the effects of digitisation on complexity and measurability are concerned, our results are substantially in line with previous studies (§ 2.1), while they present traits of originality regarding other issues - such as liquidity and speed - which have been analysed with respect to agencies, clients and consumers for the first time. In addition, the economic-financial crisis represents a *country-*

specific factor in Italy, taking on considerable relevance in the perception of respondents in determining both the liquidity of the new scenario and client evolution. While previous studies have described the effects of the crisis only on the overall level of investments in marketing communications and on the media mix (e.g., Picard, 2001; Collese and Checchinato, 2010), our research adopted a broader perspective: in addition to the effects of the crisis on budget reduction, here we also considered those relating to client evolution and scenario liquidity, which are the basis of the evolution of the agency-client relationship.

Regarding the main consequences of emerging issues on the agency-client relationship in Italy, six relational effects have been identified (§ 4.2): *client disorientation, increased intensity of relationships, more objectivity in the evaluation of the service provided by the agency, greater stability of relationships (virtuous path), greater volatility of relationships (vicious path), and changes to the managerial level and experience of marketing counterparts (client).*

These results underline interesting aspects related to the client and the various categories of agencies in Italy. First, client disorientation is a phenomenon that emerges in our country, and is not found in other studies that investigate more digitally advanced countries (§ 1 e § 2.2).

The increased intensity of relationships and objectivity in the evaluation of the service involve Italian advertising and PR agencies in particular, while digital agencies benefit from these new requests from clients.

The results seem to be in line with previous studies (§ 2.1) concerning the increased centrality of the media centre in its role as a network coordinator (Grant and McLeod, 2007 in Scotland). However, for the first time, we have demonstrated this trend for some digital agencies.

Moreover, our results outline the emergence of the phenomenon of a “vicious circle of value depletion” that had been found in recent studies on agency-client relational dynamics (Diaz-Mendes and Saren, 2019): this phenomenon seems to be more frequent for Italian advertising and PR agencies.

5.2 Managerial implications

Our results highlight some specific issues for the various categories of agencies, thus providing useful managerial implications for each player.

Currently, the media centre is conquering an important role as a strategic consultant and main partner of the client in integrated communication campaigns, having acquired relevant skills in data-driven creativity. Due to this new role, the media centre can count on very high-level marketing counterparts and on a greater stability of relations, having transformed the collaboration with clients into real long-term partnerships. In light of our results, this player has yet to face some challenges: (i) the development of creative skills, offering a “favourable” workplace both for data scientists and creatives and (ii) the extension of the scope of offered services in an increasingly integrated way. This could require a process of business model innovation, in order to offer a value proposition that is truly integrated, consumer-centric and omni-channel.

The digital agency is also becoming increasingly important from a relational point of view. The results show how the relational intensity and, almost as importantly, the possibility of evaluating this player on the basis of more objective criteria than those used for traditional agencies have led to an improvement in the role of consultants for this category of agency. However, in view of the still current disorientation of the client regarding the contribution made by digital agencies, it is important for them to play an important formative role not only in proposing communication initiatives but also in developing the client's digital culture. Only by doing so could this player acquire the role of strategic partner and therefore take the "virtuous" path, counting on the greater stability of their relationship with the client.

The findings highlight the loss of the advertising agency's strategic role in Italy due to the reduction of the value that the advertiser attributes to its consulting service. For this reason, the advertising agency is often considered as a fungible provider and not as a partner with whom to maintain long-term relationships. Hence, we observe the increasing relational volatility and the connected deskilling of the marketing counterparts in the client. Consequently, it is necessary for this player to regain a strategic role by proposing itself as a business consultant and taking on a training role for the client in view of such a complex scenario. PR agencies must also move in the same direction. Although PR agencies seem to have started the digital transition earlier than advertising agencies, they are having trouble in conveying the real value of their consulting service. In light of these results, advertising and PR agencies must deeply rethink their business model by initiating or continuing an important process of digital transformation. First, they have to organise the agency (i.e., people and structure) in a way that could respect the *speed* of the new scenario and the imperative of efficiency due to client budget reduction (e.g., process automation, acquisition of new resources and digital skills). Moreover, advertising and PR agencies have to design a value proposition that is more integrated and more performance-oriented to better deal with competition from media centres and digital agencies.

Finally, the interviews demonstrated that there is still a condition of client disorientation regarding the greater variety of offered communication services. This critical situation is destined to diminish over time following the maturation of the effects of the digital revolution. However, it must necessarily be a joint effort between the client - in the acquisition of the necessary skills for a better choice and evaluation of the partner - and traditional and new agencies - in their presentation of a clearer and more distinctive value proposition.

5.3 *Limitations and further research*

This study presents all the limitations of qualitative research, which prevents any generalisation of the results. Moreover, the perspective that was selected for this study was that of the communication partners and not the client. Accordingly, all the considerations concerning the advertisers are mainly the result of the perception of the professionals who support

clients in marketing communication campaigns. In our opinion, this is a first aspect worthy of further investigation.

In addition, it could be interesting to involve other players in the research, such as digital and social network platforms (e.g., Google, Facebook, etc.). In fact, it seems appropriate to further investigate the different configurations of the network and the relational dynamics that are triggered as a consequence, in terms of collaboration and competition, among advertising agencies, digital agencies and digital platforms. It could also be interesting to explore the process of business model innovation that traditional players - above all advertising and PR agencies - have to enact to regain their strategic role in the communication network.

Moreover, the digital agency-client relationship deserves to be investigated to understand whether the life cycle of the relationship and critical relational issues present some differences with respect to traditional players.

Finally, a comparative analysis of the agency-client relationship evolution in other European countries that have not been analysed yet, such as Spain and France, could be useful to better understand similarities and differences among the main advertising markets in Europe.

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Appendix - Study informants (n=53)

Macro-group	Category	Organisation	Participant job title
"Highest points of view" (n=17)	Trade association of agencies and advertisers (n=9)	ADCI	President
		Assocom	President
		Assocom	Managing Director
		Assorel	Managing Director
		HUB PR	President
		IAB	Marketing Director
		UNICOM	President
		Centromarca	Communication and external relations Director
		UPA	Head of Studies Office
	International network (n=2)	Publicis Communications	Communication and external relations Director
		WPP Italy	External relations Director
	Advertiser (n=6)	BNL	Retail communication Manager
		Enel	Head of global advertising
		Ferrovie dello Stato	Head of branding and communication
		Findus	Marketing Director Southern Europe
Garofalo		Global marketing Director	
L'Oreal		Digital and communication Director Cosmetique Active	
Traditional agencies (n=26)	Advertising agency (n=6)	J. Walter Thompson	Head of digital
		Leo Burnett	Managing Director
		Ogilvy & Mather Italia	CEO
		Ogilvy & Mather Italia	Creative Director
		Agenzia Alfa*	Managing Director
		Y&R Italia	Managing Director (Rome)
	Integrated agency (n=7)	Acqua Group	CEO
		Acqua Group	President
		Enfants terribles	Business Development Manager
		Gruppo Roncaglia	General manager
		Gruppo Roncaglia	Strategic planner
		Red Cell	CEO and Head of strategy
		Zero starting ideas	CEO
	Media centre (n=4)	Havas media group	CEO
		IPG Mediabrands	Marketing Director
		Mec Italy	CEO
		Omnicom Media Group Italia	CEO
	PR agency (n=6)	Comin & Partners	Founder
		Edelman Italia	Senior vice president marketing and creative director
		Istituto Nazionale per la Comunicazione	Project manager
		SEC RP	CEO
		Soluzione Group	Founder
		Weber Shandwick italia	Managing Director
	Advertising sales agency (n=3)	Hearst	Digital Director
		Rai Pubblicità	Research and communication Director
		Concessionaria Beta*	Marketing Director- Head of Digital
Digital agencies (n=10)	Digital agency (n=10)	Alkemy	VP Communication
		77 agency	Managing Director (Rome)
		AKQA	VP Sales and marketing Italy
		BizUp-Upstory	CEO
		Connexia	CEO
		Digital agency Gamma*	Head of strategy
		Doing	Partner
		Seolab	CEO
		We are social	Managing Director
Webranking	President		

* Respondent asked the authors not to give the name of the organisation he/she belonged to (fictitious name).

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sinergie

italian journal of management

ISSN 0393-5108

DOI 10.7433/s110.2019.03

pp. 63-85



Italian Society of
MANAGEMENT

Asymmetric information in subcontracting decisions: the effects of the first mover advantage¹

Received
1st August 2019

Revised
8th August 2019

Accepted
25th November 2019

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Abstract

Purpose of the paper: *The article analyses, in an adverse selection set-up, the effects of the first mover advantage in subcontracting decision between a manufacturer and a supplier in the situation of asymmetric information.*

Methodology: *The study proposes a game theory model to analyze a supply chain consisting of a single risk-neutral supplier and a single risk-neutral manufacturer facing a contract definition problem.*

Results: *The model suggests the strategies to obtain a more convenient arrangement for the manufacturer both in screening and signaling framework.*

Research limitations: *The empirical examination with real-life data needs to be expanded and performed in a cross-sector context.*

Practical implications: *The model helps the manufacturer in designing the appropriate arrangement for subcontracting relations and extracting hidden information from the suppliers.*

Originality of the paper: *Our approach provides a comprehensive quantitative analysis of the effects of the first mover advantage in manufacturer-supplier relationships.*

Key words: information asymmetry; subcontracting; manufacturer; supplier; signalling; screening

1. Introduction

In recent times, factors including competition among companies, growing expectations of customers and products' short life cycle require companies to manage their resources along the supply chain as efficient as possible. Efficiency goals may be met through decisions of cost cutting such as business process reengineering (Aitken *et al.*, 2003) and organizational efforts such as strategic simplification of processes with the aim to focus on firm's core competence (Prahalad and Hamel, 1990). A traditional method to achieve simplification and efficiency of processes is to offload activities, processes and functions to an outside partner by using outsourcing and subcontracting arrangements (Quinn, 1999).

Specifically, subcontracting is the choice of a firm to procure an item or service instead of producing it by using its own resources and facilities.

¹ Selected paper from ADACI-SMART Conference 2018, Tivoli Terme, Roma, Italy, November 8-9, 2018

This choice requires the firm to select the appropriate subcontractor and design a contract that contains all the specifications available to the supplier to perform the required activity (Day, 1956). In making the subcontracting decision, a firm needs to take into account many factors including internal capacity and the cost of in-house production, the characteristics of the suppliers and their production costs per unit. However, asymmetric information and performance ambiguity negatively impact on the search for efficiency in the subcontracting decision (Biong, 2012), as suggested by Arrow (Arrow, 1963, p. 45): “[. . .] by definition the agent [subcontractor] has been selected for his specialized knowledge and the principal [manufacturer] can never hope to completely check the agent’s performance”. In such a context, the maximization of the manufacturer’s profit is strongly linked to the possibility to extract hidden information concerning the resources and capabilities of the supplier in order to reduce the threat of opportunistic behaviour and increase the efficiency of the subcontracting decision.

In order to solve the asymmetric information problem mentioned above, we propose a game theory model to study a supply chain consisting of a single risk-neutral supplier (or subcontractor) and a single risk-neutral manufacturer facing a contract design problem in the subcontracting decision. The manufacturer doesn’t know the exact cost structure of the supplier such as raw material costs, labor costs, and yield of production. Therefore, the supplier’s marginal production cost or his type (specialized or not specialized) is only privately known. This naturally leads to an adverse selection model which considers both signalling (Spence, 1973) and screening (Rothschild and Stiglitz, 1976) settings. In the signalling, the informed player (the supplier) benefits from the first mover advantage and takes actions before the manufacturer agrees to a contract while in the screening the order to play is inverted and the manufacturer can benefit from the first mover advantage.

Our model discusses and compares different ways to obtain hidden information - concerning the supplier’s ability and quality level (or attributes) of the supply offer - and maximise the manufacturer’s expected profit. We analyse the problem from the manufacturer’s perspective, also providing recommendations on the more appropriate actions to uncover the hidden information from the supplier either in the case of the manufacturer doing the first move (screening case) or the supplier’s doing an offer at first (signalling case).

The model can be applied to situations where the manufacturer trades with the supplier for the first time: here, the manufacturer may not fully understand the supplier’s technology, degree of specialization and workforce profile and thus may not be able to evaluate the supplier’s production costs. A supplier with highly flexible resources (e.g., general-purpose equipment and cross-trained workers) may have a different marginal production costs from one with highly dedicated resources (e.g., specialized equipment and workers). This leads to highly unpredictable situations for the manufacturer, thus increasing the threat of opportunistic behaviour.

The model is also useful to suggest the most appropriate actions for

the manufacturer to reduce the amount of uncertainty in transactions with well-known suppliers. Here, the set up is endogenous as the partner starting the transacting process is chosen by the nature of the economic exchange and by the bargaining power of the actors. This situation is the most common in traditional manufacturer-supplier relationship where endogenous factors - such as type of supply, firm size, availability of suppliers, market concentration, risk aversion, etc. - determine who has the interest in starting the transaction by sending/offering information or request. Our model provides recommendations for the manufacturer in order to obtain the most efficient subcontracting arrangement, i.e. a separating contract such that each type of supplier signals or is screened effectively. The study also provides an empirical examination of the model with real-life data from the fashion industry in order to show its potential in concrete situations.

2. Literature review

The practice of subcontracting is widespread in many industries because of the many advantages this can bring to a firm. When a firm subcontracts out some of its tasks, this allows it to concentrate on its core competence. Subcontracting lowers investment requirements, and thus, the financial risk of the firm. It also helps the firm improve its response to customer demand. Furthermore, if a firm subcontracts an entire operation to a subcontractor, the demand uncertainty of the supply chain is reduced through the risk-pooling effect (Chen and Li, 2008).

A large body of literature discusses the benefits and issues of subcontracting by using a quantitative modelling (Ioannou, 1995). There is a considerable part in literature also dedicated to contract design under the assumption that the parties in the supply chain possess the same information when making their decision (see, for details, Tayur *et al.*, 1999; Cachon, 2005). Here, we limit our analysis to the quantitative research dealing with information sharing and asymmetric information in supplier-manufacturer relationships.

Along this domain, Corbett and Tang (1999) consider optimal contracts in six scenarios. They compare the profits in these different scenarios and examine the value to the supplier of getting better information about the retailer's cost. Biong (2012) examines the relative importance of various signals of supplier reputation conveying information about unobserved supplier quality, which is important for identifying the best tender in service subcontracting. Ha (2001) considers the problem of designing a contract to maximize the supplier's profit in a supplier-buyer subcontracting relationship for a short-life-cycle product. Özer and Raz (2011) propose a model to study the competition between a big and a small supplier over a component supply contract to a downstream manufacturer. They analyze how the optimal two-part tariff offered by the big supplier and the resulting supply chain performance depend on his information about the other player's cost structure. Çakanyildirim *et al.* (2012) propose a game theory model to analyse contracting and coordination between a supplier and a

retailer under asymmetric production cost information. They suggest that information asymmetry alone does not necessarily induce loss in channel efficiency.

Our adverse selection model is different from the above in two fundamental ways. First, we address the optimal structure of the manufacturer-supplier arrangement in subcontracting decisions considering both the screening and signalling set-up. To the best of our knowledge this approach is novel in operational management literature. Second, we assume the manufacturer maximization profits perspective and compare screening and signalling mechanisms as devices to obtain hidden information concerning the supplier's characteristics. In supply chain management literature this perspective is interesting because the traditional approach in adverse selection modelling is to adopt a fixed frame of information disclosure. Few studies propose a similar approach but with different objectives: for example, Antelo (2009) addresses the information sharing problem in a context of innovation licensing; Kübler *et al.* (2008) proposes a comparison between screening and signalling in a model grounded in the context of job market and Ben-Shahar and Feldman (2003) combine signalling and screening mechanisms to reach signaling-screening separating equilibrium in mortgage market.

In the following sections, we present a description of the model and the equilibria in two different scenarios (signalling and screening) along with an empirical examination grounded in the fashion industry. The mathematical description of the main functions and the detailed equations will be presented separately - respectively in Appendix 1, 2 and 3 - in order not to weigh down the dissertation.

3. Model formulation

We consider a supply chain with a risk-neutral manufacturer and a risk-neutral supplier (or subcontractor). The manufacturer faces a subcontracting decision and makes a single (one-shot) agreement with a supplier for the production of a specific product (or semi-finished product). We assume that both the manufacturer and the supplier are cost and quality sensitive. The supplier's marginal production cost is privately known. The manufacturer only knows that there are two supplier types: low cost (l) or high cost (h). This is the information asymmetry considered herewith.

3.1 Signalling

In the Signalling scenario, the informed supplier sends the signal (makes a supply offer) before the manufacturer offers a contract. A signal in game theoretic definition is different from a message because it is not a costless statement, but a costly action. The supplier knows his marginal costs and his degree of specialization and the manufacturer does not, but he observes the signal. The offer made by the supplier has small effect on the supplier's ability of performing the final task but is useful for demonstrating his ability or degree of specialization to the manufacturer.

We sketch out the game by listing the players, then illustrating the order and structure of the moves and finally by defining the payoffs for every player.

Players: manufacturer (player A) and supplier (player B). Nature (N) is, as usual, not a real player because he has no payoffs and his moves are given by a probability distribution.

Order to play:

1. Nature chooses the type t of player B . We suppose that there exist two types of suppliers namely high cost and low-cost suppliers, so we set $t = h$ with probability μ and $t = l$ with probability $\lambda = 1 - \mu$. The two categories of suppliers differ by degree of specialization (linked to specialized assets, technology and knowledge) and ability to perform the task;
2. Player B makes a supply offer indicating the characteristics of the supply. We suppose that there exist two possible outcomes: high quality and low quality supply, so $s \in \{sl, sh\}$.
3. Player A offers a contract, $w = w(s)$ (indicating the wage he is willing to pay for a given supply offer s) and fixes the quantity q he is interested in subcontracting out; the final wage $W = W(s, q)$ will depend on the proposed unitary wage and on the quantity required by player A ;
4. Player B accepts or rejects the contract;
5. The unitary output $o(t, s)$ is a function of the ability of the chosen supplier and of the signal player B chooses to send. As in step 3, the total output also depends on the quantity and is given by the formula $O(t, s, q) = q \cdot o(t, s)$. In this article, we write “expected output” simply as “output” when no confusion arises.

Payoffs: If the contract is accepted, player B 's payoff is given by the total wage $W(s, q)$ minus his cost to produce signal s in the fixed quantity q and player A 's payoff is his profit, i.e. the total output $O(t, s, q)$ minus the wage $W(s, q)$. In formulas:

$$\Pi(B) = W(s, q) - C(t, s, q) \quad \Pi(A) = O(t, s, q) - W(s, q) \quad (1)$$

If the contract is refused, the payoff for player B is zero. In that case, player A should make the required product in-house; as above, we use the variable s to design the kind of supply offer player A decides to make. The payoff is given by the output they get for the required product minus the cost they have to support for producing directly. In formulas:

$$\Pi(B) = 0 \quad \Pi(A) = O(s, q) - C(A, s, q). \quad (2)$$

3.2 Screening

Screening models are games of adverse selection with different order to play. Here the manufacturer (player A) has the possibility of proposing

a contract before the supplier (player B) makes any offer. We describe the game as in section 3.1.

Players: The same as in Signalling game.

Order to play:

1. As in section 3.1;
2. Player A offers a pair of contracts indicating different wages $w(s)$ and $w'(s)$, both only depending on the quality level of the supply offer;
3. Player B accepts one contract and chooses a supply offer s between $\{s_p, s_h\}$ or rejects both;
4. As in section 3.1.

Payoffs: If a contract is accepted, player B's payoff is given by the corresponding total wage minus his total cost to produce the required product; player A's payoff is, as previously seen, the output $O(t, s)$ minus the wage corresponding to the accepted contract. More formally, if the first or the second contract is accepted, we have respectively:

$$\Pi(B|w \text{ accepted}) = W(s, q) - C(t, s, q) \quad \Pi(A|w \text{ accepted}) = O(t, s, q) - W(s, q) \quad (3)$$

or

$$\Pi(B|w' \text{ accepted}) = W'(s, q) - C(t, s, q) \quad \Pi(A|w' \text{ accepted}) = O(t, s, q) - W'(s, q) \quad (4)$$

If both contracts are rejected, the payoffs are as in equation (2).

4. Description of equilibria

In our adverse selection model, the interplay between the manufacturer and the supplier gives rise to two main categories of equilibria: a Pooling equilibrium and a Separating equilibrium. In a Pooling equilibrium, both types of suppliers (i.e., specialized and not specialized) choose to send the same signal, so that the manufacturer can hardly evaluate the supplier's type. In a Separating equilibrium, conversely, each type of supplier chooses the appropriate signal and the manufacturer obtains complete information.

In the following, we describe the equilibria by listing the set of strategies for both players. We discuss separately the signalling and screening settings, also illustrating how Separating equilibria are in both cases more interesting for the manufacturer. We refer to the Appendix for the definition of the main functions involved and for explicit equations.

4.1 Signalling

In the signalling scenario, we can obtain two different Pooling equilibria and a Separating one.

In *Pooling equilibrium 1*, both types of suppliers chose to send a low-quality supply signal (i.e., a signal stating that they intend to offer a low cost and standardized semi-finished product). As seen before, we are interested in studying the conditions undermining this kind of equilibrium because

it describes a situation where no information on the type of supplier are available for the manufacturer. This equilibrium results difficult to undermine and inconvenient for the manufacturer as the supplier (either specialized or not) finds more convenient to send a less costly signal regardless his real potentialities and the manufacturer can hardly uncover such event.

The manufacturer has the possibility to undermine the stability of the equilibrium - thus increasing his chance to maximize payoffs - by obtaining credible assurance about the supplier's behaviour and intentions. In fact, the stability of this equilibrium deeply depends on out of equilibrium beliefs: if we suppose that the manufacturer believes in the correspondence between the supplier's signal and the actual supplier ability, then he will be willing to offer a contract (and a wage) corresponding to his beliefs undermining the pooling constraints (see Appendix 2 for explicit equations). One can object that this kind of out of equilibrium beliefs are not conceivable because the idea of a firm believing blindly to a partner is not realistic. However, the hypothesis of repeated interaction with the same supplier reduces the performance ambiguity of the manufacturer-supplier relationship and changes the consequent out of equilibrium beliefs. In fact, when modeling interaction with a consolidated partner (i.e. suppliers having worked with the manufacturer in the past), we can suppose an out of equilibrium belief for the manufacturer marked by a very strong probability that the signal sent by each supplier corresponds to his actual ability and behaviour. This will create new conditions for the updated wage, thus reducing the stability of the equilibrium. To understand better this situation, we will test the model in a real-life case in section 5.

The second possible equilibrium is a *Separating equilibrium* where the not specialized supplier makes a low-quality supply offer (i.e., low cost and standardized product) while the specialized supplier makes a high quality one (i.e., high cost and differentiated product). Here, the manufacturer proposes a contract/wage correspondent to the observed signal. In order to make this equilibrium a perfect Bayesian equilibrium, the model considers both the standard participation constraint for the manufacturer and the self-selection constraint for the supplier (stating that neither the not specialized suppliers are tempted to propose a high quality supply nor the specialized a low one) (see Appendix 2 for explicit inequalities). The Separating equilibrium does not need to specify out of equilibrium beliefs since both signals can be observed in equilibrium and Bayes' rule suggests to the manufacturer how to interpret the observed signal. The suppliers are free to deviate from the self-selection constraint above mentioned (we explain in details under what conditions they have no interest in doing so in Appendix 2) but the manufacturer will still believe in equilibrium behavior. Since it does not depend on out of equilibrium beliefs, the stability of this equilibrium does not change in the case of consolidated or new suppliers. As discussed before, a strategy permitting this kind of equilibrium is specially interesting for the manufacturer, not only because of the high payoffs obtained, but because of the possibility of extracting by the supplier's signal full information about his ability and intentions. Besides, this kind of equilibrium allows the manufacturer the development

of a differentiated portfolio of suppliers (including both specialized and not specialized partners) to whom he offers a wide set of different contracts corresponding to a complex supply management strategy. It is important to note that, in the Signalling setting, the manufacturer cannot benefit from the first move advantage so the possibility of obtaining such an advantageous situation (complete information and very high payoffs) is particularly convenient.

Finally, we consider *Pooling equilibrium 2*, where both types of B players choose to send a signal of high-quality supply and the manufacturer pays a fixed wage. As we have seen for the first Pooling equilibrium, this situation is not convenient for the manufacturer. However, in this case the equilibrium stability is not depending on out of equilibrium beliefs (as explained in Appendix 2) and thus in many cases is not sufficiently strong (cfr. Rasmussen, 2006). By understanding correctly, the cost functions - considered as common knowledge - the manufacturer can create a situation where the equilibrium can never be Nash and not specialized suppliers will be tempted to deviate from the equilibrium strategy. This situation is more suitable for the manufacturer and increase his payoffs. This will become explicit in the real-life case presented in section 5.

4.2 Screening

In the screening scenario the manufacturer has a first move advantage. This situation gives to the manufacturer the possibility of creating a strong Separating equilibrium, maximizing his payoffs and permitting complete information about the ability of the supplier. The manufacturer is able to propose two different contracts which satisfy not only the obvious participation constraint for both players but also a non-pooling constraint; namely, the manufacturer should make the contract offer in such a way that not specialized suppliers always chose the first one and specialized suppliers the second one. Thus, the manufacturer obtains a Separating equilibrium as the only possible one.

It is important to remark that this equilibrium allows the manufacturer to keep both kinds of possible product (low cost/standardized and high cost/differentiated product) in such a way that, in both cases, the expected payoffs are greater than what he will get by producing in-house the required product. In concrete situations, it is plausible that the manufacturer is interested in including both kinds of products in his portfolio and choose between them each time by considering the cost-quality tradeoff. Moreover, the non pooling constraint provides the manufacturer a complete knowledge about the ability of the supplier since no type of supplier is tempted to deviate from the separating equilibrium.

5. An experimental case in the fashion industry

For a better understanding of the model, the study considers an experimental case in the fashion industry. The fashion industry seems particularly adequate for the study purposes as in this context the

subcontracting decisions and suppliers portfolio management are crucial for the competitiveness of manufacturing firms (Cerruti and Delbufalo, 2009). Besides, within this context the effectiveness of subcontracting is linked to the capability of facing the difficult trade-off between minimizing costs and maximizing quality level and thus, the game theory modelling could provide interesting insights and practical contributions.

Traditionally, fashion industry has been characterized by face-to-face mode of governance for subcontracting decisions where the reputation and the history of interaction were considered as main predictors for partners' behaviours. However, the massive process of delocalization and offshoring towards low-cost countries have extended the supply base to a global scale and has changed the governance of subcontracting decisions from relational to more structured (contractual) mechanisms. The geographic and cultural distance between the buyer and the supplier has made relying exclusively on relational mechanism in the transaction more difficult and has stimulated the development of stronger protecting mechanism against potential opportunistic behaviours. Besides, the search for cost savings (which was the main driver for offshoring and global sourcing) has changed the relevance of production cost information in subcontracting contract, giving rise to situations which our theoretical model might depict and explain. Besides, in the fashion industry the asymmetry in bargaining power and the wide supply base make plausible to consider multiple scenarios in which either the buyer or the supplier takes the initiative for starting a transaction, thus making applicable both the screening and signaling set-up.

In order to collect real-life data, a panel of experts with extensive experience in managing supply relationship in the fashion industry has been selected. The panel composition is as follows: 6 respondents from 3 different manufacturing firms, 6 respondents from semi-finished product suppliers and 2 external procurement experts from a fashion districts service association. The nature and purpose of this study was first explained to the panel and comments from the experts were collected using semi-structured interviews. Then the panel was asked to provide quantitative data to verify the model. The results of the model application have been revised and commented by the experts.

The data collected refer to a situation in which a manufacturer looks for the best solution to subcontract a production process to a supplier. As seen before, we have two possible kinds of suppliers with different abilities to produce the required product (i.e., specialized and not specialized suppliers). The games are the same described respectively in sections 3.1 and 3.2 (and in an extensive way in Appendix) but here we fix the probability distribution in step 1 by setting $\mu = 0.6$. In step 2 we quantify the difference between the two possible offers (signals) by setting $s_1 = 6$, $s_2 = 7.5$ and, in step 3, we consider the normalized function of cost and wage in order to be able to set $q' = 1$. We suppose $q' < 1$, in order to have a non-trivial function $k = k(q)$, i.e. a substantial impact of scale economy on the cost supported by specialized supplier. In search for simplicity, we suppose the expected quantity to coincide with the real quantity: $E_q = q = 1$. This assumption is not restrictive, because we can suppose the forecast made by

suppliers good enough; besides, it is frequent in the literature to consider the supplier as a risk neutral player, so the possible difference between q and E_q can be ignored without any loss of plausibility.

Using the panel data, we can define the cost functions as in the following table:

Tab. 1: cost functions

C(t, s)	t=h	t=l	A
s=6	5.8	6.25	6.4
s=7.5	6.3	7.9	8

Let us now consider all the possible equilibria.

5.1 Signalling

In this situation, *Pooling equilibrium 1* is: $s(l) = s(h) = 6$; $w = 6, 3$. This choice of w clearly satisfies the participation constraint (6) (in Appendix 2).

In order to verify that this is a Perfect Bayesian equilibrium, we have to fix the out of equilibrium beliefs for the manufacturer when he observes $s = 7.5$. In passive conjecture, i.e. $\text{Prob}(t = h|s = 7.5) = \mu = 0.6$, when the good signal is observed, the adequate response for the manufacturer is to offer an updated price:

$$w' = 7 \cdot \mu + 6, 3 \cdot (1 - \mu).$$

Such a choice, natural for the manufacturer once considered his estimated payoffs, and then expected by the suppliers, satisfies the bounds (7), (8) and (9) in Appendix 2 and so maintains the equilibrium.

Under different out of equilibrium beliefs, this pooling equilibrium brakes down. As we saw in the general case, if we fix the conjectured probability as $\text{Prob}(t = h|s = 7.5) = 1$, the wage w' - that the suppliers can expect the manufacturer will propose in case he observes signal $s = 7.5$ - comes up to 7 (by the same reasoning seen before) and specialized suppliers will deviate from equilibrium. Outside this inconceivable situation, the empirical data suggest that, in case of consolidated suppliers (i.e., suppliers with previous interaction with the manufacturer), one can estimate the probability $\text{Prob}(t = h|s = 7.5) = 0.75$ and the updated wage becomes $w'(7.5) = 7 \cdot 0.75 + 6.3 \cdot 0.25 = 6.825$. This is enough to make the equilibrium not Nash anymore because, with such an expected value of w' , the constraint for specialized suppliers (9) (in Appendix 2) is not fulfilled anymore.

The second possible equilibrium is a *Separating equilibrium*, namely $s(l)=6$, $s(h)= 7.5$ and $w(6)=6.3$, $w(7.5) = 7$. Again, this choice of w satisfies participation constraint for player A in equation (11) in Appendix 2 and self-selection constraint for both types of suppliers, inequalities (13) and (15). As observed in Appendix 2, in the Separating equilibrium we don't need to specify out of equilibrium beliefs, since both signals can be observed, and Bayes' rule tells the manufacturer how to interpret the observed signal.

The last possible equilibrium is *Pooling equilibrium 2*, i.e. a situation where both types of suppliers choose signal $s = 7.5$ and the manufacturer

pays a fixed wage w . Nevertheless, considering the data, this equilibrium can not be Nash because inequalities (16) and (17) in Appendix 2 are inconsistent and no choice of w can satisfy both of them.

5.2. Screening

In the screening scenario, the interest of manufacturer is to propose one or many contracts in order to distinguish between specialized and not specialized suppliers. A *Separating equilibrium* is given by the pair of contracts w and w' defined by:

$$w(s) = 6, 3 = w \text{ for any value of } s, w(s) = \begin{cases} 6 & \text{if } s=6 \\ 7 & \text{if } s=7.5 \end{cases}$$

The strategy for suppliers consists in choosing contract w and supply $s = 6$ if they are not specialized and contract w with supply $s = 7, 5$ if they are specialized. Straightforward calculations prove that participation constraint (19) in Appendix 3 is satisfied for this choice of w and w' . Concerning the non-pooling constraint, one can confirm that the bounds for not specialized suppliers and for specialized ones are fulfilled (see equations 20 and 21 in Appendix 2). This proves that no type of suppliers will be tempted to deviate from Separating equilibrium. As in the case of Signalling, no need here for fixing the out of equilibrium beliefs. We remark that this equilibrium allows the manufacturer to keep both kinds of possible offer (high cost and low cost product) and in both cases the expected payoffs are greater than what he will get by producing in-house the product (using the formulas above $5, 7 > 5, 6$ and $7, 4 > 7$ respectively). Besides, the difference between to make and to buy (in term of total payoffs) is greater for $s=7, 5$ so that the importance of carefully evaluating supply offers is greater for high cost/differentiated products, as they require more specific investments, resources and specialized knowledge.

6. Conclusions

This study combines the signalling and screening set-up to analyse the information asymmetry problem in subcontracting arrangements. Specifically, the adverse selection model compares the different strategies for the manufacturer to obtain hidden information (concerning the supplier's ability) and maximise his expected payoffs in screening and signaling set up.

The model and the empirical analysis suggest that, in situations in which the supplier benefits from the first move advantage and takes the initiative to start a transaction by presenting an offer to the manufacturer (i.e., signalling scenario), the risk to obtain a Pooling equilibrium is higher than in the screening scenario. A pooling equilibrium is less convenient for the manufacturer than Separating equilibrium - also possible in such a situation - because here the information asymmetry still exists, and the manufacturer has no credible assurance about the intention and ability of the supplier. In order to undermine the pooling equilibrium

when it appears, the manufacturer needs to collect details about the past behaviour of the potential suppliers by using relational mechanisms such as reputation or past experience. Obtaining such information increases the transaction costs and the supply risks. As suggested in management literature, when economic interaction is based on observing the other player's actions and responding to them, performance and relational ambiguity can make subcontracting decisions more difficult (Poppo *et al.*, 2008). Our model suggests that leaving to the supplier the initiative to start the transaction might increase the performance and relational ambiguity for the manufacturer, with negative returns on the economic exchange. This negative effect (linked to the stability of Pooling equilibria) is reduced in situations of repeated interaction between a manufacturer and a supplier: such repeated interactions can disclose the real capabilities of the supplier, despite the signals he decides to send. The benefits linked to repeated interaction with consolidated suppliers - here pictured in the out of equilibrium beliefs - are well known in management literature and widely recognized as essential for the effectiveness of subcontracting decisions (e.g., Biong, 2012). Nevertheless, we remark that such a low performance ambiguity is not achievable in any supply chain situations so that Pooling equilibria should be included in the model and taken into account for a complete analysis of the problem. In fact, there is a wide empirical evidence for situations in which the suppliers are encouraged to start the transaction by sending an offer to the manufacturer (see, for example, the tendency to use bidding procedure for suppliers' selection). Our model discourages such arrangement as it increases the performance ambiguity and the transaction costs for the manufacturer. Only in case of known suppliers, *this suppliers' selection strategy (this doesn't make sense)* the manufacturer is able to undermine the stability of the Pooling equilibria (i.e., less convenient outcome) and obtain the expected payoffs from the transaction.

On the contrary, when the manufacturer can experience the first move advantage (screening framework), the menu of contracts offered can be designed in such a way that both specialized and not specialized suppliers won't be tempted to deviate from the Separating equilibrium (which is the most convenient for the manufacturer). In this context is possible, under suitable conditions on the concerned functions, to settle a non pooling constraint. The opportunity for the manufacturer to obtain a high cost and differentiated semi-finished product from specialized suppliers and a low cost and standardized semi-finished product from not specialized suppliers is the main benefit of this situation. This opportunity is also a primary objective for the manufacturer in order to optimize the supply portfolio management and obtain the higher results (in terms of expected payoffs) from the subcontracting decisions. Moreover, the non pooling constraint provides the manufacturer a complete knowledge about the suppliers' ability, thus providing inherently a solution for the asymmetric information problem.

It is also important to remark that the Separating equilibrium allows the manufacturer to keep both kinds of possible outputs (i.e., standardized and differentiated semi-finished products) in such a way that in both cases

the expected payoffs are greater than what he will get by producing in-house the required products. In concrete situations, it is plausible that the manufacturer is interested in including both kinds of alternatives in its portfolio and chooses between them each time by considering the cost-quality trade-off. Literature and the empirical evidences reported in section 5 support these results and suggest that this is the case with regards to the fashion industry. In fact, the wide variety of fashion outputs - in terms of design and quality attributes - are consistent with the presence of multiple suppliers with different degrees of specialization/ability into the manufacturers' portfolio. Here, the main critical task for the fashion manufacturer is to integrate subcontractors with different abilities into a balanced portfolio as well as to optimise their engagement by considering (and clearly detecting) their specific resources and capabilities (Tran, 2010). Our model suggests the manufacturer to reduce the performance ambiguity by starting the transaction with the suppliers. The first mover advantage is beneficial not only because it reduces the threat for opportunistic behaviours but also because it allows the distinction between different typologies of suppliers - which is more difficult to obtain when in the signaling set-up.

7. Implications and limitations

From a theoretical perspective, our adverse selection model contributes to the literature in two ways. Firstly, the model formulation comparing the screening and signalling set-up provides a novel contribution to the operational management literature, mostly adopting a fixed frame of information disclosure. Secondly, we suggested the most efficient way for the manufacturer to obtain hidden information concerning the supplier's characteristics by analyzing the effects of the first mover advantage of both actors. In supply chain management literature this perspective is interesting because - with only few exceptions (e.g., Antelo, 2009; Kübler *et al.*, 2008) - the decision to start a transaction is generally considered exogenous.

From a managerial point of view, this study can be useful in two different ways. Firstly, it confirms that the screening situation - where the manufacturer can experience a first move advantage - is the more favourable one in order to maximize the manufacturer's profit in subcontracting decisions: here, the manufacturer has the chance to design contracts aligned with the real abilities of the suppliers without the need to invest in costly and time-consuming activities to disclose the suppliers' behaviours. However, the market conditions and/or the bargaining power of the manufacturer not always allow the set up of a screening scenario where the manufacturer starts the negotiation and the suppliers react to a stimulus sent to them. As in the case of fashion industry where the supply market is highly concentrated, it is not uncommon that a subcontracting relationship starts from the suppliers' offering. Here, the risk of establishing not convenient equilibria for the manufacturer is higher and the investment in information disclosing mechanisms is more urgent. Secondly, the study confirms the value of repeated interactions

in manufacturer-supplier relationships. Repeated interactions, reducing the performance and relational ambiguity in the economic exchange, change the out of equilibrium beliefs and increase the chance to obtain a convenient outcome for the manufacturer. Repeated interactions are mostly useful when both specialized and not specialized suppliers decide to send the same (low quality) signal to the manufacturer. In this case, when the specialized supplier decides to hide his real ability - in order, for example, to protect his knowledge by misappropriation - the formation of Pooling equilibrium 1 creates the most inconvenient scenario for the manufacturer. The only possibility to undermine such negative outcome is to use/collect information concerning the supplier's behaviour in previous interactions which unveil the real suppliers' abilities and allow the manufacturer to respond with appropriated and differentiated contracts to the suppliers' signal.

This study has limitations. Firstly, we've analysed the problem of information asymmetry from the manufacturer's perspective, also providing recommendations on the more appropriate actions for this single actor of the transaction. A more balanced perspective which takes into account also the supplier's perspective (and convenience) might increase the theoretical and practical contribution of the analysis. Secondly, the model formulation considers a supply chain with a risk-neutral manufacturer and a risk-neutral supplier. This might not be the case in every supply chain context, where both the manufacturer and the supplier may be risk averse due to different sizes and context of analysis (Antelo, 2009). Third, the experimental case in the fashion industry has limited external validity due to the small sample size and the single-transaction perspective. In fact, by considering a situation in which the manufacturer makes a single (one-shot) agreement with a supplier, we restrict the analysis and lose the possibility to consider the effects of multiple games (agreements) between the two actors. Future research could expand this perspective and extend out model to repeated exchange situations. In addition, a longitudinal experiment with a larger sample could increase the study's external validity and provide more arguments for discussion.

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Appendix A1: Definition of the main functions

Let us now define particularly the functions introduced above. The marginal cost supported by player B is a function of his type and of the signal he chooses to send (i.e., it depends on the quality level of the product he proposes to player A). Even when the difference between the two types of suppliers concerning the marginal cost is not relevant, for increasing values of q the ability of B to perform the task influences his costs because of the influence of the economies of scale. We consider the effect of the economies of scale in order to account for the different degree of specialization of the suppliers. In formulas, the total cost for any type of B player is given by:

$$C(t, s, q) = q \cdot c(t, s) \cdot K(q, t).$$

Here $c(t, s)$ denotes the marginal production cost, only depending on the type of the player and on the quality of the product he decides to offer and $K(q, t)$ is a function of the type of the supplier and of the required quantity, with values in $(0, 1]$, taking into account the nature of scale economies. For suppliers of low-cost type and for the player A, this function can be supposed to be constant and equal to 1 because they lack specific resources and have no possibility to benefit from economies of scale. On the contrary, for suppliers of high cost type it is convenient to increase the quantity as they have got specialized resources to manage this situation and can experience a reduction of the average production costs when the quantity increases. This situation is described by a function where $k(q)$ is a decreasing function with values in $(0, 1]$ and q' is a threshold value of q after which scale economy is appreciable. As a consequence, the same signal, especially for increasing quantities, is more costly for a low-cost player than for a high cost one. This difference in signalling costs is called single-crossing property (Rasmussen, 2006).

$$K(h, q) = \begin{cases} 1 & \text{if } q < q' \\ k(q) & \text{if } q \geq q' \end{cases}$$

The marginal production cost $c(A, s)$ supported by player A for making in-house a s-kind product is also dependent on the quality level of the output he decides to produce. As explained above, we can suppose that the total cost for player A is then given by the formula

$$C(A, s, q) = c(A, s) \cdot q$$

For the unitary output, an explicit formula can be expressed by

$$o(t, s) = s + \min\{s, s_i\}, \quad (5)$$

where s_i is defined by

$$s_i = \begin{cases} s_l & \text{if } t=l \\ s_h & \text{if } t=h \end{cases}$$

This formula is obtained by adapting usual expressions for the output (e.g., Banks, 1991; Staten and Umbeck, 1986) to the situation we are modeling.

Under this assumption, the best possible output is obtained in the case of a supplier of high type submitting a supplying offer of high quality and the worst one in the case of a low-level offer. In fact, a low type B player cannot produce the best possible output in any case (because of the lack of specialized resources), and a low-quality supply offer produces the worst possible output regardless of the type of the supplier.

Concerning the total wage W , player A estimates that the amount to pay should be proportional to the ability (in our case, the specialization) of the supplier and to the quality level of the supply offer. Nevertheless, in both games, the wage must be only function of the signal and cannot depend on the ability, ignored by player A . We calculate by probabilistic reasoning the appropriate wages included in the contracts.

Appendix 2: Equilibria in the signaling case

Suppose first that both types of suppliers chose to send a low-quality supply signal ($s = s_l$) and that player A pays a constant unitary wage w . *Pooling equilibrium* 1 is:

$$s(l) = s(h) = s_l \qquad w(s) = w$$

To obtain the participation constraint for player A , we compare equations (1) and (2) in section 3.1; by replacing the explicit functions introduced above, we obtain the following bound for the unitary wage w :

$$w \leq c(A, s_l). \qquad (6)$$

This Pooling equilibrium needs to be specified as a perfect Bayesian equilibrium because of the importance of the interpretation that the uninformed player puts on out of equilibrium behaviour. In our case, we need to specify player A 's beliefs when he observes $s = s_h$.

In a situation of passive conjecture, namely $\text{Prob}(t = h | s = s_h) = \mu$ (the probability of having a supplier of type h , as settled in 3.1), if the good signal is observed, player A will offer an updated wage $w' > w$. To understand which choice of w' represents an equilibrium response for A , we compare the expected payoffs, calculated as the average of the possible payoffs weighted by the probability of facing a high cost or a low cost B player, with the situation of in-house production. In formulas:

$$\Pi(A|w' \text{ accepted}) = [s_h + (\mu \cdot s_h + (1 - \mu) \cdot s_l) - w'] \cdot q$$

$$\Pi(A|w' \text{ refused}) = [2s_h - c(A, s_h)] \cdot q.$$

From those equation we derive the following condition on w' :

$$w' \leq c(A, s_h) - (s_h - s_l)(1 - \mu). \quad (7)$$

Finally, for Pooling equilibrium 1 to be Nash, B players, regardless to their type, should realize that making an offer of good type is useless so that no one will deviate from the equilibrium position and both choose a signal $s = s_l$. In formulas, we want the following inequalities to be fulfilled:

$$0 \leq \Pi(B|s = s_l) \geq \Pi(B|s = s_h).$$

For low cost B players, the analysis is easier, and we derive the following bounds on w and w' :

$$w \geq c(l, s_l) \quad w' - w \leq c(l, s_h) - c(l, s_l). \quad (8)$$

For specialized suppliers, we introduce the estimated quantity E_q i.e., the quantity that a supplier of this type supposes the manufacturer will require in the moment he makes the offer. This can change significantly his attitude because the cost he will support (and hence his estimated payoff) will vary with this quantity. Clearly, if $E_q < q$, the equations are very similar to the previous case, while, in the general case, the equations become

$$0 \leq w \cdot E_q - c(h, s_l) \cdot E_q \cdot k(E_q) \geq w' \cdot E_q - c(h, s_h) \cdot E_q \cdot k(E_q).$$

We derive the following bounds for w and w' :

$$w \geq c(h, s_l) \cdot k(E_q) \quad w' - w \leq [c(h, s_h) - c(h, s_l)] \cdot k(E_q). \quad (9)$$

As seen before, we are interested in studying the conditions undermining this kind of equilibrium because it describes a situation where no information on the type of player B are available for the manufacturer. As a consequence of formula (7), the stability of the equilibrium deeply depends on out of equilibrium beliefs, represented here by $\text{Prob}(t = h|s = s_l)$. Clearly, if we suppose that player A believes every supplier presenting a good offer is of type h (i.e. $\text{Prob}(t = h|s = s_h) = 1$), then he will pay an updated wage $w'' > w'$ corresponding to his beliefs that will hardly satisfy inequalities (8) and (9). One can object that this out of equilibrium beliefs are not conceivable because the idea of a firm believing blindly to a partner is not realistic. Nevertheless, when modeling interaction with a consolidated partner, we can suppose an out of equilibrium belief for player A given by $\text{Prob}(t = h|s = s_h) = \mu' > \mu$. This will create new conditions for the updated wage and so different stability for the equilibrium. To understand better this situation, we will test the model in a concrete case in section 5.

The second possible equilibrium is a Separating equilibrium. In this case the low-cost B player will make a low-quality supply offer and the high cost a high quality one. Player A will propose a price based on the signal he observes. So *Separating equilibrium* is

$$s(t) = \begin{cases} s_l & \text{if } t = l \\ s_h & \text{if } t = h \end{cases} \quad \text{and } w(s) = \begin{cases} w & \text{if } s = s_l \\ w' & \text{if } s = s_h \end{cases} \quad (10)$$

To obtain a perfect Bayesian equilibrium we check the standard constraints such an equilibrium must satisfy, i.e., the participation constraint for player A and

a self-selection constraint stating that neither the low cost supplier are tempted to propose a high quality supply nor the high cost a low one.

First, we consider the participation constraint. In the inequalities below, we establish that the expected payoff of player A, regardless to the level of the supply offer, is strictly greater when the proposed contract is accepted than when the selected product is produced in-house. Explicitly:

$$\begin{aligned} \Pi(A|w \text{ accepted}) &\geq \Pi(A|w \text{ refused}) \\ \Pi(A|w' \text{ accepted}) &\geq \Pi(A|w' \text{ refused}) \end{aligned} \quad (10)$$

By explicit calculations, the expected payoffs for A, if any contract is accepted, are given by the following table:

Tab. 1: Player A's estimated payoffs

	$s = s_h$	$s = s_l$
w	$[s_h + (\mu s_h + (1 - \mu)s_l) - w]q$	$[2s_l - w]q$
w'	$[s_h + (\mu s_h + (1 - \mu)s_l) - w']q$	$[2s_l - w']q$

By comparing this with the in-house payoffs of A expressed in formula (2), we derive the following conditions for w and w' :

$$w \leq c(A, s_l) \quad w' \leq c(A, s_h) - (s_h - s_l)(1 - \mu) \quad (11)$$

The constraint for low cost B player is that the payoff obtained by choosing contract w and giving a low quality signal should be positive (participation constraint) and greater than the payoff corresponding to the high quality signal or to the choice of contract w' (self-selection constraint). In formulas:

$$0 \leq \Pi(B|w \text{ accepted}, t=l, s = s_l) \geq \begin{cases} \Pi(B|w \text{ accepted}, t=l, s=s_h) \\ \Pi(B|w' \text{ accepted}, t=l, s=s_h) \\ \Pi(B|w' \text{ accepted}, t=l, s=s_l) \end{cases} \quad (12)$$

Here again we derive the conditions:

$$w \geq c(l, s_l) \quad w' - w \leq c(l, s_h) - c(l, s_l). \quad (13)$$

The self-selection constraint for the high cost B player is that the payoff they obtain by giving high quality signal should be greater or equal than payoffs obtained with low quality signal; in formulas:

$$0 \leq \Pi(B|w' \text{ accepted}, t = h, s = s_h) \geq \begin{cases} \Pi(B|w \text{ accepted}, t = h, s = s_h) \\ \Pi(B|w \text{ accepted}, t = h, s = s_l) \\ \Pi(B|w' \text{ accepted}, t=h, s=s_l) \end{cases} \quad (14)$$

As before, we have to take into account the estimated quantity Eq. and the bounds on w and w' become:

$$w' \geq c(h, s_h) \cdot k(E_q) \quad w' - w \geq [c(h, s_h) - c(h, s_l)] \cdot k(E_q). \quad (15)$$

The Separating equilibrium does not need to specify out of equilibrium beliefs. Since both signals can be observed in equilibrium, Bayes' rule suggests to player A how to interpret the observed signal. Players B are free to deviate (we saw under what conditions they have no interest in doing so) but the manufacturer will still believe in equilibrium behavior. Since it does not depend on out of equilibrium beliefs, the stability of this equilibrium does not change in the case of consolidated or new partners.

As discussed before, a strategy permitting this kind of equilibrium is specially interesting for the player A, not only because of the high payoffs obtained, but because of the possibility of extracting by the player B's signal full information about his type.

Finally, we consider the second possible Pooling equilibrium. In Pooling equilibrium 2 both types of B players choose a signal $s = s_h$ and the manufacturer A pays a fixed wage w .

As in Pooling equilibrium 1, participation constraint for player A is given by:

$$w \leq c(A, s_h) - (1 - \mu)(s_h - s_l). \quad (16)$$

The stability of Pooling equilibrium 2 as perfect Bayesian equilibrium does not depend on out of equilibrium beliefs; in fact, when the bad signal is observed, the output does not depend on the type of player B (see equation (5)); the equilibrium response for A, regardless to his out of equilibrium beliefs, is to offer a wage w' , only satisfying equation (6).

Concerning B players, in equilibrium, both types should realise that making a low-quality supply offer is not in their own interest so that no one deviates from the equilibrium position and both continue choosing $s = s_h$. By computing and comparing the payoffs as before we obtain the bounds for not specialized B players,

$$w \geq c(l, s_h) \quad w - w' \geq c(l, s_h) - c(l, s_l). \quad (17)$$

and, respectively, the bounds for specialized B players (taking into account the estimated quantity E_q)

$$w \geq c(h, s_h) \cdot k(E_q) \quad w - w' \geq [c(h, s_h) - c(h, s_l)] \cdot k(E_q). \quad (18)$$

The stability of Pooling equilibrium 2 is in many cases not very strong (cf. Rasmussen 2006). In all the situations where the cost functions, considered as common knowledge, make inequalities (16), (6) and (17) inconsistent with each other, this equilibrium can never be Nash because low cost B players are tempted to deviate from the equilibrium strategy. This will become explicit in the case studied in section 5.

Appendix 3: Equilibria in the screening case

In this case, the strategy of player A is to use the first move advantage to create a strong Separating equilibrium. Let us consider in detail the conditions a pair of contracts should satisfy for supporting such a Separating equilibrium. As in the previous subsection, the strategy for player A consists in proposing a pair of wage functions $w(s)$, $w'(s)$ and a quantity q and the strategy for player B in choosing the contract w and the supply $s = sl$ if not specialized and the contract w with supply $s = s_h$ if specialized.

The participation constraints for player A are given by formula (10) and, using Table 1, we derive:

$$w(s_l), w'(s_l) \leq c(A, s_l) \quad w(s_h), w'(s_h) \leq c(A, s_h) - (s_h - s_l)(1 - \mu). \quad (19)$$

Considering now the non-pooling constraint for not specialized suppliers, using inequalities (12), we derive the conditions:

$$w(s_l) \geq \begin{cases} (c(l, s_l) \text{ and } w(s_h) & -w(s_l) \\ w'(s_l) & w'(s_h) - w'(s_l) \end{cases} \left\{ \leq c(l, s_h) - c(l, s_l). \quad (20)$$

For high cost suppliers, in analogy with the Signalling case, the conditions depend also on the quantity but, in this case, we do not consider the expected quantity because player A starts the game by choosing the pair (w, w') and fixing the quantity q that, consequently, is known to player B. In this case the inequalities (14) give the following bounds:

$$w'(s_h) \geq \begin{cases} (k(q) \cdot c(h, s_h) \text{ and } w(s_l) \\ w'(s_l) + k(q)[c(h, s_h) - c(h, s_l)] \\ w(s_l) + k(q)[c(h, s_h) - c(h, s_l)] \end{cases} \quad (21)$$

If boundaries (20) and (21) are fulfilled, no type of B player will be tempted to deviate from the Separating equilibrium. As in the case of Signalling, there's no need for fixing the out of equilibrium beliefs because both messages $s = s_h$ and $s = s_l$ can be observed and Bayes' rule permits to establish the estimated payoffs in any case.

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sinergie
 italian journal of management
 ISSN 0393-5108
 DOI 10.7433/s110.2019.04
 pp. 87-107



Italian Society of
 MANAGEMENT

Director ownership and performance of small and medium enterprises: insights from Northeast Italy¹

Received
20th December 2018

Revised
26th June 2019

Accepted
21st November 2019

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Abstract

Purpose of the paper: This article examines the relationship between the proportion of shares that are owned by directors and a firm's financial performance in small and medium enterprises (SMEs).

Methodology: We collected data on ownership and director structures from 214 SMEs in the provinces of Verona and Vicenza (Italy). We used the return on assets (ROA) ratio as a proxy for financial performance over a 4-year period (2014-2017) and implemented an ordinary least squares (OLS) regression model with time-period and industry fixed effects.

Results: We found a statistically significant correlation between director ownership and the ROA ratio and identified a nonlinear relationship indicating that the influence of director ownership on performance may be positive or negative and that both the convergence of interests and entrenchment effects are present, depending on the level of ownership and other contextual variables such as it being a family firm, firm age and generational change.

Research limitations: Despite our efforts, reverse causality problems cannot be completely excluded. Collecting data in a limited geographical context over a four-year period restricts the generalization of our results and the use of the Likert scale (1-5) to evaluate managerial ownership may reduce the accuracy of our analysis.

Practical implications: Directors and shareholders should carefully consider the benefits deriving from director ownership in overlapping roles, and regulators could better define corporate governance models.

Originality of the paper: This study specifically addressed the issue of director ownership in SMEs by considering their relevant contextual variables, such as family firm, firm age, and generational change.

Key words: director ownership; SMEs; financial performance; ROA; Italy

1. Introduction

In the economic literature, the separation of ownership and control—as well as the consequent conflicts between shareholders and managers and related governance issues—has been studied extensively, starting with the fundamental works of Berle and Means (1932), Jensen and Meckling

¹ Acknowledgments: The author is grateful to the Department of Business Administration of the University of Verona and the Polo Scientifico Didattico “Studi sull’impresa” (#BIT project) in Vicenza for supporting this research project.

(1976), Fama (1980), and Fama and Jensen (1983). One of the solutions to this agency problem that has been proposed by many authors has been to increase managerial ownership in the firm, thereby aligning the interests of managers with those of shareholders (Fama and Jensen, 1983; Jensen and Meckling, 1976; Lewellen, 1969).

Stemming from these considerations, the relationship between managerial ownership and the firm's financial performance has been widely investigated in empirical studies, mainly in large companies in the United States and the United Kingdom (Benson and Davidson, 2009; Cho, 1998; Davies *et al.*, 2005; Florackis *et al.*, 2009; Himmelberg *et al.*, 1999; Iturralde *et al.*, 2011; McConnell and Servaes, 1990; Morck *et al.*, 1988; Short and Keasey, 1999; Stulz, 1988). Conversely, a few scholars like Keasey *et al.* (1994), and Mueller and Spitz-Oener (2006) focused on more numerous but less structured companies, i.e. small and medium enterprises (SMEs), in the United Kingdom and Germany, respectively. To date, no consensus regarding the nature and characteristics of this relationship has been reached because the studies' methodologies and results were incongruent.

SMEs are the backbone of the world economy. In the non-financial sector, they constitute a large majority of companies in OECD countries. They employ more than 50% of the workforce and generate more than 50% of added value (OECD, 2017). In SMEs, owners tend to be directly involved in both governance and management (Barontini and Caprio, 2008; Bruni, 1990). Director ownership, one of their internal corporate governance mechanisms, is very common and linked to the role and influence of the families that control SMEs in about 70% of cases (Bennedsen *et al.* 2007; La porta *et al.* 1999).

This study intends to contribute to the existing literature by focusing on the relationship between managerial ownership and financial performance in SMEs. In particular, by using an ordinary least squared (OLS) regression model with time period and industry fixed effects and employing a panel data with financials of SMEs for the 2014-2017 period, we found a positive and non-linear relationship between director ownership and ROA ratio, which is a proxy for financial performance. Moreover, our data supports the hypothesis that both the degree of ownership of the largest single shareholder and family control have an influence on company financial performance. These results have practical implications, especially because, regarding the relationship between director ownership and financial performance, they outline a complex S-curved relationship combining the alignment of interests and entrenchment effects. When defining their ownership, entrepreneurs should consider that very low or very high values of director ownership should lead to higher financial performance; this holds true for concentrated ownership as well, particularly in a non-family firm.

The rest of the paper is structured as follows: in Section 2, we summarize the main research that has been conducted on this topic and formulate our hypotheses. Section 3 describes the methodology, the model and variables that were used and presents the empirical results. The last section summarizes the most important results and highlights certain limitations of the study.

2. Literature review and hypotheses

2.1 Ownership structure and firm performance

Paolo Roffia
Director ownership and
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Ownership and control structures that have an effect on firm performance have been widely investigated in the literature, particularly as regards large corporations. The well-known agency problem relies on the fundamental separation between ownership and management (Jensen and Meckling, 1976). Managers tend to pursue their personal interests to the detriment of shareholders; therefore governance mechanisms need to be introduced to align the interests of these two opposed groups (Agrawal and Knoeber, 1996; Reboa, 2002). According to Jensen and Meckling (1976), ownership structure, executive compensation and board composition are determined reciprocally and based on the nature of the firm's activity, which influences the firm's performance. Ownership concentration, in the form of large-block shareholders, is a very well-known mechanism around the world to control agency problems (La porta *et al.*, 1999). However, ownership concentration can generate inefficiencies in allocating corporate control, low transparency, and opportunistic behavior (Pilotti, 1991; Schillaci, 1997). The drawbacks, in terms of private benefits associated with ownership concentration, could be exacerbated in family firms, as those benefits remain with the controlling family (Villalonga and Amit, 2006; Iturralde *et al.* 2011). Managerial ownership is a corporate governance mechanism that aligns the two opposing interests. From a theoretical point of view, when managers have an ownership interest in the firm, they are less likely to waste corporate wealth because they are directly involved (De Mattè, 1988; Demsetz, 1983; Morck *et al.*, 1988). Ownership structure represents a mechanism to reduce these conflicts and increase returns for shareholders. American public companies adopt stock option plans and other forms of managerial involvement in ownership, thus creating a *convergence of interests* because managers tend to pursue corporate wealth (Jensen, 1993; Jensen and Meckling, 1976; Morck *et al.*, 1988). According to agency theory, a *zero agency-cost firm* is one where the manager is the firm's sole shareholder (Jensen and Meckling, 1976). On the contrary, Ang *et al.* (2000) found that agency costs were inversely related to the manager's ownership share but significantly higher when an outsider rather than an insider manages the firm. Singh and Davidson (2003) argued that in large corporations, managerial ownership significantly alleviated principal-agent conflicts and reduced agency costs even by means of other agency deterrent mechanisms (e.g., board size and composition). Principal agent conflicts exist in both owner-manager and owner-director relationships. Significant shareholdings by the BoD may create the right incentives for the effective control and supervision of managers because of the integration of ownership and control (Bhagat *et al.*, 1998) although it may not guarantee the best returns for shareholders (Demsetz, 1983; Demsetz and Villalonga, 2001). Agency problems could arise between insiders and shareholders but also among shareholder categories, between large and small shareholders or between family and non-family members (Maury and Pajuste, 2005). According to the *entrenchment* hypothesis, high managerial ownership can

negatively affect market valuation when non-manager shareholders find it difficult to control managers who own many shares (Fama and Jensen, 1983; Morck *et al.*, 1988). Family firms could also suffer from a similar entrenchment phenomenon (Gnan *et al.*, 2015, Schillaci and Faraci, 1999). Indeed, in family SMEs, controlling family members could pursue their own interests rather than the interests of non-manager family members and other minority shareholders. Conversely, family firms benefit from increased stewardship, long term focus, and reduced agency costs (Cucculelli and Micucci, 2008). The combination of the two previous phenomena (convergence of interests and entrenchment) in SMEs suggests the presence of a nonlinear relationship between director ownership and firm performance (Acharya and Bisin, 2009; McConnell and Servaes, 1990; Morck *et al.*, 1988; Short and Keasey, 1999). However, research on this issue over the past years has mainly focused on large companies without considering other relevant contextual variables in SMEs.

As regards large companies, many studies investigated the relationship between managerial or insider ownership and firm financial performance by using different quantitative models such as ordinary least squares regression, two-stage or three-stage least squares regression, structural equation model, simultaneous equation system, and generalized method of moments. Tobin's Q was probably the most frequently used outcome variable for listed companies, sometimes in combination with other measures, whereas the ROA ratio was the most used among financial ratios. Unfortunately, we cannot identify convergent results in both sign and shape for this supposed relationship. A substantial positive influence was found by Adams and Santos (2006), Bhagat *et al.* (1998), Chen *et al.* (2003), Core and Larcker (2002), Drakos and Bekiris (2010), Fahlenbrach and Stulz (2009), Farrer and Ramsay (1998), Florackis *et al.* (2009), Kole (1995), Mehran (1995), Rose (2005), thus supporting the alignment of interests phenomenon. In contrast, Benson and Davidson (2009), Coles *et al.* (2012), Craswell *et al.* (1997), Davies *et al.* (2005), de Miguel *et al.* (2004), Hermalin and Weisbach (1991), McConnell and Servaes (1990), McConnell and Servaes (1995), Morck *et al.* (1988), Short and Keasey (1999) identified a non-linear relationship, often in a quadratic form (U-shaped curve), highlighting the presence of both alignment and entrenchment effects. Conversely, Cheung and Wei (2006), Cho (1998), Fishman *et al.* (2008), Himmelberg *et al.* (1999), Loderer and Martin (1997), Zhou (2001) found negative, null or impossible-to-determine effects on financial performance.

The above-mentioned studies mainly focused on large companies, whereas only a few authors analyzed SMEs, which are our target. In particular, Keasey *et al.* (1994) found that the return on total assets reached its maximum at 68.2% of director ownership, then decreased (inverted U-shape curve) in a sample of UK SMEs. In a sample of German SMEs, Mueller and Spitz-Oener (2006) reported increasing performance with managerial ownership up to approximately 40% without a significant entrenchment effect at higher values. In SMEs, at levels where managers could become entrenched compared to outside owners, managers maximized company value rather than their personal interests.

The above reported literature does not adequately cover the SMEs' context, nor do they consider other relevant contextual factors like family firm influence or the number of generational changes that characterise their ownership structures (Calabrò *et al.* 2008). Indeed SMEs cannot be considered "large companies on a small scale".

Several studies analyzed performance differences between family and non-family firms, which constitute the majority of companies in most OECD countries, with mixed results (Anderson and Reeb 2003; Barontini and Caprio, 2006; Gallucci and Santulli 2016; Gallucci *et al.* 2018; Oswald *et al.*, 2009; Villalonga and Amit, 2006). One of the difficulties in finding a solution to the presence and nature of this supposed superior performance is due to the discording definitions of a family firm (Astrachan *et al.*, 2008; Mazzi, 2011).

Other studies investigated the family attribute in relation to company financial performance, distinguishing family involvement in ownership and that in governance (Sciascia and Mazzola, 2008). Family firm governance is distinct from that of public and private non-family firms (Schillaci *et al.*, 2002), and is influenced by the company-family relationship (De Massis *et al.*, 2013), level of parental altruism (Lubatkin *et al.*, 2005), and family-to-business support (Powell and Eddleston, 2017).

Family firms tend to be closed to outsider directors and maintain a typical inside ownership, although other situations exist (De Massis *et al.*, 2013; Schillaci and Faraci, 2002).

In large firms, a company's financial performance has been found to be influenced by the percentage of ownership of the largest shareholder. Demsetz and Lehn (1985) found limited association between the two terms considering the five and twenty largest shareholders. Maury and Pajuste (2005), upon considering listed firms, reported a positive effect of a more equal dispersion of voting rights on financial performance. Perrini *et al.* (2008), regarding the Italian stock market, found a positive influence of high ownership values of the first five shareholders on performance.

The strong ownership of directors could damage minority shareholders' interests (Shleifer and Vishny, 1986). We believe that a single or majority shareholder could also be beneficial for company financial performance in SMEs by offering stability and unique leadership to the business.

2.2 Hypotheses

According to our literature review, our first hypothesis (HP1), is that a greater director ownership has a positive impact on financial performance. In addition, a non-linear relationship between managerial shareholding and financial performance has been suggested, which leads to our second hypothesis (HP2) that there is an S-shaped relationship between the percentage of equity shares owned by directors and ROA ratio in SMEs. We also hypothesize (HP3) that some factors - such as firm age, family business, and generational change - influence that relationship.

3. Empirical research: model, data and analysis

3.1 Empirical model

We used an ordinary least squared (OLS) regression model to test our hypotheses. The ROA_{it} ratio is used as a proxy for financial performance and acted as a dependent variable (Keasey *et al.*, 1994) for each company i and year t (where $t = 2014, \dots, 2017$). This ratio holds a wide consensus and validity across industries, does not require specific information on market capitalization, and is not impacted by the financial, non-current and fiscal position of a company (Anderson and Reeb, 2003; Arosa *et al.*, 2013). We did not consider Tobin's Q as a performance measure because it is unavailable for unlisted SMEs and because it be affected by severe accounting practice problems (Demsetz and Villalonga, 2001). To limit the problem of omitted variables, we introduced a variety of control variables (e.g., firm size and leverage) in our model, inserted dummy variables to account for both industry-and year-fixed effects, and used financial panel data. We lagged the independent and control variables to allow their effect on a company's financial performance to emerge, limiting the reverse-causality problem (Cornett *et al.*, 2007; Mazzola *et al.*, 2013). Our model [1] was:

$$\begin{aligned}
 ROA_{i,t} = & \beta_0 + \beta_1 DIR_OWN_{i,2014} + \beta_2 LARG_SH_{i,2014} + \beta_3 F_AGE_{i,2014} \\
 & + \beta_4 M_SIZE_{i,2014} + \beta_5 FAM_OWN_{i,2014} + \beta_6 GEN_CH_{i,t} \\
 & + \beta_7 TOT_ASS_{i,t} + \beta_8 SALES_VAR_{i,t} \\
 & + \beta_9 LEVER_{i,t} + \beta_{10} Y2015 + \beta_{11} Y2016 + \beta_{12} Y2017 \\
 & + \beta_n INDUSTRYdummies + \varepsilon_{i,t}
 \end{aligned} \quad [1]$$

3.2 Sample characteristics

We surveyed 5,000 unlisted SMES by using a questionnaire to test our hypotheses. We selected companies located within a limited geographic area to ensure the homogeneity of the sample and easy contact (De Massis *et al.*, 2013). Sample criteria included: (1) Operating in provinces of Verona and Vicenza, (2) activity in manufacturing (C), construction and building (F), and grocery and distribution (G) macro sectors, (3) small and medium-sized companies, and (4) limited liability companies. Our selected industry distribution accounted for about half of the non-financial firms. We limited our analysis to SMEs with 10-249 employees, thereby excluding micro companies because of their lack of suitable managerial control and corporate governance mechanisms. We eliminated companies in special situations that could affect data (e.g., insolvency, liquidation and zero activity), those with particular legal forms such as consortiums and cooperatives, and unlimited liability companies (Italian legislation does not require them to disclose financial information). We identified about 5,000 companies that we contacted in 2016 and 2017 (ISTAT the Italian Statistic Institute identified 5,040 companies as of 31.12.2014, whereas the Italian Public Register Of Companies, excluding consortiums and cooperatives, identified 4,905 companies).

3.3 Sample data

We directly contacted the chairperson, CEO, or CFO via email or telephone to explain the purpose and importance of our research and provide detailed instructions on how to reply. They were asked to answer questions about their situation in 2014 and to describe any changes that may have occurred during the 2014-2017 period. The questions and possible answers were formulated using a Likert (1-5) scale to reduce the respondents' bias. We carried out a pilot test on a sample of 10 companies to better calibrate the Likert scale. The financial statement data for the 2014-2017 period were extracted in 2017 and 2018 from the AIDA database (Bureau van Dijk). In 2018 we contacted 20 SMEs again to verify and reconfirm their submitted data. Between March and June 2019 we met with 15 respondents to discuss data, show findings and receive feedback and suggestions.

We received 276 replies; of these we excluded companies with $\pm 100\%$ sales variation or $\pm 30\%$ EBIT/sales; earnings before interest, taxes, depreciation and amortisation (EBITDA)/sales; EBIT/total assets; or net income/total assets. Return on equity (ROE) must not have exceeded $\pm 60\%$. We also excluded companies for which financial data were not yet available for our four year-period (balanced panel data). In the end, we gathered 214 valid questionnaires for our study. We did not find any significant difference between the first and last quartile of respondents ($p < 0.05$), thus confirming the non-biased validity of the answers. The total number of firm-year observations was 856.

3.4 Definition of variables

Our model used the following variables:

- Director ownership (DIR_OWN): The percentage of shareholders who play an active role as directors. This variable was measured using a Likert scale from 1 to 5: 1, null (0-5%); 2, low (6-20%); 3, discrete (21-30%); 4, high (31-49%); 5, very high (>50%).
- Largest shareholder (LARG_SH): The percentage owned by the single largest shareholder. This variable was measured using a Likert scale (1-5): 1, null (0-5%); 2, low (6-20%); 3, discrete (21-30%); 4, high (31-49%); 5, very high (>50%).
- Firm age (F_AGE): The natural logarithm of the number of years since the firm was founded. According to Arosa *et al.* (2013) and Capasso *et al.* (2015), profitability is inversely correlated to firm age.
- Medium size (M_SIZE): This variable received a value of 1 when the firm was medium sized (50-249 employees), 0 otherwise.
- Family Owned (FAM_OWN): This variable received a 1 when the company was family owned, according to Corbetta's (1995) definition of family firms, 0 otherwise. We selected this definition, which requires for more than one family member to own shares, because it is widely accepted in Italy. (Family members were identified by their surnames [Arosa *et al.*, 2010; De Massis *et al.*, 2015]).
- Generational changes (GEN_CH): Respondents were asked about the

- number of generational changes from the founding of the company. The literature reports both positive and negative effects of generational changes (Bennedsen *et al.*, 2007; McConaughy and Phillips, 1999).
- Total assets (TOT_ASS): The natural logarithm of total assets was used as a control variable. Previous studies on SMEs found bigger firms to be more profitable (Arosa *et al.*, 2013; Barontini and Caprio, 2006).
 - Sales revenues variation (SALES_VAR): The variation of sales, measured as (sales1 – sales0)/sales0, was used as a proxy for growth. In other studies, growing firms reported higher profitability (Arosa *et al.*, 2013).
 - Leverage (LEVER): We used the ratio of total debt to total assets to measure the borrowing level of the firm. Based on previous studies, we expected an inverse relationship with performance (De Massis *et al.*, 2013).
 - INDUSTRY j: Dummy variables for each NACE/ATECO industry code (two digit level) received a score of 1 if the company came under the NACE code (0 otherwise). These variables were required for the industry fixed-effect regression.
 - Y2015, Y2016 and Y2017: Dummy variables scored 1 if financial data referred to 2015, 2016 or 2017 (and 0 otherwise). These three variables were required for the time-period fixed-effect regression.
 - Financial performance: The ROA ratio (EBIT over total assets) was defined as the dependent variable. Alternative measures employed in this study included the ROA[^] ratio (net income over total assets) and Return on sales (ROS) ratio (calculated by dividing EBIT by sales revenues).

3.5 Descriptive statistics

Table 1 contains the descriptive statistics for the variables defined above, including mean, standard deviation, minimum and maximum. The mean value of directors' shareholdings for our sample firms was quite high (close to 50%, Likert 4.5), indicating a high overlap between owners and managers. There were many large single shareholders (on average close to 40% of shares, Likert 4.3), which was expected for SMEs. In our sample, 34% of companies were medium-sized, over 70% of SMEs were family firms. Manufacturing (C), constructions (G), and grocery and distribution (F) firms accounted for 80%, 10%, and 10% of the total sample, respectively. The number of generational changes remained on average slightly lower than 1. In the 2014-2017 period, on average SMEs had a positive sales variation trend (+4.7%) and adequate profitability for both ROA ratio (mean 0.061, standard deviation 0.059) and ROA[^] ratio (mean 0.036, standard deviation 0.046). Margins (ROS ratio) were near 0.05 (standard deviation 0.054). Leverage of SMEs (debts to total assets) was 0.538.

To test the representativeness of the sample data, we calculated the ROA and ROA[^] ratios, total assets and leverage for all of the companies that met our inclusion criteria in the provinces of Verona and Vicenza. By applying the same cuts used for the sample companies, the initial 5,000 SMEs were declined to 3,704 or 3,051 when requiring balanced

panel data. The Z-test ($p < 0.05$) applied in a comparison of the two groups found similarities for most of the variables. Our sample size exceeded the minimum requirements for the extension of validity of our analysis for both a questionnaire using the (1-5) Likert scale and our panel data. None of the correlation coefficients among the variables exceeded 0.7, so multicollinearity should not be an issue (the correlation matrix is available upon request).

Tab. 1: Descriptive Statistics of Variables

Variable	N	Min	Max	Mean	Std. dev.
DIR_OWN	852	1	5	4.502	1.166
LARG_SH	848	1	5	4.334	0.972
F_AGE	856	0.693	4.898	3.299	0.675
M_SIZE	856	0	1	0.336	0.473
FAM_OWN	856	0	1	0.734	0.442
GEN_CH	568	0	5	0.940	0.938
TOT_ASS	856	13.291	18.511	15.875	1.163
SALES_VAR	856	- 0.683	0.868	0.047	0.162
LEVER	856	0.000	0.937	0.538	0.198
ROA	856	- 0.202	0.288	0.061	0.059
ROA^	856	- 0.232	0.187	0.036	0.046
ROS	856	- 0.225	0.275	0.055	0.054

Source: Author's own elaboration

3.6 Empirical results

Table 2 column 1 reports the results of the multivariate analysis of director ownership on firm performance using model [1].

Our findings (column 1) indicated a significant and positive influence of director ownership (DIR_OWN) on firm financial performance (adjusted $R^2 = 0.341$; F -statistic = 9.162, $p < 0.01$) as supposed by HP1. This result is valid for both small and medium-sized firms independently. The control variables were significant and both firm age and leverage revealed a negative influence, whereas medium size and sales variation had a positive effect. Family firms demonstrated the worst financial performance. Our analysis improved by including a polynomial expression for director ownership (DIR_OWN) in model [1].

According to Allison (2012), inserting a multiplicative term in a regression model is nothing to be concerned about because multicollinearity has no adverse consequence with polynomial terms. In any case, we took two actions: 1) we mean centered the director ownership variable (which reduces correlation within regressors), and 2) we verified the absence of excessive multicollinearity in the model by using the collinearity diagnostics table reported in SPSS.

Tab. 2: Multivariate Analyses of Director Ownership on Firm Performance

Variable	(1) ROA	(2) ROA	(3) ROA	(4) ROA	(5) ROA	(6) ROA	(7) ROA [^]
(Constant)	0.200***	0.196***	0.243***	0.245***	0.228***	0.096***	0.105***
DIR_OWN	0.009***	0.030***	0.018**	0.015**	0.025***	0.004	0.005***
DIR_OWN ^{^2}	--	0.008***	-0.024**	-0.016**	-0.015*	-0.015*	-
DIR_OWN ^{^3}	-	-	-0.008***	a	a	a	-
DIR_OWN ^{^4}	-	-	-	0.002***	0.002***	0.001***	-
DIR_OWN x FAM_OWN	-	-	-	-	-0.012**	-	-
LARG_SH	-	-	-	-	0.010*	-	-
LARG_SH x FAM_OWN	-	-	-	-	-0.011*	-	-
F_AGE	-0.011***	-0.011***	-0.011***	-0.011***	-0.011***	-	-0.005**
M_SIZE	0.016**	0.017***	0.022***	0.022***	0.021***		0.011**
FAM_OWN	-0.023***	-0.020***	-0.020***	-0.020***	-0.018**	-	-0.021***
GEN_CH	-0.002	-0.003	-0.004	-0.004	-0.004	-	-0.001
TOT_ASS	-0.001	-0.001	-0.003	-0.004	-0.003	-	0.001*
SALES_VAR	0.081***	0.091***	0.092***	0.092***	0.091***	-	0.065***
LEVER	-0.081***	-0.098***	-0.102***	-0.103***	-0.105***	-	-0.095***
N.	856	856	856	856	856	856	856
Adjusted R ²	0.341	0.355	0.363	0.367	0.368	0.159	0.381
F-statistic	9.162***	9.424***	9.519***	9.635***	9.008***	6.175***	10.691***

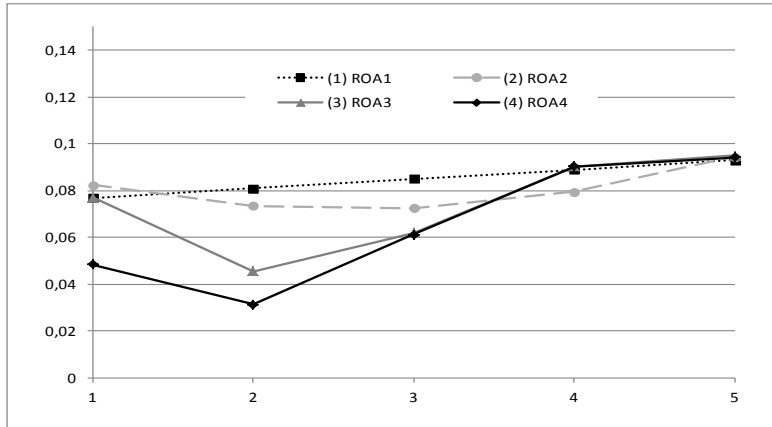
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Coefficient a excluded for multi-collinearity. Dummy variables for year and industry fixed effects are not reported.

Source: Author's own elaboration

Columns 2, 3, and 4 of Table 2 shows the results of a quadratic or even higher polynomial order relationship between director ownership and financial performance. From column 1 to column 4 the adjusted R^2 improved ($p < 0.01$), indicating that subsequent models were better and obtaining a more precise shape of the relationship between director ownership and ROA ratio that conveys the complexity of the nonlinear relationship between the two variables (Davies *et al.*, 2005). The other key control variables remained significant and maintained similar coefficient values over the various columns. The older the company and the higher the leverage, the worse the performance; whereas the variation of sales and medium size variables positively influenced firm performance. Graph 1 plots four different lines to represent the four versions of model [1] (columns 1 to 4). We transformed the mean centered data of the independent variable to the original 1-5 Likert scale. The (1) ROA1 line (dotted) illustrates a growing effect of director ownership on firm performance, whereas the second line, (2) ROA2, the third grey line (3) ROA3, and fourth (4) ROA4 solid black line draw three curves near the previous (1) ROA1 line. According to (2) ROA2, the relationship between the two variables is U-shaped, with a minimum in the 21-30% range of director ownership. Considering the (3) ROA3 and (4) ROA4 curves- which have the highest adjusted R^2 values- we see two S curves, with the lowest values in the 6-20% and the 21-30% ranges, where the values of director ownership are probably not sufficient to create an alignment of interests that counterbalances an entrenchment phenomenon. Conversely,

when director ownership exceeds 30%, (3) ROA3 and (4) ROA4 increase and surpass their initial values. An S curve shapes the relationship between director ownership and financial performance, thus confirming our HP2.

Graf. 1: The relationship between director ownership and ROA ratio



Source: Author's own elaboration

Regarding the largest shareholder's percentage of shares and family firm variables, Table 2, column 5 reports the regression results including LARG_SH and FAM_OWN both in absolute terms and as a moderator of the director ownership and the largest shareholder variables. Our findings indicated ($p < 0.05$) that a large shareholder is beneficial for SME performance and that, conversely, family ownership is often detrimental to the ROA ratio for both director ownership and largest shareholder variables. The generational changes variable remained slightly under the significance threshold. Our HP3 is thereby confirmed.

3.7 Robustness checks

To check the robustness of our findings, we performed additional tests. First, we ran alternative regressions with limited datasets (years 2015, 2016 and 2017 singularly and together). The adjusted R^2 value and significance of most of the coefficients were similar to previous results. Second, we ran a reduced form of model [1] excluding all the control variables, except those representing time-period and industry fixed effects (column 6 of Table 2). The adjusted R^2 decreased to 0.159, but the key variables of director ownership remained significant. A third test was to run separate regressions of model [1] for small and medium-sized companies. The adjusted R^2 and the other key variables remained significant. Fourth, we calculated post-hoc powers of regression model [1] referring to Cohen's formulas for multiple regression (1988). We determined high values both for size ($f^2 > 0.50$) and power analysis (value around 1), which support the validity of our analysis. Last, we performed a sensitivity analysis of our

findings, using different measures of performance (ROA[^] and ROS) as the dependent variables. The two selected alternative measures of financial performance confirmed our previous results, because the adjusted R^2 values were similar. The results for the ROA[^] ratio are shown in column 7 of Table 2, whereas ROS ratio results are available upon request.

4. Discussion, limitations and future research

This paper investigated the relationship between the ownership share of directors and the company's performance in a sample of SMEs in northeast Italy. Previous studies on insider ownership concentrated on large and listed companies, whereas very few focused on SMEs. Because SMEs are quite relevant in Italy as they are in other OECD countries, our potential contribution to the existing literature lies in its focus on agency problems in this widespread but specific context.

The main conclusion of our analysis is that director ownership does influence company performance. We investigated this relationship by running variations of a model, and gradually obtaining a greater description of the shape of that association (i.e., a higher adjusted R^2 value). In particular, we found a significant nonlinear relationship between the two variables, with an S-shaped curve, indicating that the effect of director ownership on performance can vary depending on the percentage of ownership. Director ownership between 6% and 20% is less beneficial, whereas higher values (up to 49%) improved firm performance, with a peak exceeding 50%.

From a theoretical point of view, these results confirm both the alignment of interests and entrenchment effects (Morck *et al.*, 1988). Agency theory predictions on the effects of managerial ownership are confirmed, but only for certain intervals of director ownership. Notably, a substantial separation between the two categories (only 0-5% of director ownership) led to better performance than when they slightly overlapped (6-20%). A clear-cut separation between owners/directors who hire outside directors or, conversely, a substantial overlap of the two roles with strong leadership enhance financial performance.

When analyzing the influence of the largest shareholder, we identified a positive effect on the financial performance of SMEs, particularly in non-family firms. Once again, this result is consistent with agency theory and previous results for large companies (Shleifer and Vishny, 1986) and confirms the benefits deriving from having one large shareholder with an alignment between the financial performance of the company and the shareholders' personal interests.

As regards the family firm attribute, in our sample data, family firms are worse performers than non-family ones. This is true considering this attribute alone and as a moderator effect of director ownership and the largest shareholder variables.

Our study had certain limitations. First of all, although we compensated for reverse causality by using panel data for SMEs' financials and collected information on ownership in reference to previous periods, this could not

be excluded completely. Second, data were collected in northeast Italy, in the provinces of Verona and Vicenza, over a 4-year period, thereby limiting the possibility of generalizing their validity. Third, to reduce arbitrary responses (the questionnaire was self-answered), we used the 1-5 Likert scale but its calibration did not permit the evaluation of the variations in the behavior of financial performance for levels of director ownership between 50% and 100%. Fourth, we used the ROA ratio as a proxy for financial performance (although we also used other financial ratios). Fifth, we did not consider other (financial or non-financial) measures of performance. As a matter of fact, some SMEs - and family SMEs in particular - could be motivated towards other non-economic outcomes, such as family objectives and community objectives (Randolph *et al.*, 2019).

Despite these limitations, we believe that our study has more benefits than drawbacks. As observed by Mazzola *et al.* (2013), financial panel data and lagged financial performance may be a valid approach to test the influence of ownership variables on financial performance. Moreover, studies on family firms and SMEs have successfully employed Italian samples (Minichilli *et al.*, 2010). In addition, we used the Likert scale to reduce response bias, whereas financial ratios might be more reliable than other performance variables (which are not available in SMEs).

To conclude, our main result is a more accurate description of the relationship between director ownership and firm performance in SMEs and was attained by employing a non-linear structure for our interpretative function. This structure better describes the complex relationship between our variables of interest by showing the presence of both the convergence of interests and the entrenchment effects that have been outlined in previous studies. A further original contribution of our research is related to the largest shareholder and family contributions to financial performance in SMEs. This study has implications for researchers and practitioners. Research on SMEs, both family and non-family owned, could better interpret and predict company financial performance in light of agency theory and the entrenchment effect. Entrepreneurs, in defining their practical contribution to company management, should focus on the importance of their presence in the BoD, particularly in the case of large shareholders. Family firms must pay attention to their controlling role in order to guarantee the board members' best competencies and skills.

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Recycling behaviour in higher education institutions: a systematic literature review

Received
15th November 2019

Revised
11th December 2019

Accepted
28th January 2020

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Abstract

Purpose of the paper: *This paper aims to provide a systematic literature review on recycling behaviours in higher education institutions to gather and synthesise the extant knowledge on this topic into a comprehensive framework, in line with the premise that colleges and universities have the moral responsibility to educate people for a better and more sustainable future. More specifically, this study provides a basic understanding of the research topic and identifies the factors affecting recycling intentions/behaviours in higher education institutions.*

Methodology: *A systematic literature review of existing research is conducted. A total of 64 journal articles published between 1995 and 2019 are analysed in five steps: obtaining a basic understanding, coding, categorisation, comparison and further analysis.*

Findings: *This study identifies environmental concern, attitudes towards recycling, social norms, university environmental policy and availability of recycling facilities at higher education institutions as the factors affecting recycling intentions/behaviours in higher education institutions.*

Theoretical and practical implications: *Scholars could use this paper as a reference to systematise knowledge on recycling behaviour in the higher education context and further advance knowledge on this topic by identifying specific research areas that could be theoretically and empirically investigated. University managers could use the findings of this study as a basis for designing behavioural intervention programs in their institutions.*

Originality of the paper: *Previous research focuses on recycling in the home or workplace environments. No systematic literature review on recycling behaviours in the higher education setting has previously been undertaken, despite the key role universities play in increasing awareness of environmental issues.*

Key words: sustainability; students; university policy; environmental awareness and concern; attitude towards recycling; social norms

1. Introduction

Public debate regarding how to reduce the waste problem for the conservation of natural resources is becoming more and more intense. A general awareness of the environmental consequences of waste is evident, and is also reflected in the legislative environment. Recycling is commonly referred to as a preferred method of waste reduction (Virtanen

and Nilsson, 2013). Generally, there is an increasing awareness of the environmental impact of consumer behaviour (Oguz *et al.*, 2010) and the importance of recycling as an effective resource-recovery mechanism in relation to economic and environmental benefits. Accordingly, a number of marketing scholars and specialists are seeking to better understand these pro-environmental behaviours in different analysis contexts. For example, Varotto and Spagnolli (2017) conducted a systematic literature review, focusing exclusively on recycling in the home environment. Further, regarding pro-environmental behaviours in the workplace, Yuriev *et al.* (2018) analysed the barriers to recycling behaviour, while Inoue and Alfaro-Barrantes (2015) identified the determinant factors.

At the best of our knowledge, however, no systematic literature review about recycling behaviours has been conducted in the context of higher education institutions, despite their key role in promoting environmental awareness and sustainability related issues. Higher education institutions such as universities have a moral responsibility to contribute to sustainability (Cortese, 1992), which is only stronger if they aim to achieve sustainable resource use as part of their corporate mission. Teaching and increasing awareness of sustainability issues represent a fundamental part of universities' larger mission to educate people for a better future (Meyer, 2016). Moreover, universities are also considered well suited to finding solutions to problems threatening society (Kaplowitz *et al.*, 2009).

In light of this, universities have recently started to pay increasing attention to improving environmental policies and on-campus recycling facilities (e.g. Wan *et al.*, 2012; Izagirre-Olaizola *et al.*, 2015). A number of green activities are being undertaken to respond to the rapid increase of student, staff and support infrastructure numbers, which requires significant resources, such as energy and paper (e.g. Marcell *et al.*, 2004; Amutenya *et al.*, 2009; Altan, 2010; Mtutu and Thondhlana, 2016). As scholars have argued, universities can be considered communities that significantly influence wider society, and can, consequently, lead the implementation of sustainability-related initiatives (Kaplowitz *et al.*, 2009) and maintain pro-environmental behaviours (Kelly *et al.*, 2006).

With specific reference to studies on recycling—a key strategy to develop a sustainable university campus (e.g. Smyth *et al.*, 2010) - there is a need to improve understanding of recycling behaviours, because successful recycling programs demand both technology and the involvement of people (Kelly *et al.*, 2006). To the best of our knowledge, recycling behaviours have been explored in fragmented way in the “business management and accounting” research subject area included in the Scopus database. More precisely, previous research has fundamentally examined this topic with reference to specific countries or universities; each of these studies highlighted results deriving from surveys carried out in such contexts. Accordingly, there is a lack of a holistic vision on this topic to try to predict recycling behaviour.

By systematically reviewing previous journal articles, this study seeks to gather and synthesise the extant knowledge on recycling behaviours in the higher education context into a comprehensive framework. In this regard, after providing a basic understanding of the research topic, the factors

affecting recycling intentions/behaviours in higher education institutions are identified. Finally, future research directions are proposed.

The findings of this systematic literature review contribute theoretically and practically. They enable scholars to not only systematise knowledge on recycling behaviour in the higher education context but also further advance knowledge on this topic by identifying specific research areas that could be theoretically and empirically investigated. In addition, the results have managerial implications for supporting the adoption of more sustainable behaviours and suggest that university managers use the identified factors affecting recycling intentions/behaviours as a basis for designing behavioural intervention programs in their higher education institutions.

The remainder of the paper is structured as follows. The next section describes the methodology employed in the study, explaining how the materials were collected, selected and analysed. Following this, the descriptive results of the analysis are presented (year of publication, journal and research method) and factors that affect recycling intentions/behaviours in higher education institutions are proposed. Subsequently, directions for future studies on recycling behaviours are considered. Finally, the study concludes by underlining some limitations.

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Recycling behaviour
in higher education
institutions: a systematic
literature review

2. Methodology

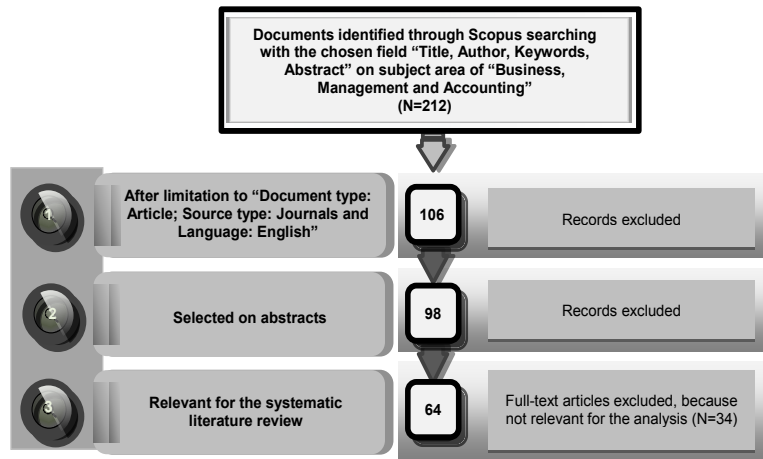
This study employs a systematic literature review as its methodological approach. This specific method, which provides a transparent and dependable evaluation of the topic under examination, enables a researcher to address new or emerging topics, monitor progress in a research field, promote knowledge building, understand a phenomenon and clarify unexplored research topics (e.g. Booth *et al.*, 2012; Lightfoot *et al.*, 2013). This review adopted the following four steps proposed by Denyer and Tranfield (2009) and Merli *et al.* (2018): a) formulation and definition of clear research questions and keywords, b) definition of inclusion criteria, c) selection and evaluation of materials and d) analysis and synthesis of the selected material.

Articles on recycling behaviour in higher education institutions were selected from the Scopus database, defined by Merli *et al.* (2018) as one of the most authoritative and comprehensive databases covering scientific research, and the largest database of peer-reviewed literature in terms of number of abstracts (Jacsó, 2011). Searches were performed using the keywords “waste recycle*” OR “separate collection” OR “separate waste collection” OR “recycle*”, along with keywords that express the analysis setting (“campus” OR “university” OR “college” OR “higher education institutions”). Each search was carried out in the “Title, author, keywords, abstract” field. Although this topic has been analysed across different research subject areas, such as chemistry, medicine, engineering and psychology, the current paper focuses on the “business, management and accounting” subject area. The records identified through the Scopus search comprised 212 documents. After the first selection, the final sample

considered only articles published in academic journals and written only in English, since this is the accepted global language for research (Merli *et al.*, 2018). Consequently, one-half (106) of the 212 documents on recycling behaviours were removed.

After the selection and evaluation of materials, the remaining papers (n = 106) were analysed in more detail. The abstracts were scanned to keep the search process in line with the objectives of this study, and eight articles were excluded because they were not relevant for the analysis. After reading of full remaining articles (n = 98), another 34 articles were removed because they were not relevant for the study. The remaining 64 articles were selected for the systematic literature review, and moved to a single Excel sheet to aid analysis. Figure 1 provides an overview of the selection process.

Fig. 1: Selection process



Source: Our elaboration

To provide a basic understanding of the topic, articles were coded in relation to both publication trend per year and journal. Also, the distribution of selected papers was analysed in relation to article type (conceptual, empirical or general review) and research method (qualitative, quantitative or mixed).

To identify the factors affecting recycling intentions/behaviours in higher education institutions, a content analysis of the 64 articles was undertaken (Stemler, 2001). Thematic coding of this material was undertaken inductively (Saldana, 2009) in relation to the research purpose. The coding was conservative in approach, given that it included only what was explicit in the data; in other words, intentionality was not inferred in the data. The themes capturing factors influencing recycling behaviours were distinguished into the five following categories: a) environmental concern, b) attitudes towards recycling, c) social norms, d) university environmental policy and e) availability of recycling facilities at higher education institutions.

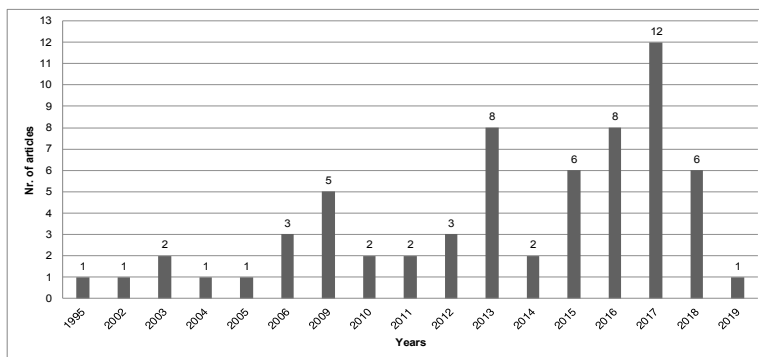
3. Findings

This section presents the descriptive findings. Section 3.1 describes the distribution of the publications over time and among journals, the type of article (conceptual, empirical or review) and the methodology adopted (qualitative, quantitative or mixed). After that, Section 3.2 presents the main factors affecting recycling behaviours in higher education institutions that emerged from the literature analysis.

3.1 A basic understanding of the research topic

The analysis of the selected papers revealed that the first study on recycling behaviours in higher education institutions dates to 1995 (Shim, 1995). The subsequent article identified in the data set under analysis was published only in 2002, suggesting limited academic interest in this field of research over the second half of the 1990s. In Figure 2, which presents the distribution of the articles over time, a sharp increase in publications can be observed for the period 2015-2018; about half (51.6%) of the selected papers were published in these four years. The most productive year for research on this topic was 2017, when 12 articles (18.8%) were published. In the first months of 2019, only one article was published.

Fig. 2: Distribution of publications on recycling in higher education institutions over time



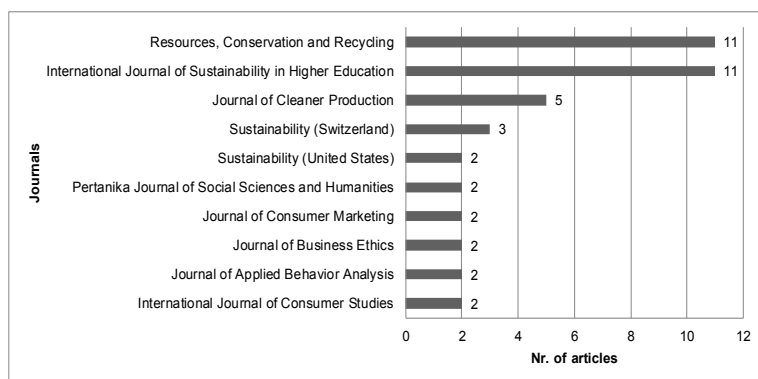
Source: Our elaboration

With regard to journal, the articles in the unit of analysis belong to a total of 32 different journals related to the “business, management and accounting” subject area, and more specifically, to marketing, consumer behaviour, environment and sustainability. Resources, Conservation and Recycling and International Journal of Sustainability in Higher Education had the highest number of published articles (11) on this topic. Figure 3 presents the journals with at least two published articles.

In terms of article type (conceptual, empirical or review), a lack of conceptual and review papers was identified; in fact, all the selected papers are empirical. From a methodological perspective, 17.5% of

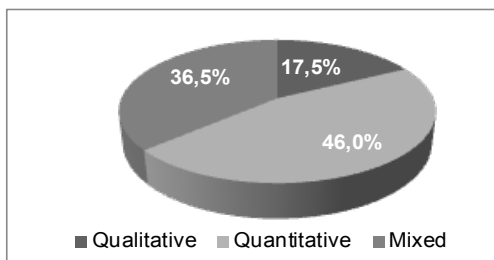
empirical studies adopt a qualitative approach, 46.0% adopt a quantitative approach and 36.5% use a mixed-method approach (both qualitative and quantitative methodologies). A relatively high percentage of the research adopted a mixed approach, combining both qualitative and quantitative methodologies, to better explain recycling behaviours in the university context (see Figure 4).

Fig. 3: Distribution of publications among journals (journals with at least two published articles)



Source: Our elaboration

Fig. 4: Distribution of publications based on research methodology



Source: Our elaboration

3.2 Factors affecting recycling intentions/behaviours in higher education institutions

Thematic analysis revealed five major factors affecting recycling intentions/behaviours in higher education institutions. Specifically, the following themes were identified: a) environmental concern, b) attitudes towards recycling, c) social norms, d) university environmental policy and e) availability of recycling facilities at higher education institutions. After presenting the results of the thematic analysis, socio-demographic characteristics associated with higher recycling rates are proposed.

A number of studies identified environmental concern as an important element in the development of a positive attitude towards recycling. This

theme includes a variety of more specific topics, such as environmental awareness, environmental knowledge and environmental values, as Table 1 shows. More precisely, awareness of environmental pollution was found to be a driver of college students' recycling behaviours in a study conducted at a Chinese university (Zhang *et al.*, 2017). Awareness of environmental consequences was also found to encourage eCycling (i.e. the recycling of electronic waste) among college students (Gonul *et al.*, 2016), and to be important in improving academic and non-academic staff recycling rates (Aksan and Çelikler, 2017; Davis *et al.*, 2009). In a cross-country comparative analysis, Izagirre-Olaizola *et al.* (2015) showed that environmental knowledge is a useful factor for predicting university students' recycling behaviours. In terms of electronic waste, environmental concern motivates students to use a specific recycling bin (Jiménez-Parra *et al.*, 2014). Eco-concern favours pro-environmental behaviours of college students while traveling (Han and Hyun, 2018). Joung and Park-Poaps (2013) conducted an empirical analysis at a south-eastern US university and found that environmental concern influences the resale and the donation of clothes by students. In another study to test whether university students were likely to reduce their on-campus waste stream, Flagg and Bates (2016) found that environmental values were associated with self-reporting higher levels of recycling effort. In a recent study by Felix and Almaguer (2019) conducted with college students, a feeling of psychological ownership of "planet earth" was positively associated with both recycling and green purchasing. In a study to explore the connections students make between their food-related choices and the environment and the actions that can be undertaken to ameliorate negative environmental outcomes associated with modern food practices, having a pro-environmental worldview was associated with recycling and reducing food waste (Campbell-Arvai, 2015). Environmental awareness, however, may not be enough, and other studies show that even if university students are aware of the importance of recycling, their attitudes and behaviours conflict with this (Basri *et al.*, 2016). In a study to explore students' assessment of campus sustainability components, it was found that even if students indicate environmental awareness and concern, they lack willingness to participate in environmental initiatives (Abubakar *et al.*, 2016). In an empirical analysis conducted at Oxford, it emerged that such students do not have a high level of recycling (Robertson and Walkington, 2009). Also, in the context of textiles, materialistic customers who consider clothes a symbol of prestige, success and social status (Browne and Kaldenberg, 1997) were not interested in environmental issues, but their participation in recycling was the same as non-materialistic customers. In this respect, a group of college students was compared with non-students in terms of recycling and environmental awareness, with no differences able to be verified between the two groups (Vitell and Muncy, 2005). Thematic analysis also revealed that a lack of or a low environmental awareness has a negative relationship with recycling in higher education institutions. In a study to develop a checklist to examine the green culinary behaviours of hospitality students, Wang (2016) found that many students engage in non-green behaviours (i.e. kitchen waste), mainly because of low environmental awareness.

Another paper found that university students have only moderate environmental awareness and therefore only sometimes practice recycling (Omran *et al.*, 2017). Alves and Farina (2018), in a study to identify factors that influence e-waste management at a Brazilian university, affirmed that more environmental awareness is needed. Kaplowitz *et al.* (2009) reported that the lack of knowledge about the environmental benefits that derive from recycling has a negative influence on proper recycling. The lack of knowledge about the consequences on the environment also negatively influences recycling behaviours of the non-academic staff of a university (Davis *et al.*, 2009).

The second theme that emerged from the analysis includes attitude towards recycling. In an empirical study to examine the antecedents of proper disposal of used batteries at a university campus, Apinapath *et al.* (2015) found that a positive attitude towards recycling is a relevant predictor of students' recycling intentions. Positive attitudes towards recycling also affect recycling of electronic waste among college students (Gonul *et al.*, 2016) and favour pro-environmental behaviours of college students while traveling (Han and Hyun, 2018). In a field experiment conducted at a university, positive attitudes towards the environment were found to facilitate the implementation of an accounting model to monitor waste production (Gallo *et al.*, 2017). However, in contrast with previous studies, Joung (2013) found that positive environmental attitudes do not positively affect participation in recycling.

The third theme that emerged from the analysis of the factors affecting recycling intentions/behaviours is represented by social norms, understood as the external influence students are exposed to. Social norms, in the sense of "the perceived social pressure to perform or not to perform the behavior" (Ajzen, 1991, p. 188), are associated with pro-environmental behaviours of college students while traveling (Han and Hyun, 2018). In a study on the use of e-learning platforms in embedding sustainability concepts in higher education, Sanganyado and Nkomo (2018) found that e-learning activities and discussions promoted chemistry and engineering students' engagement in sustainability, because they could learn about their peers' sustainable practices. Apinapath *et al.* (2015) also found that exposure to environmental information from professors and peers is a relevant predictor of students' recycling intentions. Family members, parents and friends positively influence the recycling behaviours of students (Robertson and Walkington, 2009). The positive influence of surrounding friends as an antecedent of students' recycling behaviours is also reported by Zhang *et al.* (2017). Moreover, students are motivated by family norms to resell and donate their clothes (Joung and Park-Poaps 2013).

The fourth theme that emerged from the analysis, university environmental policy, includes, for example, the organisation of projects, initiatives or academic courses related to environmental issues. To involve more students in recycling, universities may promote recycling activities encouraging students to participate. Being part of such projects, student will better understand the importance of recycling and how to correctly recycle (De Vega *et al.*, 2003; Mason *et al.*, 2004; Smyth *et al.*, 2010; Kurland, 2011; Baldwin and Dripps, 2012; Zain *et al.*, 2012; Barros *et al.*,

2013; Cole and Fieselman, 2013; Posey and Webster, 2013; Zain *et al.*, 2013; Becker *et al.*, 2014). Recycling programs that explain clearly what, how and where to recycle, and do not solely focus on why to recycle, motivate students to become good recyclers (Kaplowitz *et al.*, 2009). The green building initiative at the College of Charleston, in South Carolina, US changed the recycling behaviour of students as it provided additional information about recycling rules (Owens and Halfacre-Hitchcock, 2006). In a case study at a Brazilian university to discuss the implementation of a waste management plan, Fagnani and Guimarães (2017) found that percentages of waste were significantly lower after the implementation of the plan, and even lower after students and staff were involved in a waste minimisation awareness campaign. Maldonado (2006) showed quantitatively that participation in a program for the minimisation and recycling of solid waste not only enhanced environmental awareness but also significantly reduced (by around two-thirds) the amount of waste. Another study, performed at a leading US university for green initiatives, showed that the level of students' sustainable practices is higher if they have taken academic courses related to environmental sustainability (Choi *et al.*, 2017). As De Vega *et al.* (2003) noted for the case of Mexico, a lack of environmental education negatively influences the active participation of students in recycling. In a study to identify best practices for successful sustainability programs at different universities, Tahara *et al.* (2015) found that educational efforts, a full-time sustainability coordinator as well as student volunteers were among the core elements of successful programs. In a survey of university staff, Brennan *et al.* (2015) showed that action plans and staff training can improve sustainability implementation in university operations. Training teachers was also found to improve e-waste recycling rates (Bitanga, 2017). In university contexts, where the level of paper usage is very high, a small reduction of paper used will significantly reduce the waste stream. For example, replacement with double-sided printers reduces by half the total amount of paper used. In this way, through different opportunities to access new sustainable technologies and programs, university members are encouraged to recycle and, at the same time, improve their recycling behaviour (Amutenya *et al.*, 2009). At Swansea University, UK, an experiment was conducted that made reusable cups available at a discounted price. The main objective was to analyse staff and student attitudes towards such a new option. The results indicated that such "financial incentives" increased the rate of university members using refillable mugs (Harris and Probert, 2009). Technology can also be considered a tool to address sustainability issues, as in the study conducted by Mozo-Reyes *et al.* (2016), where the implementation of technological bins at a university produced an increase in recycling through interactivity and feedback that made recycling more attractive to students. However, despite these studies showing that environmental education reduces the waste stream, the results of an experiment organised by professors at a US university demonstrated that the presence of recycling education does not increase recycling in students' apartments (Pike *et al.*, 2003).

The last theme that emerged from the analysis concerns the quality of recycling facilities provided at the university. With regard to this topic, two

specific issues emerged: the availability of recycling bins and the availability of information and guidelines on how to correctly use them. Related issues of time constraints and effort constraints also emerged. As an example, a lack of bins represents a circumstantial limitation to the proper disposal of used batteries among college students (Apinpath *et al.*, 2015), and a lack of recycling bins for electronic waste does not permit students to recycle such waste (Leodir Löbler *et al.*, 2012). Quality issues regarding recycling facilities may consist not only of a lack of bins but also the wrong positioning of bins, as demonstrated by a behavioural study in which a significant increase in recycling was reported with centrally located recycling bins (Binder *et al.*, 2017). In a study on strategies to enhance waste management activities at university campuses, Ebrahimi and North (2017) reported that identifying new locations for bins may be an effective strategy since the lack of access to a sufficient number of bins in university campuses represents one of the main barriers to recycling. Another study showed that if recycling bins are placed in classrooms or other common places, the level of recycling increases (O'Connor *et al.*, 2010). Similar results are provided by a quasi-experimental study performed in a university residential hall (Cheung *et al.* 2018) where, after installation of a new plastic recycling bin, students' pro-environmental behaviours increased. Two more experimental studies lead to similar conclusions. In an experiment with university students, staff and visitors (Fritz *et al.*, 2017), recycling bins were placed close to trashcans and recycling rates increased. In another experiment (McCoy *et al.*, 2018), modifications were made to the location of waste and recycling containers and recycling improved significantly. The findings of a survey with students in Texas highlighted the need for additional recycling bins in places where they are not present to enhance waste recycling in the university. Further, plastic recycling bins should be placed not only outside the campus but also inside, especially near the vending machines (Beard, 2002). An inadequate and unbalanced distribution of recycling bins in universities makes recycling by students and staff more difficult (Geng *et al.*, 2013; Marquardt *et al.*, 2013). In an experiment in US, it was shown that the willingness of students to recycle in their apartments is enhanced if they have recycling bins inside their building (Pike *et al.*, 2003). In contrast to private houses, in students' residences, it is difficult to find recycle bins and the rate of recycling is low. This difficulty directly influences the recycling behaviour of students (Robertson and Walkington, 2009). A dispersed campus layout and low availability of bins are also reported as preventing recycling in a case study conducted by Weaver *et al.* (2015). Zhang *et al.* (2017) found that a good waste separation infrastructure is closely related to students' waste recycling behaviours. Focusing on the kitchen/cafeteria of the university campus, Mason *et al.* (2004) noted that the limited space hinders students from recycling-when recycling bins are outside the building, it is easier to throw waste in the dustbin. Convenience of available recycling facilities, in the sense of time and ease, is an important factor that leads to more student involvement in eCycling behaviours (Gonul Kochan *et al.*, 2016). Time constraints were also reported as preventing students' willingness to participate in environmental initiatives in a pilot study by Zain *et al.*

(2016). In addition, Campbell-Arvai (2015) showed that behaviours that require low effort or little substantial change are generally associated with students' food-related choices, such as reducing food waste and recycling. In another study on food-related behaviours, Wang (2016) reported that many students engage in non-green behaviours, such as running water when not necessary, because this requires less effort. Availability of practical information and guidelines on how to recycle has also been found to affect recycling intentions/behaviours in higher education institutions. In a case study at a large university, Weaver *et al.* (2015) found that recycling is strongly influenced by the university context and by the process designed to promote recycling. In particular, information on written posters was deemed important to promote recycling behaviour. A general lack of information on how to properly recycle is often reported (Beard, 2002; Owens and Halfacre-Hitchcock, 2006; Kaplowitz *et al.*, 2009). As a consequence, a lack of guidelines or ambiguity of provided information prevents students from recycling (Kelly *et al.*, 2006). Some clear indication marks could facilitate students' recycling (Geng *et al.*, 2013). Information on how to distinguish and correctly classify waste is also reported as a factor that influences students' recycling behaviours (Zhang *et al.*, 2017). In another case, in Michigan State University campus, students and staff stated that it was not clear which items could be recycled within the campus. Also, they noted that they were aware of the availability of recycling bins, but not of their precise location (Olson *et al.*, 2011). Guidelines and correct signage have also been identified in other research as low-cost initiatives that could be implemented to enhance recycling rates in universities, both for students (Cheung *et al.*, 2018) and for university staff (Ebrahimi and North, 2017). In a comparative study by Ferronato *et al.* (2017), a general lack of knowledge was deemed responsible for low recycling rates in universities. Moreover, in research to explore the application of special recycling bins, a general lack of obstacles was reported as a necessary condition to improve waste separation practices (Supakata, 2018).

Last, several studies have provided evidence regarding socio-demographic characteristics associated with higher recycling rates. Female university students generally display more environmental behaviours and engagement in recycling activities (Campbell-Arvai, 2015; Flagg and Bates, 2016; Izagirre-Olaizola *et al.*, 2015; Meyer, 2016; Zhang *et al.*, 2017). In an exploratory study with undergraduates in a large US university, Shim (1995) analysed the role of gender, age and ethnicity on waste recycling behaviour. A strong relationship emerged, where female students and older students were more highly predisposed to adopt environmentally friendly behaviours. Similar findings have been reported in other studies focusing on non-academic staff (Davis *et al.*, 2009; Robertson and Walkington, 2009). In the case of the experiment with reusable cups at a lower price, female students were more likely to use these cups (Harris and Probert, 2009). With respect to age, younger members of academic staff have been found to pay less attention to recycling methods at work (Davis *et al.*, 2009). Meyer (2016) found that the probability of environmental behaviours increases with each year of college education. Ethnic minorities were also found to be more likely to be engaged in recycling activities. On

the contrary, the analysis of Shim (1995) pointed out that white students were more interested/careful with respect to the environment than non-white students. Religiosity, on the other hand, seems to have no effect on recycling rates at universities (Arli, 2017). Finally, as Davis *et al.* (2009) demonstrated via a survey, married participants and participants who were parents recycled more at home and at work compared with other participants.

Table 1 synthesises factors influencing recycling intentions/behaviours in higher education institutions that emerged from the literature review and socio-demographic characteristics associated with higher recycling rates.

To systematise results, the factors influencing recycling intentions/behaviours in higher education institutions can be classified according to the Theory of Reasoned Action (TRA). The TRA, grounded in social psychology, was developed by Fishbein and Ajzen (1975) to explain behavioural intentions. Ajzen and Fishbein (1980) defined such behavioural intentions as a function of two determinants: a person's attitude towards the action and a person's social norms. Attitude refers to the evaluation of the performance of a specific behaviour, while social norms are related to "perceived social pressure to perform or not perform a specific behavior" (Ajzen, 1991, p. 188; Madden *et al.*, 1992, p. 3). Intentions are then strongly related to performing a specific behaviour (Fishbein and Ajzen, 1975).

The TRA has been widely used to study different contexts such as health behaviours, voting and consuming organic food (Netemeyer and Bearden, 1992; Lee and Green, 1991). It has also been adopted in the area of green marketing to explain environmentally related behaviours such as recycling (Davies *et al.*, 2002) and green purchasing (Ha and Janda, 2012; Wahid *et al.*, 2011; Sparks and Shepherd, 1992). Previous literature on recycling behaviours has shown that recycling intentions are influenced by willingness to recycle, convenience of available recycling facilities, attitudes towards recycling and social norms (Calvin *et al.*, 2012; Chu and Chiu, 2003; Kelly *et al.*, 2006; Sidique *et al.*, 2010; Tonglet *et al.*, 2004).

In the current study, we propose a model based on the TRA but adapted to the specificities of the higher education context, i.e. TURRA (Theory of University Recycling Reasoned Action). In particular, environmental concern and university environmental policies can be considered antecedents of recycling attitudes. Attitudes and social norms affect recycling intentions, which in turn affect recycling behaviours. The availability of recycling facilities moderates the relationship between recycling attitudes and intentions and recycling intentions and behaviours, as shown in Figure 5.

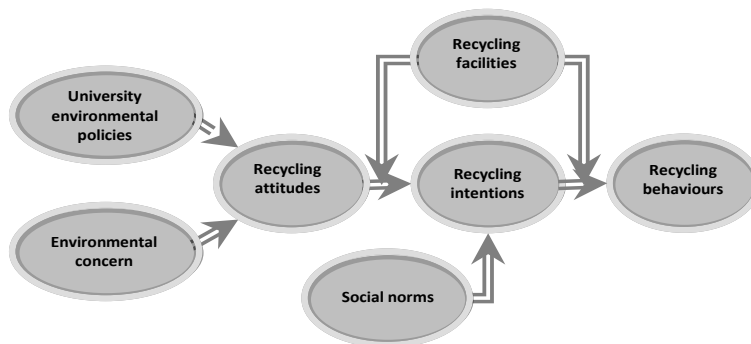
Tab. 1: Factors influencing recycling intentions/behaviours in higher education institutions

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<i>Environmental concern</i>	
Environmental concern	Browne and Kaldenberg, 1997; Joung and Park-Poaps, 2013; Jiménez-Parra <i>et al.</i> , 2014; Abubakar <i>et al.</i> , 2016; Han and Hyun, 2018
Environmental awareness	Vitell and Muncy, 2005; Davis <i>et al.</i> , 2009; Robertson and Walkington, 2009; Basri <i>et al.</i> , 2016; Wang, 2016; Abubakar <i>et al.</i> , 2016; Aksan and Çelikler, 2017; Omran <i>et al.</i> , 2017; Alves and Farina, 2018
Awareness of environmental pollution	Zhang <i>et al.</i> , 2017
Awareness of environmental consequences	Davis <i>et al.</i> , 2009; Gonul <i>et al.</i> , 2016
Environmental knowledge	Kaplowitz <i>et al.</i> , 2009; Izagirre-Olaizola <i>et al.</i> , 2015
Environmental values	Flagg and Bates, 2016
Psychological ownership	Felix and Almaguer, 2019
Pro-environmental worldview	Campbell-Arvai, 2015
<i>Social norms</i>	
Friends Family Peers Professors	Robertson and Walkington, 2009; Joung and Park-Poaps 2013; Apinapath <i>et al.</i> , 2015; Zhang <i>et al.</i> , 2017; Sanganyado and Nkomo, 2018; Han and Hyun, 2018
<i>Attitudes</i>	
Attitudes towards recycling	Joung, 2013; Apinapath <i>et al.</i> , 2015; Gonul <i>et al.</i> , 2016; Gallo <i>et al.</i> , 2017; Han and Hyun, 2018
<i>University environmental policy</i>	
Waste minimisation activities	De Vega <i>et al.</i> , 2003; Mason <i>et al.</i> , 2004; Maldonado, 2006; Owens and Halfacre-Hitchcock, 2006; Kaplowitz <i>et al.</i> , 2009; Smyth <i>et al.</i> , 2010; Kurland, 2011; Baldwin and Dripps, 2012; Zain <i>et al.</i> , 2012; Barros <i>et al.</i> , 2013; Cole and Fieselman, 2013; Posey and Webster, 2013; Zain <i>et al.</i> , 2013; Becker <i>et al.</i> , 2014; Fagnani and Guimarães, 2017
Specific examples: Double-sided printers Reusable cups Technological bins	Amutenya <i>et al.</i> , 2009 Harris and Probert, 2009 Mozo-Reyes <i>et al.</i> , 2016
Environmental education	De Vega <i>et al.</i> , 2003; Pike <i>et al.</i> , 2003; Tahara <i>et al.</i> , 2015; Choi <i>et al.</i> , 2017
Staff training	Brennan <i>et al.</i> , 2015; Bitanga, 2017
<i>Recycling facilities</i>	
Availability of recycling bins	Beard, 2002; Pike <i>et al.</i> 2003; Robertson and Walkington, 2009; O'Connor <i>et al.</i> , 2010; Leodir Löbler <i>et al.</i> , 2012; Geng <i>et al.</i> , 2013; Marquardt <i>et al.</i> , 2013; Apinapath <i>et al.</i> , 2015; Weaver <i>et al.</i> , 2015; Ebrahimi and North, 2017; Fritz <i>et al.</i> , 2017; Binder <i>et al.</i> , 2017; Zhang <i>et al.</i> , 2017; McCoy <i>et al.</i> , 2018; Cheung <i>et al.</i> , 2018
Availability of information	Beard, 2002; Owens and Halfacre-Hitchcock, 2006; Kelly <i>et al.</i> , 2006; Kaplowitz <i>et al.</i> , 2009; Olson <i>et al.</i> , 2011; Geng <i>et al.</i> , 2013; Weaver <i>et al.</i> , 2015; Zhang <i>et al.</i> , 2017; Ebrahimi and North, 2017; Ferronato <i>et al.</i> , 2017; Cheung <i>et al.</i> , 2018
Time/effort constraints	Mason <i>et al.</i> , 2004; Campbell-Arvai, 2015; Wang, 2016; Gonul <i>et al.</i> , 2016; Zain <i>et al.</i> , 2016; Supakata, 2018
<i>Socio-demographic characteristics</i>	
Gender	Shim, 1995; Davis <i>et al.</i> , 2009; Robertson and Walkington, 2009; Harris and Probert, 2009; Campbell-Arvai, 2015; Izagirre-Olaizola, 2015; Flagg and Bates, 2016; Meyer, 2016; Zhang <i>et al.</i> , 2017
Age	Shim, 1995; Davis <i>et al.</i> , 2009; Robertson and Walkington, 2009; Meyer, 2016
Ethnicity	Shim, 1995; Meyer, 2016
Religion	Arli, 2017
Marital status	Davis <i>et al.</i> , 2009
Having children	Davis <i>et al.</i> , 2009

Source: Our elaboration

Fig. 5: TURRA model



Source: Our elaboration

4. Future research directions and conclusions

The systematic literature review conducted in this study has revealed several literature gaps that represent important opportunities for future research directions.

A first gap concerns the determinants of recycling attitudes. From the literature analysis, university environmental policies and environmental concern emerged as key factors affecting attitudes towards recycling. With reference to university policies, three interesting fields of research for future studies are highlighted: a) the use of customer education activities, b) the use of social media communication and c) the use of gamification techniques. First, customer education activities are educational initiatives undertaken to “better educate, inform, and develop the knowledge and skills of the customers” (Antonios, 2011, p. 3; Brunetti and Bonfanti, 2015; Viassone *et al.*, 2018) about recycling. Such initiatives could be directed not only at students and higher institution personnel, but more broadly, at the local community of stakeholders. In fact, stakeholder engagement represents an inclusive and bottom-up approach often considered more effective than traditional top-down approaches in developing policy design and implementation. Second, with regard to the use of online communication tools (e.g. Siano *et al.*, 2017), future research could explore the effect of social media communication in developing environmental knowledge, raising awareness about specific environmental issues and informing the community about the positive effects of recycling behaviour. Finally, research could be directed to understanding the potentialities of gamification to increase customer engagement in recycling practices. Gamification can be defined as “the use of game design elements in non-game contexts” (Deterding *et al.*, 2011, p. 10). More specifically, “Gamification is a developing approach for encouraging user motivation, engagement and enjoyment in non-gaming, computer-mediated environments” (Seaborn and Fels, 2015, p. 29). Recent studies have shown that gamification can be an effective tool to promote sustainable behaviour in different contexts, such as tourism (e.g. Negrusa *et al.*, 2015) and urban mobility (e.g. Kazhamiakin *et al.*, 2015). There is a need to further explore

the role of gamification to increase environmental concern and create a positive attitude towards recycling.

A second research gap that emerged from the literature analysis concerns the effect of social norms on recycling intentions. The majority of studies focused on peers, family members and friends. Future research could investigate if and how local community influences recycling intentions in higher education institutions. In other words, it would be interesting to examine if and how the sense of community, those who live in a specific territory, could lead to more pro-environmental behaviour by reporting different levels of recycling and, consequently, increasing willingness to minimise waste. In this sense, local authorities could (or not) assume an important role.

Although some studies have already explored the direct effect of recycling facilities on recycling intentions, as well as on recycling behaviour, a third research gap and future research direction is represented by the need to further investigate the moderating effect of recycling facilities on the relationship between attitudes and intentions, as well as on the relationship between intentions and recycling behaviour. It is proposed that recycling facilities can reinforce the effect of a positive attitude towards recycling on recycling intentions, as well as reinforce the effect of willingness to recycle on actual behaviour.

Finally, some of the examined studies focused on recycling intentions without further investigating how intentions affect actual behaviour, while other studies examined the direct effect of environmental concern, university policies or recycling facilities on behaviour. Future research should adopt a more comprehensive approach by considering both the determinants of intentions and the factors influencing actual recycling behaviour.

Limitations of the analysis conducted should be acknowledged. First, data collection was limited to peer-reviewed articles present in Scopus. While this database provides wide coverage of the academic literature, future studies could expand the data collection to other databases such as Web of Science or Google Scholar, to include recent conference contributions as well as other types of research reports. Second, future studies could include a wider set of keywords to expand the results to recycling behaviour of millennials, even outside higher education institutions. Finally, while a rigorous analysis was conducted to reduce subjectivity in the identification of the themes, future studies could refine the categorisation with the support of software such as NVivo.

To conclude, the study of factors directly or indirectly affecting recycling intentions and behaviour in higher education institutions represents a promising field of research. Recent development in technologies may stimulate new ways to engage customers and promote more sustainable behaviours among students, higher education institutions' personnel and the broader community of stakeholders.

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La sensibilità del consumatore a comportamenti aziendali eticamente scorretti

Received
14th September 2018
Revised
1st April 2019
Accepted
5th June 2019

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Abstract

Obiettivi del paper: Il paper analizza l'effetto dell'alterazione dei dati inerenti al prodotto e alla responsabilità sociale dell'impresa sull'intenzione d'acquisto del consumatore e come tali tipologie di alterazione interagiscono con la brand image e l'autostima individuale.

Metodologia: La ricerca si fonda su un esperimento between subjects condotto su un campione di 200 consumatori. Il disegno fattoriale prevede tre variabili indipendenti: l'alterazione dei dati di prodotto (product sophistication vs product social responsibility); la brand image (forte vs debole); e l'autostima dell'individuo (alta vs bassa). La variabile dipendente è costituita dall'intenzione d'acquisto del consumatore.

Risultati: I dati ottenuti dimostrano che i consumatori sono influenzati in misura maggiormente negativa dall'alterazione dei dati di product sophistication che non da quella concernente la product social responsibility. In secondo luogo, l'intenzione d'acquisto del consumatore in presenza di quest'ultimo tipo di alterazione risulta più elevata quando l'impresa ha saputo sviluppare associazioni forti, favorevoli e uniche alla propria marca. In terzo luogo, i dati dimostrano che tale intenzione si accresce ulteriormente se, in presenza del medesimo tipo di alterazione dei dati, a una forte immagine di marca si accompagna un'alta autostima individuale.

Limiti della ricerca: Nell'indagine non è stato considerato il livello di coinvolgimento psicologico del consumatore nei confronti delle tematiche etiche in generale e di alcune di esse in particolare. Inoltre, non è stato valutato l'impatto della fedeltà alla marca e della percezione della sua unicità. In terzo luogo, si è esaminata un'unica variabile psicografica.

Implicazioni pratiche: I risultati ottenuti confermano la centralità delle informazioni sul prodotto, l'importanza dell'immagine di marca e l'opportunità di segmentare i consumatori sulla base del grado di autostima. Emergono inoltre significative implicazioni per quanto concerne la tutela dell'interesse collettivo.

Originalità del paper: Il tema dell'impatto dell'alterazione delle due tipologie di informazioni concernenti il prodotto aziendale e della loro interazione con la brand image e l'autostima non ha sin qui ricevuto attenzione.

Parole chiave: alterazione dei dati; corporate social responsibility; immagine di marca; autostima

Purpose of the paper: *The paper analyzes: a) the effect of data alteration related to product sophistication and to product social responsibility on the consumer purchase intention; b) how these types of alteration interact with the brand image and individual self-esteem.*

Methodology: *The research is based on a between subjects experiment conducted on a sample of 200 consumers. The factorial design includes three independent variables: falsification of product data (product sophistication vs. product social responsibility); the brand image (strong vs. weak); and the individual self-esteem (high vs. low). The dependent variable is the consumer purchase intention.*

Findings: *The data obtained show that consumers are more negatively influenced by the alteration of data concerning product sophistication than product social responsibility. Secondly, the consumer purchase intention in the presence of the latter type of alteration is higher when the company has been able to develop a strong brand image. Thirdly, purchase intention is further enhanced if, in the presence of the same type of falsification of data, a strong brand image is associated to a high individual self-esteem.*

Research limits: *The survey did not consider the level of psychological involvement of the consumer in relation to ethical issues or the product category. Furthermore, the impact of brand loyalty and the perception of its uniqueness was not assessed. Thirdly, a single psychographic variable was examined.*

Practical implications: *The results obtained confirm the centrality of the information on the product, the importance of the brand image and the opportunity to segment consumers based on the degree of self-esteem. There are also significant implications for the protection of collective interests.*

Originality of the paper: *So far, the impact of different types of product data falsification on consumer purchase intention and their interaction with the brand image and the individual self-esteem has not received adequate attention.*

Key words: alteration of product data; corporate social responsibility; brand image; self-esteem

1. Introduzione

L'attenzione alla responsabilità sociale è sempre più al centro delle strategie aziendali (ad es. Porter e Kramer, 2011; Perrini *et al.*, 2011; Tencati e Pogutz, 2015; Rasche *et al.*, 2017) e numerosi studi evidenziano che, a parità di altre condizioni, i consumatori esprimono una valutazione peggiore nei confronti delle imprese che pongono in atto comportamenti eticamente scorretti (Carrigan e Attalla, 2001; Sen e Bhattacharya, 2001; De Pelsmacker *et al.*, 2005; Mohr e Webb, 2005; Newholm e Shaw, 2007).

Fra i comportamenti riprovevoli che hanno ottenuto ampio risalto dalla cronaca in tempi relativamente recenti, è possibile ricordare il caso di una nota compagnia accusata per alcuni dispositivi telefonici che non rispettavano la durata della batteria o i gigabyte dichiarati, o quello di un'importante casa automobilistica che ha comunicato dati sulle emissioni inquinanti di alcune sue vetture difformi da quelli reali o, ancora, quello

di un rinomato produttore di abbigliamento per il quale sono emerse situazioni di maltrattamento degli animali da cui è ottenuta una materia prima rilevante per la sua produzione.

In questi e in altri casi, il comportamento eticamente scorretto, ma non di rado anche illegale, attiene alla cosiddetta alterazione delle informazioni (Hunt *et al.*, 1984; Ferrell e Gresham, 1985; Hunt e Chonko, 1985), la quale si sostanzia nell'omissione di informazioni rilevanti o nella diffusione di dati non veritieri. Tale condotta riguarda sovente il prodotto, nel senso che le imprese possono omettere la comunicazione di talune caratteristiche dell'offerta o dei sottostanti processi aziendali oppure comunicare caratteristiche superiori o comunque diverse da quelle realmente possedute (Plank e Teichmann, 2018), al fine di superare la concorrenza, incrementare le vendite e migliorare la propria redditività.

Al di là degli orientamenti comportamentali dichiarati, la reale consapevolezza dei consumatori verso le condotte socialmente responsabili delle aziende sembra essere in linea generale non elevata e, anche laddove presente, non pare incidere in misura rilevante sulle effettive decisioni di acquisto. I criteri dichiarati solitamente più importanti risultano infatti: il prezzo, la qualità, la familiarità con la marca e l'immagine di quest'ultima (Carrigan e Attalla, 2001; De Pelsmacker *et al.*, 2005; Mohr e Webb, 2005).

Peraltro, nei casi di consapevolezza del consumatore, la ricerca evidenzia che un comportamento eticamente scorretto esercita un impatto più forte sull'immagine dell'impresa rispetto a uno positivo (Folkes e Kamins, 1999; Sen e Bhattacharya, 2001): è cioè probabile che un consumatore non migliori il giudizio su un'azienda che promuove la responsabilità sociale, ma che, al contrario, osteggi un'impresa che mette in atto comportamenti non etici. Solo i consumatori che ricercano attivamente informazioni sembrano comunque disposti a passare da una marca positivamente valutata a una di minor valore ma che reputano eticamente più attenta (Auger *et al.*, 2003).

Sulla sensibilità del consumatore alle informazioni relative all'eticità dei comportamenti aziendali agiscono numerose variabili, legate sia all'impresa che all'individuo. Con riferimento alle prime, la letteratura ha approfondito in particolare il ruolo della marca, evidenziando come il consumatore: a) valuti ancora più positivamente una marca con la quale si identifica e che pone in atto azioni di CSR; b) sia influenzato meno negativamente da un'informazione concernente un comportamento eticamente scorretto ascrivibile a una marca alla quale è fedele (Sen e Bhattacharya, 2001).

In relazione alle variabili individuali, la letteratura ha invece indagato tanto quelle di natura socio-demografica, evidenziandone il limitato impatto, quanto quelle - più significative - di natura psicografica. Le variabili socio-demografiche non permettono di identificare con precisione un "consumatore etico": studi passati hanno dimostrato che l'età, il sesso o il reddito, ad esempio, non sono discriminanti (Roberts, 1996; Dickson, 2001), mentre altri studi hanno evidenziato risultati non convergenti (Auger *et al.*, 2003; De Pelsmacker *et al.*, 2005). Varie ricerche hanno invece riscontrato la possibilità di individuare "i consumatori etici" e il loro comportamento di acquisto mediante le variabili psicografiche (Anderson e Cunningham, 1972; Cowe e Williams, 2000; Dickson, 2001;

Huttel *et al.*, 2018; Tey *et al.*, 2018). In particolare, i valori - intesi come principi astratti che riflettono il *self-concept* di un individuo - orientano le convinzioni in merito al fatto che un determinato comportamento possa essere desiderabile o meno e guidano le decisioni relative all'etica (Dickson, 2000).

Il presente lavoro intende contribuire agli studi sulle reazioni dei consumatori ai comportamenti non etici delle aziende introducendo la distinzione tra alterazione dei dati di *product sophistication* e di *product social responsibility*, analizzando quale tra esse incida maggiormente sull'intenzione di acquisto del consumatore, per poi indagare l'effetto della loro interazione con l'immagine di marca e con l'autostima dell'individuo, componente fondamentale del *self concept*. Più precisamente, il contributo teorico aggiuntivo rispetto alla letteratura sul tema consiste nell'esaminare se e come l'immagine di marca possa attutire l'effetto negativo dell'alterazione dei dati, a seconda che questi siano riferiti alla qualità e alla funzionalità del prodotto o alla sua responsabilità sociale. Rispetto a tale interazione, si approfondisce poi l'effetto dell'autostima, che - influenzando direttamente il *self concept* del consumatore - rappresenta una variabile in grado di incidere anche sulle reazioni a comportamenti non etici.

Il lavoro è così strutturato: il paragrafo 2, alla luce dell'analisi della letteratura, definisce le ipotesi di ricerca che ci si prefigge di verificare; il paragrafo 3 illustra il disegno sperimentale, le scale di misurazione utilizzate e la metodologia d'indagine; il paragrafo 4 sintetizza i risultati ottenuti. Infine, nelle conclusioni vengono discusse le principali implicazioni teoriche e manageriali dell'analisi svolta.

2. Le ipotesi di ricerca

I contributi teorici su cui si fondano le ipotesi di ricerca sono riconducibili a tre filoni di indagine, concernenti:

- l'influenza che le associazioni cognitive legate alle abilità dell'impresa e alla sua responsabilità sociale possono esercitare sul consumatore;
- il ruolo dell'immagine di marca nel processo di scelta e i meccanismi alla base dell'inerzia cognitiva da essa generata;
- l'impatto del *self concept* sul comportamento dell'individuo, con particolare riferimento alle fondamentali dimensioni di tale costrutto.

Con riferimento al primo filone, Brown e Dacin (1997) definiscono le associazioni di *corporate ability*, come quelle "*related to the company's expertise in producing and delivering its outputs*", mentre le associazioni di *corporate social responsibility*, riflettono "*the organization's status and activities with respect to its perceived societal obligations*". Gli autori evidenziano come la prima tipologia di associazioni incida in via diretta sulla valutazione degli attributi del prodotto da parte del consumatore, fra i quali la cosiddetta "*product sophistication*", intesa come la misura in cui il prodotto incorpora i più recenti avanzamenti tecnologici. Le associazioni del secondo tipo, invece, influenzano in via diretta la percezione della marca e/o dell'impresa, rafforzandone l'attrattività e l'affidabilità, ma non direttamente gli attributi del prodotto. Inoltre, il recente studio di Johnson

et al. (2018) dimostra che le associazioni di corporate social responsibility prevalgono su quelle di *corporate ability* quando il consumatore valuta l'esperienza di consumo, mentre si verifica il contrario allorché oggetto di considerazione sono gli attributi di prodotto.

Venendo al tema oggetto di indagine nel presente lavoro, è possibile, dunque, distinguere l'alterazione dei dati di *product sophistication* da quella relativa ai dati sulla *product social responsibility*. Mentre la prima si verifica quando il prodotto presenta differenze rispetto agli attributi, alla qualità, all'innovazione, alle *performance* o alle funzionalità comunicate dall'impresa, la seconda ha invece luogo quando il prodotto non è conforme alla responsabilità sociale da essa dichiarata (con riferimento ai diritti umani, alle condizioni di lavoro, al benessere animale, ambientale ecc.).

Benché anche le associazioni di *product social responsibility* siano ritenute importanti dai consumatori al fine di valutare l'impresa e/o la sua offerta, sono relativamente pochi quelli in grado di ricordare le caratteristiche etiche possedute dai prodotti acquistati o comunque considerati nel processo di scelta. Ben più numerosi sono coloro che rammentano con precisione la marca e le principali caratteristiche tecniche (Auger *et al.*, 2003). Ciò dimostra che, per i consumatori, hanno maggior importanza le associazioni di *product sophistication* che non quelle di *product social responsibility*, in particolare al momento dell'acquisto (Berens *et al.*, 2007). Pertanto ci si attende che, nel caso in cui l'alterazione dei dati riguardi il rispetto delle "*societal obligations*", gli individui siano meno inclini a penalizzare l'impresa protagonista di tale violazione etica.

Alla luce di quanto osservato, è possibile avanzare la seguente ipotesi di ricerca:

H1) l'intenzione di acquisto del consumatore è più elevata se l'alterazione dei dati riguarda la product social responsibility anziché la product sophistication.

Come evidenziato da numerosi studi nell'ambito del secondo filone di indagine richiamato in apertura del paragrafo, in molte situazioni l'immagine della marca rappresenta il principale criterio di scelta utilizzato dal consumatore (De Pelsmacker, 2005, p. 375). Essa esercita un impatto particolarmente rilevante sulla percezione di qualità dell'offerta, sul valore e sull'intenzione d'acquisto degli individui (Dodds *et al.*, 1991). L'immagine sintetizza l'insieme delle associazioni nei confronti della marca presenti nella memoria del consumatore (Aaker, 1995). Se tali associazioni sono forti, favorevoli e uniche (Keller, 2012) e se vengono correttamente comunicate, esse aiutano a stabilire un efficace posizionamento del brand e, quindi, a svolgere un ruolo fondamentale nella costruzione del valore della marca nel lungo periodo.

Un brand la cui immagine positiva è ben radicata nella mente del consumatore o nel quale questi si identifica può risultare più resiliente rispetto alla diffusione di notizie negative sull'azienda alla quale fa capo (Mohr e Webb, 2005; Oberseder *et al.*, 2011). In quest'ottica, anche di fronte alla conoscenza di comportamenti eticamente scorretti, diversi

consumatori sostengono che acquisterebbero ugualmente il prodotto se percepiscono positivamente la sua immagine o, comunque, che difficilmente lo osteggerebbero (Carrigan e Attalla, 2001).

Ciò trova giustificazione, in primo luogo, nella tendenza degli individui a confermare le scelte adottate in passato, evitando o ridimensionando le informazioni potenzialmente destabilizzanti, al fine di non incorrere in stati di disequilibrio o di dissonanza cognitiva (Heider, 1958; Festinger, 1957; Cooper, 2007). In secondo luogo, la componente fiduciaria della marca - che in ultima analisi scaturisce dalla ripetuta conferma delle aspettative - genera nel consumatore una sorta di inerzia cognitiva, che, ancora una volta, riduce la sensibilità a nuove informazioni dissonanti rispetto a quelle già memorizzate. L'informazione sull'affidabilità della marca non avrebbe infatti alcun significato se il soggetto acquirente si proponesse di verificarla in ogni occasione di acquisto e consumo della marca stessa. Il cliente, per economizzare le proprie risorse cognitive e temporali, compie pertanto un atto di fiducia nella marca, confidando di ritrovare in tutte le sue manifestazioni le medesime valenze distintive (Vicari, 1995).

Questa inerzia cognitiva è maggiore per le associazioni più astratte, riguardanti la sfera valoriale del consumatore. La *self knowledge*, che secondo la teoria della catena mezzi-fini (Gutnam, 1982; Olson e Reynolds, 1983; Reynolds e Gutman, 2001; Manyiwa e Crawford, 2001; Orsingher *et al.*, 2011) attiene al legame tra i benefici ricercati nella marca e i valori individuali, risulta più difficile da modificare rispetto alla *product knowledge* (cioè alla rappresentazione mentale delle caratteristiche del prodotto). La *self knowledge*, infatti, coinvolge maggiormente la componente affettiva degli atteggiamenti, che - essendo più legata alle funzioni di autodifesa e comunicativa da essi svolte nell'ambito del contesto psicologico e sociale dell'individuo (Katz, 1960) - manifesta una più elevata resistenza al cambiamento.

Pertanto, poiché l'alterazione dei dati di *product social responsibility* coinvolge associazioni alla marca più astratte rispetto a quelle concernenti la *product sophistication* (che interessa la *product knowledge*), data la relazione positiva fra immagine di marca e intenzione di acquisto, è possibile avanzare le seguenti ipotesi:

H2) Una marca dotata di un'immagine forte, rispetto a una con un'immagine debole: a) evidenzia una maggiore intenzione di acquisto in presenza di entrambe le tipologie di alterazione dei dati; b) tale impatto è più elevato se l'alterazione dei dati riguarda la *product social responsibility*.

Come anticipato nell'introduzione al lavoro, la letteratura evidenzia che le caratteristiche socio-demografiche non influiscono in misura rilevante sull'intenzione d'acquisto del consumatore in presenza di comportamenti eticamente responsabili/irresponsabili dall'azienda (De Pelsmacker *et al.*, 2005). Diversamente avviene nel caso delle variabili psicografiche (Anderson e Cunningham, 1972; Cowe e Williams, 2000). A questo riguardo, vari autori (Dickson 2001; Huttel *et al.*, 2018; Tey *et al.*, 2018) hanno evidenziato l'importanza di variabili quali gli atteggiamenti e, soprattutto, i valori strumentali e terminali dell'individuo (Rokeach, 1973).

Una variabile psicografica che rimane meritevole di approfondimento è rappresentata dalle caratteristiche della personalità, come ad esempio quelle che riflettono il “*self concept*” dell’individuo.

Tale costrutto è inteso quale complesso delle valutazioni e delle sensazioni relative a se stesso (Sirgy, 1982). Il *self concept* possiede una propria coerenza complessiva ed è relativamente stabile, quantomeno nel breve periodo. Esso rappresenta, pertanto, una fonte di inerzia e di rigidità nel comportamento dell’individuo, nella misura in cui questi si sforza di rendere coerente ciò che fa con ciò che pensa di sé. Inoltre, il *self concept* si caratterizza per una certa “autoreferenzialità”, poiché l’individuo tende a interpretare gli stimoli ai quali è esposto coerentemente con le convinzioni e le valutazioni già maturate.

Gli studi sul tema hanno evidenziato l’esistenza e l’influenza indipendente di almeno due dimensioni di tale costrutto: coerenza con se stessi (*self consistency*) e autostima (*self esteem*). La prima motiva l’individuo ad agire in modo coerente con la propria percezione di sé. La seconda, invece, alimenta il bisogno di orientare i comportamenti di consumo al perseguimento di obiettivi che permettano di mantenere o aumentare positivamente la propria *self image* (Sirgy, 1985). Quest’ultima dimensione è quella più rilevante ai nostri fini, in quanto è stato rilevato che il grado di autostima incide sulla sensibilità alle informazioni che orientano i processi decisionali dei consumatori. In particolare, gli individui con bassa autostima vengono maggiormente influenzati dalla comunicazione e risultano più sensibili ai messaggi negativi (Cohen, 1959; Leventhal e Perloe, 1962; Brockner, 1988; Campbell, 1990). Inoltre, come evidenziato da Rhodes e Wood (1992, pp. 158-159), “*people high in self-esteem may use avoidance defense mechanisms, such as repression and reaction formation, which enable them to ignore or repress information threatening to their self-concept. These types of defenses result in low levels of yielding*”.

Alla luce della correlazione negativa fra autostima e influenzabilità dell’individuo, si propone la terza ipotesi di ricerca:

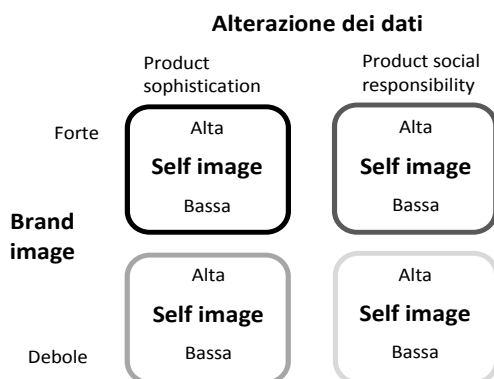
H3) in presenza di un’alterazione dei dati di product social responsibility, l’intenzione di acquisto del consumatore aumenta ulteriormente se a una forte brand image si associa un’elevata autostima.

3. La metodologia di ricerca

La verifica delle ipotesi illustrate nelle pagine precedenti è avvenuta mediante un esperimento *between subjects*, nel quale gruppi diversi di individui sono stati casualmente esposti alle differenti condizioni sperimentali. L’esperimento si basa su un disegno fattoriale 2x2x2, ossia su tre variabili indipendenti, ciascuna articolata su due livelli, e una variabile dipendente. Più precisamente, le variabili indipendenti sono rappresentate da: l’alterazione dei dati di prodotto (*product sophistication vs product social responsibility*), la *brand image* (forte vs debole) e l’autostima dell’individuo (alta vs bassa). La variabile dipendente è invece costituita dall’intenzione d’acquisto del consumatore.

La figura 1 sintetizza il disegno sperimentale utilizzato. Come si nota, esso è composto da otto possibili condizioni, corrispondenti all'incrocio fra le tre variabili indipendenti e i loro rispettivi livelli. Le prime due variabili indipendenti (alterazione dei dati di prodotto e *brand image*) sono state proposte al campione coinvolto nella sperimentazione sotto forma di stimoli, mentre, come anticipato nell'introduzione, la terza variabile (autostima) è stata misurata nel corso dell'esperimento mediante la scala a 10 item proposta da Rosenberg (1965) e quindi distinta *ex post* in due livelli (alta vs bassa) sulla base del valore mediano.

Fig. 1: Il disegno sperimentale



Fonte: elaborazione degli autori

Le quattro condizioni determinate dall'incontro dei livelli dei due stimoli proposti sono state sottoposte a quattro gruppi differenti di soggetti. Successivamente, dopo aver misurato l'autostima individuale, si è proceduto a distinguere ulteriormente ciascuno di tali gruppi in due sottogruppi in funzione dei livelli assunti da tale variabile (alta vs bassa), ottenendo così otto campioni differenti, uno per ciascuna delle condizioni previste dal disegno sperimentale.

La metodologia utilizzata per la realizzazione del disegno sperimentale si è articolata nelle seguenti fasi:

- definizione delle variabili oggetto di studio, scelta delle rispettive scale di misurazione e descrizione degli stimoli da sottoporre agli individui coinvolti nella sperimentazione;
- svolgimento di indagini preliminari finalizzate a verificare la corretta percezione degli stimoli proposti e l'adeguatezza del questionario da somministrare al campione indagato;
- selezione dei soggetti in riferimento ai quali svolgere la sperimentazione e svolgimento delle interviste.

3.1 Le variabili oggetto di studio, le scale di misurazione e gli stimoli proposti

Le variabili utilizzate nel disegno sperimentale sono state misurate ricorrendo a scale già testate nella letteratura relativa ai costrutti oggetto

di analisi. Tutte le scale di misurazione utilizzate sono a 7 punti. Nello specifico, le variabili alterazione dei dati di prodotto, autostima e intenzione d'acquisto sono state misurate mediante una scala Likert, mentre la *brand image* con una scala bipolare. La tabella 1 evidenzia, per ciascuna variabile, gli item utilizzati, i coefficienti Alpha di Cronbach rilevati mediante i pre-test e le fonti di riferimento.

Tab. 1: Le scale di misurazione utilizzate

Variabili	Numero di item	Fonte	Alpha di Cronbach
Brand image	12	Low e Lamb (2000)	.985
Alterazione dei dati di product sophistication	3	Brown e Dacin (1997)	.965
Alterazione dei dati di product social responsibility	3	Brown e Dacin (1997)	.945
Intenzione d'acquisto	3	Dodds, Monroe e Grewal (1991)	.963
Autostima	10	Rosemberg (1965)	.889

Gli stimoli sottoposti agli individui coinvolti nell'esperimento sono rappresentati dalle variabili indipendenti alterazione dei dati di prodotto e *brand image*. Nello specifico, sono stati presentati quattro scenari, derivanti dalla combinazione dei livelli dei suddetti stimoli e corrispondenti alle celle della matrice rappresentata nella precedente Figura 1.

Per quanto in particolare riguarda l'immagine di marca, al fine di innalzare il controllo sperimentale e meglio valutare le associazioni sviluppate dai rispondenti, la letteratura suggerisce l'utilizzo di brand name fittizi (Boush e Loken, 1991; Geuens e De Pelsmacker, 2017). Come nell'esperimento condotto da Brown e Dacin (1997, p. 72), è stata così utilizzata una marca ideata *ad hoc*, casualmente denominata "Rowfie" e collegata a un prodotto, altrettanto fittizio, indicato come "Nigiko3". Anche in questo caso, tale scelta è motivata dall'obiettivo di aumentare il controllo sperimentale, focalizzando l'attenzione degli intervistati solo sulle informazioni fornite nell'esperimento attraverso gli stimoli, evitando che il giudizio sul prodotto risulti influenzato dalla valutazione della categoria (Fiske e Pavelchak, 1986) e dal coinvolgimento psicologico verso la stessa (Petty *et al.*, 2005).

La marca e il prodotto individuati sono stati presentati all'interno di un contesto "reale" (Low e Lamb, 2000): un articolo di giornale, il cui contenuto definisce quindi lo scenario proposto al rispondente.

Nel dettaglio, lo stimolo alterazione dei dati di prodotto è stato manipolato utilizzando le definizioni di *product sophistication* e di *product social responsibility* fornite dal citato studio di Brown e Dacin (1997) e sottoponendo agli intervistati, rispettivamente, le seguenti affermazioni:

- Rowfie è stata accusata di aver alterato i dati delle caratteristiche tecniche del suo ultimo prodotto "Nigiko3" e i test sul prodotto hanno confermato l'accusa. Nigiko3 non rispetta la qualità tecnica e nemmeno le prestazioni e l'innovatività promesse dall'azienda;
- Rowfie è stata accusata di aver alterato i dati di responsabilità sociale del

suo ultimo prodotto “Nigiko3” e i test sul prodotto hanno confermato l'accusa. Nigiko3 non rispetta l'ambiente e l'impegno sociale promesso dall'azienda.

Riguardo allo stimolo rappresentato dalla *brand image*, ai soggetti coinvolti nella sperimentazione è stata proposta una descrizione finalizzata a porre in evidenza le associazioni alla marca, con riferimento alla loro forza, positività e unicità (Keller, 2012). Più precisamente, la valenza dell'immagine è stata manipolata mediante le seguenti affermazioni polari in grado di rappresentare i suoi due livelli (forte vs debole):

- Rowfie è un'azienda di fama mondiale e si contraddistingue dai concorrenti per l'unicità dei suoi prodotti, occupando così i primi posti nella lista delle migliori aziende;
- Rowfie è un'azienda poco conosciuta e non si contraddistingue dai concorrenti per l'unicità dei suoi prodotti, non figurando così ai primi posti nella lista delle migliori aziende.

3.2 Le indagini preliminari

Al fine di verificare la corretta percezione degli stimoli proposti e sviluppare al meglio il questionario da sottoporre ai soggetti coinvolti nella sperimentazione, è stato svolto un pre-test.

A un campione di convenienza composto da venti rispondenti di origine italiana (60% maschi e 40% femmine), con età media di 24 anni e con un elevato livello di istruzione (90% tra studenti universitari e studenti lavoratori e 10% lavoratori a tempo pieno con precedente percorso universitario), è stato somministrato in maniera casuale un questionario. A ciascun partecipante è stata sottoposta una delle quattro condizioni sperimentali rappresentate nella precedente Figura 1, in modo da ottenere un numero uguale di risposte per ciascuna condizione.

Nel pre-test, per entrambe le variabili indicate sugli assi di tale figura, è stata effettuata un'analisi T-test su due campioni indipendenti. Per quanto riguarda la variabile *brand image*, i rispondenti hanno valutato lo stimolo sulla base della scala di misurazione proposta da Low e Lamb (2000). Il risultato del T-test ha rilevato che la percezione dello stimolo *brand image* forte ($M=4.44$; $SD=.55$) è significativamente diversa ($t(18)=7.53$; $p<.001$) da quella di *brand image* debole ($M=2.76$; $SD=.43$), confermando così l'adeguata comprensione dello stimolo proposto.

In relazione alla variabile alterazione dei dati di prodotto, i rispondenti hanno valutato lo stimolo sulla base della scala di misurazione proposta da Brown e Dacin (1997). Attenendo tale alterazione a una problematica etica e assumendo quindi, per sua natura, valenza negativa per entrambi i suoi livelli (*product sophistication* e *produc social responsibility*), si è condotta un'analisi T-test per verificare la distanza di ciascun livello della variabile indipendente dalla valutazione complessiva del prodotto. I risultati del test hanno confermato, per entrambi i livelli, la corretta percezione dello stimolo in questione, individuando conseguentemente una distanza significativa delle caratteristiche di prodotto alterate dalla valutazione globale del prodotto. Nello specifico, la percezione del livello *product sophistication* ($M=1,70$; $SD=.43$) è risultata significativamente diversa

($t(18)=3.75$; $p<.005$) dalla valutazione complessiva del prodotto ($M=3.10$; $SD=1.10$). Allo stesso modo, la percezione del livello *product social responsibility* ($M=1.36$; $SD=.37$) è significativamente diversa ($t(18)=5.70$; $p<.001$) da tale valutazione ($M=4.10$; $SD=1.37$).

Infine, è stata valutata l'adeguatezza del testo del questionario da somministrare al campione di soggetti coinvolti nell'indagine, chiedendo ai partecipanti al pre-test di valutare la chiarezza dei quesiti proposti. In base alle loro osservazioni, si è proceduto alla modifica del testo concernente gli stimoli individuati e alla formulazione di alcune domande.

Il questionario somministrato è suddiviso in cinque sezioni:

- introduzione, nella quale viene presentato il tema generale della ricerca, la durata stimata dell'impegno richiesto al rispondente e la garanzia per il rispetto della privacy;
- breve descrizione dell'azienda fittizia Rowfie, al fine di generare un'idea relativamente alla stessa e rendere più veritiero l'esperimento (Kantar *et al.*, 2010). Ai partecipanti è stato comunicato che "Rowfie è un'azienda diversificata operante in vari settori (informatica, telecomunicazioni, sanità, bancario, industriale, immobiliare, distribuzione al dettaglio). Rowfie produce sia prodotti per l'industria sia beni di consumo e servizi destinati ai consumatori finali. L'ultimo prodotto di Rowfie è il dispositivo Nigiko3";
- presentazione degli stimoli dell'esperimento, sottoponendo ai rispondenti, in maniera casuale e all'interno di un ipotetico articolo di giornale contenente le informazioni indicate nel paragrafo precedente, una delle quattro condizioni rappresentate della precedente Figura 1 e determinate dall'incontro dei livelli dei due stimoli considerati, in modo da ricevere il medesimo numero di risposte riguardo a ciascuna di tali condizioni;
- misurazione delle variabili oggetto di studio (alterazione dei dati di prodotto, *brand image*, autostima, intenzione d'acquisto) con le rispettive scale;
- domande sulle caratteristiche socio-demografiche dei rispondenti.

3.3 Il campione

Il questionario è stato somministrato a un campione formato da 260 soggetti di origine italiana, di età compresa fra i 18 e i 60 anni. Il campione è composto prevalentemente da lavoratori e da studenti universitari, provenienti principalmente da corsi di studio di tipo economico e ingegneristico attivati dalle università milanesi e da business school straniere. Il metodo di campionamento utilizzato è quello non probabilistico per convenienza. Il questionario è stato distribuito sia online che di persona con il supporto di dispositivi digitali.

Sono state ottenute 218 risposte. Depurando i questionari incompleti, è stato possibile selezionare 200 osservazioni valide, ossia 50 per ciascuna delle quattro celle sperimentali indicate nella precedente Figura 1. Il 55% dei rispondenti è di sesso maschile, il 58% proviene dal nord Italia (20% dal centro e 22% dal sud). L'età media è pari a 32,9 anni: il 61% ha un'età compresa fra i 18 e i 30 anni, l'11% fra 31 e 40 e il 17% tra i 50 e i 60

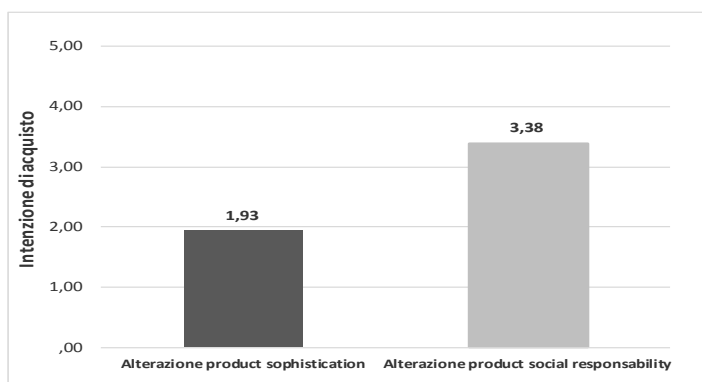
anni. Il campione è caratterizzato da un elevato livello di istruzione: il 18% possiede il diploma di maturità, il 40% la laurea triennale e il 42% la laurea magistrale o a ciclo unico. Per quanto riguarda l'occupazione, il 52% dei rispondenti sono lavoratori a tempo pieno, il 6% lavoratori a tempo parziale, il 2% persone in cerca di occupazione, mentre gli studenti e gli studenti lavoratori rappresentano ciascuno il 20% del totale.

4. I risultati della sperimentazione

La nostra ricerca ipotizza, in primo luogo, che l'alterazione dei dati di *product sophistication* da parte di un'impresa influenzi in misura maggiormente negativa l'intenzione d'acquisto del consumatore rispetto all'alterazione dei dati di *product social responsibility*. Per la verifica di tale ipotesi, si è condotta un'analisi T-test su due gruppi, ciascuno composto da 100 individui esposti a una delle due tipologie di alterazione dei dati. Si è quindi proceduto al confronto dell'intenzione media di acquisto espressa dai due gruppi.

I risultati dell'analisi (Figura 2) evidenziano che la media delle valutazioni di tale intenzione è significativamente diversa ($p < .001$). In particolare, l'intenzione media di acquisto in situazioni di alterazione dei dati di *product sophistication* ($M=1.93$; $SD=.93$) è risultata significativamente inferiore ($t(151.6) = -7.32$; $p < .001$) rispetto a quella rilevata allorché l'alterazione riguarda i dati di *product social responsibility* ($M=3.38$; $SD=1.74$). L'ipotesi H1 risulta quindi confermata.

Fig. 2: Confronto delle medie dell'intenzione di acquisto per i livelli *product sophistication* e *product social responsibility* della variabile indipendente alterazione dei dati di prodotto



Fonte: elaborazione degli autori

La seconda ipotesi di ricerca oggetto di verifica sostiene che, in presenza di una marca dotata di un'immagine forte, l'intenzione di acquisto del consumatore è più elevata se l'alterazione dei dati riguarda la *product social responsibility* anziché la *product sophistication*. Al fine

di verificare tale ipotesi, si è condotta un'analisi della varianza fattoriale univariata. Dall'output di tale analisi (Tabella 2), si nota che tanto le singole variabili *brand image* ($p < .001$) e alterazione dei dati di prodotto ($p < .001$) quanto la loro interazione ($p < .001$) influenzano in misura statisticamente significativa l'intenzione di acquisto.

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eticamente scorretti

Tab. 2: Risultati dell'analisi della varianza fattoriale univariata

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	284,175 ^a	3	94,725	88,815	,000
Intercept	1416,894	1	1416,894	1328,493	,000
Brand image	139,445	1	139,445	130,745	,000
Alterazione	105,125	1	105,125	98,566	,000
Brand image * Alterazione	39,605	1	39,605	37,134	,000
Error	209,042	196	1,067		
Total	1910,111	200			
Corrected Total	493,217	199			

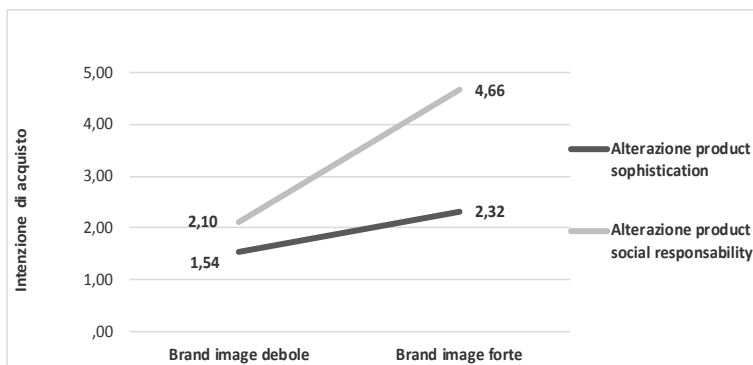
a. R Squared = ,576 (Adjusted R Squared = ,570)

Fonte: elaborazione degli autori.

La Figura 3 permette di verificare l'ipotesi *H2*. Come si nota, l'immagine di marca svolge un ruolo "protettivo" in presenza di entrambe le tipologie di alterazione dei dati esaminate (*H2 a*), ma tale protezione è significativamente più elevata laddove l'alterazione riguardi la *product social responsibility* (*H2 b*). Infatti, per una marca dotata di un'immagine forte, rispetto a una con un'immagine debole, l'intenzione di acquisto aumenta:

- del 50,6% (da 1,54 a 2,32), in caso di alterazione dei dati di *product sophistication*;
- del 122% (da 2,10 a 4,66), in presenza di alterazione dei dati di *product social responsibility*.

Fig. 3: Effetto delle variabili indipendenti *brand image* e alterazione dei dati sulla variabile dipendente intenzione di acquisto



Fonte: elaborazione degli autori.

Con la terza ipotesi di ricerca viene introdotta la variabile indipendente autostima. Come anticipato, tale variabile, a differenza degli stimoli sin qui considerati (*brand image* e alterazione dei dati), è stata valutata *ex-post* e distinta in due livelli (alta vs bassa) rispetto al valore assunto dalla mediana. Si è quindi condotta un'analisi della varianza fattoriale univariata al fine di valutare l'effetto delle tre variabili indipendenti (*brand image*, alterazione dei dati di prodotto e autostima) sulla variabile dipendente (intenzione di acquisto).

Dai risultati dell'analisi (Tabella 3), si evince che le singole variabili *brand image* ($p < .001$) e alterazione dei dati di prodotto ($p < .001$) esercitano un effetto significativo sull'intenzione di acquisto, mentre l'impatto dell'autostima non risulta avere rilevanza statistica ($p = .081$). Tutte le interazioni delle variabili indipendenti a due livelli hanno un effetto significativo sulla variabile dipendente ($p < .001$). È anche statisticamente significativo l'effetto dell'interazione fra *brand image*, alterazione dei dati di prodotto e autostima ($p = .003$).

Tab. 3: Output dell'analisi della varianza fattoriale univariata (Tests of Between-Subjects Effects - Dependent Variable: Intenzione d'acquisto)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	344,259a	7	49,180	63,391	,000
Intercept	1380,203	1	1380,203	1779,019	,000
Brand image	129,790	1	129,790	167,293	,000
Alterazione	91,703	1	91,703	118,201	,000
Autostima	2,384	1	2,384	3,073	,081
Brand image * Alterazione	33,504	1	33,504	43,186	,000
Brand image * Autostima	16,070	1	16,070	20,714	,000
Alterazione * Autostima	34,845	1	34,845	44,913	,000
Brand image * Alterazione * Autostima	6,843	1	6,843	8,820	,003
Error	148,958	192	,776		
Total	1910,111	200			
Corrected Total	493,217	199			

a. R Squared =,698 (Adjusted R Squared =,687)

Fonte: elaborazione degli autori.

A conferma dell'ipotesi H3, la media delle valutazioni dell'intenzione di acquisto per una marca con immagine forte che abbia alterato i dati di *product social responsibility* è significativamente più elevata per individui con alta autostima ($M=5.54$; $SD=.42$) rispetto a quella espressa da soggetti con autostima bassa ($M=3.54$; $SD=1.67$). Peraltro, l'intenzione media di acquisto pari a 5,54 è significativamente superiore rispetto a quella rilevata in tutte le altre combinazioni dei livelli delle tre variabili indipendenti (tabella 4). Di conseguenza, si può confermare che, in presenza di un'alterazione dei dati di *product social responsibility*, l'intenzione di acquisto del consumatore si accresce ulteriormente se a un'elevata *brand image* si associa un'alta autostima.

Tab. 4: Statistiche descrittive dell'intenzione di acquisto nelle combinazioni dei livelli delle tre variabili indipendenti

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Brand image	Alterazione	Autostima	Mean	Std. Deviation	N
BI_Debole	ALT_Product sophistication	Bassa	1,9722	,95258	24
		Alta	1,1538	,23534	26
	ALT_Product social responsibility	Bassa	2,0435	,92826	23
		Alta	2,1605	,42738	27
BI_Forte	ALT_Product sophistication	Bassa	2,5714	1,17446	21
		Alta	2,1494	,63362	29
	ALT_Product social responsibility	Bassa	3,5455	1,67946	22
		Alta	5,5476	,42759	28

Fonte: elaborazioni degli autori.

5. Implicazioni teoriche e manageriali

Le analisi della varianza effettuate hanno confermato le ipotesi di ricerca formulate. In particolare, il consumatore è influenzato in misura maggiormente negativa dall'alterazione dei dati di *product sophistication* che non da quella concernente la *product social responsibility*. Ciò dimostra che le decisioni del consumatore sono maggiormente influenzate dalla qualità e dalla funzionalità del prodotto che non dalla sua conformità alle “*societal obligation*” dell'impresa. Se ne deduce che, quantunque sia le associazioni di *product sophistication* sia quelle di *product social responsibility* siano importanti ai fini della reputazione aziendale, per il consumatore è più rilevante che il prodotto rispetti la qualità e le *performance* dichiarate dall'azienda.

È inoltre possibile affermare che, per entrambe le tipologie di alterazione dei dati considerate, l'immagine di marca esercita un forte impatto sull'intenzione d'acquisto. Infatti, in presenza di una forte *brand image*, il consumatore è più propenso ad acquistare il prodotto a prescindere dal tipo di dati alterati.

Alla luce della positiva verifica dell'ipotesi *H2*, un risultato particolarmente interessante per le strategie aziendali è rappresentato dall'effetto dell'interazione dell'immagine di marca con l'alterazione dei dati di prodotto. In particolare, se l'alterazione riguarda i dati di *product social responsibility* ed è compiuta da un'impresa che dispone di un'elevata *brand image*, si riscontra un'intenzione d'acquisto superiore a quella rilevata in tutte le altre condizioni. In coerenza, quindi, con quanto riscontrato a proposito dell'ipotesi *H1*, l'alterazione dei dati relativi all'attività sociale e ambientale ha un impatto minore sulle decisioni del consumatore, in particolare quando l'impresa ha saputo sviluppare associazioni forti, favorevoli e uniche alla propria marca. Al contrario, l'alterazione dei dati di *product sophistication*, soprattutto in presenza di *brand image* debole, comporta l'intenzione media di acquisto più bassa. È fondamentale, quindi, che il management aziendale sia in grado di costruire e rafforzare nel tempo l'immagine di marca. Le associazioni al brand, infatti, orientano le aspettative e le percezioni del consumatore verso i benefici funzionali,

simbolici ed esperienziali dell'offerta, alimentando un capitale di fiducia in grado di proteggere l'azienda dall'impatto di informazioni destabilizzanti.

Da qui alcune fondamentali implicazioni, nella prospettiva dell'impresa e in quella dell'interesse collettivo.

Per quanto riguarda l'impresa, pare evidente che il management debba riservare grande attenzione:

- alla verifica dell'attendibilità delle informazioni comunicate al mercato relativamente agli attributi, alla qualità e alla *performance* dei prodotti. Ciò anche in considerazione della crescente diffusione delle recensioni su tali caratteristiche spontaneamente pubblicate dai consumatori negli ambienti digitali e della spirale di passaparola negativo che si innescerebbe ove gli utilizzatori rilevassero che le caratteristiche dichiarate dall'azienda divergono da quelle reali (Tassiello *et al.*, 2017; Amatulli *et al.*, 2018);
- alla costruzione e comunicazione dell'immagine della marca. L'effetto di una *brand image* forte sull'intenzione d'acquisto in presenza di entrambi i tipi di alterazione dei dati di prodotto conferma l'importanza strategica di questa risorsa immateriale, in grado di attutire significativamente l'impatto del comportamento eticamente scorretto posto in essere da un'impresa. I consumatori, infatti, tendono a non venire influenzati da informazioni negative concernenti marche affermate e a selezionare le informazioni coerentemente con le loro opinioni (Ahluwalia, 2002).

Le suddette riflessioni assumono tuttavia un'implicazione che chiama in causa l'interesse collettivo: il minore impatto dell'alterazione legata alla responsabilità sociale sulle scelte del consumatore, ulteriormente attenuato dallo "scudo" rappresentato dall'immagine di marca, evidenzia la parziale inefficacia del mercato nel sanzionare comportamenti eticamente scorretti. È pertanto doveroso trovare un rimedio a tale inefficacia, elevando *in primis* la sensibilità del consumatore a tali tematiche. Il punto verrà ripreso nelle considerazioni conclusive.

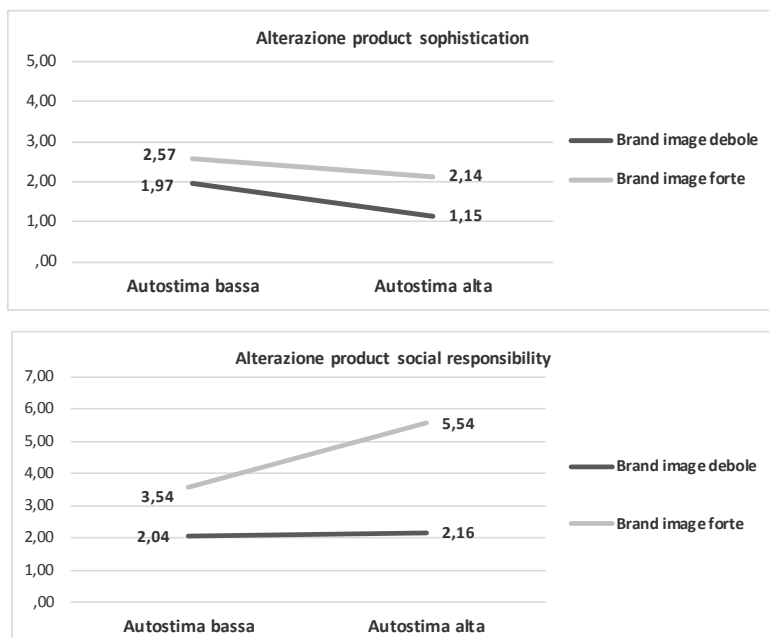
Con la terza ipotesi di ricerca è stata introdotta la variabile autostima che, rappresentando una componente centrale del *self concept* dell'individuo, ne influenza la sensibilità alle informazioni che orientano i suoi processi decisionali. I dati rilevati dimostrano che l'autostima, singolarmente considerata, pur non esercitando un impatto statisticamente rilevante sull'intenzione d'acquisto del consumatore, manifesta un effetto di interazione significativo con le altre variabili indipendenti considerate nell'analisi.

In particolare, in presenza di alterazione di dati relativi alla responsabilità sociale, se a una forte immagine di marca si associa un'elevata autostima, l'intenzione di acquisto del consumatore assume il valore più elevato. Per le marche caratterizzate da associazioni forti, favorevoli e uniche si rivela quindi opportuna la segmentazione dei consumatori sulla base del grado di autostima, per identificare il *cluster* meno influenzabile dall'insorgere di informazioni negative sui prodotti dell'impresa. È peraltro interessante sottolineare che tale opportunità permane anche nel caso di alterazione dei dati di *product sophistication*, dove l'intenzione di acquisto si rivela invece decrescente. In altre parole, anche se la maggiore sensibilità del consumatore all'alterazione dei dati di prodotto impatta negativamente

sull'intenzione di acquisto, l'interazione fra la forza dell'immagine di marca e l'elevata autostima dell'individuo determina una minore riduzione della suddetta intenzione (Figura 4).

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Fig. 4: Effetto delle variabili indipendenti brand image e autostima sulla variabile dipendente intenzione di acquisto, nelle due tipologie di alterazione dei dati



Fonte: elaborazioni degli autori

6. Considerazioni finali

La letteratura ha studiato negli anni l'importanza dell'etica aziendale per il consumatore, l'impatto (asimmetrico) dei comportamenti corretti e scorretti sull'immagine dell'impresa, le implicazioni connesse alla vicinanza del core business aziendale alle tematiche di CSR, all'immagine della sua marca o, ancora, alla superiorità degli attributi di prodotto. Alcuni studi recenti si sono occupati di investigare se il comportamento eticamente scorretto di un'impresa, ad esempio l'alterazione dei dati di un prodotto, possa riflettersi negativamente sull'intera categoria merceologica (Trump e Newman, 2017).

Con riferimento ai filoni di indagine alla base delle ipotesi di ricerca, il nostro studio conferma l'utilità della distinzione fra associazioni cognitive legate alle abilità dell'impresa e alla sua responsabilità sociale ai fini della valutazione delle risposte dei consumatori a comportamenti aziendali non etici. Conferma inoltre che su tali risposte possono esercitare un effetto rilevante le variabili psicologiche individuali, introducendo un costrutto (l'autostima) che non ci risulta essere stato indagato nell'ambito di ricerca

qui considerato. Inoltre, i risultati emersi dall'esperimento descritto nelle pagine precedenti forniscono un'ulteriore evidenza dell'effetto protettivo derivante da una forte *brand image* (Sen e Bhattacharya, 2001), contribuendo in modo originale a chiarire l'effetto di interazione fra immagine di marca, tipologia di alterazione dei dati e autostima dell'individuo.

In sintesi, i risultati delle analisi svolte hanno dimostrato che l'alterazione dei dati relativi alla qualità e alla funzionalità del prodotto influenza in misura maggiormente negativa l'intenzione d'acquisto del consumatore rispetto a quella concernente i dati di responsabilità sociale e che un'immagine di marca forte attutisce i comportamenti scorretti delle imprese, in particolare quando l'alterazione concerne tale seconda tipologia di dati e gli individui presentano elevati livelli di autostima.

Alla luce delle variabili in grado di limitare la sensibilità dei consumatori ai comportamenti socialmente responsabili delle aziende, un tema meritevole di attenta riflessione e di futuri approfondimenti, al quale sembra opportuno accennare in chiusura del lavoro, è rappresentato dalle iniziative atte a far sì che, per il benessere della collettività, tale sensibilità si diffonda, stimolando così le imprese all'adozione di comportamenti virtuosi (Du *et al.*, 2010).

In linea di principio, queste iniziative potrebbero essere adottate dal management, il quale tuttavia non sempre è adeguatamente incentivato a investire in azioni di CRS, dal momento che i ritorni economico-finanziari di queste ultime potrebbero essere controversi (Barnett, 2007; Perrini *et al.*, 2011). Un'altra possibilità è quella di far leva sulle organizzazioni non-profit, le quali possono amplificare le attività di CSR e porre in evidenza gli eventuali comportamenti scorretti delle imprese. A questo riguardo è tuttavia essenziale che, successivamente alla segnalazione di tali comportamenti, vengano posti in essere opportuni interventi sanzionatori. Un'ulteriore soluzione è rappresentata dall'adozione, da parte delle istituzioni nazionali o sovranazionali, di una regolamentazione finalizzata a incoraggiare e a sostenere l'adozione di comportamenti eticamente corretti da parte delle imprese, stimolando per tale via il loro contributo al benessere sociale.

Naturalmente, il presente lavoro non è esente da limiti, che potrebbero essere rimossi da eventuali ricerche future. In primo luogo, la generalizzabilità dei risultati è limitata dalla numerosità e dalla composizione del campione di soggetti coinvolto nell'esperimento. In secondo luogo, non è stato considerato il livello di coinvolgimento psicologico del consumatore nei confronti delle tematiche etiche in generale e di alcune di esse in particolare. In terzo luogo, se da un lato l'utilizzo di una marca e di un prodotto fittizi consente un maggiore controllo sperimentale, esso impedisce dall'altro di considerare i legami che gli individui sviluppano con i *brand* reali. Ciò non permette di valutare l'impatto della fedeltà alla marca e della percezione della sua unicità da parte dei consumatori, né di testare l'effetto di possibili variabili di mediazione e/o di moderazione (come ad esempio l'intensità degli investimenti in comunicazione o il livello di *product involvement*). Inoltre, nell'ambito delle variabili psicografiche suscettibili di influenzare le scelte del consumatore in presenza di comportamenti aziendali eticamente irresponsabili, si è concentrata l'attenzione solo su una dimensione del

self concept dell'individuo. Ricerche future potrebbero sia indagare altre variabili psicografiche sia approfondire l'impatto della *self consistency*. Infine, l'esperimento è stato condotto con riferimento a un campione di consumatori solo italiani. Potrebbe pertanto essere interessante considerare l'impatto della diversità culturale, coinvolgendo nella sperimentazione individui appartenenti a paesi diversi sotto il profilo della sensibilità nei confronti di tematiche etiche.

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sinergie
italian journal of management

ISSN 0393-5108
DOI 10.7433/s110.2019.07
pp. 149-170



Italian Society of
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Industria 4.0, evoluzione della logistica e applicazione del Knowledge Triangle: la centralità delle competenze professionali e il progetto Framelog¹

Received
1st August 2019

Revised
10th October 2019

Accepted
18th December 2019

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Abstract

Obiettivo del paper: Evidenziare come il processo di trasformazione digitale sia fonte di significativi cambiamenti che investono le competenze professionali. Gli elementi indicati sono stati poi analizzati all'interno del processo evolutivo che sta interessando le attività logistiche.

Metodologia: Dopo un inquadramento teorico delle tematiche indicate, la realizzazione del paper ha seguito le diverse fasi del progetto europeo Framelog del quale l'autore è responsabile scientifico.

Risultati: Sulla base di diverse indagini svolte sul campo, sono state individuate delle linee guida in grado di fornire indicazioni su come rispondere ai fabbisogni di professionalità nel settore logistico, ricercando una migliore qualità dell'offerta formativa e una più stretta sinergia tra tutti gli attori che possono fornire un concreto contributo in tal senso.

Limiti della ricerca: Il progetto di ricerca è ancora nelle sue fasi finali e solo la sua conclusione potrà definire un quadro più organico delle azioni da intraprendere.

Implicazioni pratiche: I contatti con diverse realtà interessate hanno consentito di elaborare proposte concrete che già alcuni interlocutori hanno fatto proprie

Originalità del paper: Le modalità di svolgimento del paper hanno permesso di individuare soluzioni che presentano elementi di originalità.

Parole chiave: industria 4.0; logistica; competenze; stakeholder engagement

Industry 4.0, evolution of logistics and application of the Knowledge Triangle: the centrality of professional skills and the Framelog project

Purpose of the paper: highlight how the transformation process of digital transformation is a source of significant changes that affect professional skills. The elements indicated were then analyzed within the evolutionary process that is affecting the logistics activities.

¹ Selected paper da ADACI-SMART Conference 2018, Tivoli Terme, Roma, 8-9 Novembre 2018.

La stesura del paper fa riferimento al progetto europeo "FRAMELOG - European Framework for 'Knowledge Triangle' in HEIs in logistic sector" (EU project 2016-1-IT02-KA203-024565).

Methodology: after a theoretical framework of the themes indicated, the realization of the paper followed the different phases of the European Framelog project for which the author is the scientific responsible.

Results: based on various field surveys, guidelines have been identified that can provide indications on how to respond to the needs of professionalism in the logistics sector, seeking a better quality of the training offer and a closer synergy between all the actors who can provide a concrete contribution in this regard.

Research limits: the research project is still in its final stages and only its conclusion can define a more organic picture of the actions to be undertaken.

Practical implications: the contacts with different interested realities have allowed to elaborate concrete proposals that already some interlocutors have made own

Originality of the paper: the methods for carrying out the paper have allowed us to identify solutions that present elements of originality.

Key words: industry 4.0; logistics; skills; stakeholder engagement

1. Introduzione

L'Industria 4.0 disegna un modello di fabbrica in cui diventa strategica l'adozione di tecnologie improntate alla "Digital Economy", che portano a significativi impatti su molteplici aspetti dell'attività delle imprese che vogliono mantenersi competitive (Heuser *et al.*, 2008).

La trasformazione digitale è una vera e propria sfida necessaria ed improrogabile che ogni azienda dovrebbe prepararsi ad affrontare al meglio delle proprie possibilità per trarne i maggiori vantaggi. Del resto, se un'azienda vuole mettere davvero il cliente al centro dei suoi obiettivi deve incamminarsi sulla strada di tale trasformazione. Per affrontarla al meglio, l'azienda deve acquisire la consapevolezza che la trasformazione digitale impatta, tra l'altro, su tre dimensioni: i processi, le tecnologie e le persone (Ares, 2017). Infatti, la digitalizzazione è in grado di incidere sui processi logistici, migliorandone l'efficacia e l'efficienza. Le tecnologie oggi garantiscono opportunità straordinarie, valorizzando strumenti quali, ad esempio, l'intelligenza artificiale, il web, l'internet delle cose, le reti neurali, ecc. (Lamba e Singh, 2017). Tali soluzioni tecnologiche stanno cambiando il modo stesso di lavorare e le aziende sono chiamate a fornire risposte sempre più capaci di organizzare i processi in modo proattivo, anticipando le inefficienze e migliorando l'operatività ancora prima che si verifichino possibili problematiche.

Nel cercare di capire come potrà impattare la trasformazione digitale sulle aziende uno dei maggiori errori che si possono commettere è quello di considerare il cambiamento come un atto solo tecnologico: si è, infatti, di fronte anche ad un processo di transizione culturale. La digitalizzazione non implica solo investimenti in nuove tecnologie, ma anche in persone capaci di cogliere ciò che la digitalizzazione comporta (Atti, 2018).

Le persone costituiscono i veri *driver* grazie ai quali si realizza la trasformazione digitale. Proprio per questo la direzione del personale viene a rivestire un ruolo importante per lo sviluppo della cultura digitale

in azienda (Cappelli *et al.*, 2018). La trasformazione digitale vede nelle risorse umane una dimensione chiave: diventa importante favorire una partecipazione condivisa, motivata, formata ed informata per intraprendere con successo il percorso verso la trasformazione digitale stessa.

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2. La logistica 4.0

Le aziende stanno affrontando momenti di grandi cambiamenti che prevedono miglioramenti dell'efficienza operativa, delle relazioni con i clienti, dell'innovazione di prodotti e servizi e sentono l'esigenza di innovare i propri processi e di rivedere metodi che si sono consolidati nel tempo per conseguire miglioramenti in termini di efficacia, efficienza, produttività.

L'evoluzione delle tecnologie digitali pone le aziende di fronte ad una fase di cambiamento che consente di realizzare una maggiore interconnessione e cooperazione tra le proprie risorse ed i clienti, con vantaggi in termini di efficienza dei processi produttivi e di competitività. Tutta la fabbrica è connessa al resto del sistema logistico-produttivo e ai clienti tramite apposite piattaforme informatiche e i relativi dati sono utilizzati per agevolare l'assistenza post-vendita, lo sviluppo di nuovi prodotti e di nuovi modelli di business. Gli investimenti in tecnologie digitali rispondono alla necessità di customizzare i prodotti, di rendere più efficiente la catena logistica, di ottimizzare la risposta al mercato, di migliorare il *time to market*.

Digitalizzare le attività aziendali significa progettare e gestire in modo integrato e collaborativo sia i processi interni (che coinvolgono più aree gestionali della stessa organizzazione) e sia quelli esterni (verso clienti, fornitori, ecc.) mediante la condivisione delle logiche di gestione di ogni processo e delle principali informazioni che lo caratterizzano. Le opportunità di miglioramento legate all'adozione delle nuove tecnologie possono contribuire a costituire un nuovo paradigma organizzativo che renda possibile affrontare con consapevolezza le evoluzioni e i potenziali rischi del futuro (Hilson, 2016). Si tratta di un cammino che consente di passare da organizzazioni orientate alla creazione di efficienza in modo prevalente nei propri processi interni ad aziende più aperte agli ecosistemi in cui operano, cercando vantaggi competitivi nell'integrazione e nella collaborazione con i propri stakeholder. Sempre più ci si rende conto che la valorizzazione delle opportunità tecnologiche richiede di organizzare l'azienda in maniera diversa anche rispetto ad un recente passato.

La sfida del sistema 4.0 richiede, in particolare, il recepimento di una visione per processi che consenta di ridurre le barriere comunicative tra le diverse aree gestionali dell'azienda.

Se da un punto di vista organizzativo cambia il concetto stesso di luogo di lavoro che tende a diventare potenzialmente pervasivo, molto significativo è, infatti, il contributo al superamento dei confini organizzativi. Il perimetro dei processi produttivi tenderà ad allargarsi, rendendo più sfumata la distinzione tra l'azienda e i suoi fornitori, tra manifattura e servizi, tra mansioni rigidamente definite e mansioni dal contenuto più flessibile.

Per avviarsi concretamente nel percorso evolutivo di industria 4.0, occorre coniugare prodotti e servizi sempre più interconnessi ed integrati tra loro attraverso un ripensamento digitale di tutte le aree di creazione del valore.

Si può affermare, quindi, che il sistema 4.0 identifica lo sviluppo di una nuova visione d'impresa in grado di innovare i processi, gli *asset* produttivi, i prodotti e le stesse logiche di business con il fine di migliorare le capacità competitive della stessa azienda (Rossi e Lombardi, 2017).

L'applicazione delle tecnologie 4.0 presenta innumerevoli sfaccettature che ruotano principalmente attorno alla necessità di integrare le nuove tecnologie digitali all'interno dei processi industriali.

L'Industria 4.0 investe tutti gli aspetti del ciclo di vita delle aziende e la logistica gioca in questo processo di innovazione un ruolo chiave per acquisire maggiore competitività in un mercato in rapida e continua trasformazione (Pfohl *et al.*, 2017). Una Smart Factory ha bisogno di un magazzino altrettanto smart e i magazzini automatici orizzontali e automatici verticali combinano un aumento di produttività ed efficienza con un significativo miglioramento delle condizioni di lavoro e la sicurezza degli operatori.

In particolare, si può parlare, in termini logistici, di impatto sia sulla catena di fornitura, in termini di completa digitalizzazione delle attività connesse, sia sulla movimentazione interna dei beni in azienda, tramite, ad esempio, l'utilizzo di strumenti intelligenti per la gestione del magazzino (sensori GPS o RFID, veicoli a guida autonoma), fino alla consegna al cliente finale, con gli effetti del serial returning associato all'e-commerce. In questo scenario la logistica assume un ruolo centrale, arrivando all'identificazione di una cosiddetta "Logistica 4.0", in cui le tradizionali soluzioni logistiche sono sostituite da sistemi flessibili, modulabili e scalabili, interconnessi tra loro da innovativi software di gestione e analisi (Wang, 2016), che a loro volta collegano tutte le fasi della catena logistica (Barreto *et al.*, 2017).

La logistica deve essere in grado di soddisfare le esigenze di un contesto manifatturiero e produttivo molto diverso da quello tradizionale, valorizzando le opportunità offerte dalle nuove soluzioni tecnologiche per migliorare continuamente processi e risultati (Boschi *et al.*, 2017).

Il primo passo per la realizzazione di una manifattura 4.0 è un'adeguata gestione dei flussi, ciò che implica la ricerca di una puntuale tracciabilità dell'intero ciclo produttivo e la minimizzazione dei tempi di attraversamento. Si può parlare della costruzione di un modello di azienda che, partendo da ciò a cui il cliente attribuisce valore, realizza un processo di miglioramento continuo seguendo una logica di flusso e riducendo via via ciò che è spreco. Industria 4.0 disegna un modello di fabbrica in cui anche la logistica deve adottare tecnologie improntate alla "Digital Economy". Tali tecnologie hanno, come già ricordato, significativi impatti sui rapporti con i fornitori, sulla movimentazione interna dei beni in azienda fino alla consegna del prodotto al cliente finale. In questo scenario la logistica assume un ruolo centrale e si può parlare effettivamente di "logistica 4.0", nella misura in cui, valorizzando le potenzialità delle nuove tecnologie digitali, consente di soddisfare le richieste di un mercato sempre più variabile e veloce.

La logistica deve essere adattata alle esigenze poste dallo sviluppo del sistema industria 4.0, all'interno del quale flessibilità dei processi e personalizzazione dei prodotti rappresentano due importanti parole chiave. Questo cambiamento non coinvolge, tuttavia, solo aspetti puramente tecnologici, ma passa attraverso le persone. Emerge quindi la necessità di valutare, anche in questo ambito, il fabbisogno reale di competenze professionali per lo sviluppo della Logistica 4.0 (Barreto *et al.*, 2017), considerando anche, come meglio sarà evidenziato in seguito, le *soft skill* richieste (Gammelgaard e Larson, 2001).

Il tema dello sviluppo di competenze professionalmente pronte a rispondere alle esigenze della logistica è affrontato da oltre un decennio (Gammelgaard e Larson, 2001; Lancioni *et al.*, 2001; Lutz e Birou, 2013; Trautrimis *et al.*, 2016) e, al livello europeo, si inquadra nella più ampia esigenza di allineamento delle offerte formative, troppo spesso disomogenee tra i diversi Stati membri, come emerge dal progetto di ricerca di seguito illustrato.

Alcuni di questi studi evidenziano una difficoltà strutturale incontrata dalle imprese per soddisfare il proprio fabbisogno di competenze logistiche (Arvis *et al.*, 2016; McKinnon, 2017) In quest'ottica, si inserisce il quadro teorico del Knowledge Triangle, o "triangolo delle conoscenze" (Markkula, 2013; OECD, 2016) che si fonda sull'analisi delle potenzialità legate ad un engagement strutturato tra Enti di Formazione Superiore, Enti di Ricerca e Imprese in tema di formazione. Tramite questo legame, si prospetta lo sviluppo di corsi accademici e professionali non solo aggiornati con gli ultimi risultati della ricerca, ma soprattutto allineati alle esigenze delle imprese che operano nel settore, oltre all'organizzazione di attività collaterali di grande impatto potenziale, quali progetti di ricerca, come il progetto FRAMELOG, in collaborazione con i diversi soggetti interessati.

3. Il fabbisogno di professionalità ed individuazione delle domande di ricerca

I cambiamenti nel ruolo della logistica implicano, come ricordato, necessariamente cambiamenti nelle competenze richieste. Il settore della logistica avverte mai come oggi la necessità di rivedere ed aggiornare il proprio know-how.

Si può affermare che il futuro della logistica, tenendo conto dei principi base del Sistema 4.0, prevede significative linee evolutive, se si vuole cercare di trasformare le opportunità tecnologiche in nuove opportunità di business. Si può parlare della costruzione di un modello di azienda che, partendo da ciò a cui il cliente attribuisce valore, realizza un processo di miglioramento continuo seguendo una logica di flusso e riducendo via via ciò che è spreco (Albino Russo, 2017).

Se le tecnologie sono strumenti indispensabili, la sfida del sistema 4.0, oltre ad adeguate soluzioni organizzative in una prospettiva che vede, come ricordato, il superamento dei rigidi confini organizzativi sia interni ed esterni, richiede una coerente preparazione professionale dei soggetti interessati. Il cambiamento investe le persone e la loro professionalità e

le aziende hanno bisogno di avere al loro interno competenze capaci di affrontare la relativa sfida. Emerge, pertanto, la necessità di valutare il fabbisogno di competenze professionali per lo sviluppo della logistica 4.0, cercando di adattare, di conseguenza, i programmi formativi, ciò considerando sia le persone che già operano in azienda e sia i giovani che si avvicinano al mercato del lavoro nel settore.

Un aspetto centrale che caratterizza l'evoluzione logistica verso il sistema 4.0 è il trattamento dei dati e delle informazioni: al centro del paradigma 4.0, anche per quanto riguarda la logistica ed i relativi fabbisogni formativi, emerge la centralità dei dati e della loro analisi, in grado di generare informazioni rilevanti che possono essere considerate una risorsa fondamentale per essere competitivi. Emerge sempre più la consapevolezza che le opportunità offerte dalla gestione dei dati possono creare un vero valore aggiunto perché permettono di sviluppare modelli di business innovativi e di progettare coerenti percorsi formativi (Reeve, 2017). L'evoluzione che interessa il settore della logistica richiede grande attenzione al fattore umano, essendo il capitale umano vera risorsa della logistica 4.0. La sfida anche in questo caso è quella di riuscire a sviluppare competenze adeguate per rispondere alle necessità di un mondo produttivo in rapido cambiamento.

L'utilizzo di sistemi sempre più digitalizzati richiede figure professionali, sia a livello direttivo che operativo, dotate di specifiche conoscenze e adeguatamente formate, in grado di integrare le opportunità tecnologiche in nuove opportunità di business; in tal senso si parla della necessità di figure adeguatamente preparate a guidare l'evoluzione delle fabbriche tradizionali verso la digitalizzazione dei processi produttivi e logistici, in grado di lavorare sempre più in ottica interfunzionale.

Per non frenare l'adozione di nuove tecnologie digitali occorre fare in modo che sia le aziende che le persone siano preparate a rispondere e ad accogliere l'innovazione. La persona resta al centro di ogni cambiamento, ma va supportata per affrontare una fase di transizione nella quale i vari profili professionali continueranno ad evolversi dal momento che le competenze necessarie cambieranno sempre più rapidamente. Le persone dovranno possedere una cultura più interdisciplinare, un buon livello di conoscenze informatiche e digitali, la capacità di interpretare e gestire i dati (Sciglimpaglia *et al.*, 2010).

Emerge, in tale contesto, la necessità di investire in un disegno organico che coinvolga programmi, ambienti di apprendimento, metodologie didattiche in funzione delle competenze obiettivo. Al riguardo, definire le competenze di cui i giovani hanno bisogno significa partire da un'idea di competenze allineata alle effettive esigenze del mercato del lavoro, soprattutto in chiave prospettica. Le competenze professionali richieste nel prossimo futuro devono tener conto di un mondo che manifesta scenari e contesti evolutivi impensabili qualche decennio fa. In un mercato del lavoro che sta cambiando velocemente, come conseguenza anche dei mutamenti che interessano il modo stesso di lavorare, le competenze sono destinate ad evolversi (Leon, 2016).

Si può, quindi, affermare che il profilo professionale di chi opera nella logistica si è evoluto e si evolverà in modo significativo parallelamente

ai cambiamenti che hanno interessato il ruolo stesso della logistica. Da un'area gestionale con responsabilità rivolte prevalentemente all'interno dell'azienda, la logistica è chiamata a gestire i collegamenti dei flussi fisici, informativi e finanziari, ciò che richiede, oltre al fatto di sapersi integrare con le altre aree gestionali aziendali, anche di saper interagire in modo efficace ed efficiente con le altre aziende con cui si collabora. Ma quali competenze saranno richieste? Le aziende hanno e avranno sempre più bisogno di collaboratori dotati da una parte di adeguate conoscenze tecniche e di linguaggi professionali in grado di dominare le nuove tecnologie; dall'altra di adeguate *soft skill*, le cosiddette competenze trasversali, un mix di capacità e qualità personali.

L'evoluzione dei profili professionali nel mondo della logistica si riflette sulle competenze che le aziende richiedono anche ai giovani laureati. Ad un'adeguata formazione di base (conoscenze tecnico-logistiche, giuridiche, aziendalistiche, organizzative, statistiche, ecc.) si aggiungono conoscenze linguistiche, informatiche e digitali, nonché un mix di caratteristiche personali ritenute necessarie per essere in grado di confrontarsi con la nuova realtà lavorativa (capacità comunicative e relazionali, negoziali, di lavorare in team, di risolvere eventuali situazioni di conflitto, spirito di iniziativa, ecc.). A ciò si aggiunge la disponibilità ad un continuo apprendimento: si parla, al riguardo, di "learnability", cioè l'attitudine a rimanere costantemente aggiornati e a continuare ad imparare (Thune, 2010).

In questo contesto, emerge la difficoltà di riuscire a trovare candidati nei processi di selezione con un mix di conoscenze e capacità necessario per affrontare la trasformazione delle attività logistiche. Una recente ricerca che ha riguardato il settore logistico nel nostro paese (realizzata da Net Consulting Cube) ha messo in evidenza le principali preoccupazioni di tante aziende del settore di fronte all'introduzione del sistema 4.0: un rapporto incerto tra investimenti e benefici; il rischio di un'arretratezza complessiva della filiera in cui operano; la mancanza proprio di adeguate competenze interne.

Il fatto di rilevare il rischio dell'esistenza di un *gap* tra quanto viene richiesto dalle aziende e le conoscenze che i giovani dimostrano di possedere nel momento dell'ingresso nel mondo del lavoro evidenzia la necessità di ricercare un'integrazione più stretta tra il mondo delle aziende e quello scolastico-accademico. Un dialogo più efficace tra questi due mondi può rendere possibile una migliore preparazione delle competenze che oggi si conoscono e lo sviluppo delle capacità di apprendimento continuo per costruire le competenze che ancora non si conoscono. La sfida di individuare e creare tali competenze rappresenta il fattore chiave per promuovere l'innovazione e la competitività.

Dalla realtà operativa emerge ed emergerà sempre di più il profilo di una persona con appropriate conoscenze e capacità professionali e adeguate *soft skill*, ritenute necessarie per essere in grado di confrontarsi con la nuova realtà lavorativa.

In tale contesto diventa essenziale il ruolo delle associazioni professionali per supportare le aziende nel percorso evolutivo verso il sistema 4.0, per guidarle nelle scelte, fornendo strumenti conoscitivi

e lavorando con l'obiettivo di migliorare le performance della logistica nel suo complesso e a livello di filiera, perché uno dei limiti che si può incontrare in questo percorso è che non si avanzi in maniera integrata.

Si possono a questo punto evidenziare le domande di ricerca che hanno portato alla realizzazione del progetto europeo illustrato nel successivo paragrafo:

- Quali difficoltà le aziende devono affrontare per attivare un reale percorso verso l'adozione di un modello di logistica 4.0?
- Quale il fabbisogno di competenze professionali per lo sviluppo di tale nuovo modello?
- Come si evolverà il profilo professionale di chi opera nell'area logistica?
- Quali conoscenze e capacità sono richieste ai giovani che si avvicinano al mondo del lavoro in ambito logistico?
- Come riuscire a ridurre il *gap* tra quanto richiesto dalle aziende e le conoscenze possedute dai giovani laureati?
- Come riuscire ad integrare il mondo delle aziende con quello della formazione?
- Come migliorare la qualità dell'offerta formativa con riferimento alla logistica?
- Quale il ruolo che possono svolgere le associazioni professionali?

4. Il Knowledge Triangle come strumento per lo sviluppo di competenze: il progetto europeo FRAMELOG per l'applicazione nell'area logistica

In questo contesto di cambiamento ed evoluzione dei requisiti in termini di competenze richiesti dalle attività connesse alla Logistica 4.0, si inserisce l'analisi sulle possibili forme di creazione di tali conoscenze. Il modello selezionato per l'analisi, per una concreta ed efficace creazione di conoscenza, è quello citato del Triangolo della Conoscenza, o Knowledge Triangle (OECD, 2016).

“Il concetto del triangolo della conoscenza si riferisce alla necessità di migliorare l'impatto degli investimenti nelle tre attività - istruzione, ricerca e impresa - attraverso un'interazione sistematica e continua” (Markkula, 2013). In particolare, considerando un attore “chiave” per ciascun vertice di un triangolo - identificati con Istituti Superiori di Educazione (o “Higher Education Institutions” - HEIs), enti di Ricerca ed Imprese - la conoscenza si creerebbe dalla loro costante e strutturata interazione, tramite strumenti e metodologie sempre diverse a seconda dell'ambito di attività e settore di appartenenza. La connessione tra questi tre soggetti può essere considerata come una base di partenza per la creazione di quelle competenze - *tecniche* e *soft* - necessarie per affrontare i cambiamenti del mercato e rimanere allineati anche alle innovazioni introdotte con l'Industria 4.0 (Bak, 2011).

L'applicazione di questo framework al settore della logistica è stata affrontata all'interno di un progetto Europeo, chiamato “FRAMELOG - European Framework for 'Knowledge Triangle' in HEIs in logistic sector” (EU project 2016-1-IT02-KA203-024565). Si tratta di un progetto finanziato dalla Comunità Europea della durata di tre anni (la scadenza è ottobre 2019) e che ha coinvolto tre università europee, due associazioni nazionali

di logistica (Italia e Bulgaria), l'associazione logistica europea e una società di consulenza italiana.

L'oggetto del progetto è quello di cercare di favorire la cooperazione tra il mondo della formazione, quello della ricerca e quello delle aziende (i tre lati del "Triangolo delle conoscenze") nel settore logistico, seguendo le raccomandazioni europee. Infatti, sulla base delle priorità fissate dall'Agenda Europea per la modernizzazione delle università, il progetto intende rafforzare la rilevanza della formazione accademica per il sostegno alla crescita e all'occupazione nel settore logistico. Del resto, l'Europa conferma l'importanza delle attività relative alla logistica nell'ottica della ricerca del miglioramento continuo delle capacità competitive delle aziende. Le esperienze già consolidate in diversi paesi europei dimostrano che l'evoluzione della logistica richiede la progettazione di interventi formativi *ad hoc*, rivolti alla preparazione tecnica e manageriale, sia delle risorse professionali già operanti nelle aziende e sia di quelle da inserire nelle diverse organizzazioni interessate; così come l'opportunità di valutare l'esistenza di un sistema di certificazione delle figure professionali nell'area logistica con l'importante contributo delle associazioni di categoria.

In tale contesto il progetto evidenzia la necessità di riflettere sui contenuti e sulle metodologie di una formazione, in particolare, rivolta ai giovani per fornire loro gli strumenti indispensabili per potersi inserire positivamente nel mondo del lavoro nel settore della logistica. Il progetto vuole incentivare la creazione di reti volte a favorire la condivisione di idee, pratiche, strumenti, metodi con l'obiettivo di sviluppare programmi formativi e sistemi di qualificazione professionale innovativi e più rilevanti in prospettiva nel mercato del lavoro in termini di competenze richieste dalle aziende.

La metodologia seguita nello svolgimento del progetto ha previsto, in primo luogo, l'individuazione e l'analisi di un compendio di *good practices europee* considerate rilevanti per gli obiettivi del progetto stesso, relativamente ai rapporti tra aziende e mondo accademico nell'area logistica. Tali *good practices* sono state selezionate sulla base di specifici criteri e, pur essendo legate al particolare contesto di riferimento, rappresentano un'importante occasione di apprendimento. Sono in tal modo emerse specifiche iniziative formative che evidenziano l'interdisciplinarietà dei temi trattati e che possono favorire lo sviluppo di profili professionali coerenti con le competenze richieste nell'area della logistica da parte delle aziende. In secondo luogo, valutando le caratteristiche proprie del contesto europeo, si è inteso definire una serie di indicatori utili per supportare tutti coloro che intendono collaborare per migliorare la qualità dell'offerta formativa nell'area logistica. In tale ottica si sono valutati gli attuali programmi dei corsi accademici attinenti all'area logistica nei paesi coinvolti nel progetto allo scopo di individuare i possibili miglioramenti per rendere gli stessi più coerenti con le future esigenze delle aziende e per favorire l'ingresso dei giovani nel mondo del lavoro. Risulta importante, per perseguire tali obiettivi, la ricerca di una più stretta integrazione, di una maggiore comunicazione tra il mondo della formazione, della ricerca e le aziende, individuando metodi e strumenti che possono consentire di perseguire tali obiettivi.

Marco Giannini
Industria 4.0, evoluzione
della logistica e applicazione
del Knowledge Triangle: la
centralità delle competenze
professionali e il progetto
FrameLog

Sulla base degli indicatori individuati è stato creato un questionario, testato su un campione significativo nei paesi europei coinvolti (Italia, Bulgaria, Romania, Belgio) di università, centri di ricerca, istituti formativi, associazioni di categoria, aziende. Sulla base dei risultati emersi dall'indagine svolta sono state individuate delle ipotesi di linee di azione da proporre per poter affrontare le specifiche sfide riguardanti la valutazione e l'assicurazione della qualità delle iniziative poste in essere. Tali ipotesi sono state, a loro volta, valutate e discusse, all'interno di specifici eventi, nei paesi coinvolti nel progetto.

Ciò ha portato alla definizione di un mix articolato di linee guida da presentare nel *report* finale del progetto alla Comunità Europea. Si può parlare di una sorta di mappa di linee guida con i relativi interventi per una loro concreta attuazione. La stessa mappa evidenzia una sequenza logica per assicurare un adeguato livello di qualità nell'applicazione dell'approccio del "Knowledge Triangle" nell'area logistica.

In particolare, il tema dello sviluppo di adeguate competenze professionali pone l'esigenza di riflettere su come migliorare la qualità dell'offerta formativa, considerando le diverse fasi dello stesso processo formativo. In tale ottica, è importante, come sottolineato anche dalla letteratura sul tema, avere ben chiare le competenze obiettivo da perseguire e ciò richiede e richiederà sempre di più una maggiore integrazione delle indicazioni fornite dal mondo delle aziende e dalle associazioni di categoria per la definizione dei progetti di attività formative.

Ciò presuppone, secondo il citato approccio del triangolo delle conoscenze, la necessità di una costruttiva collaborazione strategica tra i diversi attori interessati. Si tratta di un approccio che può contribuire al miglioramento della qualità dei processi formativi, anche per favorire un migliore collegamento con le esigenze e le richieste del mondo del lavoro.

In particolare un'attenta valutazione del contesto di riferimento, collegato ad un mercato sempre più globale, evidenzia la necessità di riflettere concretamente sulla qualità dei processi formativi nell'area della logistica. Per migliorare la qualità degli interventi formativi, emergono alcune esigenze alle quali cercare di rispondere con il supporto di apposite linee guida: in primo luogo, è necessario capire come riuscire a comprendere, in prospettiva, le competenze obiettivo in tema di logistica. In secondo luogo, occorre coinvolgere tutti gli attori interessati nell'analisi dei bisogni formativi sulla logistica e per fornire il loro contributo nella definizione dei progetti formativi. È essenziale, poi, garantire un'adeguata preparazione e qualificazione delle figure dei formatori, allineate con le esigenze del mercato del lavoro; così come è importante sviluppare attività formative, basate su programmi la cui definizione chiama in causa gli attori interessati per una migliore coerenza con le prospettive dell'area logistica, con il coinvolgimento di figure che operano nelle aziende e nelle associazioni professionali, migliorando, altresì, l'offerta di stages e tirocini come veri momenti formativi.

Un'ulteriore linea guida cerca di fornire indicazioni su come riuscire a valutare l'efficacia delle attività di formazione in termini di applicazione delle competenze acquisite nel mondo del lavoro. Un'altra linea guida intende fornire delle indicazioni su come riuscire a sviluppare un network

di relazioni tra gli attori interessati che, come già evidenziato nella parte introduttiva, con la disponibilità di adeguate risorse, potrà far aumentare le opportunità di inserimento nel mercato del lavoro dei laureati in ambito logistico. Ciò implica, evidentemente anche assicurare la disponibilità di adeguate risorse per l'implementazione di tali forme di collaborazione.

Le linee guida che sono state individuate possono essere considerate delle vere e proprie sfide per riuscire a raggiungere gli obiettivi dello stesso progetto. In particolare, il tema dello sviluppo di adeguate competenze professionali pone l'esigenza di pianificare opportunamente i processi di miglioramento delle attività formative. Si tratta di aver ben chiari quali obiettivi si intendono perseguire, partendo dalle convinzioni che la cooperazione tra i soggetti considerati rappresenti, come evidenziato nella parte introduttiva del presente articolo, non tanto un requisito di natura generale, quanto piuttosto un'esigenza se si intende perseguire un effettivo miglioramento.

In tale contesto appare auspicabile un maggiore coinvolgimento del mondo delle aziende nelle attività didattiche, anche in considerazione dei recenti cambiamenti di scenario legati alla trasformazione digitale e allo sviluppo del sistema 4.0; così come prevedere nella definizione dei programmi formativi, come già ricordato, maggiori contatti con il mondo operativo, allo scopo di dare la possibilità agli studenti di meglio acquisire quelle specifiche capacità e conoscenze richieste oggi e nel prossimo futuro dalle aziende. L'università e il mondo delle aziende devono maturare la consapevolezza della necessità di una maggiore integrazione per creare e rafforzare rapporti sinergici.

Grazie all'analisi dell'offerta formativa europea portata avanti all'interno del progetto, specificatamente sui diversi temi a sfondo logistico, si è potuto osservare come, nonostante le grandi potenzialità e capacità di creazione di conoscenza che sarebbe possibile tramite la connessione di questi soggetti, tale collegamento non è ancora così diffuso come sarebbe auspicabile. Questo risultato evidenzia un sostanziale *gap*, confermando quanto evidenziato nel paragrafo precedente, tra lo stato dell'arte in tema di formazione e lo sviluppo di conoscenze in linea con i nuovi requisiti in termini di competenze professionali, richiesti dalle innovazioni 4.0 nell'area logistica.

Appare evidente che per cercare di realizzare le linee guida individuate e le loro relative sfide risulterà necessario che le differenti iniziative formative siano coerenti con i requisiti richiesti dal mercato del lavoro.

5. Conclusioni

L'industria 4.0 - e di conseguenza la Logistica 4.0 - pone il mercato di fronte ad una serie di innovazioni che stimolano la crescita ma, al tempo stesso, impongono importanti riflessioni alle organizzazioni che si trovano ad affrontarle. In questo contesto, è stato evidenziato il ruolo fondamentale che le competenze - siano esse tecniche, relazionali, soft - ricoprono in questo frangente, per poter reagire in modo consapevole e strutturato al cambiamento imposto. Per lo sviluppo di tali competenze, grazie

alle analisi portate avanti all'interno del progetto FRAMELOG, è stata evidenziata l'esigenza di un'adeguata integrazione tra enti di formazione, ricerca e operatori economici nelle diverse realtà europee.

Le linee guida individuate confermano che l'area della logistica è in continua evoluzione, come del resto evidenziato già nella parte teorica, e che un efficiente contesto "Knowledge creation-oriented", basato su una sistematica interazione tra gli attori interessati, può rendere possibile la definizione di un'offerta didattica allineata alle richieste delle aziende. Ciò potrà, da un lato, favorire la creazione di un effettivo sistema di job placement in grado di connettere studenti ed aziende; dall'altro lato stimolare attività di ricerca per un proattivo miglioramento di tale sistema.

Le stesse linee guida evidenziano come un'efficiente implementazione del Knowledge Triangle nell'area logistica possa costituire il percorso grazie al quale riuscire a valorizzare i contributi degli attori che si trovano, come ricordato, sui lati dello stesso triangolo.

Si comprende, altresì, il ruolo di altri attori nel continuo processo di miglioramento, quali le associazioni professionali che si occupano di logistica e che sono in grado di attivare iniziative di formazione e di ricerca con le aziende associate.

In ogni caso, emerge la necessità di migliorare la collaborazione tra l'università e le aziende per ridurre il *gap* tra il livello di conoscenze richieste dall'area logistica ed i programmi accademici. La ricerca di tali sinergie può trovare importanti opportunità nel processo di trasformazione digitale proprio della Digital Economy.

La collaborazione dei soggetti componenti il Triangolo delle Conoscenze permetterebbe un costante allineamento delle competenze introdotte sul mercato dagli enti di formazione alle evoluzioni del panorama della logistica, diventando un volano anche per un miglior sfruttamento delle innovazioni connesse all'Industria 4.0.

L'implementazione del "Knowledge Triangle" richiede un approccio olistico per poter valorizzare i diversi contributi: solo in tal modo sarà possibile, migliorare le performance dei sistemi educativi e formativi nazionali, attivando una sorta di circolo virtuoso.

La ricerca svolta conferma la reale potenzialità dei metodi e degli strumenti identificati, facendo emergere chiaramente l'esigenza di una costante attenzione al tema dello sviluppo delle competenze, soprattutto nello strategico settore della logistica. In tal senso il progetto potrà fornire alle diverse autorità nazionali indicazioni per definire opportuni interventi non solo in ambito logistico, ma anche in altri settori di attività.

Ragionare in termini di network tra i diversi attori interessati rappresenta una prospettiva di indagine innovativa, che consente di valorizzare le sinergie. Lo sviluppo di tali sinergie costituisce un punto di forza che il progetto intende enfatizzare anche alla luce dei suoi possibili sviluppi futuri. Sviluppi che potranno riguardare, infatti, anche altri settori allo scopo di contribuire ad una migliore valorizzazione delle realtà territoriali nelle quali operano i partners del progetto. Ciò considerando le caratteristiche dell'attuale contesto competitivo e le variabili che determinano la capacità competitiva di un'impresa.

Appare importante delineare altresì una strategia per la gestione delle conoscenze che emergeranno dagli stessi risultati. In tale ottica potranno essere realizzate specifiche pubblicazioni scientifiche che, insieme ai contenuti dei corsi di formazione previsti, costituiranno una base conoscitiva importante per definire linee di intervento non solo a livello nazionale ma anche a livello europeo.

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L'impatto del passaggio generazionale sulle performance economiche: un focus sulle imprese della provincia di Vicenza

Received
18th June 2019

Revised
22nd October 2019

Accepted
27th January 2020

Corrado Corsi - Paolo Farinon

Abstract

Obiettivo del paper: il paper mira a verificare l'impatto sulle performance economiche del passaggio generazionale ovvero di "altre" modifiche di assetto societario.

Metodologia: dopo una literature review sul tema, si effettua un duplice confronto tra le performance economiche di 74 imprese nel periodo 2009-2017, suddivise in tre campioni. In primis si confrontano imprese interessate dal passaggio generazionale con imprese che non hanno subito alcuna modifica di assetto societario; successivamente si confrontano imprese che hanno modificato l'assetto senza effettuare il passaggio generazionale (es. ampliamento della compagine sociale, et al.) con imprese che non hanno subito modifiche di assetto societario.

Risultati: La ricerca evidenzia che le imprese coinvolte nel passaggio generazionale incontrano una iniziale fase di difficoltà operativa rispetto alle altre, pur dimostrandosi, successivamente, più reattive e performanti. La ricerca mette in luce che la maggior conoscenza teorico-tecnica posseduta dalla nuova generazione consente all'impresa di recuperare più rapidamente l'iniziale gap negativo in termini di redditività solo se tale conoscenza è supportata da esperienza sul campo, volta a compensare il mancato passaggio della tacit firm knowledge che spesso si riscontra.

Limiti della ricerca: lo studio pilota è condotto in un contesto geografico circoscritto e su un campione di imprese medio-piccole di dimensioni contenute, selezionato attraverso una survey; al fine di supportare meglio le risultanze ottenute, in prospettiva è opportuna l'applicazione del modello di analisi su scala (sia geografica che settoriale) più ampia.

Implicazioni pratiche: lo studio suggerisce alla governance di "vecchia generazione" di acquisire una maggiore consapevolezza delle effettive capacità gestionali della generazione entrante, che dovrebbero essere attentamente valutate nella preparazione del passaggio generazionale ed, eventualmente, migliorate. Sotto questo profilo, l'esito in termini di performance del passaggio generazionale appare legato all'atteggiamento assunto dalla "vecchia generazione" nella fase di preparazione dell'evento. Per poter minimizzare o eliminare l'iniziale gap negativo di redditività riscontrato, si rivela fondamentale lasciare effettivo spazio alla generazione entrante durante la fase di preparazione dell'evento, al fine di farle acquisire sul campo l'esperienza necessaria per gestire in modo redditizio l'impresa.

Originalità del paper: la ricerca pone a confronto imprese interessate dal passaggio generazionale con imprese che modificano il proprio assetto in altro modo e indaga la presenza di differenza di performance, la loro intensità e la loro durata.

Parole chiave: passaggio generazionale; redditività; risultati economici; piccole e medie imprese

The impact of family business succession on economic performance: a focus on businesses in the province of Vicenza (Italy)

Purpose of the paper: the paper aims to verify the impact on economic performance of Family business succession or "other" changes in corporate structure.

Methodology: after the literature review, we have performed a twofold comparison between the economic performance s of 74 companies between 2009 and 2017, classified into three samples. First, we compare companies involved in a family succession to companies that did not change their corporate structure. Second, companies involved in other changes than family succession (e.g. expanding the shareholders team) are compared to companies that did not change their corporate structure.

Results: The research shows that companies involved in family succession get a lower operating profitability than the other ones during the first years after the succession, but they gradually become more reactive and economic performing. The research highlights how the greater theoretical-technical knowledge possessed by the new generation allows companies involved in the generational transition to recover more quickly the initial negative gap in terms of management capacity and profitability. However, this only happens if this change is supported by experience in the field, aimed at compensating for the lack of tacit knowledge that often occurs.

Research limitations: the pilot survey was carried out in a restricted geographical area and on a small sample of small-medium sized enterprises, selected by a survey; further research could apply the analysis model on a larger geographical and sample-size scale to support the conclusions.

Practical implications: the study suggests to "old" governance that company entrepreneurs should acquire greater awareness of the actual operational management capabilities of incoming generation. The outcome of Family business succession is related to the attitude of the "old" governance in the preparation phase of the handover. To minimize or remove the initial gap in profitability, the engagement of new generation in the preparation phase is crucial and it allows to gain experience in managing firms profitably.

Originality of the paper: the research compares companies affected by the generational changeover with other ones that change their structure in another way. Furthermore the research investigates the presence of differences in performance between different types of companies, their intensity and durability.

Key words: Family business succession; operational profitability; economic performance; small-medium sized enterprise, Italy

1. Introduzione

Il paper presenta i risultati di un'indagine pilota iniziata nel corso del 2014 con lo scopo di monitorare le *performance* di imprese interessate dal passaggio generazionale poste a confronto con altre imprese non soggette a tale cambiamento, ma ad esse comparabili in termini di dimensione aziendale, settori di attività e condizioni di contesto socio-economico.

Come ampiamente sottolineato in letteratura (Corbetta, 2010; Montemerlo, 2010), il passaggio generazionale rappresenta un processo cruciale della vita dell'impresa, esteso su più anni (Chrisman *et al.*, 1998; Longenecker e Shoen, 1978; Miller *et al.*, 2003; Hauck e Prügl, 2015) e dal quale spesso dipende la sopravvivenza stessa dell'impresa. Secondo i dati 2018 della decima edizione dell'Osservatorio AUB¹, in Italia le aziende familiari rappresentano più dell'85% delle società nazionali (quotate e non quotate) obbligate al deposito del bilancio, con un peso in termini di occupazione pari a circa il 70%. Tra le società quotate, la percentuale di imprese familiari supera il 60%. Nel corso del decennio 2007-2017, la percentuale di leader tra i 60 e i 70 anni di età è scesa dal 30% al 24%, mentre è aumentata dal 17% ad oltre il 25% quella dei leader ultra-settantenni, a significare che in quasi la metà delle realtà in esame si profila nei prossimi anni il momento del ricambio generazionale.

La problematica del passaggio generazionale appare, dunque, di rilevante interesse per il considerevole impatto che si manifesterebbe qualora le condizioni di equilibrio, sopravvivenza e sviluppo dell'impresa non venissero mantenute in seguito al cambio di *governance*. Da studi effettuati in passato sulle imprese familiari statunitensi (Birley, 1986; Ward, 1987 e 1997; Kets de Vries, 1993), da studi più recenti (Bigliardi e Dormio, 2009; Tatoglu *et al.*, 2008; Poutziorius, 2000) e dai dati forniti dal Family Firm Institute, emerge che circa un terzo delle family firms sopravvive all'ingresso della seconda generazione, e solo tra il 10% e il 15% sopravvive alla terza; la percentuale di imprese familiari che operano sotto la guida della quarta generazione o di generazioni successive scende al 3% (Chiang e Yu, 2018). Tali dati sono sostanzialmente confermati anche a livello europeo².

2. Domande di ricerca, analisi della letteratura e ipotesi

La definizione di *family business* accolta in questa ricerca è quella di azienda posseduta e controllata in ambito familiare (Fiegener *et al.*, 1994). Con riferimento a questa definizione, e posto che le modifiche di assetto societario possono avvenire anche attraverso modalità diverse dal passaggio generazionale, la domanda di ricerca sulla quale si basa il presente lavoro è riflessa nei due seguenti interrogativi:

- a) la redditività dell'impresa viene influenzata dal passaggio generazionale in maniera differente rispetto ad altre modifiche di assetto societario?
- b) gli effetti prodotti sulla redditività dell'impresa hanno la medesima persistenza in presenza di passaggio generazionale o in presenza di modifiche di assetto societario di altro tipo?

¹ L'Osservatorio AUB, ideato nel 2007 da AIdAF (Associazione Italiana delle Aziende Familiari), Gruppo UniCredit e Università Bocconi, raccoglie ed elabora dati e informazioni relative a proprietà, *governance*, management e *performance* economico-finanziarie delle aziende familiari italiane con fatturato annuo superiore ai 20 milioni di Euro.

² Parere del Comitato economico e sociale europeo sul tema "L'impresa familiare in Europa come fattore di rilancio della crescita e fonte di migliori posti di lavoro", Gazzetta Ufficiale dell'Unione Europea, 15 gennaio 2016.

Un aspetto cruciale del passaggio generazionale è rappresentato dalla crescita di conflittualità interna alla famiglia (Davis e Harveston, 1998, 1999; Smith e Amoako-Adu, 1999) all'avvicinarsi del cambio al vertice, che può indurre la nuova generazione a comportamenti sensibilmente diversi e "di rottura" rispetto a quelli adottati dalla precedente, ma che, in assenza di una adeguata e preventiva trasmissione di conoscenze, anche tacite (*tacit firm knowledge*), possono rivelarsi deleteri. Tale aumento di conflittualità è anche indicato tra le principali cause di fallimento delle imprese familiari (Beckhard e Dyer, 1983; Paul 1996).

In effetti la *tacit firm knowledge*, cioè la conoscenza intrinseca che non può essere verbalizzata o esplicitamente formalizzata (Polany, 1962), rappresenta una delle risorse più preziose dell'impresa familiare (Cabrera-Suarez *et al.*, 2001). Essa nasce dal bagaglio di esperienze e dalle conoscenze del fondatore dell'impresa e la sua trasmissione alla generazione dei potenziali successori diviene fondamentale per le sorti dell'impresa (Gordini e Rancati, 2015; Lee *et al.*, 2003; Williams e Mullane, 2019).

Grazie all'interazione tra impresa e famiglia, nell'impresa familiare si sviluppa una *tacit knowledge* unitaria e idiosincratca (Dana e Smyrniotis, 2010), che normalmente viene acquisita osservando, ascoltando e facendo pratica sul campo (Bjuggren e Sund, 2002). Pertanto, solo se il successore viene effettivamente coinvolto per tempo nelle discussioni e nelle decisioni strategiche, che rappresentano una fonte importante di *firm's tacit idiosyncratic knowledge*, potrà effettivamente beneficiare di tale risorsa (Royer *et al.* 2008). In assenza di ciò, la conoscenza tacita detenuta dal fondatore è destinata a perdersi.

Nell'ambito della presente ricerca, si assume come modello concettuale di partenza il *Contingency Model of Family business succession* proposto da Royer *et al.* (2008), in base al quale, con riferimento ad un certo business, i livelli delle due variabili che esprimono la *relevance of general and technical industry-specific knowledge* e la *relevance of experiential family business-specific knowledge* di quel business definiscono la probabilità di successo del passaggio generazionale interno rispetto all'affidamento della *governance* a manager esterni. Tale modello sottolinea l'importanza della combinazione tra conoscenze tecniche specifiche connesse alla conduzione del business ed esperienza acquisita (*tacit firm knowledge*) all'interno della *family business*; più precisamente, laddove la trasmissione dell'*experiential family business-specific knowledge* è elevata, la probabilità di successo è maggiormente garantita dal passaggio generazionale interno, a prescindere dal livello di *general and technical industry-specific knowledge* del successore. Tale condizione si verifica con maggiore probabilità quando il passaggio generazionale è ben pianificato ed il coinvolgimento della nuova generazione inizia ben prima dell'inserimento in posizioni di comando e, soprattutto, è sostanziale e non solo formale, cosicché l'effettiva trasmissione della leadership può avvenire in condizioni favorevoli al miglioramento delle *performance* post-successione (Morris *et al.*, 1997; Williams e Mullane, 2019).

Ovviamente, le determinanti che possono influire sulla redditività di un'impresa familiare sono molteplici e non si limitano al solo cambiamento di assetto societario.

Esse possono derivare da fattori esterni, quali, ad esempio, l'ingresso o l'eliminazione di *competitors* nel mercato di riferimento, la reazione del mercato nei confronti del prodotto, l'innescarsi di situazioni di crisi generalizzata che possono interessare il mercato di riferimento o il sistema economico nel suo complesso, ecc.

A questi fattori esterni se ne affiancano altri interni, tra i quali figurano l'armonia o la disarmonia familiare che si riflette inevitabilmente sulla conduzione del business (De Alwis, 2016; Ghee *et al.*, 2015), il grado di trasferimento della firm's *tacit knowledge* (Polany, 1962; Cabrera-Suarez *et al.*, 2001; Lee *et al.*, 2003; Boyd *et al.*, 2015; Williams e Mullane, 2019) ed il livello di preparazione del successore (Mokhber *et al.*, 2017; Ghee *et al.*, 2015), l'età del successore e, dunque, l'esperienza da egli accumulata (Brockmann e Simmonds, 1997) anche al di fuori dell'impresa di famiglia (Nazzaro e Ugolini, 2003; Masuo *et al.*, 2001; Luke, 1996; Barach e Gantisky, 1995); la propensione all'innovazione (Bannò *et al.*, 2018); la presenza di eventuali vincoli connessi alle modalità di finanziamento ed alla conseguente struttura finanziaria predisposta dal fondatore; la reputazione della famiglia imprenditoriale (Metallo e Gallucci, 2013); il modello di *governance* adottato nell'impresa familiare (Chrisman *et al.*, 2018; Fattoum-Guedri *et al.* 2018; Ghee *et al.*, 2015; Steier *et al.*, 2015; Miller *et al.* 2013; Chrisman *et al.*, 2013; Chua *et al.*, 2012; Eddledston *et al.*, 2010; Bennedsen *et al.*, 2007; Miller *et al.* 2007; Perez-Gonzalez, 2006; Carney, 2005; Steier *et al.*, 2004; La Porta *et al.*, 1998), ecc.

Tuttavia, restringendo il campo di indagine a specifici settori di attività, analizzando imprese dimensionalmente comparabili e caratterizzate da struttura finanziaria e modelli di *governance* sostanzialmente analoghi ed, infine, effettuando l'indagine in un contesto di mercato nel quale le imprese analizzate risultino sottoposte alle medesime condizioni generali e congiunturali esterne, si ritiene ragionevolmente individuabile una connessione tra effetti sulla redditività in presenza di modifiche dell'assetto societario e tipologia di modifica attuata.

Con riferimento agli studi sulla relazione tra *Family business succession* e *performance* dell'impresa, dall'esame della letteratura emerge che, in seguito al passaggio generazionale, si sono riscontrati sia effetti positivi, sia effetti negativi, sia effetti neutri sulla redditività aziendale (Tabella 1).

Il passaggio generazionale avviene idealmente in tre fasi: la prima riguarda la crescita personale dell'erede destinato a subentrare al comando dell'impresa, la seconda riguarda il suo coinvolgimento nell'attività d'impresa, la terza concerne l'effettivo passaggio della leadership (Morris *et al.*, 1997). In presenza di un coinvolgimento solo apparente, che di fatto deresponsabilizza la nuova generazione e ostacola l'acquisizione di esperienza, l'effettivo passaggio della leadership può portare a conseguenze spiacevoli. Peraltro, nonostante la delicatezza di tale evento, solo in un numero assai ridotto, pari a circa il 16% (Williams e Mullane, 2019), di imprese familiari si riscontra una effettiva pianificazione del ricambio generazionale (Astrachan e Kolenko, 1994); inoltre, anche nei casi in cui si intraprende un percorso di graduale avvicinamento al passaggio, spesso il titolare dell'impresa non si preoccupa di preparare effettivamente la nuova generazione al subentro (Morris *et al.*, 1997).

Tab. 1: contributi sulla relazione tra passaggio generazionale e performance aziendale

Family business succession con effetti positivi sulle performance aziendali	Diwisch <i>et al.</i> , 2009; Fernandez e Nieto, 2005; Zahara, 2005; Anderson e Reeb, 2003; McConaughy <i>et al.</i> , 2001; McConaughy e Phillips, 1999; Morris <i>et al.</i> , 1996
Family business succession con effetti negativi sulle performance aziendali	Chiang e Yu, 2018; Cucculelli e Micucci, 2008; Fan <i>et al.</i> , 2008; Bennedsen <i>et al.</i> , 2015; Bennedsen <i>et al.</i> , 2007; Miller e Le Bretton-Miller, 2006; Villalonga e Amit, 2006; Perez-Gonzalez, 2006; Bjuggren e Sund, 2005; Morck <i>et al.</i> , 2005; Martin e Lumpkin, 2004; Chua <i>et al.</i> 2003; Upton e Petty, 2000; Reid <i>et al.</i> 1999; Cromie <i>et al.</i> , 1995; Dunn, 1995;
Family business succession con effetti neutri sulle performance aziendali	Gallucci e Santulli, 2016; Mustilli <i>et al.</i> , 2014; Molly <i>et al.</i> , 2010; Sraer e Thesmar, 2007

Fonte: nostra elaborazione

Conseguentemente, senza un'adeguata preparazione dell'evento, le *performance* e la stessa sopravvivenza dell'impresa sono a rischio (Barach e Ganitsky, 1995; Barnes e Hershon, 1989; Morris *et al.*, 1996), e questo anche in presenza di conoscenze "teoriche" (acquisite attraverso l'istruzione superiore, universitaria e post-universitaria) più elevate nella nuova generazione rispetto alla precedente.

Alla luce della rilevanza che l'*experiential family business-specific knowledge* riveste in determinati contesti e dei riscontri in letteratura circa la relazione tra passaggio generazionale e *performance* aziendali, vengono formulate le seguenti:

H1: *la presenza di migliori conoscenze "teoriche" nella nuova generazione non è in grado di compensare la mancata acquisizione di esperienza durante la fase di preparazione del passaggio generazionale e ciò si ripercuote negativamente sulla redditività aziendale*

H2: *nel passaggio generazionale, le ripercussioni sulla redditività sono più marcate rispetto a situazioni in cui l'assetto societario è modificato in altro modo*

Con riferimento al *Contingency Model of Family business succession* più sopra richiamato ed agli effetti della combinazione tra esperienza e conoscenza teorico-tecnica da esso previsti, viene formulata la seguente:

H3: *nel passaggio generazionale, la sinergia tra superiori conoscenze "teoriche" ed esperienza consente di superare più rapidamente le difficoltà conseguenti al mutamento di assetto societario*

Al fine di rendere comparabili le *performance* delle imprese esaminate, l'analisi è condotta su unità ubicate nella medesima area geografica, operanti nei medesimi settori di attività ed aventi dimensione analoga. La prima condizione consente di neutralizzare l'influenza delle variabili socio-economiche di contesto, che potrebbero differire per aree geografiche diverse; la seconda e la terza condizione consentono di escludere eventuali effetti connessi a differenze intersettoriali o alla dimensione dell'impresa.

3. Metodologia di analisi e costruzione dei campioni

Corrado Corsi
Paolo Farinon
L'impatto del passaggio
generazionale sulle
performance economiche:
un focus sulle imprese della
provincia di Vicenza

La presente ricerca prevede l'analisi qualitativa di informazioni raccolte tramite questionario semi-strutturato, l'analisi di case studies relativi a tre delle imprese interessate dal passaggio generazionale nel periodo in esame e che hanno accettato l'intervista (2 imprese con miglioramento della redditività post-passaggio generazionale e 1 impresa in cui la redditività ha subito un sensibile decremento; le 3 imprese hanno chiesto di rimanere anonime) e l'analisi quantitativa di dati economico-finanziari tratti dai bilanci di esercizio di tre campioni di imprese formati in base agli esiti del questionario; la fonte dei dati economico-finanziari è la banca dati *AIDA Bureau Van Dijk* e l'osservazione si estende complessivamente dal 2009 al 2017.

Oggetto dell'indagine sono le imprese rette da società di capitali della provincia di Vicenza iscritte a Confindustria Vicenza all'inizio del 2014 (1.674 unità), alle quali è stato somministrato un questionario nel mese di gennaio 2014. Le domande poste sono le seguenti: *a) Quali modificazioni nell'assetto societario si sono verificate nel periodo 2009-2013? b) In caso di passaggio generazionale intervenuto nel periodo in esame, a quale stadio si trovava tale processo? c) In quale modo è stata coinvolta la nuova generazione in preparazione del passaggio generazionale? d) Il passaggio generazionale ha riguardato solo la governance oppure ha modificato anche la proprietà dell'impresa? e) In caso di passaggio generazionale, quali strumenti giuridici sono stati utilizzati per concretizzarlo?*

Al questionario hanno validamente risposto 116 imprese (tasso di risposta 6,93%).

Con riferimento all'analisi quantitativa, le imprese rispondenti sono state classificate in base al codice ATECO 2007 ed in base alla loro dimensione. Il profilo dimensionale è stato valutato utilizzando i parametri suggeriti dalla direttiva UE 34/2013³ (ricavi di vendita, totale dell'attivo e numero medio di dipendenti alla chiusura dell'esercizio) con riferimento all'esercizio 2009, cioè l'inizio del periodo di osservazione.

Per rendere omogeneo l'insieme da analizzare, una volta stabilita la numerosità delle imprese per settore ATECO di appartenenza e per dimensione, sono state selezionate le sole unità rientranti nei settori ATECO C ed F (attività manifatturiere e costruzioni) di dimensione piccola o media. Sono state, inoltre, escluse le unità che non presentavano dati economico-finanziari completi nel quinquennio 2009-2013 o che, nel 2009, risultavano in liquidazione. Infine, è stata verificata, attraverso

3 L'art. 3 della Direttiva UE 34/2013, recepita in Italia con D. Lgs. n.136/2015, classifica le imprese in micro, piccole e medie se, alla data di chiusura del bilancio, non vengono superati almeno due dei tre limiti indicati: per le microimprese, totale delle attività € 350.000, ricavi netti delle vendite e delle prestazioni € 700.000, numero medio di dipendenti occupati durante l'esercizio 10; per le piccole imprese, totale delle attività € 4.000.000, ricavi netti delle vendite e delle prestazioni € 8.000.000, numero medio di dipendenti occupati durante l'esercizio 50; per le medie imprese, totale delle attività € 20.000.000, ricavi netti delle vendite e delle prestazioni € 40.000.000, numero medio di dipendenti occupati durante l'esercizio 250. Al medesimo articolo sono definite grandi imprese quelle che, alla data di chiusura del bilancio, superano almeno due dei tre limiti che definiscono la categoria delle medie imprese.

l'analisi documentale, la comparabilità delle imprese sotto il profilo della struttura finanziaria e del modello di *governance* adottato.

I criteri di selezione sopra definiti hanno condotto all'individuazione di un *panel* di 74 imprese (Tabella 2), suddivise nei seguenti tre campioni:

- *campione 0*, formato da 41 imprese che hanno dichiarato di non aver attuato alcuna modifica di assetto societario nel periodo 2009-2013 (per queste imprese tale condizione risulta immutata anche nel quadriennio 2014-2017);
- *campione 1*, formato da 18 imprese che hanno dichiarato di aver effettuato il passaggio generazionale nel periodo 2009-2013;
- *campione 2*, formato da 15 imprese che hanno dichiarato di aver attuato nel periodo 2009-2013 modifiche di assetto societario diverse dal passaggio generazionale (e quest'ultimo non risulta attuato nemmeno nel periodo 2014-2017).

Il 92% delle imprese del *panel* risultavano già attive dall'esercizio 2005, ad eccezione di 1 unità del campione 2, fondata nel 2009, e 5 unità del campione 0, di cui una fondata nel 2009, una nel 2008 e tre nel 2006.

In merito alla rappresentatività dei campioni, il numero ridotto di unità che vi compaiono è bilanciato dal fatto che la composizione in termini di dimensione e di settore di appartenenza delle unità riflette quella presente nel territorio prescelto, consentendo di ottenere indicazioni utili alla lettura del fenomeno con riferimento all'area in esame.

Tab. 2: *composizione del panel in base ai dati 2009*

		Dimensione piccola	Dimensione media	Totale
Campione 0	ATEC007 -C	51,22%	36,58%	100,00%
	ATEC007 -F	9,76%	2,44%	
	Totale	100,00%		
Campione 1	ATEC007 -C	55,56%	44,44%	100,00%
	ATEC007 -F	0,00%	0,00%	
	Totale	100,00%		
Campione 2	ATEC007 -C	66,66%	26,67%	100,00%
	ATEC007 -F	0,00%	6,67%	
	Totale	100,00%		

Fonte: nostra elaborazione

Tra le misure di *performance* maggiormente utilizzate in letteratura figurano, il ROA, l'Ebit, l'Ebitda, il ROE (Lindow *et al.*, 2010; Maury, 2006; Sraer e Thesmar, 2007) e il ROS (Cucculelli e Micucci, 2008); peraltro, il ROE è, tra i vari indicatori, quello che, talvolta, presenta maggiori ambiguità interpretative.

Ai fini della presente ricerca si è, peraltro, optato per l'analisi di indicatori di *performance* relativi, preferendo l'utilizzo del rapporto tra Ebitda e ricavi delle vendite ed analizzando, oltre al ROA, anche il ROI, che riflette il rendimento più strettamente legato all'ambito operativo.

Per ciascun campione sono stati, quindi, determinati i valori medi di cinque indicatori di redditività: Ebitda/Ricavi, ROS, ROA, ROI e ROE,

riconoscendo, tuttavia, a quest'ultimo una capacità segnaletica più limitata, ai fini della ricerca, rispetto agli altri quattro indicatori utilizzati

Tali indicatori sono riferiti al periodo 2009-2013, per verificare (mediante t-test sul confronto tra medie, applicato con correzione per piccoli campioni) l'esistenza o meno di differenze significative nella redditività delle imprese che rientrano nei campioni 1 (passaggio generazionale) e 2 (modifiche di assetto societario di altro tipo) rispetto a quella delle imprese appartenenti al campione 0 (nessuna modifica di assetto societario). Per stabilire la modalità di esecuzione dei t-test è stata, inoltre, verificata l'omoschedasticità dei dati tramite test di Levene. L'analisi è stata effettuata sia sui campioni 0, 1 e 2 come sopra definiti sia su ulteriori campioni ottenuti sottoponendo quelli originari a un *trimming-data* con soglie del 10% e del 20%, così da focalizzare l'attenzione sulle *performance* espresse dalle unità più centrali della distribuzione.

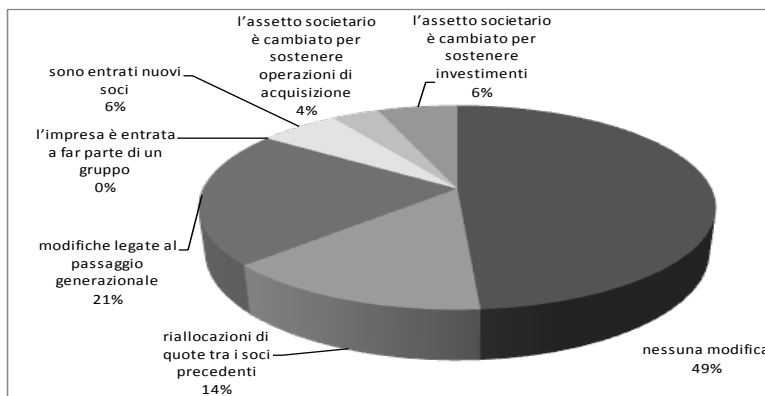
La medesima verifica è stata, infine, condotta anche nel quadriennio 2014-2017, per verificare la situazione in esercizi via via più lontani dal cambiamento di assetto societario. Prima di procedere a questa seconda fase dell'analisi, si è proceduto ad un controllo documentale per accertare che le imprese incluse nei tre campioni mantenessero le caratteristiche del campione di appartenenza.

Nei tre case-studies, oltre all'analisi documentale, sono state effettuate interviste con la *governance* (precedente ed attuale) dell'azienda.

4. Analisi dei dati

Quasi la metà delle 116 imprese rispondenti al questionario dichiara di non aver apportato nessuna modifica di assetto societario nel quinquennio 2009-2013; per l'altra metà, circa 2 imprese su 5 sono state interessate da un passaggio generazionale (Figura 1). Tra queste, circa il 39% dichiara di aver già concluso il processo di ricambio dei vertici, mentre per la restante parte dei casi il processo si trova comunque già in fase avanzata.

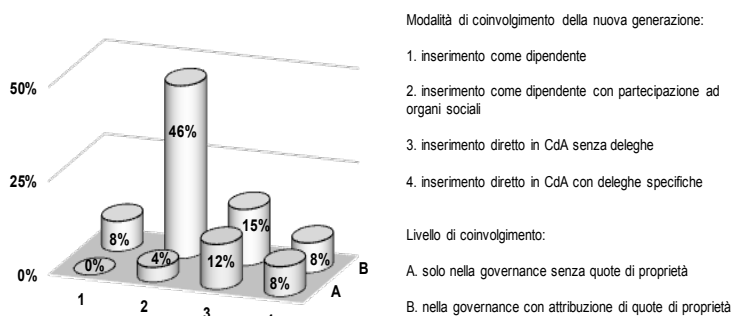
Fig. 1: Modifiche di assetto societario (periodo 2009-2013) dichiarate dalle imprese



Fonte: nostra elaborazione

Circa la modalità di coinvolgimento della nuova generazione in previsione del passaggio generazionale e l'impatto da esso esercitato sull'assetto proprietario dell'impresa (Figura 2), emerge la presenza, seppur contenuta (circa un quarto dei casi), di situazioni che hanno comportato solo un mutamento della *governance*, configurando, pertanto una sostanziale modifica del soggetto economico senza mutamenti rilevanti nel soggetto giuridico.

Fig. 2: Modalità di coinvolgimento della nuova generazione e impatto del passaggio generazionale a livello di *governance* e assetto proprietario

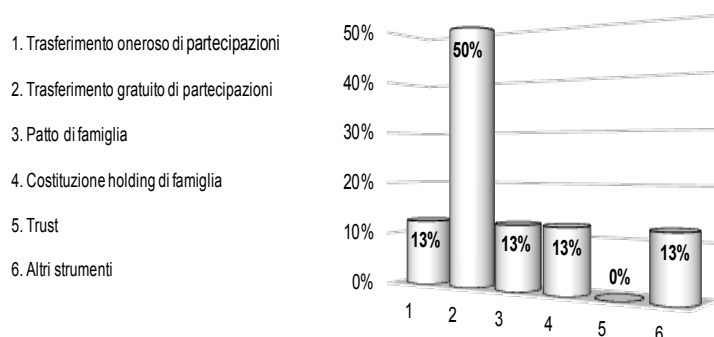


Fonte: nostra elaborazione

Nei rimanenti casi in cui il passaggio generazionale ha comportato anche modifiche di assetto proprietario, la modalità di coinvolgimento della nuova generazione più diffusa è l'iniziale ingresso come dipendente con graduale inserimento negli organi sociali, che appare una modalità consona a favorire un'efficace formazione a livello operativo e direzionale. Sulle due variabili di Fig. 2 è stata effettuata una verifica di correlazione ordinando da 1 a 4 la modalità di coinvolgimento come indicato in figura e considerando di ordine superiore il livello di coinvolgimento che prevede anche l'assegnazione di quote di proprietà rispetto a quello che comporta solo una modifica della *governance*; il coefficiente di correlazione ρ di Spearman risulta -0,502, significativo al livello $\alpha = 5\%$, a segnalare la presenza di un legame inverso di apprezzabile entità tra le variabili. Ciò indica la tendenza ad associare il coinvolgimento della nuova generazione partendo dall'inserimento come dipendente al passaggio generazionale che comporta anche cambiamenti di proprietà.

Infine, quando il passaggio generazionale ha interessato sia la *governance* sia la proprietà, lo strumento giuridico di gran lunga più utilizzato è risultato il trasferimento gratuito di partecipazioni societarie (Figura 3), accanto al quale compaiono, con frequenza assai minore ed equidistribuita, altre modalità di riconfigurazione della proprietà. Risulta, invece, inutilizzato il *trust*, strumento di matrice anglosassone che poco si adatta alla tradizione imprenditoriale del territorio di riferimento.

Fig. 3: Strumenti utilizzati nel passaggio generazionale con modifica dell'assetto societario



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L'impatto del passaggio generazionale sulle performance economiche: un focus sulle imprese della provincia di Vicenza

Fonte: nostra elaborazione

Passando all'analisi quantitativa dei dati delle 74 imprese selezionate, l'opportunità di considerare sia i campioni interi sia quelli ottenuti applicando il *trimming-data*, ha indotto, in primo luogo, a verificare l'esistenza o meno di correlazione tra ricavi e totale attivo.

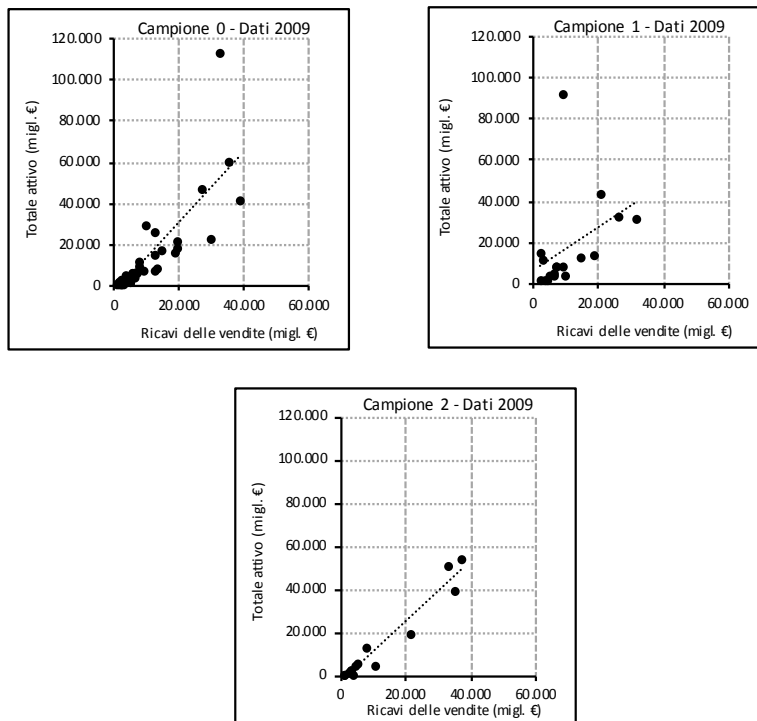
All'interno di ciascun campione è stato, quindi, determinato il coefficiente di correlazione lineare r di *Pearson* tra le suddette variabili per l'esercizio 2009; per mitigare l'effetto dei valori estremi è stato determinato sui medesimi dati anche il coefficiente ρ di *Spearman* e sono stati rappresentati gli *scatter-plot*, utili per una migliore interpretazione del valore assunto dai coefficienti di correlazione (Figura 4).

L'analisi evidenzia coefficienti con valori positivi elevati e significativi (con $\alpha = 1\%$) nei campioni 0 e 2, confermati anche dai relativi grafici; nel campione 1, dove i valori dei coefficienti di correlazione risultano più bassi, lo *scatter-plot* segnala la presenza di una unità con valore dei ricavi basso e totale attivo molto elevato, che può esercitare un effetto distorsivo sul coefficiente r di *Pearson* (risultato non significativo).

Per tale motivo si è fatto ricorso al coefficiente ρ di *Spearman*, per il quale il valore nel campione 1 è, invece, significativo al livello $\alpha = 1\%$. Data la presenza di correlazione, l'analisi dei dati relativi agli indicatori di redditività è stata effettuata sui campioni interi e su quelli ottenuti applicando due *trimming-data* (con soglia 10% e 20%) ai soli ricavi di vendita 2009, ritenendo quest'ultima variabile dimensionale maggiormente espressiva della dinamica gestionale rispetto al totale dell'attivo che, in ogni caso, risulta ad essa correlato.

Ad ulteriore prova dell'omogeneità dimensionale dei campioni posti a confronto, sono stati eseguiti t-test sui valori medi dei ricavi di vendita in ciascun esercizio lungo l'arco temporale 2009-2017; le differenze riscontrate in tal senso tra i campioni 0 e 1 e tra i campioni 0 e 2, nonché tra gli analoghi campioni sottoposti a *trimming-data*, sono risultate sempre non significative.

Fig. 4: Scatter-plot e coefficienti di correlazione tra ricavi delle vendite e totale attivo (dati 2009)



	Campione 0	Campione 1	Campione 2
Coefficiente di correlazione lineare r di Pearson	0,786 **	0,413	0,969 **
Coefficiente di correlazione lineare ρ di Spearman	0,848 **	0,666 **	0,825 **
* significativo al livello 5% ** significativo al livello 1%			

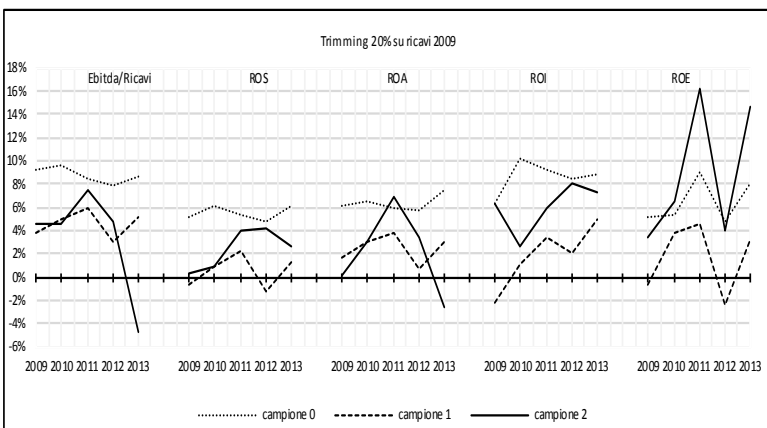
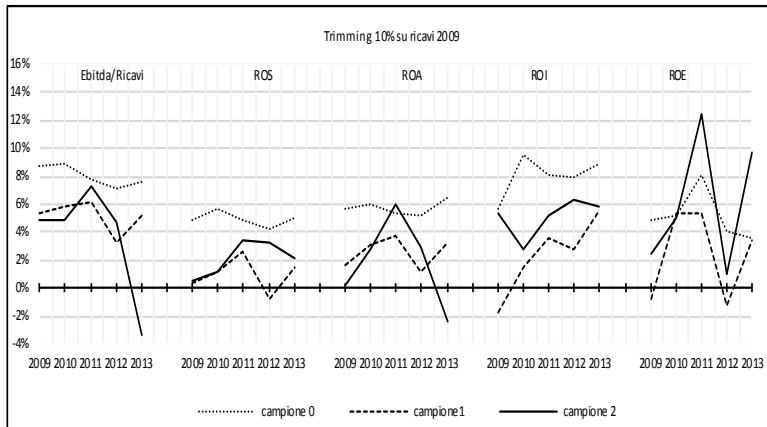
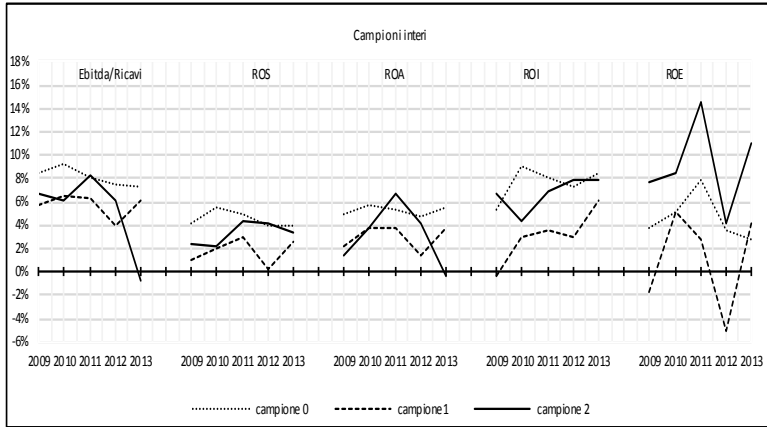
Fonte: nostra elaborazione

Tra il 2009 e il 2013, l'andamento degli indicatori di redditività monitorati (Figura 5) segnala, sia per il campione 1 sia per il campione 2, una redditività operativa inferiore a quella del campione 0.

Tuttavia, i t-test a due code condotti sul confronto tra le medie degli indici segnalano *performance* nel campione 1 significativamente inferiori a quelle del campione 0 in numerosi casi (i relativi *p-value* sono riportati nella Tabella 3) distribuiti lungo tutto il periodo 2009-2013, specie se si considera l'analisi condotta sui dati più centrali delle distribuzioni, che evidenziano in modo più marcato il fenomeno in esame. Per il campione 2 il confronto con il campione 0 denota ancora la presenza di differenze negative significative, ma in numero assai inferiore (meno della metà dei casi riscontrati nel campione 1) e concentrate negli esercizi 2009 e 2010. Nei pochi casi in cui i campioni 1 e 2 hanno *performance* superiori al campione 0, i *p-values* non si avvicinano mai alla soglia di significatività.

Fig. 5: Confronto tra valori medi degli indici di redditività nei tre campioni (esercizi 2009-2013)

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Fonte: nostra elaborazione

Tab. 3: *p-values dei test di confronto tra valori medi degli indici di redditività (esercizi 2009-2013)*

Campioni interi	Media campione 1 < Media campione 0					Media campione 1 > Media campione 0				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Ebitda/Ricavi	0,262	0,109	0,335	0,072	0,643	-	-	-	-	-
ROS	0,202	0,034	0,236	0,038	0,585	-	-	-	-	-
ROA	0,233	0,233	0,372	0,054	0,44	-	-	-	-	-
ROI	0,114	0,01	0,074	0,112	0,386	-	-	-	-	-
ROE	0,385	-	0,348	0,28	-	-	0,981	-	-	0,828
Trimming 10% su ricavi 2009	Media campione 1 < Media campione 0					Media campione 1 > Media campione 0				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Ebitda/Ricavi	0,175	0,087	0,428	0,055	0,294	-	-	-	-	-
ROS	0,051	0,007	0,198	0,011	0,102	-	-	-	-	-
ROA	0,099	0,123	0,337	0,036	0,151	-	-	-	-	-
ROI	0,018	0,002	0,098	0,088	0,265	-	-	-	-	-
ROE	0,416	-	0,616	0,522	0,975	-	0,973	-	-	-
Trimming 20% su ricavi 2009	Media campione 1 < Media campione 0					Media campione 1 > Media campione 0				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Ebitda/Ricavi	0,04	0,02	0,229	0,028	0,102	-	-	-	-	-
ROS	0,023	0,004	0,094	0,005	0,019	-	-	-	-	-
ROA	0,102	0,071	0,253	0,014	0,049	-	-	-	-	-
ROI	0,014	0,001	0,041	0,028	0,257	-	-	-	-	-
ROE	0,458	0,846	0,475	0,429	0,314	-	-	-	-	-
Campioni interi	Media campione 2 < Media campione 0					Media campione 2 > Media campione 0				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Ebitda/Ricavi	0,445	0,111	-	0,604	0,348	-	-	0,983	-	-
ROS	0,415	0,139	0,734	-	0,824	-	-	-	0,92	-
ROA	0,14	0,443	-	0,803	0,175	-	-	0,614	-	-
ROI	-	0,093	0,688	-	0,836	0,586	-	-	0,858	-
ROE	-	-	-	-	-	0,591	0,641	0,289	0,955	0,306
Trimming 10% su ricavi 2009	Media campione 2 < Media campione 0					Media campione 2 > Media campione 0				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Ebitda/Ricavi	0,114	0,053	0,822	0,351	0,265	-	-	-	-	-
ROS	0,045	0,017	0,501	0,66	0,213	-	-	-	-	-
ROA	0,043	0,14	-	0,518	0,218	-	-	0,807	-	-
ROI	0,949	0,026	0,299	0,673	0,329	-	-	-	-	-
ROE	0,74	0,989	-	0,77	-	-	-	0,534	-	0,502
Trimming 20% su ricavi 2009	Media campione 2 < Media campione 0					Media campione 2 > Media campione 0				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Ebitda/Ricavi	0,092	0,03	0,697	0,274	0,045	-	-	-	-	-
ROS	0,05	0,012	0,547	0,77	0,112	-	-	-	-	-
ROA	0,047	0,285	-	0,572	0,231	-	-	0,776	-	-
ROI	-	0,03	0,278	0,907	0,628	0,985	-	-	-	-
ROE	0,831	-	-	0,939	-	-	0,894	0,367	-	0,264

Fonte: nostra elaborazione

Considerando il quinquennio 2009-2013, l'analisi mostra, dunque, una situazione di difficoltà a livello operativo per chi effettua modifiche di assetto societario rispetto a chi mantiene invariata la situazione a livello di *governance* e proprietà. Tenendo conto che l'arco temporale monitorato corrisponde alla fase più acuta della crisi economico-finanziaria che ha

investito tutti i settori produttivi, è plausibile ritenere che tale situazione congiunturale abbia giocato un ruolo determinante proprio per le realtà che hanno mutato l'assetto societario.

Diversamente, la stabilità della *governance* che caratterizza le imprese del gruppo 0 ha consentito loro di sfruttare al meglio le competenze e le conoscenze acquisite e consolidate nel tempo, le quali, proprio nei momenti di difficoltà, possono rappresentare una risorsa di enorme valore per l'equilibrio dell'impresa. Limitando l'osservazione a tale periodo, la problematica parrebbe risolversi più rapidamente per le imprese il campione 2, che sembrerebbero dimostrare, dunque, una maggiore capacità di reazione rispetto a quelle soggette al passaggio generazionale.

In effetti, quando la *experiential family business-specific knowledge* assume un ruolo rilevante, la realizzazione di un passaggio generazionale non caratterizzato da un buon livello di trasferimento della *tacit firm knowledge* (a motivo di difetti nella fase di preparazione) conduce ad un ritardo nell'acquisire capacità gestionali adeguate.

Proseguendo il monitoraggio lungo il quadriennio 2014-2017 (Figura 6) si nota, tuttavia, un sensibile avvicinamento della redditività operativa del campione 1 a quella del campione 0, a fronte di una iniziale difficoltà del campione 2, che poi raggiunge, tuttavia, buoni risultati.

In effetti, i *p-values* relativi ai confronti tra *performance* medie dei campioni 1 e 0 mostrano una netta riduzione del numero di casi significativi in cui il campione 1 ha risultati peggiori del campione 0; al contrario, nel confronto tra i campioni 2 e 0 ricompaiono alcune situazioni critiche nel biennio 2014-2015 (Tabella 4).

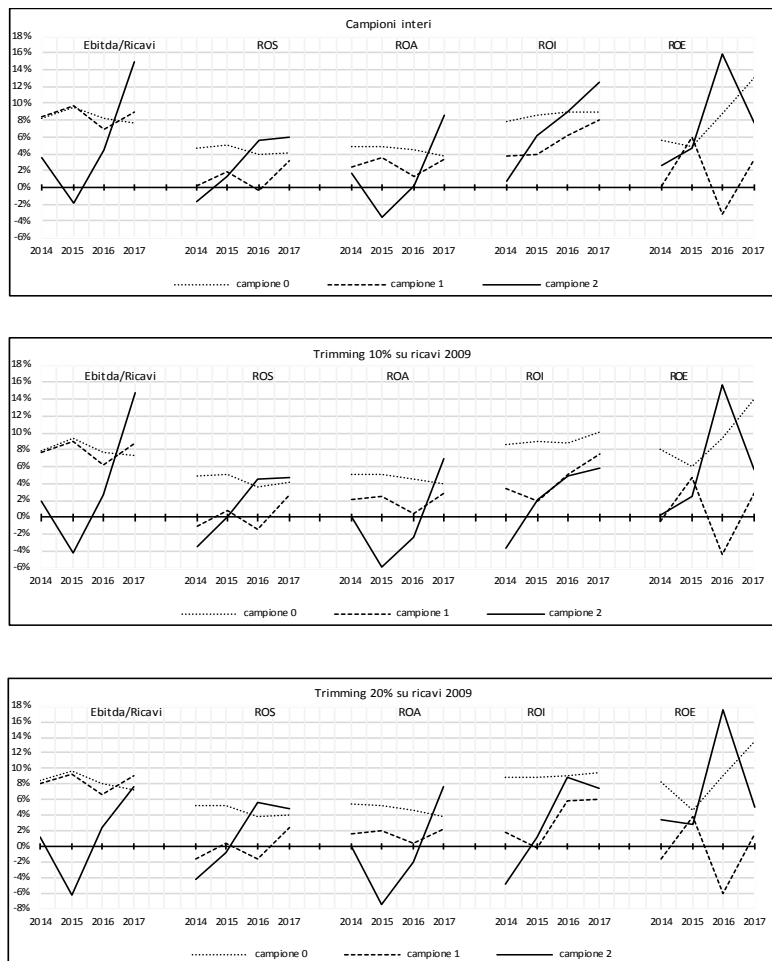
Tale segnale fornisce una conferma alla spiegazione più sopra formulata, cioè mano a mano che la nuova generazione acquisisce effettiva esperienza sul campo e crea una sinergia con le superiori conoscenze teoriche rispetto alla generazione precedente, i risultati gestionali iniziano a migliorare più rapidamente.

Anche dalle interviste condotte nell'ambito dei *case-studies* esaminati emergono indicazioni in linea con quanto sopra affermato. In entrambe le imprese che hanno ottenuto effetti positivi sulla redditività dopo il passaggio generazionale (la prima attiva nel settore della trasformazione dei prodotti alimentari, la seconda nel settore della produzione e commercializzazione di impianti per riscaldamento), il coinvolgimento dei successori (che hanno conseguito titoli universitari coerenti con i rispettivi settori di attività) è avvenuto con largo anticipo rispetto al momento del subentro, iniziando dai livelli inferiori ed approdando gradualmente ai ruoli apicali.

In tale percorso si è anche verificata una progressiva responsabilizzazione dei successori, ai quali sono state delegate decisioni via via più importanti e strategiche per il buon andamento dell'impresa, consentendo una verifica dell'effettivo livello di trasmissione della *tacit firm knowledge* generata all'interno dell'impresa.

Nel caso della prima impresa, operante in un mercato interessato, nel periodo di osservazione, da problematiche di tipo sanitario, la buona preparazione della nuova *governance* ha permesso all'impresa di superare bene il momento di crisi riuscendo ad ottenere, negli ultimi tre esercizi, notevoli incrementi di fatturato e di marginalità.

Fig. 6: Confronto dei valori medi degli indici di redditività nei tre campioni (esercizi 2014-2017)



Fonte: nostra elaborazione

Diversamente, nell'impresa che ha evidenziato un peggioramento delle *performance* post-passaggio generazionale (operante nel settore della produzione e commercializzazione di apparecchiature per distributori automatici degli alimenti), ha prevalso, in passato, l'atteggiamento del fondatore poco incline a lasciare effettivo spazio al successore, il quale, pur essendo entrato con largo anticipo nell'impresa, non è stato di fatto coinvolto nella gestione aziendale. Dall'esito dell'intervista condotta, emerge come il fondatore abbia ritenuto molto più importante per la preparazione del successore l'acquisizione di conoscenza attraverso gli studi universitari intrapresi dall'erede, predestinato al subentro in azienda una volta ottenuto il titolo di studio universitario. Nel momento in cui il passaggio di consegne è stato attuato, la mancanza di esperienza maturata dal successore ha fatto, tuttavia, emergere notevoli difficoltà

gestionali, con ripercussioni pesanti sulla redditività aziendale. Le Tabelle 3 e 4 mostrano, infine, sia nel campione 1 sia nel campione 2, l'assenza di differenze significative rispetto al campione 0 in termini di ROE lungo tutto l'arco temporale 2009-2017. Pur con la necessaria prudenza in merito all'interpretazione del ROE, si nota come le imprese interessate da modifiche di assetto societario sembrano dimostrare una maggiore abilità nel condurre la gestione extra-operativa.

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Tab. 4: *p-values dei test di confronto tra valori medi degli indici di redditività (esercizi 2014-2017)*

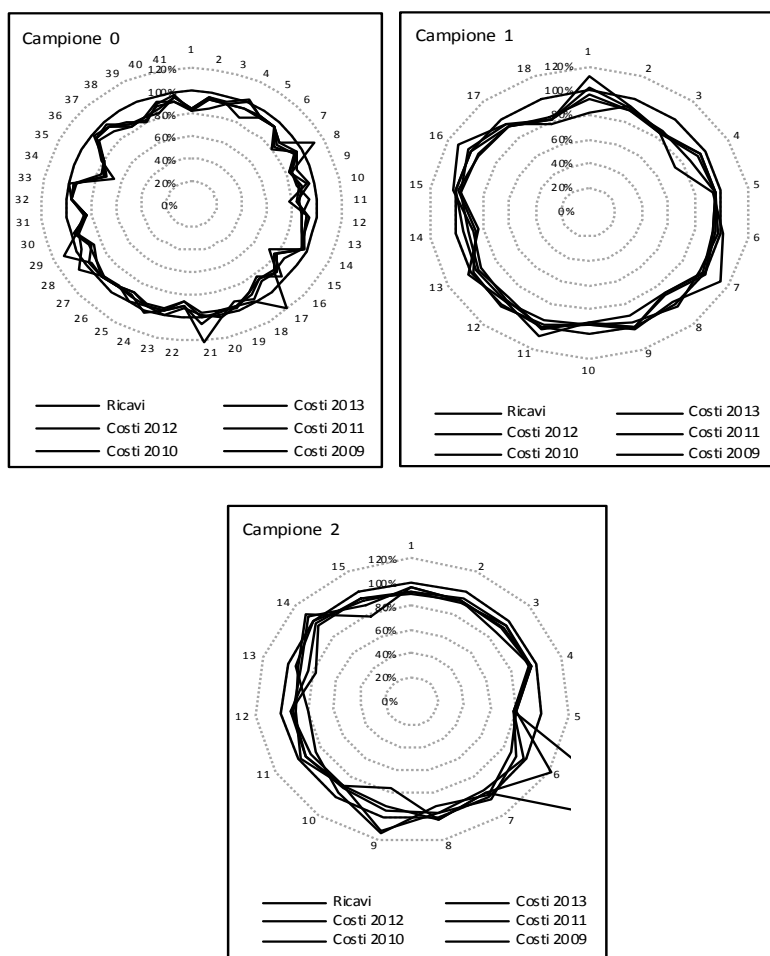
Campioni interi	Media campione 1 < Media campione 0				Media campione 1 > Media campione 0			
	2014	2015	2016	2017	2014	2015	2016	2017
Ebitda/Ricavi	-	-	0,648	-	0,937	0,989	-	0,791
ROS	0,105	0,069	0,099	0,773	-	-	-	-
ROA	0,23	0,382	0,143	0,887	-	-	-	-
ROI	0,208	0,217	0,353	0,762	-	-	-	-
ROE	0,264	-	0,073	0,081	-	0,816	-	-
Trimming 10% su ricavi 2009	Media campione 1 < Media campione 0				Media campione 1 > Media campione 0			
	2014	2015	2016	2017	2014	2015	2016	2017
Ebitda/Ricavi	0,966	0,939	0,607	-	-	-	-	0,777
ROS	0,044	0,037	0,047	0,646	-	-	-	-
ROA	0,15	0,194	0,057	0,663	-	-	-	-
ROI	0,15	0,053	0,202	0,446	-	-	-	-
ROE	0,095	0,816	0,055	0,066	-	-	-	-
Trimming 20% su ricavi 2009	Media campione 1 < Media campione 0				Media campione 1 > Media campione 0			
	2014	2015	2016	2017	2014	2015	2016	2017
Ebitda/Ricavi	0,944	949	0,648	-	-	-	-	0,773
ROS	0,041	0,037	0,058	0,645	-	-	-	-
ROA	0,11	0,139	0,078	0,565	-	-	-	-
ROI	0,087	0,012	0,327	0,356	-	-	-	-
ROE	0,09	0,882	0,063	0,082	-	-	-	-
Campioni interi	Media campione 2 < Media campione 0				Media campione 2 > Media campione 0			
	2014	2015	2016	2017	2014	2015	2016	2017
Ebitda/Ricavi	0,256	0,009	0,405	-	-	-	-	0,126
ROS	0,029	0,197	-	-	-	-	0,578	0,612
ROA	0,316	0,08	0,938	-	-	-	-	0,245
ROI	0,034	0,558	-	-	-	-	0,997	0,521
ROE	0,7	0,998	-	0,617	-	-	0,242	-
Trimming 10% su ricavi 2009	Media campione 2 < Media campione 0				Media campione 2 > Media campione 0			
	2014	2015	2016	2017	2014	2015	2016	2017
Ebitda/Ricavi	0,174	0,005	0,319	-	-	-	-	0,169
ROS	0,008	0,112	-	-	-	-	0,811	0,928
ROA	0,13	0,039	0,221	-	-	-	-	0,529
ROI	0,019	0,108	0,418	0,069	-	-	-	-
ROE	0,34	0,8	-	0,518	-	-	0,39	-
Trimming 20% su ricavi 2009	Media campione 2 < Media campione 0				Media campione 2 > Media campione 0			
	2014	2015	2016	2017	2014	2015	2016	2017
Ebitda/Ricavi	0,044	0,004	0,329	-	-	-	-	0,94
ROS	0,01	0,115	-	-	-	-	0,645	0,895
ROA	0,17	0,039	0,292	-	-	-	-	0,507
ROI	0,061	0,243	0,968	0,851	-	-	-	-
ROE	0,627	0,854	-	0,621	-	-	0,298	-

Fonte: nostra elaborazione

A conferma di ciò, è utile analizzare, per i tre campioni, l'andamento tra il 2009 e il 2013 dei costi operativi al lordo di ammortamenti e svalutazioni, espressi in percentuale rispetto ai ricavi (Figura 7).

L'analisi è condotta sui costi operativi lordi come sopra definiti per focalizzare l'attenzione sui costi che sono più facilmente influenzati da nuove decisioni della *governance*, escludendo gli effetti (soprattutto in termini di ammortamenti) di decisioni strutturali assunte nel passato, che condizionano l'entità dei costi pluriennali in conto economico. Lesame dei grafici di Figura 7 evidenzia per la maggior parte delle unità del campione 1 la presenza, a parità di ricavi, di costi operativi lordi maggiori rispetto ai campioni 0 e 2, a testimonianza della maggiore difficoltà a gestire bene il core-business dell'impresa.

Fig. 7: costi operativi lordi espressi in percentuale sui ricavi di vendita (esercizi 2009-2013)

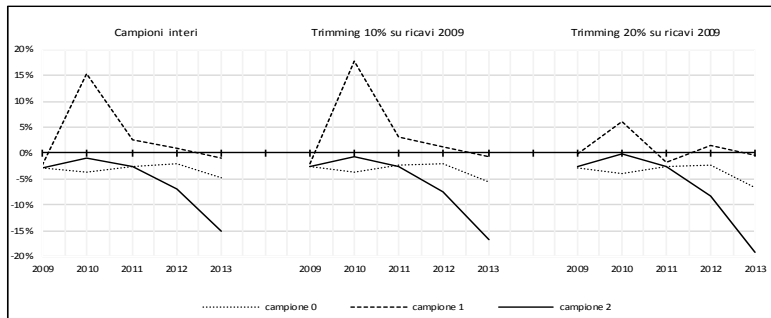


Fonte: nostra elaborazione

La Figura 8 e la Tabella 5 mostrano, invece, l'attitudine delle imprese del campione 1 ad esprimere un saldo medio (sempre in percentuale sui ricavi) della gestione extra-operativa maggiore di quello degli altri due campioni, a fronte dei risultati molto più omogenei relativi al confronto tra ai campioni 0 e 2.

Si ritiene, anche alla luce delle informazioni raccolte dai case-studies, che la spiegazione di tale fenomeno sia riconducibile all'effettiva miglior preparazione della generazione dei successori a gestire problematiche di natura finanziaria, razionalizzando la struttura di indebitamento e generando, per questa via, effetti positivi sulla redditività. Di tale miglioramento non hanno beneficiato le imprese del campione 2, nelle quali il passaggio generazionale non è avvenuto.

Fig. 8: confronto tra valori medi del saldo della gestione extra-operativa in percentuale sui ricavi (esercizi 2009-2013)



Fonte: nostra elaborazione

Tab. 5: p-values dei test di confronto tra valori medi del saldo gestione extra-operativa in percentuale sui ricavi (esercizi 2009-2013)

	Media campione 1 < Media campione 0					Media campione 1 > Media campione 0				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Campioni interi	-	-	-	-	-	0,833	0,027	0,092	0,151	0,294
Trim 10% ricavi	-	-	-	-	-	0,822	0,025	0,105	0,144	0,187
Trim 20% ricavi	-	-	-	-	-	0,223	0,078	0,404	0,147	0,151
	Media campione 2 < Media campione 0					Media campione 2 > Media campione 0				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
Campioni interi	-	-	0,911	0,035	0,291	0,962	0,066	-	-	-
Trim 10% ricavi	-	-	0,786	0,034	0,313	0,855	0,058	-	-	-
Trim 20% ricavi	-	-	-	0,041	0,315	0,653	0,038	0,829	-	-

Fonte: nostra elaborazione

5. Conclusioni

I risultati dell'analisi mostrano l'emersione di difficoltà a livello di redditività operativa in prossimità del passaggio generazionale: la motivazione principale suggerita dalla ricerca, supportata sia dal modello

concettuale posto alla base dello studio empirico (*Contingency Model of Family business succession*) sia dalle evidenze emerse dai tre case-studies considerati, appare legata alla mancata trasmissione di *tacit firm knowledge* dal fondatore al successore, dovuta ad una carente pianificazione del passaggio generazionale.

I case-studies presi in esame riguardano imprese nelle quali il passaggio del testimone è avvenuto tra il fondatore ed un componente della famiglia, da tempo identificato come successore. In tutti e tre i casi, il livello di conoscenze teoriche della nuova generazione risulta superiore a quello della precedente; ciò è attestato dal conseguimento di titoli universitari per studi condotti nell'ottica di subentrare al fondatore alla guida dell'azienda. In tutti e tre i casi, l'inserimento in azienda della nuova generazione è avvenuto per tempo e partendo dai livelli bassi. La differenza fondamentale risiede, invece, nel comportamento assunto dal fondatore nei confronti del successore: rispetto a questa variabile, all'approccio di effettivo coinvolgimento ed apertura emerso nelle imprese che hanno ottenuto maggior successo si contrappone l'atteggiamento accentratore riscontrato nell'impresa che ha manifestato maggiori difficoltà.

In effetti, l'analisi dimostra che la presenza di migliori conoscenze "teoriche" nella nuova generazione non è in grado di compensare la mancata acquisizione di esperienza durante la fase di preparazione del passaggio generazionale, provocando effetti negativi sulle *performance* aziendali: ciò conferma, pertanto, l'ipotesi H1 precedentemente formulata.

Con riferimento all'ipotesi H2, le differenze di redditività notate nei tre campioni analizzati evidenzia come, nei casi in cui il passaggio generazionale non si verifica (campioni 0 e 2), la *tacit firm knowledge* continui ad operare grazie alla permanenza, nella *governance*, dei fondatori dell'impresa, mentre in presenza di passaggio generazionale, diviene determinante il livello di effettiva trasmissione di *tacit firm knowledge*.

Il fatto che anche le imprese che non attuano modifiche di assetto denotino *performance* migliori rispetto a quelle del campione 1 è in linea con quanto sostenuto in letteratura in tema di potenzialità delle conoscenze tacite. Nel caso di modifiche di assetto societario diverse dal passaggio generazionale, le potenzialità di tali conoscenze vengono comunque sfruttate, combinandosi con gli effetti che il cambiamento di assetto societario comportano a livello gestionale. In mancanza di adeguata trasmissione della *tacit firm knowledge* in vista del passaggio generazionale, ciò non avviene e gli effetti negativi indotti sulla redditività aziendale risultano ben più marcati: anche l'ipotesi H2 risulta, quindi, confermata.

Con riguardo all'ipotesi H3, l'effettiva possibilità di "esercitare sul campo" dopo il passaggio generazionale consente alla nuova generazione di far emergere ed affinare la *tacit firm knowledge*, completandone il processo di effettivo trasferimento. La sinergia che si instaura tra tale risorsa ed il maggior livello di *technical industry-specific knowledge* posseduto si traduce in una più rapida uscita dalle situazioni di difficoltà rispetto ai contesti in cui la *governance* rimane nelle mani della generazione precedente.

La maggior conoscenza teorico-tecnica posseduta dalla nuova generazione, se supportata da esperienza sul campo consente alle imprese

del campione 1 di recuperare più rapidamente l'iniziale gap negativo in termini di capacità gestionale e redditività rispetto alle altre tipologie di imprese indagate, consentendo di confermare anche l'ipotesi H3.

In accordo la letteratura citata, tale capacità appare strettamente correlata all'effettiva trasmissione di *tacit firm knowledge*, che, almeno in parte, risulta favorita dal coinvolgimento "per tempo e da livelli bassi" della nuova generazione, ma che necessita di un atteggiamento di apertura e fiducia della vecchia generazione nei confronti della nuova durante il periodo di preparazione all'evento (Le Bretton-Miller *et al.*, 2004; Sharma *et al.*, 2003, Umans *et al.*, in press), in assenza del quale l'efficacia e l'efficienza del processo vengono compromesse.

Sarà molto interessante, in prospettiva, estendere la ricerca, sia sul piano geografico sia su quello settoriale, coinvolgendo un maggior numero di imprese al fine di indagare su eventuali altre cause che comportano questa iniziale perdita di efficienza operativa, per valutare se esse non possano essere rimosse, anche attraverso l'adozione di modalità alternative più efficaci (Di Toma e Montanari, 2017), che potrebbero prevedere l'apertura a soggetti esterni alla famiglia proprietaria.

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sinergie
italian journal of management

ISSN 0393-5108
DOI 10.7433/s110.2019.09
pp. 185-210



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GOLINELLI G.M. (2010), *Viable systems approach (VSA). Governing Business Dynamics*, Cedam, Wolters Kluwer, Padova.

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Book chapters

VARALDO R. (1987), “The internationalization of small and medium-sized italian manufacturing firms”, in Rosson P., Reid S., (edited by), *Managing export entry and expansion: concepts and practice*, Praeger, New York.

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Registered with Law Court of Verona, Italy, reg. no. 570, 1 April 1983

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March 2020

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