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Newness and heritage in business networks: Case analysis of university spin-offs

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ABSTRACT

The paper's main purpose is to analyse newness and heritage, and what form it may take, in the context of university spin-offs (USOs). The empirical research is based on two cases of USOs generated from an Italian university. The case analysis provides an in-depth investigation of the conditions under which newness can be considered an asset rather than a liability, and sheds light on the role of heritage and how it is related to newness in spin-offs originating in an academic setting. The paper contributes to the literature on whether newness is to be considered a liability or an asset and enhances our understanding of heritage in the context of USOs. The study is also relevant to industrial marketing literature, as it addresses newness and heritage in business networks and affords the potential to better understand the two concepts and how they are linked. The paper demonstrates the existence of an interplay between heritage and newness that is manifest in the mitigating effects of the dimensions of heritage on those of newness: when the degree of heritage (in its various dimensions) is significant, the effects of newness are limited in terms of changes to the existing network, and vice versa.

1. Introduction

Given their strategic role in fostering innovation by creating and disseminating knowledge, university spin-offs have received increasing attention in the management literature (Cooper, 1971; Pirnay, Surlemont, & Nlemvo, 2003; Roberts & Malonet, 1996; Smilor, Gibson, & Dietrich, 1990). Although most authors have not yet provided a clear definition of what a university spin-off actually is, scholars do agree on the conditions that qualify any given phenomenon as a "spin-off": (Hannibal, Evers, & Servais, 2016; Mustar et al., 2006; Pirnay et al., 2003; Rasmussen, Mosey, & Wright, 2015): it takes place within an existing organization, generally known as the "parent organization" and it involves one or several individuals who leave the "parent organization" to create a new one. Pirnay et al. (2003, p. 356) define university spin-offs (USOs) as "new firms created to exploit commercially some knowledge, technology or research results developed within a university". This definition, adopted in the present study, includes several key elements. The first concerns the status of "new company", in the sense that a USO is a "new company endowed with a distinct legal status that is neither an extension, nor a controlled subsidiary of the university, but is an autonomous structure pursuing profit making activities" (Pirnay et al., 2003, p.357). The second key element in the definition of USO is the nature and role of the parent organization, by definition a university, thus excluding technical schools, public/private R&D departments and research institutes.

A reading of the foregoing leads to two concepts arising from the definition of USOs. The first is "newness", which stems from the status of "new company". Newness embodies the conditions in which a company finds itself simply due to the fact of its being in an early stage of existence (Freeman, Carroll, & Hannan, 1983; Stinchcombe, 1965). Such a condition can have positive or negative connotations, in either absolute terms or as compared to more established companies. The negative connotation of newness, termed the "liability of newness", refers to the fact that new ventures have a greater mortality risk than established businesses. A seminal explanation of the "struggle for survival" between new ventures and established ones is provided by Stinchcombe (1965), who pointed to both internal organizational hurdles and challenges in terms of gaining legitimacy from stakeholders and resource providers. Over the years, ecological and institutional scholars (Bruderl & Schussler, 1990; Carroll, 1983; Freeman et al., 1983) have conducted a great deal of research that empirically investigates the liability of newness, providing strong evidence for the influence of newness on mortality (Cafferata, Abatecola, & Poggesi, 2009; Kale & Arditi, 1998).

However, there are also studies that focus of the positive connotation of newness, in this case called the "asset of newness", namely a stock of intangible distinctions and properties that aid new ventures in their initial stages of development (Fichman & Levinthal, 1991; Nagy,

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Blair, & Lohrke, 2014). As research in this field is still limited (Choi & Shepherd, 2005; Feldman & Pentland, 2003; Nagy et al., 2014), further investigation is required to understand the positive side of newness, given its relevance in bolstering the chances of success during the nascent and early stages of firm development. In this sense, there is a research gap on the positive side of newness that this article aims to fill within the specific context of USOs. In addition, while newness, whether viewed as a liability or an asset, has been addressed with regard to new business ventures, there is a lack of specific studies on the effects of newness on USOs.

A second concept stemming from the aforementioned definition of USOs is that of "heritage". USOs have a clear parental heritage (Klepper & Sleeper, 2005). Their know-how and learning capacity are closely linked to their organizational and technological heritage, an aspect which may actually provide some initial advantages (Ferriani, Garnsey, & Lorenzoni, 2012). USOs are characterized by a number of strong ties to universities, with a high degree of trust and informality, represented by "historical relations" deriving from the academic setting (Johansson, Jacob, & Hellström, 2005) in which practical and commercial goals are unlikely to converge. In other words, USOs possess the attribute of newness, but at the same time they are also endowed with a heritage from the academic setting, which can take on different connotations. The role of heritage in USOs is still an under-investigated topic, and one major research lack concerns the implications of a possible interplay between newness and heritage in USOs.

In light of the research gaps identified, the aim of this paper is to analyse whether any interplay exists between newness and heritage, and what form it may take within the context of university spin-offs. Such aim is justified by the very definition of USO, in which the two concepts coexist and cannot be considered completely independently one from the another.

The paper adopts the industrial network approach developed by scholars of the Industrial Marketing and Purchasing (IMP) Group. In a network perspective, newness is related to the processes of interfacing with essential members of the surrounding business network (Guercini & Milanesi, 2016). Heritage derives from the pre-existence of a network in which the new company is embedded, since from a network perspective all new companies are born in an already existing network (Ford, Gadde, Håkansson, Snehota, & Waluszewski, 2008). The network perspective allows gleaning new insight into the possible interplay between newness and heritage. Thus, the paper contributes to the discussion on newness as an asset rather than a liability and at the same time seeks to enhance our understanding of heritage in the context of USOs. The study has relevance for industrial marketing literature, as it targets newness and heritage in business networks characterized by an emerging set of interdependencies with other specific organizations.

In order to answer the general question on the existence of any interplay between newness and heritage in USOs, we have conducted two case studies on USOs from an Italian university (IU). More specifically, the paper is structured as follows. As a first step we review the literature on the theoretical underpinnings of the paper: newness as a liability or an asset, and heritage from the business-network and interaction perspective provided by the IMP Group, which allows us to formulate specific research questions and build a summary framework showing how newness and heritage relate to USOs. In particular, we first review the literature on newness as a liability and an asset that lead to a definition of the dimensions of newness. We then consider the literature on heritage with specific reference to USOs and identify the dimensions of heritage. Finally, we introduce the network perspective and link the dimensions of newness and heritage identified to the theoretical framework of IMP. We then present the methodology adopted in the two cases and their analysis. The paper concludes with a discussion of results, limitations, future research agenda and the managerial relevance of the research to business marketing practitioners.

2. Theoretical framework

2.1. Newness – Liability or asset?

Firms can simultaneously face survival challenges and/or accrue benefits simply based on the fact that they are newly established. Newness can thus represent a source of liability or of assets for such organizations.

Thanks to the seminal work by Stinchcombe (1965), the liabilities associated with newness, which are related to the firm's age, has become part of an important research agenda in organizational theory and organizational ecology research. Such work directed the attention of organizational theorists to the age-dependent decline in organizational death rates. Stinchcombe (1965) argued that young organizations have a higher likelihood of dying out than old organizations because of both their inability to compete effectively with established organizations and their low levels of legitimacy. Thus, the study of the liability of newness regards organizational mortality and business failures (Bruderl & Schussler, 1990; Kale & Arditi, 1998; Nagy et al., 2014) and their causes. Indeed, the liability of newness stems from young organizations' need to establish their legitimacy, which is in turn related to the limited resources available to such firms (Carroll, 1983; Freeman et al., 1983).

Research has investigated the potential environmental, individual and firm-level factors contributing to failure. At the environmental level, political and industrial trends occurring at the time of a new venture's founding may impact its long-term survival (Carroll & Delacroix, 1982; Le Mens, Hannan, & Pólos, 2011). At the individual level, an entrepreneur's previous industry experience may also impact a new venture's survival odds (Preisendorfer & Voss, 1990; Thornhill & Amit, 2003). At the firm level, Stinchcombe (1965) introduced the term liability of newness to describe the intangible characteristics associated with organizational newness and discussed several reasons for their existence. On the one hand, the liability of newness involves resources internal to the organization, such as learning and developing trust and cooperation among organization members. Internally, a newly founded firm may lack some crucial resources, such as operational routines, resulting in significant competitive disadvantages relative to more established competitors. On the other hand, the liability of newness also involves the firm's ability (or inability) to interface with the surrounding network of essential actors (Guercini & Milanesi, 2016; Kale & Arditi, 1998), including processes such as establishing relationships with customers, suppliers and other relevant actors.

Researchers have often noted that a firm's lack of a "track record" makes it difficult for entrepreneurs to convince potential stakeholders (e.g. investors, customers, and suppliers) to conduct business with their firm (Singh, Tucker, & House, 1986). Without these resources (e.g. capital, raw materials, relationships etc.), however, a newly founded firm cannot survive. Extant research has frequently examined difficulties in establishing ties – which often result from a new venture's lack of legitimacy with stakeholders – as a major cause of organizational mortality (Dobrev & Gotsopoulos, 2010). Previous research also suggests that the lack of perception on the part of stakeholders of the firm's reliability, accountability, and availability may represent another aspect of the liability of newness that can hinder a firm's survival (Choi & Shepherd, 2005).

The dimensions of the liability of newness can be summarized as follows: i) environmental dimensions – political and industrial trends; ii) individual dimensions – entrepreneurs' previous experience; iii) firm-level dimensions internal to the organization – lack of operational routines, trust and cohesion among organization members, and iv) firm-level dimensions external to the organization – lack of legitimacy, reliability, accountability, availability, and relationships.

Research on the concept of newness has also considered the positive side of being new and untried. Specifically, the assets of newness are viewed in terms of intangible attributes that "cast new ventures as fresh, amicable, and malleable in the eyes of customers" (Nagy &

Kacmar, 2013, p.145), thereby aiding or buffering firms in their infant and adolescent stages of development (Fichman & Levinthal, 1991). These qualities are judged desirable by those stakeholders who perceive innovation and change as key elements in fostering technological and societal advancement (Choi & Shepherd, 2005). As organizations age, they often become deep-rooted in internal and external processes and relationships, and the attractive attributes stemming from newness tend to fade (Hannan, Carroll, Dundon, & Torres, 1995). Therefore, maximizing the attractive distinctions of newness in the early stages of development is a vital step for most new ventures in order to ensure organizational survival and growth.

The asset of newness represents a stock of intangible properties that prompt stakeholders to view new ventures as fresh, dynamic, flexible and innovative. One of the main dimensions of the asset of newness is organizational flexibility, defined as the ability to respond to unanticipated changes and modify products and procedures to meet stakeholder demands (Feldman & Pentland, 2003). Nagy et al. (2014) suggest that another newness characteristic – organizational energy – is a critical aspect of the asset of newness. Organizational energy is defined as the perception that employees are working vigorously, enthusiastically, and tirelessly in the pursuit of organizational improvement. To sum up, the dimensions of the asset of newness include: i) organizational flexibility; ii) organizational energy.

While there is a large body of literature on the liability of newness, there are few studies addressing newness as an asset. Thus, given the importance of the dimensions of newness in enhancing stakeholders' positive perceptions and a new venture's survival odds, further research examining the positive side of newness is required. Reflecting on this aspect, a first research question can be formulated as follows: *under what conditions can newness be considered an asset rather than a liability?*

2.2. Previous studies on heritage

The idea of a spin-off possessing a heritage has been formulated using the metaphor of spin-offs conceptualized as children, and their founding employers as parents (Dyck, 1997). In this conception, some spin-offs are planned, in the sense that their parents are supportive and helpful, while others are not. The presence of a heritage – that is, parental involvement and support – suggests that planned spin-offs will outperform unplanned ones. Parents leave a lasting imprint on their offspring's development (Agarwal, Echambadi, Franco, & Sarkar, 2004), whether its founding takes the form of the departure of employees (spin-off) or the breaking off of a section of the previous organization (spin-out). Spin-offs may also inherit from their parent companies blueprints (Klepper, 2001), in the form of routines, technologies, and capabilities that are likely to shape not only the founding process of the new venture, but its long-term behaviour and success.

Spin-offs and spin-outs represent industry entrants that have a clear parental heritage, that is to say, since spin-offs are incubated within an organizational setting with established routines, practices, and culture, their learning trajectory and capabilities are closely connected to those of their parents (Klepper & Sleeper, 2005). Spin-offs inherit knowledge and skills from their parents. The inherited knowledge is related to the market, technology, and possibly innovation. Furthermore, it is assumed that spin-offs adopt efficient routines from their parents, which in turn improves their chances of survival even more (Klepper, 2007). Similarly, Ferriani et al. (2012) argue that learning in and the capabilities of spin-offs are closely linked to their organizational and technological heritage. While this may provide an initial advantage, parental influence can also generate inertia and resistance to change, unless the new company is able to unlearn inappropriate practices and create its own unique competitive identity.

The experience of the founders affects the survival rates of new ventures, and the length of their employment in the parent organization influences the degree to which they are able to replicate and adapt the blueprints of the parent (Dahl & Reichstein, 2006). In this regard, heritage is used to identify the founder's previous experience in terms of the knowledge and organizational routines acquired as a result of being employed for a longer time in the parent company.

To sum up, the dimensions that constitute heritage are: i) operational routines; ii) market and technological knowledge; iii) skills and capabilities, and iv) founders' previous experience. Such dimensions are likely exhibit interactions with the above-mentioned dimensions of newness, in the sense that some dimensions of heritage, such as operational routines and founders' previous experience, can mitigate the liability of newness or even turn newness into an asset for spin-offs.

However, much still remains to be uncovered. Not only is there a lack of studies investigating the relationships between newness and heritage, but there is also a dearth of research on heritage with reference to USOs, which originate in academic settings considerably different from those of established industrial companies. These research gaps lead us to formulate a second research question: *what is the role of heritage and how is it related to newness for spin-offs that originate in academic settings?*

2.3. The network perspective

Industrial Marketing and Purchasing (IMP)-based studies have recently emphasized the importance of the company's context in terms of business relationships and networks. Such studies have exhibited growing interest in spin-offs and other types of start-ups (Aaboen, Dubois, & Lind, 2013; Aaboen, Laage-Hellman, Lind, Öberg, & Shih, 2016; Ciabuschi, Perna, & Snehota, 2012; La Rocca & Snehota, 2014). In particular, USOs have been addressed within the domain of new firm creation as a special form of the more general phenomenon of "university entrepreneurship" (Rothaermel, Agung, & Jiang, 2007). New firm creation, which includes USOs, is a phenomenon that has garnered growing interest in the literature (Chiesa & Piccaluga, 2000), in particular with reference to the role of business networks in spin-off generation processes (Baraldi & Havenvid, 2016). University entrepreneurship also includes other various forms other than USOs, such as the technology transfer offices (TTOs). Thus, the launch of new businesses can involve the university as an actor in a network for innovation without it having to come directly from university personal or technological resources (Rothaermel et al., 2007).

In the present study, we adopt the Industrial Marketing and Purchasing (IMP) approach, which originated in the 1970s when various scholars from Sweden and other European countries set out to study how buyer-supplier relationships developed over time. Based on extensive empirical studies, they showed that firms commonly engage in a set of long-term and interactive business relationships, resulting in a business landscape that can be represented via the network metaphor (Ford et al., 2002; Håkansson, 1982; Håkansson, Ford, Gadde, Snehota, & Waluszewski, 2009; Håkansson & Snehota, 1995).

Within this approach, it has been argued that there is no such a thing as a new network. Ford et al. (2008) state that "…*If we recognise the existence of a particular network for the first time, then we are simply isolating part of a pre-existing and wider network. Similarly, neither a new actor nor a newly developed relationship creates a new network. Instead, new actors and new relationships always emerge from something that pre-exists them and there is always a history behind them. Each new actor or relationship is always related to others that already exist*" (Ford et al., 2008, p.16).

This implies that new business ventures must be able to exert enough influence over the network, or parts thereof, to establish a position, such as creating relationships with both customers and suppliers (La Rocca, Ford, & Snehota, 2013), and to find ways to fit into existing business networks consisting of established activity and resource structures (Håkansson & Waluszewski, 2002). Thus, interaction processes with other actors in the business network are a significant means of resource development (Gadde, Hjelmgren, & Skarp, 2012) and a crucial part of initiating and developing the firm (Ciabuschi et al., 2012;

La Rocca & Snehota, 2014). A new firm does not create a new network, but it fits into an existing one and relates to other actors and relationships that already exist. Therefore, new businesses must find a way to evolve toward a more established network position in order to ensure their survival by setting up and developing business relationships (Baraldi & Perna, 2014). A new firm is born within a network. What is challenging for a newly founded company is being able to manoeuvre within the initial network in order to gain access to resources, technology and customers, which are only some of the factors crucial for successfully establishing the company (La Rocca et al., 2013). Recently IMP studies have turned their attention to USOs, specifically, how they emerge and become part of established networks (Aaboen et al., 2016; La Rocca et al., 2013; La Rocca & Snehota, 2014; Öberg & Shih, 2014; Snehota, 2011). Such studies highlight the importance of the initial business relationships, the learning that occurs through the relationships, and the role of individual relationships in the USOs commercialization processes.

While there is a lack of studies that explicitly adopt a network perspective to investigate newness, as mentioned in the foregoing, the firm-level dimensions of newness suggest that such perspective could shed light on important aspects of newness related to the lack of established relationships with suppliers, customers and other relevant collaborators. An IMP-based perspective appears to be the right lens through which to study the dimensions of newness emerging in new firms' interfacing with the surrounding network of essential actors. In addition, from an IMP perspective, the distinction between the internal and external dimensions of newness, as it emerges from the literature review, loses its significance, since these dimensions unfold through interaction processes within the network.

Moreover, the network perspective also seems quite well-suited to investigating the aspect of heritage as well. Welch and Welch (2008) introduce the concept of "network heritage" in the context of a discussion of re-internationalization processes. Heritage is an outcome of prior international involvement and derives from previous activities, including the relevant knowledge acquired and the networks established, and thus enables faster re-entry and take-off. This study focuses on previous experience as the main dimension of heritage. What is interesting to note is that the dimensions of newness and heritage, such as routines, knowledge, skills and capabilities, can be traced to resource categories, as described by the 4R model (Håkansson & Waluszewski, 2002), thus reinforcing the adoption of the IMP perspective as a means for studying newness and heritage.

The 4R model provides a way of classifying, mapping, and analyzing the processes of resource interaction in inter-organizational networks. To this end, it envisions four types of interacting resources: products and facilities (physical resources), and organizational units and inter-organizational relationships (organizational resources). Organizational units are resources that incorporate knowledge, identity, skills and capabilities, as well as routines, and are able to exercise their capabilities through their inter-organizational relationships. The need to combine and interact with resources controlled by others is an important aspect of new business formation (Ciabuschi et al., 2012; Öberg & Shih, 2014; Snehota, 2011) and recently the 4R model has been applied to address the role of USOs in business networks (Aaboen et al., 2016).

Thus, to sum up, the IMP-based perspective comes into play in studying the dimensions of newness and heritage that emerge in the interface between the essential actors in the networks surrounding newly established firms. Such dimensions can be conceived of in terms of the resource categories included in the 4R model. Fig. 1 represents a network perspective-based framework which enables investigating the dimensions of newness and heritage, in terms of resources categories, and how they are related.

3. Methodology

The research methodology takes the form of qualitative research following the multiple case-study. Such choice was dictated by the exploratory nature of the research goals and the complexity of the investigated phenomenon (Yin, 1994), namely, whether any interplay exists between newness and heritage, and if so what form(s) it may take. Such goals are pursued from a network perspective specifically targeting USOs and the implications of any such interplay in generating assets or liabilities for these rather special types of start-ups. Case studies are the preferred strategy when the focus is on a contemporary phenomenon within some real-life context and when the object of the study revolves around complex processes (Eisenhard, 1989; Woodside, 2010). In addition, case studies are recommended in situations that require a deeper understanding of the interaction between a phenomenon and its context (Dubois & Gadde, 2002) as well as when the boundaries between the research object and its environment are not clearly delineated (Yin, 1994). Thus, the empirical part of the paper consists of two cases of spin-offs originating from an Italian university.

The approach adopted follows an abductive logic based on a systematic combining process (Dubois & Gadde, 2002) in which the theoretical framework, empirical fieldwork and case analysis evolve through a cyclical process. Such approach results in an iterative research process by which we continuously combine theory and data collection, shifting between theoretical models and empirical data, as the material was continuously analysed as a means to redirect both our data collection and theoretical focus.

The first step in designing the research was to conduct a preliminary study that consisted of two interviews with two experts in the field of new business ventures. The aims were to investigate whether research on the topic was warranted, gain preliminary background on general issues and concerns related to the founding and survival of USOs, and provide a basis for developing the scope and orientation of the research. The two preliminary interviews involved actors representing two incubators: the Incubator of IU (IUI, a consultant in the pre-incubation and incubation stages, and supplier of post-incubation services); and IUC (the director of a Consortium of the IU). which also functions as incubator. More specifically, the university incubator has been active since the end of 2010 to foster the initial development stage and growth of the USOs based on highly innovative ideas and strong links to academic research. The two in-depth semi-structured interviews, which lasted 2 h each, were recorded and then transcribed. These two interviews also served to help us select appropriate cases and include a range of informants both inside and outside the firms, thereby ensuring that multiple perspectives were captured.

The second step of the research consisted of the initial case selection process, beginning with a list of 24 potential spin-offs of the IUI. We purposely selected innovative spin-offs according to the following criteria: the firm had to have been established in the form of limited company, with more than 3 years of experience in the field after the incubation period; the respondents had to exhibit accessibility and availability. The research benefited from the fact that the considered cases were both spun-off from the same university were the authors' also work, which simplified the establishment of channels of communication and the researcher-manager interface (Guercini, 2004). We finally purposely selected two cases that not only satisfied the above-mentioned selection criteria, but also exhibited a number of similarities and several qualitative aspects related to similar processes.

Data collection involved complementary sources (Stake, 1995) such as interviews, official company documents, internal records, press releases and a documented company history. The primary material derives from in-depth face-to-face interviews with the founder and managers of the two companies. Each interview lasted between 1 and 2 h and was recorded and then transcribed. The interviewees were selected based on their central roles in either founding the company or in its current operation. Secondary data were collected from multiple sources

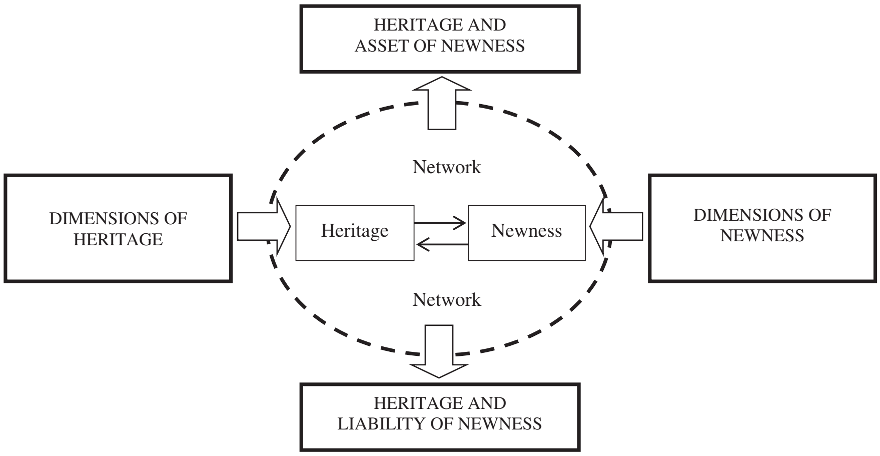

Fig. 1. Relating newness, heritage and networks: a summarizing framework.
Source: author's elaboration.

Table 1
The case study process.

Data source	Secondary data	Primary data
What/who	- Firms annual reports - Firms websites - Data published in the IUI website	- Key informants: firms entrepreneurs and managers - Preliminary face-to-face in-depth interview with the director of IUC - Preliminary face-to-face in-depth interview with a consultant of the IUI - 2 face-to-face in-depth interviews conducted with the Project Manager of Carbon - 4 face-to-face in-depth interviews conducted with the CEO and the other three founders of Energy - Each one- to two-hour interview was supplemented with secondary data. All interviews were taped and transcribed to ensure data recording accuracy.
When/why	- Three-year period - Integrate interview and collected data on firm chronological history, main events and strategic decisions that led to creation of the spin-off and following activities	- May 2015 (IUC and IUI) - June and October 2015 (Carbon) - April and November 2014, May and October 2015 (Energy) - Understand the development of the firm in its earliest stage, key themes revolved around resource interaction and the perceived dimension of newness and heritage

Source: author's elaboration.

that enabled cross-checking through triangulation which is recommended to ensure credibility in qualitative studies (Woodside & Wilson, 2003). Multiple sources of information have contributed to the verification of data accuracy and to the discovery of new dimensions of the research question, which provided indications for redirecting the study. Table 1 illustrates the methodological steps followed.

The interview guide was composed of open-ended questions that enabled the informants to provide a broad view of the chronological history of the company and the main events and strategic decisions that led to creation of the spin-off. The aim was to capture the development of the company in its earliest stage, and key themes revolved around resource interaction and the perceived dimension of newness and heritage. More specifically, the interview guide was based on the 4R model, in the sense that it focused on product/services development, facilities utilized, routines and reputation (as part of organizational units) and the inter-organizational relationships emerging at the interface of the organizational units. The empirical material revealed that a set of resources previously developed through interactions in business relationships with the parent organization played a major role in driving the spin-off's activities, and also had the effect of reducing the perception of newness. We therefore decided to include additional theoretical constructs on the notion of heritage and subsequently collected further data from primary and secondary sources in order to get a clearer picture of the dimensions of heritage and how they are related to newness. Analysis of the collected data was first done on a case-by-case basis in order to outline each specific dimension of newness and heritage that corresponded to the 4R model classification of resources. We then performed an inter-case analysis aiming to relate the cases and compare them to relevant studies in the literature.

4. Empirical analysis

This section provides a brief description and analysis of the two cases, that have been anonymized by using the fictitious names Energy and Carbon. The cases have been structured so as to facilitate paralleling them and thereby reveal similarities. Each case has been divided in two sections: the first concerns the case profile and whether (and in what way) newness and heritage manifest themselves and are perceived within the firm; the second section focuses attention on the resource interaction according to the adopted IMP approach.

4.1. Case profile and dimensions of newness and heritage – Energy

Energy is a consulting and research firm operating in the field of mechanical and energy engineering. The company's mission is the supply of specialized services for the development and design of innovative products. Its mainstay is the integration between theoretical aspects and advanced simulation and experimental techniques in the field of thermo-fluid dynamics.

Energy operates in a highly skilled engineering environment, where it serves as a link between the academic and industrial settings. The firm utilizes simulation and experimental tools that allow it to offer timely, cost effective consulting and design solutions to many energy and mechanical engineering industries, including the fields of turbomachinery, aerospace, automotive, fire safety, and energy management. Energy works with manufacturing and service companies, energy service providers and producers, building and plant companies, engineering services societies, energy service companies and public and private corporations.

Founded in 2008 by five engineers, who are still working in the company, the firm is currently growing in size, with the recent addition of at least three new employees. Prior to the founding, Energy's associates had all recently earned PhD degrees in Energy Engineering at the an Italian University, where they had previously been involved in several EU research programs in cooperation with major European gas turbine manufacturers, as well as other universities and research centres active in this field.

The fact that Energy is a new company – founded in 2008, but actually in operation only since 2010 after two years of incubation – is viewed positively, especially by technicians and engineers, in the sense that newness is perceived as synonymous with dynamism and nimbleness in responding to needs and finding solutions. Such attributes reflect the organizational energy that characterizes the spin-off and positively affect customers' perception of the firm. However, in a predominantly engineering, problem-solving oriented and pragmatic world, with a limited number of market players, the attention of new customers is not focused so much on the newness of the company, but on its ability to solve problems within a predetermined timeframe. On the other hand, being a young company reflects somewhat raises customer concern over a lack of operational routines that currently are not well-structured. However, their tight relationship with the university mitigates any negative perceptions of newness in terms of reputation and reliability, since the spin-off benefits from the reputation and reliability of the parent organization, which lends legitimacy to the spin-off's activity.

4.2. Types of interacting resources

The spin-off was created as a means of commercializing technologies, in order to preserve and further enhance the human capital acquired, and the knowledge and skills developed within the academic setting. In light of the difficulties inherent in academic careers, the founders decided to work in the private sector and transfer the core technologies from the parent organization. Resource interaction between the USO and the IUI was limited in the incubation stage. IUI does not seem to play any important role in the growth and development of Energy: even if the spin-off has been incubated, it has not made extensive use of incubator resources, such as a space at the incubator's facilities, economic and financial support, or training laboratories. On the contrary, the relationship with the IU (parent organization) is crucial; as the founder interviewed put it:: "*if I have to represent our important relationships, I'd make a triangle with Energy in one corner, our customers in another corner and the IU in the other corner*". Resource interaction takes place with the parent organization for access to technological knowledge, as well as for developing new knowledge. The development of new services for customers often occurs through interactions with the university laboratories where technological knowledge is produced. There are situations where Energy and the university research centres adapt their resources to meet customers needs, while other situations occur in which a two-way relationship is established with a big industrial partner and several universities.

The first contact with key customers, including a leading global provider of turbines, came about through the university, while the founders were doctoral students. The initial relationship is therefore the result of their previous academic experiences. Thus, access to market and initial market knowledge are resources developed via interactions with the parent organization. The activation of subsequent relationships, with both existing and new customers, comes about primarily by word of mouth, facilitated by the fact that the Italian turbomachinery market comprises only a few key players, in both the production and supply of related services. Energy's relationships with customers can be divided into two categories: direct relationships between the company and industrial customers; triadic relationships, which also involve the IU; these latter are generally projects involving experimentation that require the use of university laboratories. Thus, Energy gains access to knowledge and utilizes university laboratory facilities and equipment in order to adapt to customer needs.

To sum up, resource interaction takes place between Energy and the parent organization. Physical resources includes support services, training and university laboratories that Energy uses to develop new products and services. In terms of organizational resources, the resource interactions between the USO and the parent organization provide access to technological knowledge, skills and capabilities, and serve to develop such resources through continuous collaboration with the university laboratories. The establishment of initial relationships with customers occurs prior to the spinning-off and enables gaining market knowledge and market access. Other relevant organizational resources, such as reputation and reliability, stem from the association with the parent organization and mitigate any negative perceptions of newness and legitimize the spin-off and its activities in the eyes of potential customers.

4.3. Case profile and dimensions of newness and heritage – Carbon

Carbon is a highly specialized consultancy company dealing with sustainability and carbon management. Thanks to its being recognized as an academic spin-off from the IU and its staff's background, Carbon mainly focuses on mitigation projects aimed at reducing and offsetting greenhouse gas (GHG) emissions in the atmosphere. In line with provisions of the United Nations Framework Convention on Climate Change (UNFCCC), Carbon assists its clients in drawing up and implementing plans to reduce and offset their GHGs emissions. Carbon also supports private and public organizations and non-governmental organizations (NGOs) in developing carbon projects, most of which generate high-quality certified carbon credits with important social, economic and environmental co-benefits. While their customers include a wide range of organizations, from public to private located in Italy and especially abroad (Northern Europe, Africa and South America), the supply side includes only a few carbon-credit developers, located mainly in England, with a minor component in South America.

Carbon was spun-off an Italian University in 2012. Its team is composed of qualified professionals and researchers specialized in Carbon Management, Carbon Finance and the implementation of climate change mitigation projects. The approach followed includes a combination of academic research through a rigorously scientific approach, and the realities of the business world for developing projects that comply with the highest international standards and are able to earn certification by third parties and recognition by ICROA (International Carbon Reduction and Offset Alliance).

Although the idea for the company dates back to 2007, Carbon only became fully operational in 2012. Its origins lie in the academic and work career of its founder, who began his professional activity in the carbon market in 2006, during his last year of graduate school. Then, between 2008 and 2010, he worked for ClimatePartner, a German based company operating in the voluntary carbon market, and in 2009 for CO2 Balance Ltd. in England and Kenya, where he performed financial and environmental feasibility studies aimed at generating Gold Standard carbon credits through local energy-efficiency projects. The decision to found Carbon evolved out of the founder's previous experience. Such inclination was further reinforced by the complete absence of other Italian companies operating in the sector (the main competitors are located in the UK). In this sense, the company's newness is inherent not only in its being a newly founded organization, but also, and mainly concerns the type of activity performed, which did not exist in the Italian market. The newness of Carbon's operations is a key element in its relationship with customers, not only in the positive sense of it being a synonym for innovation and dynamism, but also in the negative one that the initial stages of establishing a relationship are hindered by the difficulty of explaining to potential new customers exactly what the company's business is, what the benefits are and arouse interest in this regard. Although some dimensions of newness have a negative impact on the spin-off's activities, in particular the lack of organizational routines, it is this other level of newness – the innovative content of its products and services – that produces the major effects on Carbon and its activities.

4.4. Types of interacting resources

The relationship between the founder and the IU began during a project for a British company, in particular with a researcher who currently runs the technical-scientific area and is also a staff member at a British University (BU). Another member of the initial company team is a professor at the IU, who acts as the interface for academic relations with the university. He is moreover currently engaged in research and testing activities for green urban and suburban projects being carried out in Italy and abroad. Over the years they were joined by six other members of the Carbon team, most from academia.

Carbon was founded in the form of a USO because of the need to acquire theretofore unavailable knowledge, skills and capabilities, specifically regarding carbon storage in the field of forest science, that were unlikely to be found outside an academic setting. Thus, the USO had to interact in its initial stage with the IU to gain access to relevant resources that were not at its disposal. The spin-off was recognized in 2012. Resource interactions between the USO and the IUI take the form of access to laboratories, university facilities and spaces and support services. However, while the relationship with the incubator per se is generally limited to the foregoing, other, academic relationships with university research groups have been established and remain fundamental to the company. The idea of closely bonding with the IU stemmed from the need to accrue not only knowledge, skills and capabilities that were unavailable in the marketplace, but also the organizational resources, such as reputation and image, which represent strong points for a new business looking to break into a highly innovative B2B market. Another aspect concerns the network of relationships previously established during the founders' academic careers, which facilitated the activation of initial relationships with customers. The IU is also a partner in many projects initiated by the company itself.

To sum up, resource interaction continues to take place between Carbon and the spin-off's parent organization. Physical resources include, as in the case of Energy, the support services and university training and laboratories provided by the IUI that Carbon utilizes to carry out its current activities. In terms of organizational resources, resource interaction between the USO and the parent takes the form of promoting the establishment initial relationships with customers and gaining access to the knowledge, skills and capabilities available within the academic setting. Other significant organizational resources include reputation and credibility and result in interactions with the parent organization that mitigate any negative connotations of newness.

The following presents a brief comparison of the two cases described in the foregoing according to the resource classification provided by the 4R model. Carbon and Energy both develop resources by interacting with their parent organization within business relationships (see Table 2). Among the physical resources, the two spin-offs make use of their relationships with IU to gain access to the resource facilities (such as university laboratories) necessary to develop new services and products for their customers. The organizational resources, on the other hand, include, among others, the know how and capabilities acquired and exercised through interaction with the IU.

5. Discussion of results

The empirical analysis paints a picture of the USOs since their inception and reveals how the dimensions of newness and heritage are perceived, and how such dimensions can be traced to certain types of interacting resources.

Table 2
Physical and organizational resources in the interaction with IU and IUI.

Cases	Physical resources	Organizational resources
Energy	- Support services - University laboratories - Training laboratories - New product/services for customers	- Technological knowledge to develop new services for customers - Initial relationships with customers - Skills and capabilities - Spin-off reputation and reliability
Carbon	- Support services - University laboratories - Training laboratories - New product/services for customers	- Knowledge, skills and capabilities - Spin-off reputation and credibility in an innovative market - Initial relationships with customers

Source: author's elaboration.

In order to discuss the results of the empirical analysis, we now address the two research questions posed earlier in the paper, the first of which being: *Under what conditions can newness be considered an asset rather than a liability*? This research question clearly concerns the positive side of newness that may enhance a new venture's odds of survival.

On the basis of our analysis, newness in terms of organizational age does not seem to affect the carrying out of company activities or the development of relationships, especially those with customers. In fact, in neither case does organizational age seem to have a bearing on company success. This result is consistent with studies that consider age, defined as the chronological time that a firm has existed (Bruderl & Schussler, 1990), as an imperfect and insufficient proxy for stakeholders' perceptions of the liability of newness. This, for at least two reasons. Firstly, the characteristics of the liability of newness may manifest themselves differently in new ventures of the same age, depending for example on prior experience (Le Mens et al., 2011; Politis, 2008). In the cases examined, the liability of newness is mitigated by the prior experience of the two spin-offs' founders (in academic projects for Energy and in the carbon credits sector for Carbon), as well as the key relationships previously established in the academic setting. Secondly, the two cases reveal that customers hardly even consider the organizational age because of the perceived continuity between the spin-off and previous academic activities (in the case of Energy), or because their focus is more on the novelty of the products and services than on the organizational age (Carbon). As confirmation of this, stakeholders may, for various reasons, even be unfamiliar with a new venture's actual founding date (Nagy et al., 2014).

In business, newness is not defined solely in terms of time: it is more a matter of stakeholders' perceptions (for the most part customers in the two cases) than any objectively measurable characteristic (Choi & Shepherd, 2005). Newness is perceived more in terms of a new, innovative business idea than in terms of other dimensions reported in the literature. In the two cases reported on, their newness resides in the "innovative product or service". The novelty of the product or service is one thing, and may in many cases represent a constitutive element of entrepreneurial innovation. The new organization, in terms of age, experience and credibility gained with other actors in the environment, is quite another. The main difficulty in such start-ups seems to be how to communicate the innovative business idea to the market. Such difficulty is however easily overcome when the innovative business idea and the new products and services have been comprehended and accepted by the market; this implies that the novelty of a business idea is an asset, rather than a liability. In this sense, the empirical analysis has enabled us to identify another dimension of newness as an asset, which is the novelty of the product or service itself that enhances the positive perception among stakeholders of a firm's innovativeness. Both case studies are examples of USOs motivated by the positive, passionate feelings of their organizational members, who work enthusiastically and tirelessly in the pursuit of organizational improvement, knowledge transfer and the commercialization of new products and services developed through their interactions with the parent organization. Such conditions can be referred to as the organizational energy dimension of newness (Nagy et al., 2014).

Finally, both spin-offs have demonstrated an ability to recombine resources to meet stakeholders' demands, a condition that represents organizational flexibility, a dimension of newness as an asset (Feldman & Pentland, 2003). Thus, newness manifests itself as an asset, rather than a liability, and is perceived as such by the surrounding network of relevant actors in the presence of certain conditions: i) the hard, impassioned work of organizational members (organizational energy); ii) the ability to quickly recombine resources to meet stakeholders' demands (organizational flexibility); and iii) innovative products or services that enhance stakeholders' positive perceptions of a USO's innovativeness (novelty of products/services).

Now to address the second research question: *what is the role of heritage and how is it related to newness for spin-offs that originate in academic settings?* The two case studies indicate that there are elements that predate such a company's founding; they are inherited from the academic setting (Klepper, 2001, 2007). Capabilities, technological and market knowledge and skills are resources developed through the interaction between business actors even during their academic experience. These elements are clearly present in both cases and have played such an important role that it would have been impossible to establish a new business without them. Take the case of Carbon, in which the expertise and knowledge accrued by one of its founders, which could only come from a university education, represented the necessary prerequisite for starting up the business, as they could not be acquired from field experience or otherwise.

Another element related to heritage is initial access to the market: the transfer of university activities to the spin-off (combining both research and industrial activities) and the relationships established during research with key stakeholders in the target market allow the spin-off to acquire a position of insidership at the time of its founding and thereby ease its entry into the marketplace. In addition, customer access is also an added benefit of interaction with the parent organization.

Reputation and credibility are two other important dimensions of heritage. It appears evident that in both case studies the image of the university as an institution of higher education and research had the positive 'contagion effect' of transferring the university's good reputation and credibility onto the spin-off and thereby legitimize it in the eyes of key stakeholders (primarily potential customers).

Thus, the results of the empirical analysis suggest the existence of other dimensions of heritage that play significant roles in the chances of a spin-offs's success; these are represented by the resources acquired through interaction with the parent organization, namely market access, reputation and credibility. Heritage represents a resource literally inherited from a pre-existing network. Manifesting itself in its various dimensions, it takes on the vital role of enabling the spin-off to overcome the initial critical stage of establishing business relationships and to continue previously initiated interactions.

Now, regarding the relation between newness and heritage, in line with previous research on the topic (Guercini & Milanesi, 2016), the enabling role of heritage is connected to newness in the sense that the positive dimensions of heritage serve to mitigate the liability dimensions of newness. Moreover, when a newly founded business maintains a large degree of heritage from its parent organization, limited changes are enacted to existing networks, despite the company's newness. This is the case of Energy, which since its founding has maintained continuity with the activities carried out in the original academic setting. During the initial stages of setting up the company limited changes were made to the set of business relationships, which remained essentially the same. In this sense, heritage represents consistency, while what is actually new is limited to the formal act of establishing the new business, without this entailing significant changes to the existing business network. Newness can, on the other hand, also be associated with significant changes in the business network. The case of Carbon falls into this category, as the creation of a new business in a highly innovative sector required significant changes to the pre-existing business networks in order to implement new activities theretofore unavailable in the market, and therefore the activation of relationships with new actors both in the domestic market and abroad.

Thus, the two case studies reveal the existence of significant interplay between heritage and newness. Such interplay manifests itself as mitigation of the negative effects of certain dimensions of newness by certain aspects of heritage. Specifically, a high degree of heritage limits the negative effects of newness as it obviates the need to make change to the existing network. Moreover, the interplay between heritage and business network evolves over time, as heritage determines the nature of the business network, at least at the outset. Heritage takes the form of a pre-existing, wide-ranging network with a history and the above-mentioned dimensions. Business network heritage is therefore a key factor to consider in studying the survival rates of new ventures. Organizational age alone is not a sufficient proxy for understanding failure; antecedents, namely the history and the different dimensions of a company's heritage appear crucial in the case of USOs.

The interplay between newness and heritage is complex and not a one way street, as also evidenced by a reading of the relationship between the two categories in the terms of the 4R model. For example, with regard to the "product" category, products in the new organization can be positively affected by changes already made in the parent organization (dimensions of heritage). At the same time, the USO's capacity to innovate can benefit from supplanting the consolidated (and perhaps obsolete) patterns of the parent organization (dimensions of newness). The "production facilities" category allows the USO to get experience on how to set up already efficient facilities, but this could be also represent a constraint, since the exploitation of pre-existing facilities may limit the thrust of innovation in production activities. Finally, the interaction between "organizational units" and "organizational relationships" is particularly relevant to the interplay between heritage and newness. In fact, new organizational units can benefit from existing organizational relationships by having access to their resources through interaction between organizational members and the organizational units.

Starting with the foregoing framework, Fig. 2 provides an overview of the interplay between newness and heritage in a network perspective in the light of the results emerging from the empirical analysis. Note, in particular, the new dimensions of newness and heritage deriving from the empirical analysis. From the IMP perspective adopted here, the distinction between the internal and external dimensions of newness, as discussed in the literature, loses meaning, since these dimensions represent interacting resources in the inter-organizational network.

6. Conclusions

The paper's main aim has been to analyse whether any interplay exists between newness and heritage in the context of university spin-offs, and if so, what form such interplay might take. The paper has regarded the dimensions of newness and heritage as interacting resources in networks characterized by an emerging set of interdependencies with other specific organizations, thus making these two concepts relevant for the industrial marketing literature. Based on the foregoing analysis and discussion, we have revealed the existence of an interplay between heritage and newness that manifests itself as the mitigation effects exerted by the dimensions of heritage on the dimensions of newness. Moreover, when the dimensions of heritage are present to a large degree, newness is limited in terms of changes to the existing network, and vice versa.

What emerges from the case studies is that under certain conditions the positive dimensions of newness as an asset prevail. In the present

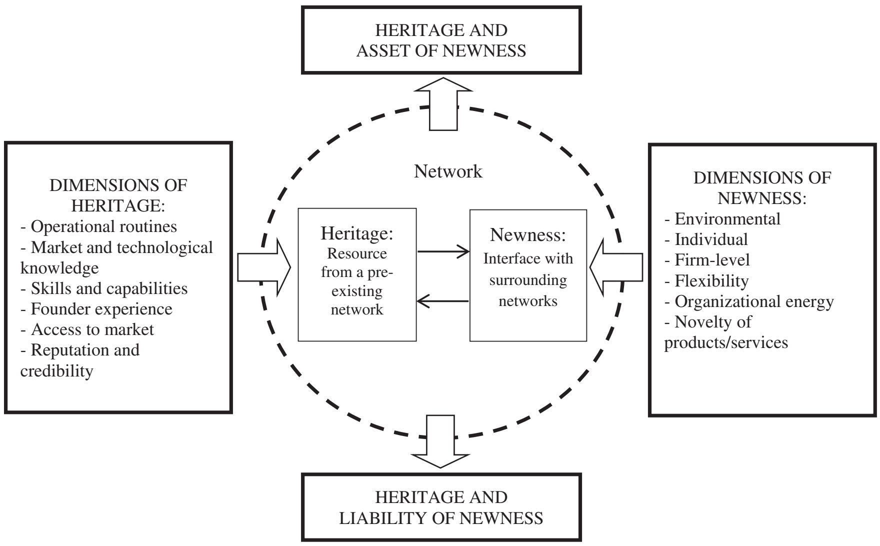

Fig. 2. Relating newness, heritage and networks: emerging findings.
Source: author's elaboration.

study such conditions include the enthusiastic work of organization members, the ability to quickly recombine resources to meet stakeholders' demands, and offer innovative products or services. This partly confirms some literature reports that have acknowledged organizational energy and flexibility as key dimensions of the asset of newness (Choi & Shepherd, 2005; Feldman & Pentland, 2003; Nagy et al., 2014; Nagy & Kacmar, 2013). The paper contributes to such literature by adding another dimension to the assets inherent in newness regarding the novelty of products or services. In many cases this dimension represents a constitutive element of entrepreneurial innovation, quite different from “new organization” in terms of age, experience and credibility. The novelty of the products or services appears to be the main dimension perceived positively by stakeholders, at least in the cases studied. Moreover, in the context of USOs, newness can be viewed as an opportunity to escape the constraints of the parent organization, whose public nature acts as a hindrance, precluding or at best limiting the achievement of goals related to commercial exploitation of research results. This opens up the perspective of newness as an asset in the sense that it stems from the short history of the start-up, unencumbered by the constraints of time-honoured practices, like many competitors.

The paper has also enhanced our knowledge of heritage in the context of USOs. Above and beyond confirming what has already been reported in the literature on heritage in terms of capabilities, knowledge skills (Klepper & Sleeper, 2005), learning processes (Ferriani et al., 2012) and overall prior experience acquired in parent companies (Dahl & Reichstein, 2006), our study highlights other dimensions of heritage regarding the resources developed through interaction with the parent organization, in particular, market access, reputation and credibility. Heritage thus serves as an enabler to overcome the initial critical stages of building relationships in their transition from the initial network.

The adoption of the IMP-based approach has allowed us to adopt a different perspective from which to study newness and heritage in the context of USOs. The dimensions of newness and heritage can be framed in terms of the classification of the physical and organizational resources (Håkansson & Waluszewski, 2002) mustered through interaction with the parent organization. In a network perspective, heritage implies that many aspects of the network in which spin-offs are embedded have pre-existed for a long time, some for such a long time that many of its features are no longer current, but may even be viewed as “ancient”, in the sense that they preserve a “network memory” as well as a certain “culture and language”. Consistent with previous research on the topic (Guercini & Milanesi, 2016), the fact that the network predates the formation of the new company provides a perspective on newness as determined by the condition of dependence on a history that was shaped with and by other actors. Therefore, two main implications of our study can be summarized as follows: newness comes into play in the processes of interdependence with other actors so that from an IMP perspective the distinction between the internal and external dimensions of newness, as formulated in the literature, loses its meaning, since these dimensions are developed through interaction processes within the network. Studying the interplay between newness and heritage is a way to look at the continuity in the development of resources in networks in which organizations are embedded.

Regarding the managerial implications of the study, the main point is that newness, in and of itself, should not be viewed as a burden in every situation. A company's newness depends first of all on the level of analysis, whether at the individual level, where previous experiences matter, or at the organization level, in that a newly activated company may benefit from the experience of long-standing relationships. However, newness also depends on the company antecedents, which go to make up the dimensions of heritage and the business network in which the new company is embedded. While new entrepreneurs and managers should not, on the one hand, fear any negative perceptions on the part of others, they should, on the other, be aware that perception of newness as an asset depends on two factors: the presence or absence of a parent organization, which limits the perception of the liability aspects of newness; the sector in which the new company operates, and whether it is dynamic and innovative, or still tied to traditional, consolidated processes in which experience, “history” and “heritage” represent sources of legitimacy.

Finally, this work suffers from a number of limitations. The small number and specialized type of the cases examined require comparison with the results of further research. Also, the paper has adopted qualitative methodology by proposing the study of two cases of innovative spin-offs developed under an incubator and strongly linked to the academic setting. Although not strictly a limitation, the research questions posed would benefit from quantitative tests by formulating proxies for newness and assigning them a score in order to analyse any correlations. Another limitation stems from the fact that the study has been conducted from the perspective of the company. However, since we consider how newness is perceived by relevant stakeholders, future research should consider the perspective of at least some customers and suppliers. Above all, the research could be developed further by addressing additional cases with different characteristics from the two proposed here, for example, spin-offs from an existing industrial company, whether their founding takes the form of the departure of employees or the breaking off of a section of the parent organization. The study of spin-offs in contexts other than that of universities or research centres can provide useful insights into the role of heritage and the perception and experience of newness independent of the existence of any incubator or university that supports the initial stages of a new business and mitigates the emergence of certain liabilities.

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