Unveiling the founder effect: a conceptual framework of entrepreneurial imprinting

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Abstract. Literature in strategy and entrepreneurship resorted to the concept of imprinting to explain the resilience of firms’ traits. Nonetheless, it assumed such a process is at work rather than indulging in its explanation. This article advances a conceptual framework based on an original definition of the imprints and on a dynamic view of the mechanisms pinpointing the replication, substitution, and re-negotiation of imprints in time. In particular, we identify entrepreneurs’ cognitive frames as what gets stamped on organizations. Moreover, we build a conceptual model based on resource mobilization, emphasizing the role of agency and politics in entrepreneurial imprinting.

Keywords: Imprinting, cognitive frame, dynamic, agency.

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INTRODUCTION

What happens at firm founding is likely to exert a strong influence on the behaviors and conducts of organizations for a long time. The persistence of organizational traits prompted a host of investigations aimed at substantiating Stinchcombe’s claim (1965) that environmental conditions at the time of founding provide nascent firms with a palette of available organizational structures that are absorbed and perpetuated (i.e. Baron et al., 1999). Despite their reliance on the concept, organization and strategy scholars used it as a catch-all in explanations of firm longevity, focusing on different levels of analysis and providing balkanized vantages on the process, if any (Marquis & Tilcsik, 2013). As Marquis and Tilksic claim, a theoretical synthesis is overdue to advance our understanding of the mechanisms entailed in resilience and persistence. Research on imprinting speaks also to studies of entrepreneurship, in that it calls the field to complement its focus on the contingencies of firm creation with a resolute analysis of the processes pinpointing new firms’ growth (McKelvie, & Wiklund, 2010).

Beyond being a fertile theoretical hotbed, imprinting represents a critical concern for practitioners. Many firms are coping with the negative consequences of being locked-in in ways of doing things that were stamped at their outset and that are recalcitrant to change. For instance, analysts investigating on the demise of Kodak, highlight the role of some of Eastman’s established –and resilient– ways, such as a strong hierarchical culture (cf. Hamm & Symonds, 2006), a paternalistic conception of the organization, and the mentality of «perfect products rather than the high-tech mindset of make it, launch it, fix it» (The Economist, 2012). Conversely, other firms repeatedly enter new markets by “exporting” and deploying peculiar traits, characteristics, and conceptions from field to field, thus replicating and deploying a founder’s vision or philosophy (Collins & Porras, 1996) to diverse products
and industries. An exemplar instance is Apple’s plastic replication of a distinctive *recipe* to different markets, such as computers, phones, and software bundles. Steve Jobs’ recurring statement that Apple's success resided in the company's ability to be at the intersection of technology and liberal arts (Isaacson, 2011; Murugesan, 2011) synthesizes how he and his collaborators approached choices related to product design (Walker, 2003). The need to stamp such a *way of framing* product design choices on the organization was explicitly addressed by Jobs, who hired Yale sociologist Joel Podolny to lead Apple University, a project aimed at perpetuating his ways of thinking (Guynn, 2011).

To contribute to the ongoing theoretical debate, we build upon a recent review of the relevant literature by Marquis and Tilcsik (2013). The authors set out to provide an unambiguous definition of imprinting as a process whereby a focal entity comes to reflect elements of its environment towards which it is particularly susceptible during brief sensitive periods of transition. These elements, in turn, endure the life of the entity despite environmental changes. Their theorization of the process is dynamic. They advance that (a) imprinting can occur in later stages other than founding, since focal entities can incur in periods of transition during which they are susceptible to –apparently new and different– environmental elements; (b) imprints generated in different sensitive periods can either be mutually exclusive –with previous imprints fading or being substituted by newer ones– or can sediment and layer upon one another.

We call for a deeper enquiry on the mechanisms underlying imprints’ inception, persistence and substitution. In this paper we set out to make two contributions adding on Marquis and Tilcsik’s proposal. On the one hand we amend current views of imprinting with an explicit treatment of agency. We claim that environmental characteristics are not simply absorbed by the founder and later by the organization. Supported by recent entrepreneurship literature (Zander, 2007; Barreto, 2012; Witt, 2007; Felin & Zenger, 2009) we contend that
entrepreneurs struggle to make sense and interpret the environment and do so on the basis of beliefs, aspirations, theories, and interpretive frameworks. We maintain that entrepreneurs’ cognitive frames mediate between the actor and the environment and propose that cognitive frames are the imprints that are replicated or contended throughout the history of a firm.

We set out to make a second contribution, proposing a conceptual and analytical framework of imprinting that sheds light on the mechanisms entailed in imprints’ resilience, fading or layering by leveraging upon literature on framing contests (Kaplan, 2008) and resource mobilization in social movements (Jenkins, 1983; McAdam et al., 1996). In particular we state that these outcomes result from political contestations that permeate the life of a firm in given transition periods. Having identified a process model of imprinting, we set out to highlight its implications both in terms of future areas of empirical research and in terms of methodological options.

THEORETICAL BACKGROUND

Despite its frequent evocation in strategy and organization studies, a coherent and rigorous treatment of the imprinting phenomenon has been inhibited by a variety of factors. On the one hand it was investigated at different levels –e.g. organizational collectives, organizations or individuals– using different frames of reference with little, if any, integration. Secondly, the micro-foundations and elementary mechanisms of imprinting received scant attention, thus impairing our understanding of the mechanisms conducive to the resilience of specific traits stamped by entrepreneurs on organizations they found (Johnson, 2007; Bryant, Forthcoming).
The recent attempt by Marquis and Tilcsik (2013) to provide with a multi-level framework of the process has provided scholars with an overdue rationalization of the relevant research and with a precise and parsimonious definition of the process. According to Marquis and Tilksic, imprinting is «a process whereby, during a brief period of susceptibility, a focal entity develops characteristics that reflect prominent features of the environment, and these characteristics continue to persist despite significant environmental changes in subsequent periods» (p. 199, emphasis in original). This definition has four essential markers. First, it claims that the process is triggered during brief transition periods. Second, it advances that in these periods focal entities are highly susceptible to the environment and thus come to incorporate and reflect elements of it. Third, it stipulates that these elements persist beyond the sensitive period. Finally, it states that imprinting occurs repeatedly during the life of a firm, namely when exogenous or endogenous changes determine novel sensitive periods whereby the organization is either forced to or aims at importing novel elements from the environment.

While Marquis and Tilksic offer an encompassing view of imprinting at several levels of analysis, we insist on the need for a thorough investigation of the mechanisms entailed in the transmission of imprints from individuals –e.g. founders or founding teams– and organizations. Such a claim is motivated by the persistence of definitional uncertainties regarding the nature of entrepreneurial imprints and an underdeveloped understanding of the mechanisms determining the resilience of imprints –or their redefinition in transition periods subsequent to founding– in time.

**Variety of imprints: what gets stamped on organizations?**

What gets stamped on organizations is a question that has received a multiplicity of answers, thus creating analytic uncertainties and definitional difficulties. Stinchcombe’s
original suggestion of the existence of an imprinting process referred to the persistence of organizational features in populations of firms created in given periods. According to his line of reasoning, organizational repertoires available at a given time are chosen by entrepreneurs to carry their ideas to the market. These organizational structures, in turn, become resilient since they become institutionalized and are perceived as the legitimate ways of organizing activities and labor. Such a mechanism explains why new generations of firms, founded in periods characterized by different pools of economic, technologic, and human resources, exhibit different structures from those of previous generations.

Some students of strategic change have focused on strategies as what is imprinted. Boeker (1989) found that dominant strategies (e.g. first mover, low cost leadership) adopted at the outset of a venture tend to persist in time, making it difficult for a company to change strategic behavior in the course of its life. Such persistence is mediated by a number of factors that can be traced back to organizing choices made at the beginning of a firm's life. In particular the persistence of a dominant strategy is determined by the recognition of a major organizational influence to specific organizational units— for instance R&D if the initial dominant strategy is that of a first mover, operations if the initial dominant strategy is that of a low-cost producer— and by the share of ownership retained by the founding management group.

Harris, L.C. and Ogbonna (1999) posited that founders' strategic visions shape future conducts of firms by influencing organizational culture. The two authors delve into the factors that make an entrepreneurial strategic vision persistent and conducive to positive economic and financial performances. Prominent among these are the entrepreneurial vision's flexibility and its environmental appropriateness. The more a vision explicitly formulates detailed objectives, the more it is conducive to a rigid and mechanistic application, mining the long term performance of the company as it is faced by radical changes in technologies or markets.
Conversely, the more a strategic vision dictates a series of general guidelines and values without entering into much detail about the objectives, the more it is to capitalize on the creativity of managers and employees, thus conducting to positive long term performance. The environmental appropriateness of the strategic vision is related to its flexibility, since the more it explicates detailed objects, the more likely it is to be incapable of guiding managers in front of altered environmental conditions.

Other types of imprints stamped by entrepreneurs on the organizations they found inhere organizational building blocks, ways of doing things, such as routines and procedures (Burton & Beckman, 2007). For instance, in his analysis of the persistence of given routines in the long life of German optics maker Zeiss despite technological and market discontinuities, Becker (2012) states that entrepreneurs shape organizations through their habits, defined as «dispositions to engage in previously adopted or acquired behavior that is triggered by an appropriate stimulus or context» (p. 2). The process through which entrepreneurs leave an indelible mark on the organizations they found is to be identified with the implications habits have on organizational routines. In particular, founders’ habits are used as guides for organizational design. This in turn influences the development and replication of routines in time.

An exhaustive review of the variety of imprints emerged in literature goes beyond the scope of this paper—we address the reader to Marquis and Tilksic (2013) for a thorough overview. We note that the variety of imprints pervading the literature risks to be analytically uncontrollable and to balkanize investigations on the process of imprinting. One may question, in fact, whether there is any indication of relative importance in the heterogeneity of imprints that an entrepreneur stamps on an organization, or whether there are conditions that make, for instance, organization structures more likely to be imprinted by entrepreneurs than strategy, visions, or procedures and routines. Given that what is imported and stamped on an
organization are elements of the environment, and given that the environment can be read as a multi-layered and multi-faceted pool of characteristics and traits that can be imprinted, those questions seem unanswerable.

**Towards a synthetic definition of imprints: entrepreneurial cognitive frames**

We propose to reduce the variety of imprints for the sake of analytic treatment and theoretical development. In particular we postulate that while visible imprints can be heterogeneous –organizational structures, strategies, routines, habits, and the like– they can result from the agency of entrepreneurs that actively select, enact or construct them. In so doing, we place the source of imprinting processes with creative processes through which entrepreneurs make sense of the environment and decide how to proceed. To put it simply, we confute the literature’s disproportionate reliance on environmental determinism: traits, characteristics, or structures are not absorbed, but forged by the entrepreneur’s attempt to move within uncertain situations. Agency is scantly considered in accounts of imprinting. Whenever founders are taken in consideration, research tended to observe the impact of founders’ personal characteristics –i.e. human capital– on the development –i.e. financial performance or employee growth– on the organizations they founded (Colombo & Grilli, 2005; Colombo & Grilli, 2010; Harris, L.C. & Ogbonna, 1999; Nelson, 2003). These vantages, nonetheless, tend to black-box the processes and mechanisms of imprinting, while pointing out the individual determinants of firm performance and growth, with no consideration for intermediate processes and actions.

Recent analyses of the founding of organizations pitched their gaze at the intersection between the founder –the agent– and the environment, calling for a resolute consideration of agency. Johnson’s analysis of the founding and imprinting of the Paris Opera clearly maintains that the elaboration of a peculiar organizational structure for the nascent institution
derived from a selection and an integration of extant templates to serve the founder’s perspective vision of a French operatic genre (Johnson, 2007). More compellingly, recent entrepreneurship literature has advanced conceptual frameworks to make sense of the interaction between founders and the environment that serves our quest for generative mechanisms and imprints.

Entrepreneurship scholars have investigated on why—and how—firms come into existence. While transaction cost frameworks explain why firms exist by calculating the costs related to the use of markets, entrepreneurship literature has shed conceptual light on why firms come into existence given severe and genuine uncertainty and thus the impossibility to make any calculations (Langlois, 2007; Foss & Klein, 2005; Foss & Klein, 2011). Literature on entrepreneurial firms claim that environments do not exist as such but are interpreted, enacted and attributed with meaning by entrepreneurs willing to act despite situations of severe uncertainty (Langlois, 2007; Alvarez, 2005; Alvarez & Barney, 2007; Alvarez, S.A. & Barney, 2007). In other words, founders coalescing resources and devising means-ends chains usually face uncertain situations and exercise judgment: they «create their own structures for interpretation and decision, or find some ready-made structures they are prepared to adapt» (Loasby, 2004, quoted in Langlois, 2007: 1113).

The reflection of environmental elements into the design of the firm at founding, thus, is not a smooth and unidirectional process originating from changes in the environment and ending into the design of a firm. On the contrary, entrepreneurs interpret and enact the environment and extant organizational or strategic blueprints. Drawing from literature in sensemaking (Weick, 1979) and from interpretive and phenomenological theoretical frameworks (Steyaert, 2007), entrepreneurship has been framed as a process entailing an engagement with the world, the enactment of selected portions of it and the application of interpretive frames in order to create meaning out of an uncertain and apparently
undecipherable reality. From this point of view the gist of entrepreneurship does not reside in systematic search and evaluation of information nor in the instant recognition of opportunities according to rationalistic assumptions, but rather in the entrepreneur’s attempts to reduce uncertainty by imposing subjective interpretive frames to make sense of the world and guide her action (Kor et al., 2007).

Nascent entrepreneurs are described as imposing interpretive templates (Barreto, 2012) or theories (Felin & Zenger, 2009) on the world and basing their behavior on them. Based on fragmented and non systematic observations and on scarce previous experiences, entrepreneurs engage in the imagination of alternative future states of the world and of the potential implications of alternative arrays of actions (Sarasvathy, 2001). Entrepreneurs engage in an ideational work through which they imagine future possibilities and states of the world and future courses of action. Felin and Zenger (2009) suggest that imaginative processes are related to, but not strictly determined by, past experience and perception. Imagination is seen more as a process of hypotheses development, thus of creation of sets of alternatives, while experience and observation, although scarce and inconclusive, are used by entrepreneurs as «anchoring facts and data for considering the feasibility of particular possibilities and associated entrepreneurial actions» (p. 135). In other words, experience and data seem to be used as justification devices for entrepreneurial ideas and imagination, rather than as the determinants of them.

Similarly Loasby (2007) claims that knowledge creation in organizations consists of the imposition of interpretive - cognitive - frames on the environment. Although he recognizes that the firm can be a bundle of interpretive systems held by groups and individuals carrying different interests, he places the ability of the firm to act and ultimately to develop in the consistency of the «orientation of the business, and the perception of the environment to which that orientation is meant to correspond» (p. 27). While Loasby concedes that the firm
can be a system of interpretive systems, each one with its own specificities and potentially alternative structures and developments, he also recognize that they need to be based on one generative interpretive system, the one that concretizes the specific orientation of the firm to the market. The entrepreneur, in other words, provides organizational decision makers with the major premises of decisions.

Discussing one specific type of interpretive template – business conceptions, «subjective, sometimes highly idiosyncratic imaginings in the mind of (potential) entrepreneurs of what business is to be created and how to do it»– Witt (1998) links the interpretive action of entrepreneurs to the boundaries of the firm. An organization emerges if the entrepreneur’s interpretive framework is legitimated and shared by others who self-select into the venture. A business conception, in fact, functions as a collectively shared interpretation pattern making discriminative attention processes possible in the organization and allowing employees to perform their tasks and choices in a fashion that is consistent with the entrepreneurs original business conception– and the beliefs and theories behind it (Witt, 2007). As proposed by Zander (2007: 1142), «new firm formation […] involves the presence of individuals or entrepreneurs whose personal convictions and subjective opinions play a central role in the recombination and reorganization of existing resources and exchange relationships».

The imprints: Entrepreneurial cognitive frames

Entrepreneurship literature focusing on how firms emerge and on how entrepreneurs’ business conceptions are shared resonate with the sociological stream of research on cognitive frames. The original conceptualization of frames comes from Goffman’s frame analysis (Goffman, 1974), according to which cognitive frames are schemata of interpretation used by actors to make sense of ambiguous and varied signals. As Kaplan puts it «frames shape how individual actors see the world and perceive their own interests» (2008, p. 731). Frames are
structured in two parts: a diagnostic one, which entails problem definition, and a prognostic part, which concerns how solutions are defined (Snow et al., 1986; Campbell, 2005).

We maintain that entrepreneurs’ cognitive frames are a hinge between the environment and new emerging firms and also the object that is imprinted – transmitted to and learned by an organization. An entrepreneur's cognitive frame is defined as her schemata of interpretation of situations and contingencies that touch upon different organizational dimensions, such as strategy, products, practices, processes, structure, markets. In synthesis we claim that entrepreneurial frames pinpoint the enactment of given organizational structures, strategies, and ways of doing and that imprinting occurs when frames are understood, learnt, and perceived as legitimate by other members of the organization, that use them in their decision making processes.

THE DYNAMICS OF IMPRINTING: MOBILIZATION OF RESOURCES

From the definition of the object of imprinting processes given above, we can get important insights about how these processes develop and the underlying mechanisms. The transferring and persistence of entrepreneurs' cognitive frames are at the core of imprinting. Through imprinting, the entrepreneur shapes one or several dimensions of the organization based on her schemata of interpretation of a specific problem or issue, thus modeling firm's features on the basis of her cognitive frame.

The imprinting process-model we advance sees the entrepreneur engaged in a –more or less conscious– process of mobilization of resources (Jenkins, 1983) towards the best configuration suggested by her cognitive frame. The entrepreneur manages and organizes tangible and intangible resources in a way that reflects her personal understanding of the problem and the corresponding solution – resulting in imprints when some specific traits will
persist over firm's growth and evolution. In this sense, the analysis of how imprinting develops can strongly benefit from the advancements in social movements research, which has a long tradition in the study of resource mobilization dynamics (McAdam et al., 1996). Moreover, the parallel between entrepreneurship and social movement is not germane to the field. Rao Rao (2009) and Rao, H. and Giorgi (2006) explicitly paralleled the entrepreneurs to activists and agitprops that mobilize society towards original solutions to pressing problems.

The process of mobilization corresponds to the efforts and actions undertaken by a subject (collective or individual) in order to secure control over the resources needed for reaching his or their goals (Jenkins, 1983, p. 532). Scholars provided several classifications of type of resources that are relevant for mobilization processes: Jenkins offered a classification based on uses of resources, distinguishing between power resources providing the means for reaching the goals and mobilizing resources, such as facilities, that allow to mobilize power resources; other students adopted a different approach, providing lists of resources that are frequently mobilized by movements, such as money, facilities, labor, and legitimacy (McCarthy & Zald, 1977); Freeman (1979, pp. 172-175) distinguishes between tangible resources (e.g. money, facilities, means of communication) and intangible or human assets (including both specialized and unspecialized resources) that form the central basis for mobilization processes. These classificatory schemes, and the latter in particular, can be applied to the analysis of imprinting, in which the entrepreneur engages in a mobilization process of tangible and intangible resources within and outside her organization in order to transfer her cognitive frame about the specific issue at stake.

In the analysis of entrepreneurial imprinting dynamics, the convergence between social movements research and organization studies is particularly helpful in their similarities in terms of the mechanisms by which organizations and movements mobilize resources during their development and change (Campbell, 2005). Being the cognitive frame of the
entrepreneur our object of analysis, our interest is focused on those mechanisms underlying mobilizing processes that are relevant for the analysis of organizational change and development.

Following Campbell's review (2005), we refer to three mechanisms potentially involved in imprinting processes: framing, diffusion, and translation. Framing is the mechanism by which an individual frame issues in ways that resonate with the ideologies, identities, and cultural understandings of all subjects involved by a specific cause (Snow et al., 1986), and it is aimed at affecting how actors perceive their interests, identities, and possibilities for change. This mechanism provides the means through which subjects interpret their opportunities and decide how to best pursue their objectives (McAdam et al., 1996). An example of organizational processes and practices through which the mechanism can be developed is offered by the work of Zander (2007), who talks about the recombination and reorganization of existing resources as a process of framing the idea of a new business conception, aimed at mobilizing both internal and external actors towards entrepreneurs' interpretation of the environment. On the same note, Johnson (2007) adds the consideration of politics, proposing the development of framing through the repeated interaction with influential stakeholders.

Diffusion refers to the spread of a cognitive frame through a group of people, and it is considered a cognitive mechanism «insofar as it facilitates the dissemination of ideas and models that cause actors to perceive new possibilities or imperatives for action» (Campbell, 2005). A practice that can be adopted to pursue the diffusion of a frame is that of legitimation, through explicitly sharing the frame with internal and external stakeholders, as suggested for example by Witt (1998). Or, moreover, Harris and Ogbonna (1999) talk about influencing organizational culture through the frame's flexibility, focusing on a frame's feature as an element of success of the mechanism.
Translation is the process of transferring a cognitive frame through its modification and implementation by adopters, from theory to practice, in such a way that it will fit the specific organizational context. Examples of the use of this mechanism are offered by two works, both focused on the explicit frame adoption: in the work by Becker (2012), the entrepreneur's frame is translated in formal and clear guides for organizational design; Boeker (1989), focusing on the analysis of dominant strategies, identifies how those explicitly adopted will be those with higher chances to persist.

The analysis of the cognitive mechanisms underlying mobilization processes brings into consideration strategic and political concerns highlighting the importance of actors and agency (Campbell, 2005), especially in order to uncover those processes and practices aimed at making one's own frame prevail (Kaplan, 2008; Nelson and Winter, 1982: 99-107; Scott and Meyer, 1994). Entrepreneurship literature, and in particular studies dealing with the imprinting phenomenon, often neglected the relevance of strategic processes underlying entrepreneurs' cognitive dimension. A first attempt in this direction has been made by Victoria Johnson (2007), who shows through the case of the foundation of the Paris Opera how the entrepreneurs' conception of his business idea was strongly influenced by the interaction with other relevant and powerful stakeholders. Besides this contribution, the interpretation of the imprinting phenomenon as a strategic social process, in which the entrepreneur interacts with other subjects who influence her frame, has not, to our knowledge, be developed further.

In the investigation of how frames shape strategic choices through specific organizational dynamics, Sarah Kaplan (2008) elucidates how “actors attempt to transform their own cognitive frames into the organization’s predominant collective frames through their daily interactions”, thus drawing the connection between cognitive theories and politics in strategy-making research. In fact, imprinting process can be viewed as a social process, in which other
relevant players are involved (Johnson, 2007). Relevant players can be identified with all subjects variously concerned by the new venture creation and evolution, such as investors, employees, customers, institutional organizations, etc. In the interpretation of imprinting dynamics as a social process, it is thus important to consider the political and strategic issues arising from the co-existence of different frames within the organization at the same time: "where frames about a decision are not congruent, actors engage in framing practices in an attempt to make their frame resonate and mobilize action in their favor" (Kaplan, 2008).

IMPRINTING: TOWARDS AN ANALYTICAL AND CONCEPTUAL MODEL

We advance a conceptual and analytical framework of entrepreneurial imprinting, synthesizing all our previous considerations. Our first aim is to propose an economical and integrative definition of imprinting, based on a process framework (McAdam and Scott, 2005) and constituted by three distinct building blocks: cognitive frames, imprinting practices, and process outcomes. Our intention is neither to add another set of concepts and tools, nor to restrict the scope of investigation in this domain. Conversely we aim at aligning different approaches existing in the literature through an inclusive framework.

We add some qualifications referring to agency and frames to the definition offered by Marquis and Tilcsik (2013). We define imprinting as a process whereby, during a brief period of susceptibility, the entrepreneur (or a team of founders) transmits his/her cognitive frames to the organization by means of imprinting mechanisms. These frames continue to persist despite significant environmental changes in subsequent periods.
From the whole set of frames the entrepreneur will have in creating a novel venture (concerning its strategy, offer, structure, etc.), the frame (or frames) of interest for the imprinting processes are those showing specific distinctive traits. We propose three possible methodological alternatives to identify distinctive frames: entrepreneurs' self-assessment (who consider some features of their idea as their "mark"); a comparison with other similar firms; an ex-post longitudinal analysis of organizational traits that persisted from firm's foundation on. Borrowing from our previous examples, we can refer to Job's frame about product design – intersection of technology and liberal arts (Isaacson, 2011) –, or Zeiss' frame about practices – science and precision (Becker, 2012) – as those showing the above mentioned distinctive traits, the former potentially identifiable from the early times of Apple business through a comparison with competitors (and now, also "ex-post"), and the latter through a longitudinal historical analysis.

Hence, drawing on the concept of cognitive frame we have the possibility to unfold the mechanisms through which entrepreneurs engage in imprinting processes, an issue only marginally addressed, if at all, by extant literature.

We define imprinting mechanisms those practices enacted by entrepreneurs both at firm foundation and during firm evolution aimed at transferring his/her cognitive frames to the organization, and at assuring their persistence over time.

Transferring cognitive frames to organizations, as presented above, requires the development of specific cognitive mechanisms, which translate in proper organizational actions and practices. The three imprinting mechanisms we propose, following the resource mobilization theory and defined in the previous section, are: framing, diffusion, and translation.

Framing refers to practices of (re)combination and (re)configuration of existing resources, both tangible and intangible. The entrepreneur will arrange/design/manage the organization
or the organizational building block (Marquis & Tilcsik, 2013) according to her cognitive frame, thus affecting how other actors perceive their interests, opportunities, beliefs. To anchor on the literature reviewed earlier, framing is the practice that allow the entrepreneur to explicate a business conception, namely what is to be done and how.

The second mechanism, diffusion, can be enacted through *legitimation* and *mobilization*, which are both imprinting practices aimed at overcoming the challenges posed to entrepreneurs from internal and external environment in the acceptance and persistence of their frame. In fact, it is acknowledged that «entrepreneurial actors embedded in networks and fields [...] mobilize and recombine, according to their power, interests, and positions, resources of all kinds as they strive to create new organizations» (Johnson, 2007), and that «for the entrepreneur involved in [...] business schemes, it also becomes a matter of actively mobilizing resources and labor to perform the necessary work» (Zander, 2007). Scholars addressed these practices as collective theorizing in entrepreneurial processes (Felin & Zenger, 2009), and we see them as imprinting practices in that they are aimed at the transferring of entrepreneurs' frames to organizational traits. As noted by Sarah Kaplan (2008), when more than one cognitive frame is present, processes of legitimization and mobilization are, at least to some extent, contested.

Thus, imprinting process – especially in its persistence dimension – can be strongly influenced by politics and power, and its outcome will depend also on the development of practices such as *coalitions building*. «Resistance and opposition play an important and critical role in the entrepreneur’s decisions» (Zander, 2007) concerning a range of organizational traits, such as boundaries of the firm, organizational structure, and the like. If this is true from a static point of view, it is even more important in the dynamic interpretation of imprinting, under which resilience of frame's distinctive traits is constantly at stake.

Translation, the third and last mechanism, is part of imprinting in its aiming at modifying
the frame in order to actually implement it. *Formalization* is the main example of this translating process, through which entrepreneurs build a codified system of rules that embody their frame. Standard operating procedures, codes of conduct, mission statements and the like can, and indeed do, formalize entrepreneurs’ ways of thinking thus binding subsequent members of the organization to act according to formal rules. This is the case of Zeiss as reported by Becker (2012): founders of the company established more than 100 years ago a Foundation that owns and govern the firm itself. The Foundation has promulgated the Zeiss 70-page statutes that formalize the rules of how to accomplish tasks in the Zeiss firm to «ensure the firm’s long-term sustainable growth» (p. 26).

Our definition of imprinting, based on its dynamic interpretation, highlights the key role of entrepreneurs’ agency: viewing it as a mechanistic and natural process, in fact, can be not only misleading, it can also induce to wrongly address the reasons of its success or failure. Scholars often looked for causes of – successful – imprinting in the DNA of entrepreneur's frame, as if the possibility to transmit some distinctive traits to an organization could depend only on the intrinsic power (or fit) of the frame itself. If this is for sure a part of the story, we argue that it cannot explain all of it. In fact, moving the point of view on the process it is possible to define also *successful and unsuccessful imprinting* – a theme the literature has, to the best of our knowledge, completely overlooked. The sole empirical observation of cases in which imprinting verified, namely in which the resilience of some foundational organizational traits can be observed, has led to the thought of imprinting as a process automatically linked to a "successful outcome", observable only ex-post. The view here proposed suggests to abandon this approach in favor of an extended understanding of imprinting outcome, as dependent on the effectiveness of imprinting practices. Adopting this new perspective would allow also to consider the possibility of multiple layers of imprints, as proposed by Marquis and Tilcsik (2013).
Thus we posit that imprinting process can result in four possible outcomes: success (transmission or persistence of entrepreneur's frame); failure (prevalence of another frame); evolution (combination of entrepreneur's and others' frame); unsolved contest.

Outcomes of imprinting processes can be distinguished in three conclusive results, and one reiterative. All alternative outcomes can be associated to the two dimensions of imprinting process: the initial transmission of entrepreneur’s frame, and the subsequent persistence of its distinctive traits. The successful outcome, the first of the three conclusive results, verifies when entrepreneur’s frame is successfully transferred to the organization, and its distinctive traits persist over time. Success of imprinting process is observed when distinctive traits of entrepreneurs’ cognitive frames are recognized within organizational traits and arrangements, such as, for example, in product design, production processes, and market strategies. Borrowing from our previous examples, we can refer to the Zeiss case as an example of successful imprinting: founders engaged in imprinting practices that effectively transferred their cognitive frame into organizational traits, specifically impacting organizational routines and design (Becker, 2012).

The second conclusive outcome is labeled “evolution”, meaning that the original entrepreneur’s frame has been transmitted to the organization only to some extent, having been influenced and combined with other frames during mobilizing practices. Or, during firm life, only some frame’s traits have been able to survive, while others have been dismissed or substituted by new frames. An empirical example of such an outcome is offered by the Paris Opera case (Johnson, 2007), in which the interaction between the founder (Pierre Perrin) and one relevant player (Louis XIV) significantly affected the imprinting process, leading to the partial success (evolution) of founders' frame about the specific organizational form to be adopted.

Imprinting failure, third and last conclusive result, verifies when entrepreneur’s frame
fails to be transmitted to the organization through effective imprinting practices, or when it fails to persist over firm’s evolution. The outcome is observable in the presence of an alternative frame, different from that of entrepreneur, which influences and defines organizational traits, despite the engagement in imprinting practices. It is important to highlight that failures cannot be detected as the simple “absence of imprints”: our dynamic view wants to address the continuity between the building blocks, pointing to the fact that imprinting exists - namely, can fail - if an only if a cognitive frame object of imprinting mechanisms and practices was present. Given the paucity of theorization about imprinting as a dynamic process, empirical studies on its failure are not available, at least to our knowledge.

The last outcome, the reiterative one, is named “unsolved contestation”: with this concept we define those situations in which the imprinting process is contested because alternative frames are present, and neither frame is effectively transmitted to the organization by means of imprinting practices. This outcome is reiterative because the imprinting process will not conclude until one frame will prevail, leading to one of the three conclusive outcomes. We can compare this stylized imprinting process to that of Apple early times, in which Steve Jobs’ frame was not able to prevail during the eighties because of its competition with another frame of product design, more engineering-like: the contest was solved in 1985, with Jobs’ exclusion from the company.

***Insert Figure 1 about here***

The last concept we want to suggest with our conceptual framework (figure 1), is the continuous character of imprinting process. In fact, the conceptual model is proposed as an analytical tool to study both transmission and persistence of entrepreneur’s frame, from which comes its recursive nature. When a frame has been successfully imprinted, it will need to be
object of recurrent imprinting practices to make it persist over time. This last point emphasizes the problem of linking imprinting processes only to firms’ founders. A deeper analysis through a processual approach suggests that imprinting can develop well beyond founders’ presence: if it was successful at a time, frames’ persistence will be probably left in other hands. Longitudinal analyses of imprinting and of the persistence of specific frames need to pay a great deal of attention to the social trails of the process, by identifying the individuals and groups vested with the responsibility of perpetuating —that is imprinting over and over again— new members of the organization as it grows in space and as it ages. Similarly, all of the imprinting practices we saw as relevant in the initial imprinting by the founder will be recurring during periods following an organization’s founding and will characterize the action of subsequent individuals and groups as well as the contestation between different groups both diachronically and synchronically. As posed by Marquis and Tilcsik «This view implies a superposition of imprints—a process whereby layers of history are deposited in organizations at a few specific points in time. In this sense, we might study organizations much like archeologists who examine the temporal succession of strata at an excavation site, identifying the critical contexts in which different layers were formed. [...] As the traces of old layers are not swept away when new layers form, complex sets of 'layered features, practices, and ideas' build up in organizations over time (Cooper, Rose, Greenwood, & Hinings, 2000, p. 118), and those layers that are deposited during sensitive periods are especially resistant to erosion.» (Marquis & Tilcsik, 2013, pp. 222-223).

THEORETICAL AND METHODOLOGICAL IMPLICATIONS

The conceptual framework we presented contributes to the ongoing debate on
entrepreneurial imprinting by closing some of the gaps that characterized previous attempts to explain the phenomenon. A first one is definitional. In previous sections we noticed how there is still little agreement on the definition of *imprinting*. The treatment it received in extant literature makes imprinting (i) either a platitude whose usefulness resides in functioning as a backdrop for studies correlating characteristics of the founder or of the founding conditions to long-term organization performances or (ii) a case- and context-specific concept deriving from the observation of the contingent replication of determined traits and elements.

In line with Marquis and Tilksic (2013) we argue that imprinting is a process that takes place at the outset of a firm and during its life, when either environmental changes or internal contestations require for new frames to be stamped on the organization. We agree with Marquis and Tilksic on the diverse results of the process: original frames can be replicated, they can be substituted by new ones, or can integrate with new ones during sensitive periods occurring during the life of a company. While it espousess the main tenets of Marquis and Tilksic definition of imprinting, ours adds agency at the intersection between the environment and the firm. In particular we claim that the entrepreneur enacts the environment – and thus repertoires of strategies, structures or behaviors – through her cognitive frames. Moreover, we put agency center stage also in the ongoing process of imprinting, whereby the founder tends to diffuse and legitimize her frames, while other individuals in the firm could aim at diffusing alternative ones.

Borrowing definitions from ethology and biology is a useful and quite established practice in management studies, but sometimes it can be misleading – as, in our view, for the imprinting case. If from a genetic point of view we are talking about an *inheritance process*, and from the psychological one is a kind of *unconscious learning*, the object of management studies are not genes or offspring, but organizations – namely complex systems made by individuals. We argue that the study of the imprinting process needs to bring the issues of
social interaction and strategic action into consideration: entrepreneurs, at least to some extent, act and take steps in order to influence the evolution of their organizations, and specifically to make some elements persist. Opponents, on the other hands, could take advantage of changed environmental conditions to try and re-imprint the firm according to their frames. Both the parties, in sensitive periods and during the subsequent imprinting process, strategically aim at constructing coalitions to have their frames legitimized, shared, and deployed in organizational decision making processes. Hence the imprinting process, from this point of view, results as highly characterized by a strategic and political dimension, which in turn recalls issues concerning mobilization of resources, political negotiations, framing contests.

Moreover, our framework advances a dynamic conceptualization of imprinting, while extant literature has often relied on static definitions of it. Extant analyses of imprinting assume that after sensitive periods organizational traits –or frames in our analysis– are replicated during the life of a firm or until environmental conditions demand for radical changes. We maintain that such a persistence is far from being attained once and for all at the time of founding. On the contrary it results from the continuous deployment of mobilizing practices during the life of the firm.

Our paper speaks also to issues of method in studying imprinting processes. In available literature on imprinting, differences can be found in the levels of analysis, in the variables selected, in their operationalization, and in their interpretation with respect to the imprinting process. Our framework aims at unifying balkanized approaches and vantages by providing: (i) a fundamental unit of analysis, that is entrepreneurs’ frames as the generative elements of the observed heterogeneity in resilient traits; (ii) a conceptual and analytical framework that singles out the processes and practices to be looked at in order to develop a thorough understanding of the variables intervening in the process and the causal mechanisms.
explaining alternative outcomes.

For what concerns variables selection, operationalization and interpretation, our framework provides specific suggestions, mainly related to the adoption of "cognitive frame" as the core concept of the imprinting process. Variables that must be selected in the analysis of imprinting should belong to the two main building blocks of the conceptual framework here proposed - cognitive frame and imprinting practices. Regarding the former, thanks to Sarah Kaplan (2008), among the others, we have a very clear example of its operationalization: in her work, she analyzed two competing cognitive frames, distinguishing their diagnostic and prognostic dimensions, and declining them for the organizational problem they were aimed at solving. From our point of view, the very same approach could be adopted in the entrepreneurial imprinting domain, solving the traditional difficulty of operationalizing its cognitive dimension. On the other side, a longer tradition, mainly coming from social movements research, characterizes the study of practices such as mobilization, coalition building, legitimation, etc.. Thus our framework, combining these two building blocks, proposes a way to overcome the existing generalized confusion about "what to study" and "how to study" in the investigation of entrepreneurial imprinting.

**FUTURE AVENUES FOR RESEARCH**

The framework we advanced in the paper aims at providing students of organizations, strategy and entrepreneurship with an analytic toolkit and a sensitizing device to engage in the study of imprinting processes. Rooting the imprinting process in the transfer and replication of entrepreneurs’ cognitive frames through imprinting mechanisms and practices, our framework sets out a perspective that resonates with recent calls for the study of the
microfoundations of organizations namely of how individuals –with their dispositions, creativity, frames, plans, preferences and the like– and their reciprocal relations are conducive to the establishment of routines and organizational capabilities (Felin & Foss, 2010). In particular we expand on Johnson’s (2007) suggestion that imprinting is the result of an agent’s creative combination of environmental elements based on the enactment of often- idiosyncratic interpretive frames, thus placing the origins of (repeated) behavior with the individuals and within the organization rather than solely –or eminently– on external factors and on their experience by members of an organization. Moreover, we expand on Johnson’s call for a detailed analysis of the social processes and mechanisms entailed in the persistence of entrepreneurs’ frames by placing the premises of such a persistence within the organization rather than without. This is not to deny the role of external stimuli, but to affirm that the interpretive frames of individual entrepreneurs «play a central, effectively causal, role in shaping and determining what is experienced and repeated» (Felin, Foss, 2010: 249).

Being proposed as an analytical lens for the process of imprinting, the framework could guide empirical studies addressing a variety of research questions pertaining to frames’ persistence and its implications.

One avenue for future research concerns the analysis of the relative effectiveness of different imprinting practices or peculiar mixes of them in a variety of situations both diachronically and synchronically. While extant exploratory evidence points to the role of formalization – e.g. in the Zeiss case or in the Apple University project – in an array of other cases the analyst could find the prevalence of informal transferring and the replication of peculiar organizational or strategic traits along the trails of close personal relations among members of – subsequent – leading groups and coalitions. The conditions determining the effectiveness of specific bundles of imprinting practices thus represent a relevant point of departure for research adopting the presented framework.
A second set of research questions that could be tackled through the categories and processes explicated in the framework pertains to the relation between the imprinting process and firms’ performances. In our previous discussion we did not consider a firm’s economic and financial performance in the long run, given our interest in providing with a framework that could guide students of imprinting out of the current lack of a unifying framework and of a shared vocabulary. The issue, though, is crucial since imprinting can result in sustained positive performance in time as well as in a detrimental lock-in in specific ways of analyzing situations and devising solutions, as it seems to have happened in the case of Eastman Kodak Co., for example. Delving into the specificities of Eastman’s frames, for example, and on the specific dynamics underlying their transmission and replication – and modification perhaps – could shed light on the factors differentiating various types of frames, allowing to single out the reasons why some of them are able to address novel challenges coming from the environment while others lock an organization's ability to change and adapt.

Finally, major attention needs to be given, in future research endeavors on imprinting processes, on situations of failures, in order to understand both the role of frames’ characteristics or of imprinting mechanisms and practices and contests in denying persistence to entrepreneurs’ frames. Moreover, such an investigation needs to assess also the potentially beneficial effects of imprinting failures, since new frames could allow organizations to better deal with challenging environmental conditions and to get rid of the inertia of the founders’ frames. In the cases of imprinting failures, one interesting area of research is that of the implications of the demise of the entrepreneur’s frame on the overall organizational culture.
REFERENCES


Figure 1 – Conceptual and analytical framework of entrepreneurial imprinting