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Institutions and the Entrepreneurial Discovery Process for Smart Specialization

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Abstract: Smart specialization approaches to regional innovation policies have attracted, and in all likelihood will continue to attract, considerable attention. With this attention has come significant interest in one of the approach's defining features: the 'entrepreneurial discovery process' (EDP). While this interest has yielded substantial progress in the development of a comprehensive collective understanding of the EDP, several important, even vital, aspects of the EDP remain 'under-' or even 'unaddressed'. This essay aims to fill what we consider to be two prominent gaps in the aforementioned collective understanding by, first, identifying the actors who are responsible for the EDP, investigating their respective roles, and exploring how they should be engaged, and, second, by dissecting the relationship between the EDP and the institutional context within which it occurs recognizing that institutions can exercise tremendous influence on the effectiveness and outcomes of the EDP. Four prominent conclusions emerge from this exercise – each of which is made explicit in the final section of the paper – that will hopefully contribute to the more effective implementation and execution of the EDP across diverse socioeconomic and institutional contexts.

Keywords: Smart specialisation, entrepreneurial discovery process (EDP), innovation, innovation policy, institutions, Europe.

JEL Codes: O30, O38, E02, O43; R11

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1. Introduction

Smart specialization approaches to regional innovation policies have attracted considerable attention since their conception (Foray et al., 2009) and full-fledged endorsement by the European Commission (Foray et al., 2012). With this attention has come significant interest in one of the approach's defining features: the 'entrepreneurial discovery process' (EDP). In the simplest sense, the entrepreneurial discovery is an exercise that "reveals what a country does best in terms of R&D and innovation" by enlisting those who best understand the strengths, capabilities, constraints and limitations of a territory in order to identify sectors, activities and technologies that could constitute the basis of a smart specialization strategy (Foray et al., 2011: 7). According to Capello (2014: 7), EDP is a 'conceptual pillar' of smart specialization. Foray et al. (2011) and Coffano and Foray (2014) consider EDP *a*, if not *the*, feature that distinguishes smart specialization approaches from innovation strategies of the past and the one that lends these approaches their more 'bottom-up' character. Suffice to say the interest the entrepreneurial discovery process has garnered seems largely warranted. In spite of this attention, however, important questions remain open and much work is yet to be done in advancing our understanding of this critical exercise.

The following essay sets out to address two aspects of the entrepreneurial discovery process that have thus far, in our opinion, received insufficient attention. First, we explore 'who' is responsible for EDP. That is, we address the respective

role of the actors that should be involved in EDP, as well as examine the way in which these actors should be engaged. Second, we delve into the relationship between institutional environment and EDP recognizing that institutions and the institutional context exercise considerable influence, both directly and indirectly, on the effectiveness and outcomes of the process. The exploration of the interaction between institutions and EDP culminates in a discussion of the implementation of the process across diverse institutional contexts and the geography of the entrepreneurial discovery process. In addressing these critical aspects, our aim is to further the collective understanding of EDP and ultimately assist in its operationalization as a fundamental part of smart specialization strategies.

2. The 'who' and the 'how' of the entrepreneurial discovery process

EDP is, by its very nature, an inclusive process. However, while the inclusivity of the process is generally accepted, critically important questions remain pertaining to who should be engaged and how this should be done.

2.1. The 'who'?

The first question related to EDP is that of 'who should be involved'. The logical answer to this question is that the process must be as inclusive as possible, involving a wide variety of stakeholders within local societies, as well as the vertical coordination of different tiers of government. Such a response, while relevant to the

bottom-up nature of EDP, offers, however, little in the way of the respective functions or roles of various types of actors nor does it provide any justification or reasoning for their inclusion.

Consequently, a clearer justification of the reasons behind the need to involve different types of actors in EDP is required. In the simplest sense, we may consider three types or classes of actors that must be involved in EDP, each of which serves a unique purpose and makes a substantive contribution to the process and the strategy more broadly: a) 'entrepreneurial agents' (Coffano and Foray, 2014); b) policy makers and the 'leaders' of the smart specialization strategy and c) the remainder of society.

Entrepreneurial agents assume the most privileged position in EDP as the sources of the 'entrepreneurial knowledge'¹ that is effectively the foundation upon which smart specialization strategies are developed (Foray et al. 2011).

Entrepreneurial agents assume any number of forms. The European Commission has, in fact, has adopted a conceptualization that defines these actors in a distinctly different manner to what the term might connote – where entrepreneurs may be assumed to be firms, entrepreneurial actors are understood, in a triple-helix way, to include "*inter alia* firms, higher education institutions, public research institutes, independent innovators; whoever is best placed to discover the domains of R&D and

¹ Entrepreneurial knowledge is commonly understood to "combine and related knowledge about science, technology and engineering with knowledge of market growth potential, potential competitors as well as the whole set of inputs and services required for launching a new activity" (paraphrasing Foray et al., 2011: 7).

innovation in which a region is likely to excel given its existing capabilities and productive assets” (Foray et al., 2012: 12). This inclusive conceptualization seems particularly apt in light of the diversity of insights that are understood to constitute entrepreneurial knowledge. Firms do, however, assume a prominent role in the entrepreneurial discovery process (Coffano and Foray, 2014). Their engagement with the market enables them to provide a valuable understanding of the commercial viability of activities and opportunities as well as market dynamics (Cities Alliance, 2007) that effectively distinguish the entrepreneurial knowledge that the EDP seeks to elicit from simply “knowledge about science and techniques” (Foray et al. 2011: 7). This prominence of firms does not, however, imply that the insight provided by other entrepreneurial actors (higher education institutions or research institutes, for example) is ‘second-best’ to that provided by firms. Rather, entrepreneurial knowledge from *all* sources can be regarded as necessary and highly complementary (Coffano and Foray, 2014). That is, each actor inevitably possesses insights, perspectives and knowledge that are derived from their unique experiences and positioning relative to the market and other actors, all of which may be usefully combined and related to develop a comprehensive knowledge base used to inform the smart specialization strategy. This final point implies a central role for those tasked with processing the entrepreneurial knowledge from individual actors.

The second category of actor is policy makers. While entrepreneurial agents in some respects drive and may be the focus of the entrepreneurial discovery

process, those tasked with leading the smart specialization effort assume a prominent role as well and, contrary to what might be assumed, are not ‘passive’ participants in the entrepreneurial discovery process. Their responsibilities are two-fold. First, the entrepreneurial knowledge embodied in and possessed by the various relevant actors must be aggregated.² Once this aggregation has commenced, the focus then must shift to its synthesis and processing. Entrepreneurial agents are, axiomatically, only capable of providing insight on the basis of their own experience (Iacobucci, 2014) and in that sense the entrepreneurial knowledge possessed by a single actor is narrow in scope. While there is inherent value in this knowledge in and of itself, its utility conceivably increases exponentially once it is positioned relative to entrepreneurial knowledge collected from other sources.³ One could say then that the base of entrepreneurial knowledge is ‘greater than the sum of its individual parts’. This discussion of the function of policy makers in the process must also make explicit that while policy makers are indeed active in the entrepreneurial discovery process and hold considerable responsibility, it is not their position to consciously ‘pick-and-choose’ stakeholders, as doing so would undermine the bottom-up, grassroots nature of the entrepreneurial discovery process and the smart specialization strategy more broadly (Iacobucci, 2014). In practice, there may be a need, arising from, for example, resource and temporal constraint, for policy makers to be somewhat selective in the engagement of

² Coffano and Foray (2014: 43), citing Bresnahan (2012), assert that entrepreneurial knowledge is “fragmented and dispersed [and] is not available in compact form within one single entity”.

³ The definition of entrepreneurial knowledge proposed by Foray et al. (2011) emphasizes the notions of ‘relating’ and ‘combining’.

stakeholders. The selection, however, must be *reactive* rather than *proactive*. That is, policy makers must, first, not have preconceived notions about which stakeholders should be consulted and, second and more importantly, choose stakeholders that are objectively the most capable of providing entrepreneurial knowledge as a result of *inter alia* their prominence in and interactions with the market and high-potential activities more specifically, as well as their participation in the critically important ‘exploratory behaviour’ (see *Section 3.2*).

The final class of actor involved involves members of society in general. EDP is not a standard process of stakeholder engagement – it is a process that is designed and implemented to elicit very specific information that is used to shape future policy decisions and the identification of certain activities that a region or economy could realistically be expected to capitalize upon. Hence, a premium is placed on the engagement of the aforementioned entrepreneurial agents (Foray et al. 2011). That said, this prioritization should not imply that actors who are not classified as entrepreneurial agents do not contribute or participate in EDP. EDP requires the active involvement of the broader society for two specific reasons. First, elaborating on a previous point, no actor is omniscient and the more inclusive the process of knowledge collection, the more comprehensive the knowledge base at the disposal of policy makers. Second, and more importantly, broad societal engagement contributes to the local ownership of the process and the strategy more broadly. This local ownership is critical for the smart specialization strategy as a

whole as it provides a sense of involvement and empowerment and contributes to retain the place-based, contextually tailored bottom up character of EDP.

2.2. The 'how'?

Once the roles of relevant actors in EDP are understood, the attention must shift to the collection of entrepreneurial knowledge itself and the interactions between contributing actors and policy makers. Interactions between actors and policy makers can assume a number of forms. These range, for example, from focus groups and workshops to broader community meetings or surveys (Cities Alliance, 2007).

There is likely no universal single best method for interacting with stakeholders and as such the selection of method must give ample consideration to financial, temporal or any other constraints that impinge upon the process (Cities Alliance, 2007) as well as the exact actors that the process seeks to engage and any factors that might influence their involvement. Moreover, what is of greater importance than the exact mechanism or method employed, as *Section 3.3* will address, is that a sound relationship emerges and is sustained between policy makers and those contributing entrepreneurial knowledge and insight (Rodrik, 2004). The character of this relationship shapes the interaction and influences the

utility of the exercise as a whole.⁴ This means that while EDP is affected by local institutional conditions, EDP, in turn and if performed adequately, should be capacity or institution building.

3. Institutions and the entrepreneurial discovery process

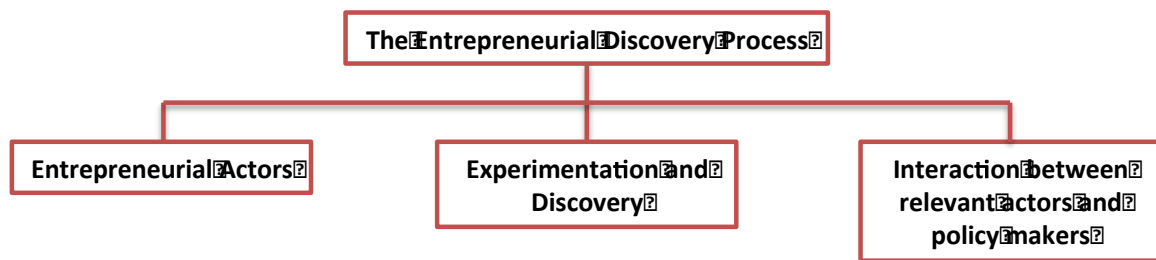
The relationship between EDP and the institutional context within which it occurs has been, despite its importance, relatively unexplored. Institutions, however, are increasingly understood to be of tremendous relevance to innovation, growth and economic performance in general development, but more specifically for the success of policies which take place at local or subnational level (Rodríguez-Pose, 2013). It would seem, then, that an investigation into the interaction between institutions and smart specialization strategies and EDP more specifically would not only be wise, but it is, in fact, necessary.

Assessing this relationship is not, however, a simple endeavour. The entrepreneurial discovery process is both inherently complex and multifaceted and, as the preceding section has highlighted, inclusive of a diverse set of actors. Institutions and the institutional context inevitably interact with the process in a variety of ways across a number of axes.

⁴ The notion of a sound relationship between stakeholders and policy makers is addressed in more depth in *Section 3.3*.

The most effective method for examining our relationship of interest involves decomposing EDP into what can be said to be its three fundamental ‘components’ or ‘ingredients’ and exploring the way in which institutions interact with each of them. The three fundamental components of the entrepreneurial discovery process for the purposes of this exercise are: a) entrepreneurial actors b) the generation of ‘entrepreneurial knowledge’ and c) interaction between those in possession of ‘entrepreneurial knowledge’. Each of these will be addressed in turn in the following sections.

Figure 1. The fundamental components of the entrepreneurial discovery process



Authors' elaboration

3.1. Institutions and entrepreneurial actors

The first of the three aforementioned fundamental components are the entrepreneurial actors that constitute the sources of ‘entrepreneurial knowledge’ used to inform and guide the development of the broader smart specialization strategy. Quite simply, the entrepreneurial discovery process cannot occur in the

absence of actors who, through their respective activities and experiences as well as interactions and engagements with other members of society, have developed a comprehensive knowledge of a given region's resources and assets as well as its strengths (and, conversely, weaknesses), capabilities, and, ultimately, its potential (Foray et al., 2011). Implied by this centrality of entrepreneurial actors to the entrepreneurial discovery process is the importance of a context or environment that is conducive to both the survival and success of existing actors as well as, relatedly, to the emergence of new actors. This is the first axis along which institutions interact with the entrepreneurial discovery process. *Institutions effectively shape the context within which entrepreneurial actors exist, function, interact and ultimately generate entrepreneurial knowledge via the exploratory behaviours addressed in the proceeding section.*

The conduciveness of a region to supporting entrepreneurial actors and fostering the emergence of new ones is largely reflective of the region's conduciveness to economic activity. A region's capacity to host and foster economic activity is understood to be influenced by any number of factors. A particularly relevant and increasingly acknowledged one is the institutional context.

Institutions, formal and informal, condition the context within which economic activity occurs. Formal institutions, commonly understood as the "rules of the game in a society" following the conceptualization of institutions forwarded by North (1990: 477), delineate a 'framework' within which economic activity occurs.

Their codified nature lends them an element of immediacy and transparency (Rodríguez-Pose and Storper, 2006) that enables widespread understanding and acceptance. Informal institutions on the other hand, often recognized as “individual habits, group routines and social norms and values” as per Amin (1999: 367), are less tangible. Nevertheless they are understood to serve a critically important function, promoting trust and facilitating cooperation and interaction among members of a society (Fukuyama, 2000). Taken together, formal and informal institutions work synergistically to “reduce transaction costs and moral hazards” (Rodríguez-Pose and Storper, 2006: 6; see also Fukuyama, 2000) thereby promoting economic efficiency (North 1992; 2005) and ultimately fostering the emergence of a “microeconomic environment that comes across to individual actors as a reason to have confidence in the economic process” (Rodríguez-Pose and Storper, 2006: 6) and one that is broadly conducive to economic activity and the viability of entrepreneurial actors (Jutting, 2003).

Not all institutional contexts are identical (Rodríguez-Pose and Storper, 2006) and as such, their suitability for hosting economic activity and, in turn, sustaining entrepreneurial actors varies as well. Sound institutional contexts characterized by, *inter alia*, well-functioning and appropriately monitored and enforced formal institutions and a high-degree of “institutional thickness” (Amin and Thrift, 1995) are associated with, above all else, efficiency and are effectively favourable for entrepreneurial actors. Sound institutional contexts afford them the opportunity to engage in the practices that generate valuable ‘entrepreneurial

knowledge'. Conversely, weaker institutional contexts characterized by either the complete absence of institutional constructs or, perhaps worse, poorly-functioning institutions impose unnecessary constraints on existing actors while also discouraging the emergence of new ones both of which inhibit the potential generation of entrepreneurial knowledge. Under these conditions, actors may use EDP for advancing private interests and capturing potential rents. Impacted information and insider-outsider problems will contribute to an elite capture of the EDP, effectively undermining its purpose, validity and effectiveness.

3.2. Institutions and the practices of experimentation and discovery

The second fundamental component of the entrepreneurial discovery process is the generation of 'entrepreneurial knowledge' through exploratory behaviour consisting of experimentation and the pursuit of new activities or opportunities. Such behaviour permits the identification of "[activities] and the domains of R&D and innovation in which a region is likely to excel given its existing capabilities and productive assets" (Foray et al., 2011, pg. 7) as well as "new opportunities for commercially viable lines of business" (pg. 11). Simply put, entrepreneurial actors must actually be 'active' for the entrepreneurial discovery process to succeed. It is not, however, guaranteed that they will be.

The aforementioned exploratory behaviour is conceivably constrained by any number of 'impediments'. Some firms, for example – small and medium

enterprises in particular – face profound, sometimes insurmountable, resource constraints, financial, human or otherwise, that preclude, or certainly restrict their capacity to engage in exploratory behaviour and, in turn, to contribute substantively to the entrepreneurial discovery process (Rothwell, 1989; Nooteboom, 1994). That said, the likelihood of entrepreneurial actors engaging in exploratory behaviour is widely understood to be inhibited by two more specific market failures: a) the ‘incomplete appropriability problem’ (Foray et al., 2011: 12) and ‘coordination externalities [or failures’ (Rodrik, 2004: 12). Rectifying, or at least addressing, these market failures is of utmost importance for the success of EDP and the smart specialization strategy more broadly.

The incomplete appropriability problem is something of a standard challenge associated with fostering innovative activity. It derives from the inability of entrepreneurial actors to realize a sufficient private benefit relative to potential public benefit from exploratory practices and innovation more generally to justify their pursuit (Rodrik, 2004; Foray et al., 2011). It is, in the simplest sense, an issue of incentives and the misalignment of private and public benefit. Accordingly, efforts to mitigate the incomplete appropriability problem assume the form of the provision of incentives (Foray et al., 2011) to high-potential activities to more closely align potential private benefit with potential public benefit (that would in the

absence of policy, vastly outweigh potential private benefit) thus alleviating (or at least reducing) disincentives to exploratory behaviour.⁵

Coordination failures arise when the pursuit of a new activity or opportunity requires coordinated action involving more than one party (Rodrik, 2004). That is, if an activity will only be viable through a collective effort, an individual actor may be less inclined to pursue said activity out concern that another actor (or actors) will not fulfil their prescribed or expected role compromising the viability of the activity for all parties involved.⁶ Closely related to the notion of coordination failure is that of ‘free-riding’. That is, in addition to concerns an individual actor may have about making an investment or pursuing a particular opportunity whose viability is conditional on the actions of one or more other actors, that same actor may also be weary of others benefitting from his or her investment to an extent that is disproportionate to the investments the others have made or the risk they have elected to bear. Rodrik (2004) proposes two solutions for the resolution of coordination failures. The first is, axiomatically, facilitating ‘true coordination’ (Rodrik, 2004: 14) amongst actors. The second is the provision of “ex ante subsidies that do not need to be paid ex post” (*ibid.*).

⁵ Property rights and intellectual property protection would normally represent a viable option for addressing the incomplete appropriability problem. Foray et al., (2011) among others, however, advocate against this approach because a central tenant of smart specialization is ‘imitative entry’ which would be inhibited by overly stringent intellectual property protection.

⁶ Rodrik (2004) addresses ‘coordination externalities’ in considerable detail.

The relevance of institutions to fostering exploratory practices, in addition to shaping the overall suitability and conduciveness of an environment to economic activity inclusive of exploratory behaviour (*Section 3.1*), is twofold⁷. *First, institutions influence the delivery and efficacy of, in this case, incentives.* Subsidization and financial support mechanisms assume a central role in the resolution of both types of market failures inhibiting exploratory practices, even more so in the case of the incomplete appropriability problem. The provision of incentives, however, is prone to hijacking that jeopardizes its effectiveness (Rodrik, 2004: 17). A well-functioning institutional context is perhaps less susceptible to the afflictions of corruption, rent-seeking and self-interested activity meaning that support or subsidization is more likely to be provided in a suitable manner – i.e. in a manner uninfluenced by favouritism, corruption or even hubris and unrealistic expectation, for example – in a sound institutional setting.

Second, institutions, both formal and informal, as addressed, foster trust and interaction, both of which conceivably contribute to the mitigation of the coordination problems. Rodrik (2004: 13), in this respect, asserts that “[the resolution of coordination failures does] not necessitate subsidization, and overcoming them need not be costly to the government budget” and suggests that simply facilitating coordination between parties may be sufficient. Sound institutions can, at least in part, contribute to achieving this coordination and can, where necessary, work

⁷ Well-functioning institutions support the survival of existing entrepreneurial actors and encourage the emergence of new one by providing an institutional context that is conducive to all forms of economic activity (*Section 3.1*). Exploratory practices, as a form of economic activity, are therefore facilitated by, or certainly garner some benefit from, a favourable institutional context.

synergistically with incentives to rectify the coordination problem hopefully impelling exploratory behaviour.

3.3. Institutions and the engagement of entrepreneurial actors

The third and final critical component of EDP is interaction between entrepreneurial actors and policy makers to facilitate the transmission of entrepreneurial knowledge. It is imperative that policy makers can communicate directly and efficiently with entrepreneurial actors so that that information EDP aims to elicit may be aggregated, processed and synthesized and ultimately used to direct future policy choices and the design of the smart specialization strategy (Foray et al., 2011). While the exact character of the interactions between the two parties will inevitably vary, it is imperative, irrespective of context, that a sound 'ongoing' relationship exists between those capable of providing knowledge and those tasked with collecting it (Rodrik, 2004: 16).

Achieving such a relationship is, as Rodrik (2004: 17) observes, contingent on "[finding] an intermediate position between full autonomy and full embeddedness". That is, entrepreneurial information is not effectively communicated through relatively 'distant' arms-length engagement between entrepreneurial actors and policy makers necessitating a more intimate relationship. The challenge that arises in pursuit of such proximity is that, to state it

most directly, “[policy makers] end up in bed with (and in the pockets of) business interests” (Rodrik, 2004: 17).

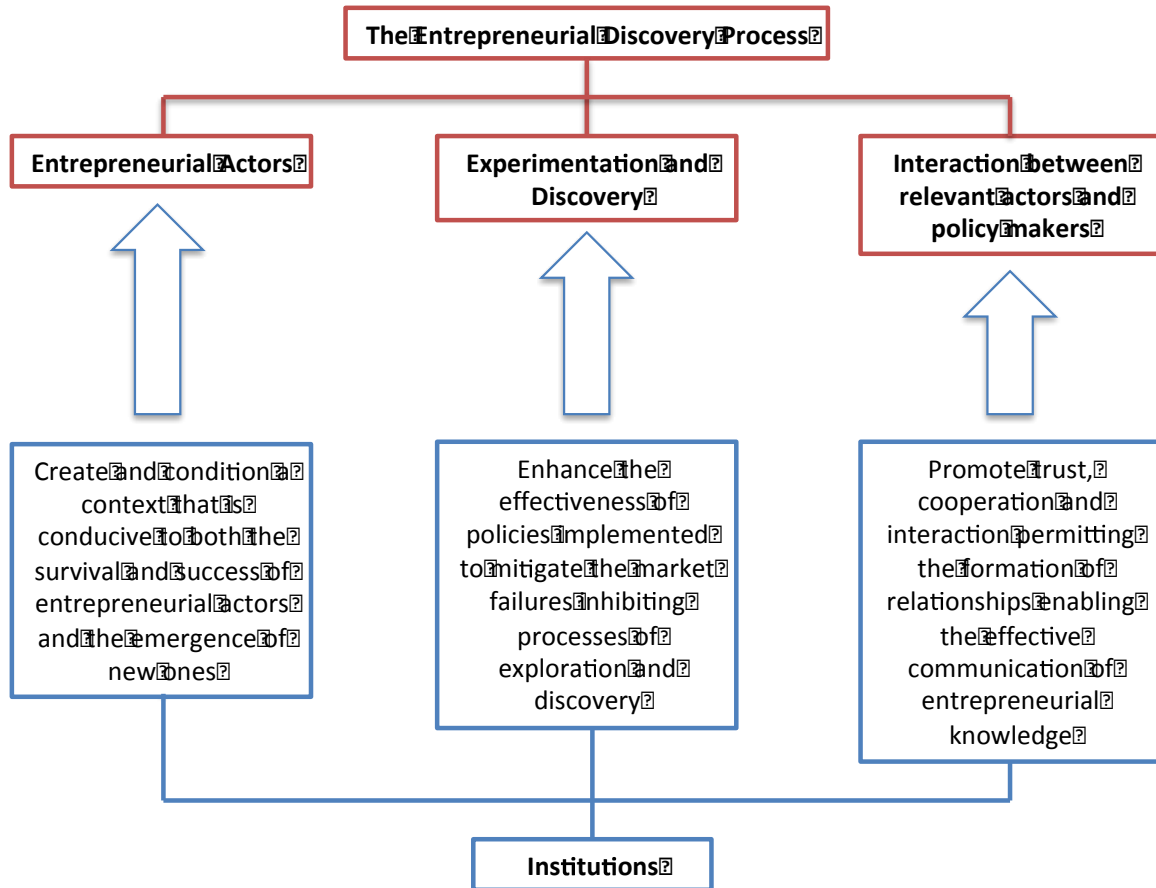
The institutional environment is a prominent determinant of whether such a relationship can emerge and be sustained. Weak institutional contexts are susceptible to behaviour that would adversely affect the likelihood of a productive relationship flourishing. A lack of trust precludes the necessary openness and interaction and the absence of transparency and the associated potential for corruption undermine the overall functioning and effectiveness of the process. Conversely, the trust, openness and transparency facilitated by strong, well-functioning institutions permit the dialogue, interaction and overall ‘closeness’ that enables the effective communication of entrepreneurial knowledge.

3.4. Mixing it all together

Figure 2 provides a simplified illustration of the intricate and multidimensional relationship between EDP and the local institutional environment in each of the three dimensions covered in the previous sub-sections. What should emerge from the preceding discussion, above all else, is that the institutional context within which EDP occurs shapes the validity of the process at all stages and, even more importantly, can exercise tremendous influence on its effectiveness and outcomes. In that regard, being aware and acknowledging the institutional context

in which EDP takes place is crucial for both the execution and the success of the exercise.

Figure 2. Institutions and the entrepreneurial discovery process



Authors' elaboration

4. Institutions and the geography of the entrepreneurial discovery process

The centrality of the institutional context to the execution of the EDP raises concerns about the 'geography' of the entrepreneurial discovery process and its

viability across variable institutional environments. A sound institutional context seemingly provides the optimal setting for the entrepreneurial discovery process. Well-functioning institutions effectively support the emergence and success of entrepreneurial agents (*Section 3.1*), facilitate, both directly and indirectly, processes of experimentation and discovery (*3.2*), and permit the internalization and subsequent application of entrepreneurial knowledge (*3.3*). In this type of stronger institutional contexts it may be anticipated then that once initiated, EDP should unfold more-or-less automatically.⁸ In these environments, policy-makers must remain vigilant and active, but their overall role is greatly facilitated by the capacity of a system in which entrepreneurial agents are in a position to constantly 'discover' and 'reinvent' new entrepreneurial avenues on the basis of existing conditions and through related variety mechanisms.

Conversely, weak institutional contexts, at best, do not facilitate the entrepreneurial discovery process and, at worst, actually inhibit it. That is, environments are less conducive to economic activity and exploratory behaviour in the absence of well-functioning institutions that would otherwise reduce transitions costs, shape incentives and promote overall efficiency (*Section 3.1*). Additionally, an adverse institutional context hampers the emergence of a productive relationship between policy makers and institutional arrangements through which knowledge

⁸ 'Automatically' is meant to connote without friction and unimpeded upon by institutional constraints, not that policy makers may act passively and assume that EDP will always occur spontaneously. There is still a need to the implementation of policies in the presence of market failures inhibiting exploratory behaviour, for example, and for concerted effort to aggregate and process entrepreneurial knowledge.

and insights may be communicated. This discrepancy between stronger or favourable institutional contexts and weak or adverse ones gives rise to a particularly important question: can EDP, and by extension (given the fundamental nature of the process) smart specialization approaches, occur in weak institutional settings?

Certainly weak institutional contexts may inhibit and hinder the inception and constant renewal of EDP in those territories where a constant identification and (re)discovery of innovative potential is most needed. However, this does not imply that weaker institutions are an insuperable barrier for EDP, but EDP will not happen without concerted effort and an awareness of the obstacles that inevitably must be addressed. Unlike in sound institutional settings, EDP will not occur automatically.⁸ Axiomatically, in these contexts more fundamental institutional reforms will have to occur. Such reforms, nevertheless, often require a longer time scale than it is awarded to simple EDP in more amenable contexts. There is then a more immediate need for external intervention to aid regions and overcome the constraints imposed on the entrepreneurial discovery process by an unfavourable institutional context. Intervention would predominately assume two forms: technical support and financial incentives and support. Technical support, such as that offered through the 'S3 platform', can assist regions to develop the capacity to implement and execute the entrepreneurial discovery process and address the prominent institutional barriers (Foray et al., 2011). Financial incentives and support, provided for example through the Cohesion and Structural and Investment Funds, can supplement this

technical assistance and will also contribute to overcoming institutional deficiencies. External intervention, if performed adequately, can also limit the ever present risk of elite capture of EDP in weak institutional process and contribute to make EDP an institutional and capacity-building tool in and of itself.

It should be noted that external intervention, financial or technical, and capacity building efforts more generally, will perhaps have the most immediate impact on formal (*Section 3.1*) institutional arrangements largely because of their tangibility, 'codifiability' and enforceability. Addressing informal (*Section 3.1*) institutions, whether that involves encouraging their development or 'correcting' adverse ones, presents a far more profound challenge for a host of reasons, the most notable of which are, first, the difficulty associated with intervening in an intangible entity (Rodríguez-Pose, 2013) and, second, the persistence and resilience of informal institutional arrangements (see, for example, Duranton et al., 2009). Consequently, breeding broad-based trust, which is most readily associated with informal institutional arrangements, is remarkably difficult, yet, as discussed, is critically important for the entrepreneurial discovery process. The only recourse, at least initially, it would seem is targeting more formal institutional arrangements, be that through external intervention or otherwise, to effectively bolster the aforementioned 'institutional framework' (and in doing so, perhaps, correct existing corrupt, exclusive or generally adverse informal institutions), and then allow sound informal institutions, and, importantly, the trust they facilitate, to mature within a

suitable formal institutional context over the longer period of time needed for this to occur.

Another critically important point that must be made explicit is that while external intervention can mitigate financial and technical capacity constraints, it is not a panacea. More specifically, the provision of support in itself cannot ensure that politicians and policy makers will be sufficiently committed to and engaged in the entrepreneurial discovery process and smart specialisation strategies more broadly. In practice, there is likely no way to be absolutely certain that the requisite political willingness and motivation will exist. That said, there are perhaps steps that may be, and in fact, must be, taken to increase its likelihood. For example, a concerted effort could be made to minimize any ambiguities concerning the respective responsibilities and tasks of various actors and groups (Chayes and Chayes, 1993:188). If all actors are, first, acutely aware of their obligations, and, second capable of fulfilling those obligations (a result, perhaps, of external intervention), the likelihood of situations of 'non-compliance', that is where actors do not perform their respective duties – which in this case would be committing entirely to the smart specialisation strategy – is reduced (Chayes and Chayes, 1993:188). Simply clarifying responsibility is, axiomatically, not sufficient in all contexts. That said, it is perhaps a suitable first step towards ensuring commitment and compliance.

Finally, it must be made explicit that while external assistance may very well play a particularly prominent role in the successful execution of the EDP in weaker

institutional settings., it is absolutely imperative, however, that the ownership of and responsibility for the process remains local. The logic underpinning this assertion is that the novelty of smart specialization approaches to innovation is exactly that they are contextually tailored to a territory's unique capabilities and challenges through their local ownership and the leadership of the local actors who best comprehend the unique conditions of that territory. Overly involved external actors undermine this logic and the effort to move away from the top-down innovation policies of the past. An adequate balance between external assistance and local ownership must be achieved in regions where external involvement is necessary so that the region may overcome fundamental barriers but may still retain control over and shape the strategy in accordance with local conditions.

5. Concluding remarks

EDP is a critically important feature of smart specialization approaches. Its execution effectively establishes a base upon which policy makers can develop and implement strategies designed to foster the activities and technologies that emerge as most viable from the process itself. Not surprisingly, increasing attention has been paid to the process and some progress has been made in developing a robust understanding of its many aspects and intricacies. That said, there is still a considerable way to go in order to make EDP the effective tool to maximise the innovation, entrepreneurial and growth potential of every territory.

It was the intention of the paper to shed more light on EDP through an investigation into the actors who should assume a role within the process and then an examination of the complex relationship between the process and institutional context within which it occurs. Four central conclusions emerge from this exercise. First, entrepreneurial actors, policy makers and society more broadly all assume roles within the entrepreneurial discovery process and no single actor's role is more important than another's. Second, there are a range of methods through which policy makers may engage local stakeholder but it is essential, irrespective of method, that a sound relationship is developed between the two parties to permit meaningful interaction and the sharing of insights and knowledge. Third, the institutional dimension of EDP cannot be overlooked as the institutional context influences the viability and outcomes of EDP. Fourth, and finally, EDP can, and in fact must, occur in both strong and weak institutional contexts, although external intervention will likely be necessary in adverse institutional environments to overcome the constraints and barriers that weaker institutions impose.

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