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Analysis Model to Identify the Regional "Strategic Bets" of Startup Porto's Network

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Abstract. The economic development process associated with entrepreneurial ecosystems comprises different approaches and its understanding is vital for regional growth. The Polytechnic Institute of Porto is boosting its entrepreneurial ecosystem, to reinforce its action as an agent of economic and social development in the regions where it operates. The objective of the work was to propose the criteria for the construction of an analysis model that allows the identification of regional "strategic bets" that will support the development of proposals for the provision of support services that integrate with the regional business base and incorporate "Decision Intelligence" to performance of the "Entrepreneurial Regional Observatory of the Porto Startup Network." The methodology used was an exploratory research and, at the end, the initiatives taken and the results are presented.

Keywords: economic development, entrepreneurial ecosystems, decision intelligence.

1 Introduction

The process of economic growth and development associated to entrepreneurial ecosystems, has been on the agendas of politicians, businessmen, academia and citizens with different approaches, both from a conceptual point of view and from its use [1].

The European Commission defines entrepreneurship as the process of improving economic activity in an organization, when it takes risks, it is creative, innovative and has a capable management system.

And as an entrepreneur, the Commission considers a person who is constantly looking for an opportunity to create value and who is never satisfied with the existing condition [2].

The Polytechnic Institute of Porto (P.Porto) is boosting its entrepreneurial ecosystem, to reinforce its actions as an agent of economic and social development in the regions in which it operates.

To this end, it is supported by the creation of the "Regional Observatory of Entrepreneurial Ecosystems of the Startup Porto network", which includes its two hubs: Porto and Felgueiras, in order to characterize these ecosystems, providing information to understand their evolution.

This paper presents a proposal for an analysis model that allows the identification of regional "strategic bets" that will support the development of proposals for the provision of support services that integrate with the regional business base of the entrepreneurial ecosystem of Startup Porto's network.

The analysis model is based on consensus criteria that can determine the level of achievement of organizations and incorporate "Decision Intelligence" into the performance of the "Regional Observatory of Entrepreneurial Ecosystems of the Startup Porto network".

The specific objectives of this work are:

- Define consensus criteria to determine the level of achievement of organizations
- Apply the proposed criteria to objectively quantify the results achieved
- Compare the results achieved with the pre-established goals and the respective performance levels.

2 Systemic Context

The constitution of an ecosystem that encourages entrepreneurship has among its essential purposes the creation of a dynamic context, characterized by the continuous flow of information, resources and knowledge that enhance innovation.

A more systemic view of the concept of these ecosystems, called entrepreneurial ecosystems, allows public policy makers to trace a new and distinct path to understanding the heterogeneous nature of these ecosystems and, through them, to promote regional economic and social development [3].

Although there is some interest at the national level, an entrepreneurial ecosystem is primarily understood as taking place in a local environment or, at most, regions, using their assets and resources, from the regional business base and the local cooperation networks [4].

The insertion, therefore, of a company in an entrepreneurial ecosystem has a strategic character, because, acting in environments in continuous mutation, where decisions and strategies must be implemented quickly, being an active participant in this ecosystem represents the possibility of sharing competences, investments and creation of value.

For an entrepreneurial ecosystem to function fully, it is necessary that three pillars are fully active, namely: nonconformed entrepreneurs wishing to solve problems, knowledge necessary to solve these problems and investors with the necessary capital to transform ideas into practice and to take the business to a higher level.

Since the European Union's reformed cohesion policy for 2014-20, European regions have been promoting research and innovation strategies for intelligent specialization as a way to create technological capacity, strengthen regional innovation systems and increase the “related variety” among the existing economic activity policies [5].

Introduced in the discussion of territorial development strategies, smart specialization is based on local endowments, international network orientation and the regions' potential for excellence.

Regional governments can align innovative actions and economic development strategies, allowing decision makers to be encouraged to adopt location-based policies, ensuring thematic prioritization and concentration to foster innovation, growth and entrepreneurship [6].

This large-scale European experience provides a new type of industrial policy, especially geared towards the modernization of traditional industrial sectors, which in itself does not bring anything new, but which is innovative in the way it proceeds [7].

The overarching idea of the smart specialization strategy is that regions can identify their innovation activities based on evidences and try to combine them into new ways of providing products and services that are attractive in the global market [8].

Some risks of bottlenecks to the application of this smart specialization strategy are observed, such as the non-coincidence between functional and administrative regions, the inability of insertion in the global value chains or the low capacity for absorption of knowledge by part of the business community associated with academic actors of regional scope.

The perception of these risks makes it possible to identify that, in order to apply the smart specialization strategy in these regions, it is necessary to focus on greater interregional and transnational articulation and on overcoming the difficulty of defining priorities due to the contrast between the internal realities of the regions [9].

The operationalization of the smart specialization policy has been quite limited, as diversification through more complex technologies can be attractive, but difficult to fulfill by the regions of the European Union.

Regions can overcome this diversification dilemma by developing new technologies that are based on related local resources, highlighting the potential risks and rewards for regions in adopting competing diversification strategies [10].

The understanding of how the regions develop new trajectories of growth and economic development and why they differ in this ability, goes through the perception that they have different possibilities to restructure their economies in the long run [11].

Regional diversity can result in benefits for the productivity of companies due to the recombination of knowledge, which allows greater opportunities to imitate, share and recombine ideas [12].

The principle of related variety then defines that economic development is driven by interactions between sectors of regional economies that are related in terms of technology or industry.

These complementary skills can improve the dissemination of knowledge and can also affect significant externalities in a region, thus contributing to the growth of an industry and a region [13].

In this context, a sustainable option will be to seek the diversification of the regional economy in new fields that take advantage of the development capacity of the regional business base and entrepreneurial ecosystem and that adhere to the existing analytical and symbolic knowledge base in the region [14].

In this sense, the study of the different regional, temporal and social configurations presents itself as an extremely current topic in the assessment and monitoring of the impact of these ecosystems as mechanisms responsible for economic development, and may, in some cases, even be presented as vital factors for the growth of the regions.

Today, the regional business base is constantly confronted with revolutionary technological advances, new emerging markets, fluctuations in demand or unexpected movements in the competition, leading companies to seek to incorporate "Decision Intelligence" in their processes and management.

Thousands of information, vertical and horizontal, flow and play an important role within companies and evaluating the efficiency of each one is an extremely critical task.

In response to that, companies are increasingly evaluating their tools to practice decision intelligence in conducting their business [15].

"Decision Intelligence" is a new concept that integrates the best of applied data science, mathematics, statistics, social and behavioral sciences and strategic management principles, unified in this nascent methodology.

The idea behind "Decision Intelligence" is to use the data in an integrated and organic way, which contains at its *core* the attributes of Artificial Intelligence, Machine Learning and the intensified use of algorithms combined with other structural methodologies.

A very effective approach to achieve the objective of adding "Decision Intelligence" to management is to define "strategic bets" [16], options that allow companies to test the possibilities presented and build their experience. If they fail, these options are likely to give up, but if they succeed, they can position organizations to capitalize valuable opportunities.

The complexity of the business environment and the amount of information available for decision-making, can lead companies to lose focus on the most relevant information. In this sense, organizations must use and benefit from the information services that can be offered by an observatory [17].

This need for useful information to assist in choosing the best decisions shows to be old, since to manage any process we need to detect trends and analyze possibilities that facilitate the decision to be made.

The construction of a "Regional Observatory of Entrepreneurial Ecosystems of the Startup Porto network" is, therefore, an important initiative, which consists of the assessement and analysis of information whose main objective is to characterize and monitor the regional entrepreneurial ecosystems, thus making known subsidies that allow understanding and monitoring their evolution [18].

In creating the observatory, P.Porto believes that it will identify regional "strategic bets" and that it will be an opportunity for the development of proposals for the development of entrepreneurial projects, oriented to the provision of support services and applied innovation, which reinforce and integrate the regional business base.

This study aimed to propose the criteria for the construction of an analysis model to enable the identification of regional "strategic bets", the first stage for the

implementation of the observatory, giving reach to the vision of the future outlined for the region.

3 Identification of Startup Porto's “Strategic Bets”

For the creation of the “Regional Observatory of Entrepreneurial Ecosystems in the Startup Porto network”, seven stages were defined, namely, the Identification of Strategic Bets, the Combination of Technologies and Related Markets, the Survey of Ideas for the Provision of Support Services, Systematization, Public Calls, Presentation of Proposals for the Provision of Support and Monitoring Services.

This work is about the first stage, the identification of the "strategic bets" of the Startup Porto network.

In this stage, the aim is to propose an analysis model based on criteria that allow gathering data from the analytical and symbolic knowledge bases and the capacities for business development and the entrepreneurial ecosystem.

This information will allow the identification of regional "strategic bets", which will subsidize the development of proposals for the provision of support services that integrate with the regional business base, as shown in figure 01.

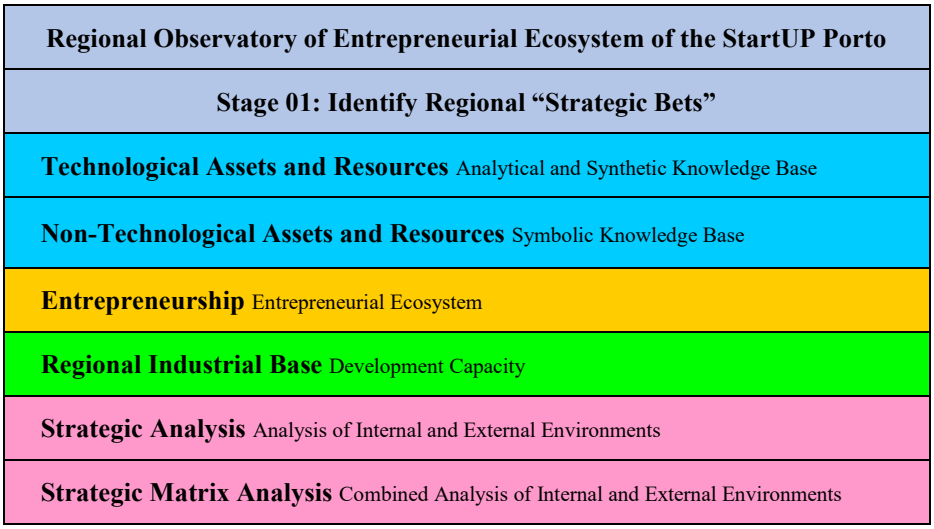

Fig. 1. Stage 01 Identify Regional “Strategic Bets” of the Startup Porto Network

The collection of these basic data is made through different ways, such from questionnaires, interviews, data analysys, among others, involving public and private entities, entities related to entrepreneurship and education and research institutions and through research of publications of governmental and private organizations, as shown in figure 02.

The objective of this process is the characterization of the potential impact of PPorto in the regional economic development, to support the definition of the strategic bets.

This characterization will be done according three complementary dimensions of analysis: PPorto R&D Centers, Entrepreneurial Ecosystem and Regional Industrial Base.

The characterization of the R&D Centers is important to define the level of proximity of the research made in the P.Porto regarding the industry.

The characterization of the Entrepreneurial Ecosystem is based on the analysis of its Determinants, Results and Impacts and the Economic Performance of Entrepreneurship.

Finally, the characterization of the Regional Industrial Base is determined by the analysis of indicators that reveal the intensity of its action for technological innovation and its industrial performance.

These dimensions will be evaluated under three validated methods, namely:

a) Technological Readiness (TRL), which indicates the ability to identify and create technology concepts and test prototypes in a laboratory environment,

b) Business Readiness (CRI), which demonstrates the ability to propose a hypothetical business model for a technology concept;

c) Commercial Readiness (BRL), which demonstrates the ability to define the potential market value of a technology concept.

The integrated application of these methods will allow to obtain, to which of the above mentioned perspectives/dimensions, a certain level of readiness aligned with Innovation, Economic and Social results and impacts and Partnerships with the productive sector.

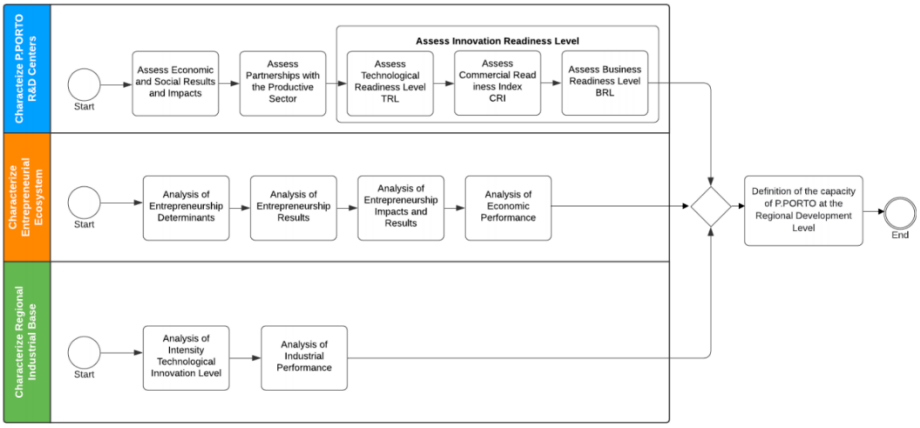

Fig. 2. Diagram of the capacity of PPorto at the Regional Development Level

These isolated data are not sufficient to express something and should be processed and translated into performance indicators so that they can measure regional performance.

The information obtained represents the factors that will provide the basis for the strategic analysis, using the scenario analysis tool “SWOT Matrix”, of the internal and external environments of the entrepreneurial ecosystem of Startup Porto's network, corresponding to the identification of resources, skills, strengths and weaknesses of the region.

Then, after determining exactly what are the opportunities, weaknesses, strengths and threats of the entrepreneurial ecosystem of Startup Porto network, we proceed with the analysis of how external factors interfere in the possibility of interns happening.

A complementary analysis of the results of the strategic analysis “SWOT Matrix”, with the objective of identifying which actions should be taken to improve the situation, can be carried out through the tool called “Cross Analysis of the SWOT Matrix”, which consists of confronting the elements of the Matrix.

Depending on the elements of the SWOT Matrix that you confront, it can establish four types of strategies called: Offensive Strategy; Reinforcement Strategy; Confrontation Strategy; and Defensive Strategy, which can be adopted and converted into regional “strategic bets", producing intense synergy.

In the end, it is important to ensure that this self-assessment and the strategy that results from it are shared and appropriated widely by the region.

4 Conclusions

From the emergence of the initiative to implement the “Regional Observatory of Entrepreneurial Ecosystems of the Startup Porto network”, this work dealt with the proposal of criteria for use in an analysis model that allows the identification of regional “strategic bets”.

From this proposal of criteria, it was possible to preliminarily analyze the history of fundraising and socioeconomic impact of collaborative projects between P.Porto and the regional industry.

In a step to follow, internal forum will be held for the presentation and discussion of the results of the most recent research and projects in execution.

For future work, the criteria for collecting primary and secondary data related to Assets and Technological and Non-Technological Resources, Regional Business and Basis of Entrepreneurship will be proposed.

It is worth mentioning that this work starts a first proposition of criteria, which should be further developed and improved for future analysis, and that other criteria can also be proposed.

Finally, it was observed that, from the proposition of these criteria, there was a demonstration of interest from the academic community to the theme and, mainly, to the suggestion of new analysis criteria.

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