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# **The role of Entrepreneurial Universities in interfacing Competitive Advantages: The Case of Beira Interior region (Portugal)**

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This paper reveals the importance of a local entrepreneurial university in interfacing competitive advantages, by assuming the condition of most influent and dynamic engine of regional development. The strategic diagnosis provides the identification of a dominant quadrant in the TOWS matrix application to the Beira Interior region, which is dominated by Mini-Maxi strategies. For improving the competitive positioning of that region, the transition from the dominant quadrant (Mini-Maxi) to the most desirable quadrant (Maxi-Maxi) is also proposed. In this sense, the University assumes a fundamental role in the design and in the promotion of the proposed set of strategic actions, which should be implemented in two critical areas: traditional activities and tourism; and entrepreneurship and innovation. In terms of future research, the same analytical tool could be applied to other regions with a similar competitive profile, in order to obtain comparative analyses and to better calibrate the TOWS Matrix.

Key-Words: Entrepreneurship, Regional Development, Strategy.

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This paper reveals the importance of a local entrepreneurial university in interfacing competitive advantages, by assuming the condition of most influent and dynamic engine of regional development. The strategic diagnosis provides the identification of a dominant quadrant in the TOWS matrix application to the Beira Interior region, which is dominated by Mini-Maxi strategies. For improving the competitive positioning of that region, the transition from the dominant quadrant (Mini-Maxi) to the most desirable quadrant (Maxi-Maxi) is also proposed. In this sense, the University assumes a fundamental role in the design and in the promotion of the proposed set of strategic actions, which should be implemented in two critical areas: traditional activities and tourism; and entrepreneurship and innovation. In terms of future research, the same analytical tool could be applied to other regions with a similar competitive profile, in order to obtain comparative analyses and to better calibrate the TOWS Matrix.

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## **1. Introduction**

Nowadays, one of the key aspects of the regions, if not the most determining one, is their competitiveness. Traditionally, the efforts to explain the competitiveness of a region have been based on an aggregated perspective, concentrated on the characteristics of the factors, on macroeconomic indicators and on government policies. However, it has been observed that the traditional theory of the comparative advantage is not enough to understand the new demand patterns that regions have to face. Porter defends a new paradigm of competitiveness, based on a process of dynamic innovation of the firms and of the industries.<sup>1</sup>

A regional context that supports the innovation and the entrepreneurial initiative encourages competitiveness. Porter states that interrelations among firms, institutions and industries sustain and develop the competitiveness of a region.<sup>2</sup>

The strongest interrelations occur when firms or institutions with different competences overcome the barriers of communication and cooperation and face a common threat together or when they take advantage of an emerging opportunity.

The globalisation of the economies and the mobility of the factors do not allow for thinking just in terms of the existence and of the ownership of resources, because the way those resources are used is what determines competitiveness.<sup>3, 4, 5</sup>

The resources should have some capacity to generate profits or to avoid losses. A general availability of resources tends to neutralize the competitive advantage to the firm, since to reach high levels of performance and a sustainable competitive advantage, it is necessary to have resources that are heterogeneous and difficult to create, to substitute, or to imitate by other firms.<sup>6</sup>

The competitive value of the resources can be enhanced or eliminated through changes in technology, in competition behaviour, or in buyers' needs and these are aspects that would be neglectful if the focus of analysis were only on the internal resources.<sup>7</sup>

As Chandler and Hanks<sup>8</sup> state, the resources and the capacities constitute a satisfactory basis for the formulation of competitive strategies. However, the formulation of a competitive strategy involves a sophisticated understanding of the industry structure in which the firm competes and in the way that structure develops.

According to Porter<sup>9</sup>, the differences in the economic structures, values, cultures, institutions and national histories contribute to the competitive success. In any industry, the core of the competitiveness is centred on five competitive forces: (1) the strength of competition; (2) the power of the buyers; (3) the power of the suppliers; (4) the likelihood for new firms to enter into the industry; and (5) the strength of the substitutes for the industry's products.

The conditions of the environment of a region and its industries strongly influence the way firms are created, organised and managed and

also the choice of their own strategy. The changes in the conditions of the environment create as many new opportunities as new threats to the firms. These changes can modify the consistency between strategy and environment and press the firm to select a different strategic orientation.<sup>10</sup>

In today's highly competitive environment, business's ability to keep up with technological progress and continuously innovate is critical for its survival and growth.<sup>11</sup>

This way, it becomes fundamental to analyse the specific characteristics of the environment in which the firms interact, through a detailed diagnosis that allows the firms and other agents to detect their competitive advantages and develop the strategy in a sustainable way. For that effect, the firms can take for granted some analytical instruments that allow them to obtain a detailed diagnosis both of their internal situation and of the environment in which they are placed, in order to identify the nature and the causes of their restrictions and potentialities. The TOWS matrix or situational analysis is one of the most outstanding instruments in the framework of strategic analysis. This matrix is constituted by concepts of strategic planning such as: Threats (T), Opportunities (O), Weaknesses (W), and Strengths (S).<sup>12, 13</sup>

The TOWS matrix is a conceptual structure that combines external and internal variables allowing for the establishment of relationships between those variables and the strategies of the firm. As a management instrument, the matrix makes it possible for the decision makers to

analyse the situation of the region and to develop strategies. The TOWS model can be applied to different levels of analysis; in other words, both at an aggregate level, in order to diagnose the competitive advantages of a nation, and at a regional level, in order to identify and to propose the competitive and strategic variants of a region. <sup>14, 15, 16, 17</sup>

The study presented here has as main objective to apply the analytical tool of the strategic conduct of the TOWS Matrix, which was proposed by Weihrich <sup>18</sup>, to the Beira Interior region. After the present introduction, in section two, the entrepreneurship and the entrepreneurial universities are presented as determinants of regional development. In section three, a diagnosis of the competitive advantages of the Beira Interior region is made, through the identification of the threats and the opportunities that justify the implementation of strategic actions. Furthermore, the main forces and weaknesses are presented, taking into consideration the strategic planning of new activities for the region in study. A revision of the analytical tool: Matrix TOWS; is made. In section four, strategic alternatives for the Beira Interior region are presented aiming to reach the ideal strategic quadrant, which allows exploring the opportunities and incorporating the observed strengths. Finally, the conclusions and the guidelines for future researches are presented.

## **2. Entrepreneurship and Entrepreneurial Universities: Determinants of Regional development**

In the last two decades, the interest about the entrepreneurship topic has, substantially, increased. Despite the high number of published studies related with entrepreneurship, no universally accepted theory has emerged.<sup>19</sup>

Firstly, entrepreneurship was described as a mercantile behaviour by Cantillon<sup>20</sup>, as innovative, by Schumpeter<sup>21</sup> and Penrose<sup>22</sup>, and as uncertainty and risk activities, by Knight<sup>23</sup>. Recently, the entrepreneurship has been associated with high levels of risk, innovation and proactiveness.<sup>24, 25, 26, 27, 28, 29</sup>

In the literature, several authors have grouped the researches according to different schools in order to obtain some consensus about the entrepreneurship concept. Veciana<sup>30</sup> considers four theoretical approaches:

(i) The economic approach that includes all of the theories in the framework related with the entrepreneurial function and the creation of a firm supported in the economic rationality. The transaction costs and the Schumpeter's theories are framed in this approach.<sup>31, 32, 33</sup>

(ii) The psychological approach focused on the determination of the psychological behaviour and on the attributes that differentiate entrepreneurs from the rest of the people;<sup>34, 35</sup>

(iii) The socio-cultural or institutional approach that assumes that the decision to create a firm is conditioned either by external factors or environmental factors. In this context the socio-cultural factors or the institutional environment decide the entrepreneurial spirit and the creation of firms. Several theories such as the evolutionary theory, the population ecology theory and the networks theory incorporate this approach;

(iv) The managerial approach is based on the assumption that the creation and development of firms derive from a rational process in which the knowledge and the techniques developed in the areas of knowledge economy and management are decisive. This approach includes the theories of efficiency of Leibenstein, the theories of entrepreneur's behaviour and the theories of generation models and development of innovative projects.

The changes observed in the economic world in the last years induce regional economies to reconsider the way to compete in global markets.<sup>36</sup> The use of scientific knowledge constitutes the most effective way to improve the competitive profile of the regions, because it makes possible to incorporate the most recent technological developments in the productive system of the local firms.

Taking into consideration the educational needs and the effects associated with the digital organisation of the society, the universities are committed with society to consolidate its actions in the sense of promoting the entrepreneurs' development.<sup>37</sup> Nevertheless, the following question remains open: How to teach entrepreneurship in a successful way for

students to develop competences and specific capabilities? Two reasons to develop entrepreneurial initiatives are presented in the literature. Firstly, some individuals identify a job opportunity and consider it as a career option. Secondly, others opt for self-employment, given either the lack of work or the unsatisfactory conditions associated with job offers.<sup>38</sup>

According to Tisdell<sup>39</sup> and Charles<sup>40</sup> the role of the universities, in a knowledge society, is the need to adopt a new education paradigm that should be focused on the digital economy, in order to develop creative and innovative behaviours, which should result in interfaced competitive advantages.

The emerging literature about entrepreneurship stresses the role of universities in promoting interfaces between the scientific community and local firms, which lead to the creation of new firms.<sup>41</sup> In this sense, it becomes necessary to analyse the established relationships between universities and several agents of the regional system, aiming to reach a long term strategic planning instrument.

The environment where firms, universities and other entities operate, in order to create innovation processes and networks, needs an interfaced regional basis.<sup>42, 43</sup> In fact, the firms do not innovate isolated from its contextual environment. From this, it may be defended that innovation results from an interacting process among the firms and between them and the institutions which were generated in a certain regional influence area.<sup>44, 45, 46, 47</sup>

In general, universities have been criticised for not providing adequate means of educating or training professionals with characteristics typically associated with an entrepreneur profile; that is to say, a professional with creativity, leadership skill, vision and capacity to build relationship networks. The dynamics generated by the interface between the educative offer and the educative demand has positive effects, in terms of region competitiveness, by creating institutional networks, which may lead to the promotion of a learning region.

As Goddard affirms "the key for emergence of a learning region is the human infrastructure and the institutional mechanisms that hold up the interactive learning".<sup>48</sup> This interactive learning is operated through several economic and social agents in the regional influence area, who have different types of competencies, information and knowledge.

The development of entrepreneurial initiatives in universities implies the intensive participation of different agents such as teachers, students, and the labour force involved, who operate the implementation process. These agents assume a special role in contributing to the development of an entrepreneurial mentality, covering the interface between teaching processes and technology transfer movements.<sup>49</sup> As Guan *et al.*<sup>50</sup> affirm the linkages among universities, research institutes and industry constitute significant portions of regional as well as national innovation systems. Therefore, improved collaboration between them is vital for the competitiveness of a region.

This referred interface can generate new businesses and may promote the technological and the economic development of the regional area of influence of the university. Furthermore, it can contribute to reinforce the training of the labour force, to create support conditions for the development of new technologies and to use the human capital in research and development activities, as it happens in universities.<sup>51</sup>

The actions for supporting research and development activities are primordial to build an effective bridge, in the form of technology transfer from the universities either to new firms or established ones. These actions should directly support the research projects that aim to develop technologies, to allow the use of new productive processes and to launch new products or services.<sup>52</sup>

In this domain, the universities assume a special importance in orienting the entrepreneurial mentality towards the establishment of formal interfaces, which can lead to the creation of new firms by including different agents such as teachers, researchers, students and entrepreneurs.<sup>53</sup>

According to Ferreira *et al.*<sup>54</sup> this can be achieved through a strategic actuation in four related fields. First, teaching entrepreneurship in universities contributes to the entrepreneurs' training and promotes the creation of new firms, through the implementation of mechanisms that would motivate students to start their own business.

Second, applied research in the topic of entrepreneurship aims to create an adequate atmosphere for developing spin-offs, as a result of

research projects developed in universities and of their research centres, which should cover the creation of new businesses using new technologies.

Third, consultancy, the technology transfer and the diffusion of the scientific knowledge are developed in order to promote a formal interfacing mechanism to be developed between universities and firms that can be accomplished, jointly, by teachers, researchers, students and entrepreneurs.

Finally, the incubators for new technological firms assure the basic structure for developing electronic business. Additionally, from these incubators, a support infrastructure oriented for the entrepreneurial initiative can be designed, in order to transform new ideas into competitive businesses.

In this context, the universities are very important in creating interfaced competitive advantages, through the creation of a knowledge dissemination process and the offer of new scientific and technological knowledge to the entrepreneurs, in particular, and to the society, in general. According to Harper *et al.*<sup>55</sup> it is important to examine necessary developments in four main areas of business-university interaction: (1) commercialisation of knowledge developed in universities is concerned with founding new firms or licensing to existing ones; (2) human resources development; (3) research collaboration where the model is normally that a firm either directly sponsors research in a university or

else works within the framework of a government sponsored collaborative programme; (4) networking/business development.

In this sense, it becomes necessary to make a strategic diagnosis of the competitive advantages related to the regional influence area, in order to obtain both an analytical tool and a strategic planning.

### **3. Diagnosis of the competitive advantages of the Beira Interior Region (Portugal)**

The diagnosis is initiated in the external environment, by identifying the Threats (T) that may constitute possible obstacles to the development of the firms' activities. Additionally, the Opportunities (O) to develop alternative strategic proposals should be identified. The Threats and Opportunities can be found in different areas, but it is desirable to deeply examine the most common areas, such as economics, social, political and demographic factors, products and services, technology, market and competition. The internal environment is also analysed, by identifying the Strengths (S), and the Weaknesses (W). These internal factors can be found in different areas, such as management and organisation, operations, finance, marketing and others. In the next two subsections, an analysis both for the external, and the internal environment of the Portuguese region in study, the Beira Interior, is presented.

### *3.1. Threats and Opportunities*

In the domain of the main threats that are negatively susceptible to affect, the Beira Interior region, the slowness in the construction of the global transports network should be enhanced in the first place. In this sense, the region in study presents serious competitive disadvantages, when compared to other Portuguese regions, and other European regions, that present a higher industrial, agricultural and tourist specialisation, which are supported by an extremely well structured network of international distribution.

The existence of a certain resistance to the initiatives of inter-business cooperation should be enhanced, as well as the difficulties in the inter-associative cooperation, which both contribute to the inexistence of an adjusted regional strategy. This strategy should be assumed by the agents with effective responsibilities, at the level of the constitution of a new mix of cultures, including entrepreneurship, investment in venture capital and innovation.

This way, it is urgent to overcome some practices of intra-regional competition observed in the past and the difficulties in the establishment of links between national and regional public entities.

In the entrepreneurial domain, the predominance of small business units makes difficult the introduction of new management practices in their activities and the creation of new trading activities. In the agricultural domain, the local producers have usually been dependent on

European funds. This situation could be reverted by the recover the regional and the traditional cultures properly articulated, through the creation of a new distribution mentality and by the promotion of cooperative movements among producers, using an umbrella brand called *Serra da Estrela*. These promotion activities should be focused on the distribution "hot points", for instance, in shopping centres, which are located in the main Portuguese and Spanish urban centres and also on the tourist and gastronomic routes.

In the Beira Interior region, the development of several infrastructural projects has been supported by European structural funds, which should be expanded, at a regional level, through the launching of new incentives (for example, covering digital and residential equipment), in order to retain young qualified human resources in the region.

The implementation of these kind of incentives will be possible, if a common strategy that contemplates the creation of a regional brand image is implemented and also if a diversification of the supply of regional products is observed.

This strategic articulation can be obtained through the materialisation of a Regional Technological Plan promoted by the Coordinating Commission of Development of the Region of the Centre (CCDRC), in order to stimulate the regional innovative potential and to provide the reinforcement of the projects that are presently supported by the European Structural Funds.

Besides that, cooperation agreements among producers of the different Industrial Parks, including the PARKURBIS - Park of Science and Technology (located in the region) should be established, in order to structure a network cluster based on innovative production technologies and whose interfaced competitive advantages will allow them to face the national and international competitors successfully.

### *3.2. Strengths and Weaknesses*

The competitiveness of Beira Interior is based fundamentally on the current strengths that come from its geographical location, in the Iberian context and, above all, from their natural and environmental resources. Additionally, the cultural and historical patrimony should be enhanced and that can contribute decisively to a diversified supply of tourist products.

The Beira Interior region presents a territorial dynamics based on the tradition and the know-how obtained in industrial, commercial and agricultural production. The existence of both public graduate schools and professional teaching, with a connection to innovation and technology centres, contributes to the reinforcement of the dynamics of the training offer. Additionally, the increase of the production capacity and the accomplishment with high quality patterns, in different industrial specialisations, should be promoted.

The importance of the local development associations and the regional associative structures should be enhanced in order to promote the success of regional development policies.

Besides, the existence of a Park of Science and Technology (PARKURBIS) provides the possibility of establishing relationships among the economic agents, which can result in cooperative networks conglomerates to firms with differentiated industrial specialisations, in the Beira Interior region.

The incubator of PARKURBIS can also work as a catalyst for technological startups, by promoting the creation of innovative firms with an international profile.

The Beira Interior presents a diversified supply of technological and innovative services, as well as equipments in the areas of education and health, which largely contribute to the reinforcement of the local competences in the traditional clusters (textile, Agriculture and Public Administration).

In the last two decades, with the development of higher education and with the growing tourist promotion of the region in their different dimensions, more diversified services started to operate. These services should be strategically oriented, by the responsible entities, to the use of the natural conditions and of the regional and traditional productions.

In what concerns to the main weaknesses, the peripheral location relative to the great national urban centres should be stressed. A certain isolation and the inherent comparative disadvantages in relation to the

great urban centres of decision making determine the observable difficulties in the attraction and in the retention of young qualified human resources in the region.

The inexistence of a culture of inter-business cooperation reflects a certain level of individualism in institutional and entrepreneurial initiatives. It must also be stressed that the weak regional cohesion has been worsened by the rivalry between the cities. This individualistic behaviour makes a strategic actuation unfeasible, which results in the inexistence of a main distribution centre or of a coordinated and unified promotion of the regional products, protected by a strong umbrella brand called *Serra da Estrela*.

In terms of an industrial base, mono-industry situations are observed. These situations usually appear linked to the traditional sectors, being allied to a reduced capacity of incubation of innovative firms. In this sense, it urges to invert these situations, given that this also poses serious difficulties to the reconvertng of the activities of the supporting industries.

### *3.3. A TOWS Matrix Approach to the Beira Interior Region*

One of the instruments for strategic analysis, which combines external and internal variables, is the TOWS Matrix. This instrument makes it possible to analyse the current strategies and the relationship between the factors and it also proposes alternative strategies, in order to identify or to reinforce the competitive advantages of the unit of analysis.<sup>56</sup>

The TOWS Matrix is a conceptual model that allows carrying out systematic analyses that facilitate the crossing among the strengths and weaknesses of a firm, region or nation and the correspondent opportunities and threats detected in the competition environment. In this analysis, it is considered that the development of alternative strategies requires a systematic analysis of the strengths and weaknesses of the correspondent system. It is important to emphasize that this system operates inside a large external environment, in which threats are detected, despite the detection of opportunities. According to Weihrich, these external and internal variables should be matched in order to perform the strategic diagnosis of the unit of analysis.<sup>57</sup>

In order to make a synthesis of the diagnosis relative to the matching between the internal the external variables of the Beira Interior region, a TOWS Matrix is presented (Table I).

*Insert Table I about here*

## **4. Strategic Alternatives for the Beira Interior Region**

In this section, a set of strategic alternatives for the region under study is proposed (Table II), in order to guarantee a successful transition between the dominant development quadrant that is the Mini-Maxi (which concerns the present strategic diagnosis scenario presented in Table I) and the most desirable quadrant, in terms of the future positioning of the region under study, that is, the Maxi-Maxi.

*Insert Table II about here*

The substantial improvement of the performance of the region under study should be based on the behaviour modification of the agricultural and industrial producers and of tourist operators (with big and small dimension), in order to reinforce the internal strengths and to create the maximum added value based on the profitable use of the identified opportunities in the external environment.

In order to reach an ideal scenario in the Beira Interior region, the establishment of a set of strategic alternatives should be operated through the use of the mentioned analytic tool: the TOWS matrix (Table I). This must be assured through the implementation of a strategic plan, which has to embrace the local institutional agents, covering three main directives: *entrepreneurship, innovation and territorial competitiveness*.

These three main directives aim to reinforce the basic conditions for the development of the entrepreneurial initiative, to diversify the

agricultural and industrial specialisations and to strengthen the competitive advantages that were accumulated, during the secular development of traditional specialisations that were based on the exploitation of the natural resources.

In what concerns the first directive (*entrepreneurship*), the promotion of a formal entrepreneurship programme is proposed conjointly with the creation of an annual prize for the best business plan.

This kind of formal measures should be accompanied by the reinforcement of the training offer, in this specific field, by creating post graduation programmes (for example, MBA) in two strategic areas that are the entrepreneurship and the creation of technological businesses. Furthermore, it's important to eliminate the sunk costs associated with the municipal taxes and to offer incentives to new entrepreneurial initiatives, making use of merit prizes and of scholarship grants. This aims to attract and to retain the best young students in the region, by offering them the possibility to create their own businesses.

In relation to the second directive (*innovation*), a set of incentives oriented to innovative activities should be promoted in order to create a reactive mechanism focused on the development of new business initiatives. This may be operated through the creation of venture capital societies, the promotion of public/private co-owners, the development of a unit for certifying the quality of the regional products, in articulation with the local university, and also by promoting the creation of an annual prize for the most innovative firm in the Beira Interior region.

Concerning the third directive (*territorial competitiveness*), in case of existence of a non cooperative promotion of the territorial competitiveness of the Beira Interior region, all the strategic alternatives previously proposed can result in a set of inefficient and isolated measures. For this reason, a cooperative promotion should be based on the design of a global strategy for distribution, aiming to assure the trading of agricultural and craft products and of products of animal origin, properly certified and identified by the umbrella brand called *Serra da Estrela*; which should be vertical and applicable to related products.

Nevertheless, the obstacles presented by the natural conditions and by the peripheral location of the region in study should be overcome. This way, it is crucial to develop wireless communications networks between urban and rural centres, in order to promote inter-regional networks of communication. These wireless networks are seen as a privileged way of interfacing the existing competitive advantages of the region, concerning patrimony, culture, scientific research, education and established industrial and agricultural productions. In this sense, the promotion of the region on a Web base will contribute not only to the reinforcement of the interfaced competitive advantages but also to the creation of more cooperative institutional networks, which should embrace the different decision makers of the relevant governmental institutions, both at a national and a regional level.

## **5. Conclusions**

In applying the analytical tool called TOWS Matrix to the Beira Interior region (Portugal), and according to the strategic diagnosis now performed, a set of critical factors were identified at external and internal level, which provides an articulated proposal, including strategic alternatives for developing interfaced competitive advantages on a regional basis, in a sustainable way.

Through the prosecution of this strategic diagnosis, a dominant quadrant the W-O strategies called Mini-Maxi was identified. It must also be highlighted that this quadrant is being characterised, firstly, in the tourism area by the creation of the route of the cheese and wine of Beira Interior, in articulation with the network of historical villages; by the building of sport infrastructures, including diverse trails in spaces of the NATURA Net; by the preservation of the architectural patrimony, and also by the preservation of the environment in the rural villages. Secondly, in the area of traditional activities, a set of incentives for revitalising these activities has been supported with a special incidence in activities developed by women and by unemployed people. Furthermore, the registry of the mentioned local traditional activities and of the local and endogenous resources was made. Thirdly, in the area of the Information and Communication Technologies (ICT), the local university has assumed a central role in promoting a development engine in the Beira Interior Region, by implementing innovative projects such as the E-learning

Project, based in wireless communication networks; the SAMURAI Project, with multimedia applications in hospitals, universities, and urban centres; the INPROLAN Project, aiming to develop new products and new manufacturing processes for woollen and clothing industries; and the SEMENTE Project, which is focused on the development of new contents in the health and medical assistance areas.

In order to improve interfaced competitive advantages for this region, and taking into consideration the present strategic scenario of development of the region, the transition from the dominant quadrant (Mini-Maxi) to the most desirable quadrant (Maxi-Maxi) is also proposed.

A set of focused actions in two critical areas are proposed in order to achieve the mentioned competitive positioning. Those areas are (i) traditional activities and tourism; (ii) entrepreneurship and innovation.

For the first critical area, an umbrella brand called *Serra da Estrela* should be promoted. A unit for certifying the quality of the regional products should also be created in articulation with the University of the Beira Interior (UBI). A strategy for the distribution and the commercialisation of the regional products should be designed and subsequently be implemented.

In what concerns the second critical area, a formal programme for entrepreneurship and innovation should be promoted; an annual prize for the most innovative enterprise and for the best business plan should be created and the risk capital societies for supporting innovative initiatives should also be promoted by evolving public and private entities.

Additionally, a set of specific incentives for developing new entrepreneurial initiatives (for example, merit prizes, scholarships grants, and abolition of municipal taxes) should be promoted by the relevant entities. Moreover, the launching of a MBA, targeting the creation of technological businesses, should be assured by the university.

Finally, in terms of future research, it would be interesting to apply the same analytical tool to other regions with a similar competitive profile, in order to perform comparative analyses, taking into consideration the benchmark now obtained. This comparative analysis could contribute to the calibration of the analytical tool that is used in the present article in the generic context of the development of interfaced competitive advantages of the regions. In this sense, it will be possible to formulate strategic alternative proposals, taking into consideration an effective articulation between the strategic diagnosis presented and the future regional development scenarios for the regional unit of analysis.

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**Table I – The TOWS Matrix of the Beira Interior Region (Portugal)**

<p><b>Internal Factors</b></p>	<p><b><u>Strengths (S)</u></b></p> <ul style="list-style-type: none"> <li>▶ Geographical location in the Iberian context.</li> <li>▶ Natural and environmental resources.</li> <li>▶ Cultural and historical patrimony.</li> <li>▶ Tradition and know-how in the agricultural and industrial production.</li> <li>▶ Existence of professional and higher education institutions with connections to the main innovation and technology units.</li> <li>▶ Existence of Research and Development (R&amp;D) units.</li> <li>▶ Networks of regional development agencies.</li> <li>▶ Existence of Technological and Industrial Parks with specific industrial specialisations.</li> <li>▶ Mechanisms of tourist promotion, through organised actions of the Tourism Region of <i>Serra da Estrela</i>.</li> <li>▶ Progressive fixation of highly qualified human resources.</li> <li>▶ New supply of services, which are based on the region.</li> </ul>	<p><b><u>Weaknesses (W)</u></b></p> <ul style="list-style-type: none"> <li>▶ Location relative to the big Portuguese cities.</li> <li>▶ Transports network (highroads, railroads, and airport).</li> <li>▶ Lack of coordination between institutional practices.</li> <li>▶ Rivalry between the most important cities.</li> <li>▶ Increasing of the older population.</li> <li>▶ Low level of schooling and weak indices of medium and high qualifications.</li> <li>▶ Reduced versatility, and difficulties in reconverting human resources.</li> <li>▶ Inexistence of a culture of inter-business cooperation.</li> <li>▶ Subordination to exterior units of distribution which are located faraway from the region.</li> <li>▶ Inexistence of promotion practices of the regional products, using an umbrella trade mark.</li> <li>▶ Limited capacity for incubating new innovative firms.</li> </ul>
<p><b><u>Opportunities (O)</u></b></p> <ul style="list-style-type: none"> <li>▶ Cooperation between Portugal and Spain.</li> <li>▶ Construction of new communication facilities (national and international highroads).</li> <li>▶ Fixation of highly qualified human resources.</li> <li>▶ Demand for high quality regional products.</li> <li>▶ Creation of a regional brand image.</li> <li>▶ Diversification and integration of the tourism supply.</li> <li>▶ Dissemination of the use of Information and Communication Technologies (ICT).</li> <li>▶ Promotion of innovating and entrepreneurial activities.</li> <li>▶ Incubation of new companies in the scope of the Science and Technology Park: PARKURBIS.</li> <li>▶ Design and implementation of a Regional Technological Plan.</li> <li>▶ Use of European structural funds, by arranging cooperative networks between Portugal and Spain, in the education and medical assistance areas.</li> <li>▶ Reinforcement of the partnerships between the public and the private sectors.</li> <li>▶ Creation of the Medicine Faculty.</li> <li>▶ Attraction of investments made by the immigrants that return to the region.</li> </ul>	<p><b><u>S-O Strategies: Maxi-Maxi</u></b></p> <ul style="list-style-type: none"> <li>▶ Strengthen of the distribution channels of agricultural and craft products.</li> <li>▶ Incentives for the production of craft articles and others.</li> <li>▶ Preparation and execution of a Strategic Plan for the Regional Development (SPRD).</li> </ul>	<p><b><u>W-O Strategies: Mini-Maxi</u></b></p> <ul style="list-style-type: none"> <li>▶ Creation of the Cheeses and Wines Route of the Beira Interior, in articulation with the network of historical villages.</li> <li>▶ Creation of sporting infrastructures and of diverse trails in spaces of the NATURA Net and others.</li> <li>▶ Preservation of the patrimony and of the environment of the rural villages.</li> <li>▶ Incentives for supporting the traditional activities, with special incidence in the activities developed by women and unemployed (subject to a professional conversion).</li> <li>▶ Registry of the local traditional activities, and of the endogenous resources.</li> <li>▶ E-learning project based on wireless communication networks.</li> <li>▶ SAMURAI Project – Multimedia Application in the Hospitals, Universities, and Cities.</li> <li>▶ INPROLAN Project – Development of new products and of new manufacturing processes in the woollen and clothing industries.</li> <li>▶ Development of the Laboratory of Communication and Contents online.</li> <li>▶ SEMENTE Project – Development of contents for the health and medical assistance areas.</li> </ul>
<p><b><u>Threats (T)</u></b></p> <ul style="list-style-type: none"> <li>▶ Slowness in the finishing of the general accessibilities plan.</li> <li>▶ Industrial, agricultural and tourist specialisation, of the new members of the EU.</li> <li>▶ Resistance to the initiatives for inter-business cooperation.</li> <li>▶ Difficulty of adaptation of the small firms to R&amp;D initiatives.</li> <li>▶ Difficulties in the institutional cooperation.</li> <li>▶ Insufficient levels of regional mobilisation.</li> <li>▶ Difficulties in the retention of qualified human resources, in specific areas.</li> <li>▶ Absence of an innovative capacity of the agricultural regional producers.</li> </ul>	<p><b><u>S-T Strategies: Maxi-Mini</u></b></p> <ul style="list-style-type: none"> <li>▶ Creation of a Unit for supporting Innovation and Entrepreneurship, in order to create an interface between the entrepreneurs and the European Programs and Funds.</li> <li>▶ Mini-MBA focused on the formation of intermediate chiefs, functioning in the entrepreneurial environment.</li> <li>▶ Rehabilitation of the edified urban patrimony.</li> </ul>	<p><b><u>W-T Strategies: Mini-Mini</u></b></p> <ul style="list-style-type: none"> <li>▶ Participation and organization of national and international meetings of commercial and industrial activities.</li> </ul>

**Table II – Strategic Alternatives for the Beira Interior Region**

<p style="text-align: center;"><b><u>S-O Strategies:</u></b> <b><u>Maxi-Maxi</u></b></p> <ul style="list-style-type: none"> <li>▶ Creation of an umbrella brand: Serra da Estrela; vertical and applicable to the ranges of related products.</li> <li>▶ Creation of a unit for certifying the quality of the regional products, in articulation with the University of Beira Interior (UBI).</li> <li>▶ Implementation of a strategy for the distribution and the commercialization of agricultural, craft products, and of animal origin.</li> <li>▶ Promotion of a formal Program for Entrepreneurship and Innovation.</li> <li>▶ Creation of an annual Prize for the most Innovative Firm in the Beira Interior.</li> <li>▶ Creation of an annual Prize the Best Business Plan (BBP).</li> <li>▶ Incentives for new entrepreneurial initiatives (attribution of merit prizes, and of scholarship grants; and abolition of the municipal taxes).</li> <li>▶ Creation of MBA in the areas of Entrepreneurship and creation of Technological Businesses.</li> <li>▶ Venture Capital Societies for developing innovative activities (public/private co-owners).</li> </ul>	<p style="text-align: center;"><b><u>W-O Strategies:</u></b> <b><u>Mini-Maxi</u></b></p> <ul style="list-style-type: none"> <li>▶ Network of Multimedia Access Points located in the rural centres, interconnected with the Libraries, and the Local Public Authorities and Agencies.</li> <li>▶ Medical assistance network and payments consulting system, using a telematic channel, which should be based on cooperative networks to be established between the Portuguese and the Spanish Centres.</li> <li>▶ Creation of an International Airport, located in the city of Covilhã, where is also located the UBI, and re-establishment of the air connections (passengers and merchandise).</li> <li>▶ Creation of a Reservation Central for Rural Tourism Units and connected activities.</li> </ul>
<p style="text-align: center;"><b><u>S-T Strategies:</u></b> <b><u>Maxi-Mini</u></b></p> <ul style="list-style-type: none"> <li>▶ Creation of an E- marketplace for trading regional products.</li> <li>▶ Creation of wireless communication networks between rural and urban centres.</li> <li>▶ Preventive plan for aircraft use in forest fires.</li> </ul>	<p style="text-align: center;"><b><u>W-T Strategies:</u></b> <b><u>Mini-Mini</u></b></p> <ul style="list-style-type: none"> <li>▶ Organization of a Network of Knowledge Cities, covering Portuguese and Spanish cities located near the border area of both countries.</li> <li>▶ Recovering of the Wool Route, in a digital basis.</li> </ul>