1. INTRODUCTION

Expand the channels of relationship and strengthen external partnerships for acquisition and development of innovation, has become a primary factor of competitiveness in the current market environment (Belussi et al., 2010). The frontiers of innovation are no longer limited to the internal environment of the companies, but in the organizational environment, especially in the formation of networks, clusters and innovation systems, forming a kind of ecosystem of innovation, collaboration and partnerships, in which all contribute and support systemically to grow and prosper (Silva et Dacorso, 2013).

From this perspective, the economic advancement of a particular region is based on intellectual assets and the innovative capacity of firms. Therefore, the importance of the actions, partnership work and efforts made by the various regional actors (referred to in this work of stakeholders) for the promotion and development of innovation habitats, such as the Regional Innovation System (RIS). For a RIS achieve their goal of boosting economically a geographical area, in addition to the efforts of the actors is crucial to create technology platforms, integration mechanisms and networks of relationships aimed at the dissemination and exchange of knowledge, so that the actors meet the needs of each other (Cooke, 1992; Çubukcu Gümüş, 2015; SEBRAE, 2013; Lee et al., 2010).

In this scenario, an emerging approach and irreversible in the development of innovation is the Open Innovation (OI). OI is a break from the conventional way of thinking and perform innovation, especially, this concept emphasizes that for companies to achieve greater business growth is necessary to be able and prepared to open the market, taking advantage of the ideas from external sources (Chesbrough, 2003). In other words, OI is based on a heavy flow of knowledge and relationships between companies and individuals. For Rubach (2013), this process of relationship aims to discover, promote and explore innovative opportunities, adding economic value and anticipating the development of new products.

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Abstract

The development of regional innovation systems (RIS), aimed at the growth of a region, can be fostered by the use of a portal of open innovation (OI). The purpose of the article is to identify the requirements for a portal of OI to RIS. The work was conducted in two stages. Were initially identified the requirements for a portal SRI through analysis of the literature, interviews with experts in RIS, and analysis of portals of OI. The following are the requirements identified were prioritized using the QFD (Quality Function Deployment), and analyzed the perceptions of stakeholders using cluster analysis. 14 have been identified, seven of these requirements specific to an RIS. Cluster analysis indicated the existence of two groups of stakeholders to prioritize different requirements in a portal of OI for a RIS. The results make it possible to build a portal of OI that meets the specific needs of an RIS, in addition to indicate that the portal can be customized to meet the priorities of different stakeholders.

Keywords: Open innovation; regional innovation system (RIS); Innovation Portal; requirements.
to the market. In addition, a collaborative strategy tends to increase the internal capacity of innovation to connect with a network of knowledge that transcends the boundaries of the company. Therefore, the opening of innovation makes it possible to find external solvers for problems, reducing the risks, investments and efforts of enterprises (Carbone et al., 2012; Terwiesch et Xu, 2008).

On the assumption that the RIS development-friendly features of HI, the proposition of a Portal of Open Innovation (POI) to an environment of RIS can be an alternative to facilitate the promotion of innovation through the approach of researchers and integration with companies, customers and research institutions. In addition, the portal is a quick, easy and dynamic way to capture ideas from the external environment and transfer to companies. In this way, companies can access the external knowledge and attract talents and innovative solutions, which creates a win-win situation between innovative organization (Chang et Wang, 2010; Çubukcu Gümüş, 2015). Also, a POI aims to provide a more efficient communication with the market, impacting since the generation of ideas to the marketing of a new product or process (Awazu et al., 2009; Sawhney et al., 2005; Frey et al., 2011; et Hüsig Kohn, 2011).

Despite the importance of this topic, it was noted that academic research directed to POI are still quite sparse in literature, being one of the most recent search (Çubukcu et Gümüş, 2015). Front of this gap, the present study aims to present a proposal for development of a POI, based on application of the early stages of requirements management. For the identification and prioritization of requirements, the theoretical reference, quantitative and qualitative techniques and methods support Quality Function Deployment (QFD) and Cluster Analysis (CA).

The article is structured in five sections, including this introduction to the topic. The second section is developed the theoretical foundation. The third presents the method used, which are detailed in the stages of development and implementation of the research. In the fourth section of the article are presented and discussed the results. Finally, in the fifth section, we present the final considerations, as well as the limitations and suggestions for future research.

2. THEORETICAL FRAMEWORK

2.1 Open Innovation (OI)

The OI is one of the main topics of study in innovation management in recent decades, attracting attention to academic research and business practice (Huizingh, 2010). In order to explore the principles of OI, many companies have defined strategies to identify, capture and adapt foreign technologies that can meet the internal needs of the Organization, as well as take internal technologies to provide new business outside of the organizational environment (Chesbrough, 2003; Chesbrough et al., 2006; Enkel et al., 2009).

This strategy requires the manager’s new attitude with regard to the development and treatment of innovation activities. Conceptually, the OI refers to the internal use of the knowledge that is produced in the external environment of the company, or the external knowledge sharing and enjoyment that is generated within the organization. These two combined processes result in partnerships, collaborations, alliances, joint ventures and expansion of the network of relationships (Grimaldi et al. 2013; Huizingh, 2010).

According to Chesbrough et Appleyard (2007), OI is a business strategy based on collective creativity, and through her companies can accommodate various experts working together on solutions to problems, since the knowledge capacity expands OI organizations. However, the change of concept of individuality to an approach of openness and participation, requires the evaluation of the processes of creation and capture of value of business (Chesbrough et Appleyard, 2007).

Based on the principles of OI, collaboration, partnerships, creation and sharing of knowledge, it is believed that RIS is a viable and favorable environment for the implementation of practices of OI. In the next topic are some characteristics and objectives of RIS that highlight the importance of alignment of the system with the assumptions of the OI.

2.2 Regional Innovation System (RIS)

The geographical proximity between actors promotes interaction and innovation. Thus, the strengthening of a RIS depends on the attitude of the participants. Although are still underperforming the collaborative initiatives between the processes of innovation and organizational intraorganizacional, engagement and commitment of the actors is a preponderant factor to adding value and learning in the chain of relationships (Mothe et Paquet, 1998; Rubach, 2013).

RIS seeks to improve regional competitiveness through coordination and acceleration of the process of innovation, aligning the University research with business demand, so that innovative products and services reach faster to the market (Amato Neto et Garcia, 2003). This is a set of interrelationships and mutual influences between different regional public and private actors who seek to practice actions in their territories in order to promote innovation in enterpri-
ses and contribute to the development of the regional economy (Lundvall et al., 2002; SEBRAE, 2013).

Other conceptions corroborate that RIS has a strategic role to create cohesive relationships for the generation, use and dissemination of knowledge and information, in addition to establishing goals, communication, engagement and mutual trust between the actors (Hajek et al., 2014; Cooke et al., 1997; Amato Neto et Garcia, 2003).

Labiak (2012) and Todtling et Kaufmann (2001) explains that a habitat of innovation as the RIS, aims to apply a policy of integration between regional actors gathered in the same geographical area, formed by: businesses, workers, institutes of science and technology (IST), public and private organizations, which must have affiliate links to promote the development of innovative projects. The proximity of the synergistic relationships and seeks assets conducive to the flow of knowledge. In addition, providing greater confidence among the actors, who can explore new ideas and different ways of doing things, aided by the facilitation of researchers and resources generated by the regional innovation projects (Labiak, 2012; Rubach, 2013).

Still in the context of RIS, another important factor that can contribute to the relationship and development of collaborative projects, as well as facilitate the connection and the actors approach, is to use technology platforms, for example, portals of OI. Following the article is discussed about the importance of innovation and enterprise portals in particular the POI.

2.3 Corporate Information portals and portals of Open Innovation

More and more companies are recognizing the potential of integrating customers, employees, partners and stakeholders as sources of information that enable the acceleration of the process of innovation through collaborative projects (Battistella et Nonino, 2012; Çubukcu et Gümüs, 2015).

In addition to contributing to the relationship and approach companies, some factors that motivate the realization of collaborative projects are reducing the life-cycle of products, innovation, customization and development of information systems. Enterprise information portals, or innovation platforms as they are often known, support the operations teams of collaborative projects and make it possible to transcend the geographical limitations, sharing ideas, information, knowledge and interaction with innovative external solvers (Terra et Bax, 2003; Frey, et al., 2011).

In addition, under business, enterprise information portals assume increasing importance in business, turning the vast informational content from varied sources of useful information for decision-making (Terra et Bax, 2003). Portals enable more and better results in terms of developing new products and services, since they extend the relationship with the external community of innovation, attract innovators and allow collaborative projects are developed with the contribution of external partners such as universities (Ebner et al, 2009).

With respect to POI, Çubukcu et Gümüs (2015) claim that a OI platform offers the opportunity to the company reduce risk, improve the process and the speed of work and increase the scarce resources related to innovation. For Battistella et Nonino (2012), OI based on a Web platform is a new instrument to aggregate and integrate different members (individuals and businesses) in a community of innovation. That same bias, Chang et Wang (2010) explains that the portal provides different functionality and can help small and large groups of people to cooperate and work together more efficiently.

One of the POI, the portal of the Ministry of Science, Technology and Innovation (MCTI), which aims to map skills, integrate actors and facilitate the search for content using specific search filters. Is an environment in which businesses, research institutions and government bodies interact to promote innovation? Operationally the portal is a database companies exhibit their personal training and technological demands. The information made available represent opportunities that become public who have an interest in scientific and technological cooperation. As shown on the portal page, one of the main goals is to promote cooperation between the various actors, uniting businesses, experts, support organizations and the general public (MCTI, 2013).

To support the development project of a POI, it is essential the use of methods and tools to identify and manage the needs and requirements of customers. In this sense, the Requirements Management (RM) presents itself as a viable tool for applying this type of POI project. In the next section are discussed some concepts, objectives and stages of process-related requirements.

2.4 Requirements management

The RM is a problem-solving approach that seeks to understand and control the requirements throughout a project. Encompasses a number of activities that contribute to the production of a requirements document and its maintenance. In other words, it is a tool able to track and document the requirements management during the development period of a project. Therefore, understand the changes, manage the relationship of existing requirements and dependencies
between the requirements document and other parts of the project (Bray, 2002; Macaulay, 1996; Sommerville, 2007).

The process of changing the requirements need to be controlled in order to guarantee the quality of the project. To accomplish this efficiently control each phase of the project should require specific practices, because they involve different clients, objectives and types of requirements (Bray, 2002; Kotonya et Sommerville, 2000; Sommerville, 2007; Wiegers, 2003). According to Pegoraro (2010), the process of requirements can be described in four stages: (i) identification, analysis and prioritization (ii), (iii) and (iv) validation. It is important to note that the POI project proposed in this work is centered only on the first two stages of requirements (i and ii), which are demonstrated its operation on section 3. So, as a result, are better explained these two phases.

On stage (i), the identification of the requirements, you must listen to all clients of the project for the survey of the demands. The tools used in this phase can be interviews, brainstorming, documentary analysis, workshops and joint analysis (Bray, 2002). Specifically, it is the phase of recognition of stakeholders, i.e. persons who have some influence or are involved in the project and with the information-gathering activity (Sommerville, 2003).

Weiss (1998) by referring to the definition of stakeholders suggested by Freeman (1984, p. 25), States that: “stakeholders are individuals or groups who can influence or be influenced by the actions, decisions, policies, practices or objectives of the Organization” Second Frooman (1999), an analysis of stakeholders must answer three main questions: Who are they? What do they want? How are they going to try to get what they want? Respectively dealing with the attributes, of the purposes and the methods used by them. Customers, suppliers, competitors, product managers and engineers are some of the stakeholders more cited to integrate, for example, a product development project and, traditionally, are seen as sources of generation of requirements for products (Kotonya et Sommerville, 2000). Therefore, the company must be informed, understand what is expected from the project and identify the requirements to consider.

(ii) phase, analysis and prioritization, are considered the evaluation, organization and negotiation of requirements. As this stage occur differences, it is essential to find a set of requirements that results in a final product with the highest possible information aggregation (Miron, 2002; Sommerville, 2007).

To achieve the goals of phases (i) and (ii), and support the strategic development project of POI, a tool that can be used is the QFD. This tool is characterized by the search for top quality, and is a management technique and action-oriented planning, providing creativity, innovation and accessibility of information (Ribeiro et al., 2001).

The purpose of QFD is incorporate the preferences of customers-phase (i) as determined through research and interviews, to the various stages of the development cycle (Moore, 2006). The main virtue is to show the character of multifunctionality of those involved and the items that must be prioritized-phase (ii) during the planning and development of products or services, focusing on the fields of improvements.

3. METHOD

This paper seeks to generate practical knowledge to be employed in the process of innovation management, through a proposal for the development of a POI, particularly in implementing the early stages of requirements management, consisting of applied research as Silva et Menezes (2001).

On stage (i), to identify the quality requirements associated with the POI was used a qualitative approach, through review of the literature, Visual mapping and interviews with three experts who know the RIS. The RIS which handles this job is located in the southwest region of Paraná. It is observed in this environment a shared network of technological assets, local and regional actors, partners and supporters, as well as a legal environment with regional innovation-friendly policies (Goencalves, 2007). In Figure 1, demonstrates a representation of stakeholders that form the RIS.

![Figure 1 - Stakeholders of RIS](image-url)

Source: Elaborated from the portal RIS Southwest (2013)

CAPTION:
IDETEP – Institute of Technological Development, Research and Innovation in the Southwest of Paraná; SEBRAE-Brazilian Service of Support to Small
As the article aims to explore the role of each of the actors, sought only illustrate, through the figure 1, RIS integrates a considerable group of stakeholders, which are involved and committed to the development of innovation. Given this potential relationship that exists between them, sustains and justifies the proposal of this work for the construction of a POI.

(ii) phase, analysis and prioritization, the quantitative method for considering the importance of the identified quality requirements, as well as to characterize the characteristics relevant to the different stakeholders.

According to Cameron et Molina-Azorin (2011), the use of quantitative and qualitative methods is a growing trend in research in the area of management and business, as well as allow deeper studies of the systems. Maxwell (2009) and Saunders et al. (2012), suggest that this approach is appropriate for exploratory studies like this that was conducted. Phases, methods and procedures adopted in this research are summarized in Table 1.

4. RESULTS

4.1 Phase (i)- requirements identification

First, were raised six major groups of stakeholders, which are: (1) IST, (2) Prefectures, (3) companies, (4) Regional Development Agency, (5) systems (among them, Brazilian Micro and Small Business Support Service – Sistema Brasileiro de Apoio às Micro e Pequenas Empresas - SEBRAE and Institute of Technological Development and Innovation of Paraná Southwest - Instituto de Desenvolvimento Tecnológico e Inovação do Sudoeste do Paraná IDETEP) and (6) regional innovation Clusters. Later, from these groups were selected and extracted 12 actors to be part of the quantitative re-

Table 1 - Phases, methods and procedures of the research

<table>
<thead>
<tr>
<th>Phase</th>
<th>Method</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) ID OF THE REQUIREMENTS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
 1) Literature review: OI, SRI, POI e GR. |
| QUALITATIVE | 2) Identification of stakeholders: Based on Figure 1, 12 were chosen to constitute the sample for the quantitative phase execution of work. |
| | 3) Semi-structured Interviews: interviews were conducted with 3 experts in SRI, based on the discussion and completion of the requirements suggested by Scherer et Ribeiro (2015), and the peculiarities regarding construction of a POI to SRI in the southwest region of Paraná. |
| | 4) Analysis of POI: 15 sites examined and POI available on the internet, based on the requirements suggested by Scherer et Ribeiro (2015) as well as consolidated common and essential requirements between them. The sites and portals listed below, were chosen by the authors of this study based on their experiences in the theme. Selected were: (a) battleofconcepts.com.br, (b) innovacoaibrf.com, (c) nauturacampus.com.br, (d) tecnisaiadeias.com.br, (e) aigrugby.challengepost.com, (f) sca.com/en/About SCA/Innovation-at-SCA, (g) innoven-com.com, (h) yet2.com, (i) ideaconnection.com/, (j) ninesigma.com, (k) innovation-community.de, (l) innovationexchange.com, (m) openideo.com, (n) challenge.gov e (o) kaggle.com/competitions. |
| QUANTITATIVE | 5) Application of QFD: based on proposal of Ribeiro et al. (2001), only the value of the IDI *, since the analysis of IQ is not the scope of this study. The IDI has been used as an index to the prioritization of the requirements of the secondary level, and this included the contribution of stakeholders 12 and 3 experts, which helped in the composition and prioritization of such requirements. The evaluation on factors Hey (strategic evaluation of quality items defendant) was carried out by consensus between authors and experts of SRI. Already the evaluation MI (competitive evaluation of quality items defendant), was considered for all requirements as 1, because there was no competition for the POI of SRI. |
| | 6) Analysis of clusters for identification of groups of stakeholders with similar vision: This is a method that seeks to combine similar observations in different clusters, separating the groups of distinct observations (Rencher, 2002). To this end, we used the software SPSS adopting Ward procedure for definition of clusters. |

Source: Elaborated from research data (2013) and Scherer et Ribeiro (2015)
search. Figure 2 illustrates the information flow between stakeholder groups of RIS and the approximate amount of representative actors of each.

![Figure 2 - Flow of information from RIS and actors representing Source: the authors themselves](image)

Scherer et Ribeiro (2015) identified in the literature seven requirements that a POI should have: 1) set a target audience; 2) specify whether is open to specific or general themes; 3) if the period for inclusion of ideas is for a specific period or is always open; 4) the way that will reward the inclusion of the ideas adopted; 5) the evaluation process of the ideas; 6) who will own the intellectual property rights; and 7) if the portal will own the company or outsourced.

Given the presentation of the requirements found in the literature, the experts interviewed took a position of compliance with such requirements and might highlight points of interest, as well as pointed to new requirements. The experts stressed, for example, the importance of the portal disseminate skills and areas of work of the stakeholders belonging to RIS. That same bias, the dissemination of skills and integration of actors was seconded by experts as well as reinforced in the literature (Labiak, 2012; Rubach, 2013).

Another aspect pointed out was about the structure of the gate, when it comes to features and functionality. The POI must be of easy navigation and understanding to users and have flexibility for different types of users to access the desired information quickly and reliably. According to the experts, so that a POI directed a RIS succeeds, it is necessary that this POI enable training of stakeholders on issues related to innovation, offering courses, teaching materials and setting one of the stakeholders as the leader and Manager of the portal.

In addition to the considerations of the experts, the analysis of the POI selected by the authors, as cited in table 1. Was observed in the presence of the seven portals mentioned above requirements, allowing to trace similarities between them, for example, the portals (k) innovation-community. de_and (l) innovationexchange.com. In addition, identified levels of completeness of the portals, as the portal (c) naturacampus.com.br which has all the requirements. Furthermore, it was found that other portals specify in detail the evaluation process and reward new ideas that are generated, it is important to motivate and attract the participation of external actors.

In summary, from the 7 requirements identified in the literature, plus 7 new that emerged from the opinion of the experts, more elaborate portals 15 analysis by the authors, the Table 2, which brings a list of requirements that were analyzed in the study.

4.2 Phase (ii)-analysis and requirements prioritization

The requirements analyzed in 15 portals were deployed in 8 primary requirements and 24 secondary level, based on interviews with the specialists of RIS. The importance of the requirements of the secondary level was identified through QFD method proposed by Ribeiro et al. (2001). In this way, the response of the 12 stakeholders through a questionnaire with closed issues, applying a likert scale of 10 points for the secondary items, and also with the management of primary requirements. Based on the indexes presented by Ribeiro et al. (2001), the results of the analysis of the questionnaires were organized in table 1.

Analyzing the results of the weights (%) it is possible to verify that the integration of the actors, the structure and accessibility of the website and the encouraging participation would be the three most important primary-level requirements for the stakeholders surveyed. On the other hand, observing the results obtained for the idi* (index of importance fixed the quality demanded), also present in the table 1, note that the stakeholders also considered important secondary requirements which relate to provide information related to innovation in the areas of operation, and specify who will get the property rights of projects, in addition to those associated with the Group of three primary requirements most relevant already mentioned. This arises because of the stakeholders to view the POI as a source to seek ideas to innovate, while have fears and doubts about the ownership and sharing of resources and dividends from the products generated.

The eight primary requirements identified correspond to the quality demanded by customers, namely, the requirements of the client. From these, the product requirements are identified, which should be measurable and have a specified value. For example, to the requirement of integration, possi-
Table 2 - Requirements Listing and analysis of portals

<table>
<thead>
<tr>
<th>Theme</th>
<th>Requirement</th>
<th>Literature - Scherer et Ribeiro (2015)</th>
<th>New requirements - experts</th>
<th>Analysis of portals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property</td>
<td>Define whether the company uses a portal himself or others.</td>
<td>X</td>
<td>X X X X X</td>
<td>X X</td>
</tr>
<tr>
<td>Target audience</td>
<td>Set whether to open to a specific target audience participation or the participation of all.</td>
<td>X</td>
<td>X X X X</td>
<td></td>
</tr>
<tr>
<td>Definition of business</td>
<td>Define whether the search portal ideas related to a specific topic.</td>
<td>X</td>
<td>X X X X X1 X X X X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>Reward</td>
<td>Define whether the reward is monetary, not monetary, or both.</td>
<td>X</td>
<td>X X X X X X X X X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>Deadline</td>
<td>Set if the deadline for inclusion of ideas will be open continuously or for a specific period.</td>
<td>X</td>
<td>X X X X1 X X X X X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>Evaluation system</td>
<td>Define how, by whom, and what are the criteria for the evaluation of ideas.</td>
<td>X</td>
<td>X X X X</td>
<td>X</td>
</tr>
<tr>
<td>Intellectual propriety</td>
<td>Specify issues relating to Intellectual Property in collaborative projects inserted in the portal, and empower the actors in these matters.</td>
<td>X</td>
<td>X X X X X X X X X X X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>Support the implementation of idea</td>
<td>Provide planning support to the implementation of idea.</td>
<td>X</td>
<td>X X X X2 X X X X X X X X X X X X X X X X X X X</td>
<td></td>
</tr>
<tr>
<td>Disclosure</td>
<td>Promote the skills, research and stakeholder demands.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration of actors</td>
<td>Allow the actors to identify synergies and interact through the portal.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure and accessibility</td>
<td>The portal should allow easy access to the specific demands according to the different needs of stakeholders.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encouraging participation</td>
<td>Encourage and facilitate the participation of stakeholders via collaborative projects.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of the portal</td>
<td>Respond in an agile and participatory demands of actors.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training</td>
<td>Enabling E-LEARNING trainings and information regarding relevant activities innovation.</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Elaborated from research data (2013) and Scherer et Ribeiro (2015)
(Caption: 1-occasionally; 2-allows third parties to sponsor)
ble product requirements would be the monthly number of collaborative projects generated and the number of interactions between the actors inside the gate, and the goals established as points of interest related to the system in question. Therefore, from the identification of customer requirements it is possible to relate the product requirements that meet the needs of customers in the design phase of the POI.

After the splitting of the quality requirements for the POI, most prominent requirements had been raised for the stakeholders involved in the project. However, different groups of stakeholders may have divergent views as to the most important requirements of the portal. As the cluster analysis allowed complete (checked in the Dendrogram in Figure 3), the stakeholders 2, 5, 8 and 11 formed a cluster and the other formed another cluster. The cluster formed by 2 comments, 5, 8 and 11, have attributed minor relevance to the requirements associated with the structure and accessibility of the website, and considered more important aspects of the requirements associated with the training and encouraging participation, the latter being also corroborated by Ebner et al. (2009). These stakeholders belong to the Group of regional centers of innovation and regional development agency.

The observation of different degrees of importance attributed to the various requirements as the stakeholder, results in some possibilities to be explored. In this sense, the intrinsic characteristics of a POI provide customization of the site according to the type of stakeholder, i.e. identified the needs of a group, the POI may be adjusted to facilitate access to various information according to users’ demand. Soon, can be generated and presented to the group specific content of interest.

5. FINAL CONSIDERATIONS

OI has contributed much as a new strategy for companies to raise the competitiveness. In particular, in the context of a regional economic environment, formed by companies, IST and other support institutions and research, an alternative to foster relationships and actions of hi is the technological structure and creating a portal targeted to this type of practice. In this way, from the point of view of OI, it can be concluded that this type of tool allows to stimulate the partners in the search and use of external sources of knowledge.

In fact, a POI is a technological tool capable of providing companies with the capture of external ideas and interaction with other external actors more quickly and dynamic. This is a potential platform for organizations, innovators and customers, in the solution of problems and needs of companies through the generation of new ideas and innovative (Çubukcu et Gümüş, 2015).

Given the importance of this topic, this article aims to present a proposal for development of a POI to be implemented in an RIS. The proposition of portal was based on the implementation of the first two steps of the management of requirements.

Consolidating on literature review, interviews and research in existing portals, defined the requirements then were prioritized through QFD method, and subsequently held the cluster analysis. According to the study, eight primary requirements were identified to the POI, which are: (i) definition of the target audience; (ii) dissemination of skills and needs of stakeholders; (iii) promotion of integration between the actors; (iv) capacity building; (v) encourage participation; (vi) intellectual property management; (vii) requirements associated with the management; and (viii) the gate structure.

The use of cluster analysis pointed out the existence of stakeholders that have assigned different degrees of importance to the requirements found. In this regard, it was noted, for example, that aspects related to the structure and accessibility of the website were less relevant items indicated by a group of stakeholders. However, this same group judged as more important the requirements linked to incentives for participation and empowerment. This result assumes that the actors think is easier to deal with the technological adaptation, than with the issues of training and use of the portal. So, note that it is possible to take advantage of the flexibility afforded by a POI and tailor it to the needs of stakeholders.

It is believed that for obtaining satisfactory results at a POI should invest in the motivation of employees. Thus, the motivation is a key element to stimulate users and companies to participate in POI, and, therefore, the need to have incentives to participate (Ebner et al, 2009). In collaborative contexts of innovation, intrinsic motivations must be accompanied by extrinsic motiva-
tions, such as incentives and financial rewards that make it possible and advantageous collaboration (Battistella et Nonino, 2012).

Although the article has contributed to expand the research on POI, some limitations are placed in this study. First, because the work was restricted to a specific, focusing the analysis of RIS of the particular characteristics of a region and a particular group of institutions. In this case, a limiting point was the fact that they have not been interviewed all the actors of the system. In this way, it would be important to replicate and evaluate the method with a larger number of stakeholder’s respondents. The second aspect of this research was limiting in the study didn’t have explored all the stages of the QFD method, not all stages of RM, focusing only on the objective of preliminary identification of requirements for the construction of the gate.

Finally, on the basis of the limitations presented, it is suggested that future research will investigate and propose other cases on the use of POI, as well as to involve a larger number of actors of RIS, providing more comprehensive and comparative studies to assess also the effect of a POI to the participating businesses of RIS. In addition, it is proposed that further research will perform completely the stages of QFD tool for the development of a POI, as well as all phases of the management of requirements proposed by Pegoraro (2010).

6. THANKS

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