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**NAGI PROJECT - THE RIGHT BALANCE BETWEEN
TECHNOLOGY AND BUSINESS DEVELOPMENT
AT PORTO DIGITAL**

PLENARY SESSION 1

Technology and business: balance and priorities
in STPs and AIs

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EXECUTIVE SUMMARY

The constant search for strengthening the clusters in Pernambuco state (Brazil) has directed the enterprises for looking for competitive advantages, consolidation, survival in the market, tools and concepts that helps the achievement of the objectives pursued. Being a technology park responsible to promote innovation and stimulate the competitiveness of enterprises, contributing to the socio-economic development of a region, the Porto Digital Technology Park has created the NAGI project. It has taken an embracive approach to right balance between technology and business development at Porto Digital Technology Park; diagnosing multiple sectors which uses technology as a mean to grow, forming innovation agents for business development, providing consulting in innovation management and training entrepreneurs. This paper will describe the details of the NAGI Project, its results, how it has been implemented, the difficults faced, the benefits it has provided to the state and the next steps.

Key words: Innovation Management, Competitiveness, Business Development, Technology Park, Porto Digital

1. INTRODUCTION

The constant search for strengthening the clusters from Pernambuco state in Brazil has directed the enterprises for looking for competitive advantages, consolidation for their own survival in the market, adoption of methods, tools and concepts that helps the achievement of the objectives pursued. Currently, to innovate it is important to understand the needs and opportunities of the market, employing and aligning the knowledge to offer new products and services with high added value.

In this context, STPs are inserted as inducers of innovative development that aim to contribute to the enhancement of local infrastructure and the enrichment of the social and institutional capital, offering greater visibility, attractiveness and networking for promote the use of broader strategies in the field of technology, the business development, research and knowledge.

The enterprises in the same STP adopt different competitive strategies. By building its strategy, the enterprise outlines standard of competitive action that reflects their intentions in pursuit of growth and survival. Of course, the competitive strategy adopted characterizes the role of innovation in the enterprise, since it defines its priorities in the search for competitive advantage.

The modus operandi of the management and execution of innovative activities should reflect and be appropriate to the aims of the chosen competitive strategy, which is reflected in how the enterprise structures its internal organization, its processes and define their enterprise resources for innovation. Thus, the competitive strategy is the element that shapes how the external environment defines the internal system of innovation of the enterprise.

The innovation process is the dynamic factor of growth, which to happen depends on social interactive processes, in which learning is the main source of change. This innovation process depends on the existence of diversity of action strategies of enterprises and from different technological interactions among agents, resulting from the exchange of knowledge in learning processes, enabled by locational characteristics, cultural and social policies. According to Michael Porter “despite the impacts of the global economy, many competitive advantages remain heavily localized and arise from concentrations of highly specialized skills and knowledge, institutions, rivalry, related businesses and sophisticated customers”¹.

The State of Pernambuco is experiencing a very special moment of socioeconomic development. A consistent process of modernization and a high volume of investment of national and international fundraising are providing a new phase of economic and social development. Despite its importance recognized by most local enterprises, innovation is still pointed out as an area of difficult passage, mainly because of its high costs.

According to the IASP official definition, “Technological Science Park is an organization managed by specialised professionals, whose main objective is to increase the wealth of the community by promoting the culture of innovation and competitiveness and knowledge-based institutions. To reach these goals a science park stimulates and manages the flow of knowledge and technology amongst universities, R&D institutions, companies and markets; facilitates the creation and growth of innovation-based companies through incubation and spin-off programmes; and provides other value-added services as well as high quality space and facilities.”².

Being a technology park a relevant active in the production of ICT able to promote innovation and stimulate the competitiveness of enterprises, this is characterized as a potential agent to contribute to the socio-economic development of a region.

The Porto Digital Technology Park develops activities that foster cooperation, promote innovation, increase competitiveness and support the export of products and services for enterprises of Pernambuco. The Porto Digital is a valuable asset to the economy of Pernambuco and potential to contribute to the improvement of standards of productive efficiency in any sector and therefore the levels of competitiveness in domestic and foreign markets. Its goal is to implement public policies

¹ Porter, M. (1998) Cluster and the new economics of competitiveness, *Harvard Business Review*, December, p. 90.

² IASP (2012). The IASP official definion of Science Parks. Retrieved from <http://www.iasp.ws/>.

for economic development of the State, urban regeneration, social inclusion, strengthening the ICT hub and other clusters through the use of these technologies.

The Innovation Management Support Center of Pernambuco, NAGI-PE, is a Porto Digital's project to support the strengthening and development of businesses through innovation. It offers a range of personalized services that address the problems and meet the individual needs of each enterprise by supporting the development of innovation projects, training, advising and consulting. The project aims to provide high-level consultants at an affordable cost to local business owners, who are mostly small enterprises, which ends up bringing a relevant benefit to their growth and maintenance market. Furthermore, NAGI attends to an exclusive and select group of businessmen from Pernambuco to develop plans for innovation management that will be the basis for further business growth, increasing competitiveness with innovation as a differentiator.

The paper will describe the details of the NAGI-PE Project, its results, how it has been implemented, the difficulties faced, the benefits it has provided to the State of Pernambuco, how it has contributed to strengthen Local Productive Arrangements and Local enterprises and the next steps that will be done.

2. PORTO DIGITAL

The Porto Digital Technology Park develops activities that foster cooperation, promote innovation, increase competitiveness and support the export of products and services for enterprises of Pernambuco. The Porto Digital is a valuable asset to the economy of Pernambuco and potential to contribute to the improvement of standards of productive efficiency in any sector and therefore the levels of competitiveness in domestic and foreign markets. Its goal is to implement public policies for economic development of the State, urban regeneration, social inclusion, strengthening the ICT hub and other clusters through the use of these technologies. In 14 years of existence, the Porto Digital (PD) is a leading technology hub in the country. The PD has already generated for the state 7.100 jobs, attracted 500 entrepreneurs and 240 institutions including universities, governmental agencies, research and development centers and national and international technology companies as illustrated in the Figure 01.



Figure 01 - Porto Digital 's environment

In 2005, the international consultancy, AT Kearney³, classified Porto Digital as the largest technology park in the country, and a national benchmark in using public policy to promote innovation and strengthen the technology sector. In 2007 and in 2011, the National Association of Organizations Promoting Innovative Enterprises (ANPROTEC)⁴ considered PD the best technology park/ habitat of innovation in the whole of Brazil.

In 2008, the International Association of Science Parks and Areas of Innovation (IASP) published the first volume in the Learning by Sharing series, in which it highlighted the case of Porto Digital, along with three other science parks in Malaga (Spain), Manchester (UK) and Hyderabad (India). Also in 2008, the Brazilian Ministry of Development, Trade, and Industry recognized Porto Digital as the Cluster of Information and Communications Technology of Pernambuco.

In 2009, a report published in the online edition of Business Week mentioned Porto Digital as one of the most innovative technology parks, listing it as one of the ten places in the world where the future is being created. More recently, McKinsey singled out Porto Digital, along with the Campinas Region, in the State of São Paulo, as the two centres for innovation with the greatest potential for generating business in the technology sector in the country.

In 2012, the park won from INPI - (National Institute of Industrial Property), the first Seal of Geographical Indication in the area of IT services. The seal certifies that the software produced in the Porto Digital has a quality certificate.

In 2013 BBC presented Porto Digital as a great tech hub away from the Rio-São Paulo axis that has a great success. In the same period, Financial Times Special Report titled "Brazil Innovation, Research & Development" highlighted Porto Digital's history and activities as a great example for the special report.

In the same year, Porto Digital hosted the 30th IASP World Conference and the XXIII Anprotec's National Seminar. The events occurred jointly between 14th and 17th October, under the organization of Porto Digital. The event whose theme was "Science Parks Shaping New Cities" featured about 1,150 participants from 47 countries, of which 85 were speakers. In this event, the Porto Digital Incubator, C.A.I.S. do Porto, was elected by Anprotec, through the Innovative Entrepreneurship Award, as the best incubator in the country facing oriented local development companies.

After that, in 2014, another Financial Times Special Report highlighted Porto Digital again. With the title "Latin America's Regions - Doing Business in Brazil's Northeast", the text makes reference to Porto Digital as a project not only designed to stop the city's brain drain but also to create an economic model based on information and knowledge.

³ AT KEARNEY. Desenvolvimento de uma Agenda Estratégica para o Setor de "IT Off-shore Outsourcing". Brasília, 2005

⁴ ASSOCIAÇÃO NACIONAL DE ENTIDADES PROMOTORAS DE EMPREENDIMENTOS INOVADORES. Panorama de Incubadora de Empresas e Parques Tecnológicos 2006. Brasília> ANPROTEC, 2005. Disponível em < http://www.anprotec.org.br/ArquivosDin/Panorama_2005_pdf_11.pdf> Acesso em 29 de junho de 2009. 15:32:57

Months later, Porto Digital was cover story in the magazine of TusPark, a Chinese Technology Park. The article wrote about the glorious history of PD establishment at initial stage, and development in the past two years with relevant limitations PD faced.

In 2001, NGPD - Management Unit of Porto Digital was created to manage the park. It is a social, private and nonprofit organization which role is to guarantee Porto Digital's success. NGPD is the agent for implementation of public policies to promote the structure and evolution of the Technology Park, through the implementation of public and private resources.

NGPD's main objective is to increase the positive environmental factors in order to improve the innovative capacity and competitiveness of enterprises and of the cluster as a whole. To do this, its main roles are: (i) to generate original ideas, (ii) to develop innovative projects, from original ideas, (iii) to joint operating agents, so that projects can be implemented -including sponsors, government, enterprises, universities, and (iv) to attract innovative ICT-based companies.

Given the above, it is understood that PD is a valuable asset of Pernambuco state, with the potential to contribute to improve standards of production efficiency in the ICT sector and therefore to improve the level of the park business development and competitiveness.

This view gains strength and foundation on the current situation, where companies need to be more competitive and innovative to face its current problems related to the sectorial bottlenecks. Thus, given the constant need to provide better solutions to this scenario and the global concern for the environment, Porto Digital created the Strategic Innovation Management Program (NAGI) Project, in order to promote the integration of innovation management practices in relevant sectors of the Pernambuco's economy.

In this context, it is noticed the importance of Porto Digital for the economic and social development, not just for the ICT cluster, but also for Recife city and for the Pernambuco State. One of its various roles is to work in disseminating knowledge and promoting an innovative culture.

3. THE NAGI PROJECT

To get resources for the project the NGPD has been benefited through a public tender provided by the Brazilian Agency of Innovation, called FINEP, which is a public company linked to Ministry of Science and Technology and Innovation (MCTI) that promotes economic and social development of Brazil through public promotion of science, technology and innovation in enterprises, universities, technology institutes and other public or private institutions. The public tender "Pro-Inova - National Mobilization and Awareness Programme for Innovation" was coordinated by MCTI, Business Mobilization for Innovation (MEI), and National Confederation Industries - CNI.

To participate of the public tender the institution needs to prove performance in the area of Innovation Management. The criteria for selection of proposals included, apart from the institution's experience in the provision of proposed services, a high degree of articulation of the executing institutions with the private sector and the qualification of institutions participating in the network to be formed, considering the importance and adherence of the proposal for the business and objectives of the executing institutions too. Two local actors in Pernambuco, PD and IEL-PE, which promotes interaction between academia and industry in Pernambuco, applied to obtain resources from the FINEP to promote business innovation as a competitive advantage, in an impactful, objective and mobilizing way.

Only 24 projects were approved in whole Brazil as illustrated in Figure 02 and both projects in Pernambuco were approved as well. Through an institutional articulation between the two local actors in Pernambuco (PD and IEL-PE) which aimed a unified project for the development of State,

they built agreements and commitments on the principles, objectives and forms of joint action for sharing human and material resources that brought forth a shared strategy for local development.

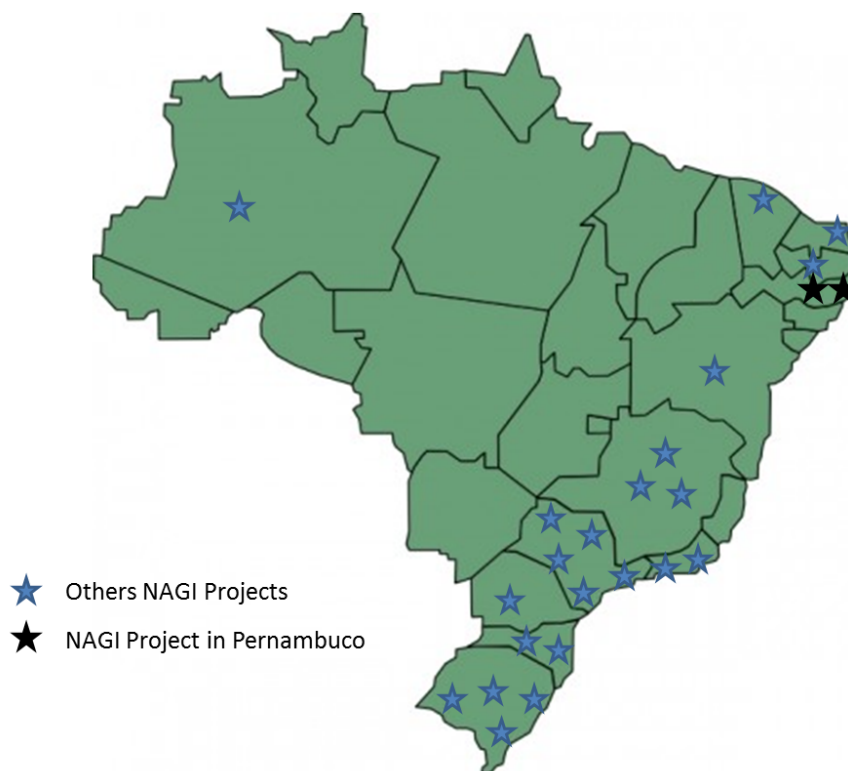


Figure 02 - Distribution of approved NAGI projects among Brazilian states

Due to a key success factor that was the effective involvement of the executive managers, both decided join forces and become a unique NAGI Project in Pernambuco. In other words, it is a Porto Digital's project in partnership with IEL-PE to support the strengthening and development of businesses through innovation in Pernambuco. In order to promote the enterprise's growth, the NAGI Project offers a range of personalized services that address the problems and meet the individual needs of each enterprise by supporting the development of innovation projects, training, advising and consulting. The project aims to provide high-level consultants at an affordable cost to local business owners, who are mostly small enterprises, which ends up bringing a relevant benefit to their growth and maintenance market. Furthermore, NAGI attends to an exclusive and select group of businessmen from Pernambuco to develop plans for innovation management that will be the basis for further business growth, increasing competitiveness with innovation as a differentiator.

The NAGI Project in Pernambuco arrived with the proposal to show that it is possible to innovate using technology for increase the business development. This is not something exclusive to large companies. Through the project, enterprises are finding it possible to have a specialized consulting and training with low investment, whereas on average 80% of the project activities in the enterprise are subsidized by FINEP, varying it according the size of themselves.

NAGI project aims the integration of innovation management practices in relevant sectors of the Pernambuco's economy. It involves various economic sectors with distinct amplitudes of activities, which insert itself a diversity of activities and economic, political and social actors. Thus, involving the participation and interaction from the following industries: (i) Information and Communication Technology, (ii) Apparel, (iii) Creative Economy, (iv) Metalworking, (v) Gypsum, (vi)

Pharmaceutical, (vii) Furniture and (viii) Oil, as illustrated in Figure 03. With this structure, NAGI is developing activities in 160 enterprises over a period of 24 months. However, with the approach of LPA, these actions will exceed the results obtained in each enterprise, unfolding in enhancing the competitiveness of the sector as a whole. The segmentation by sectors, assumes that it is through the strengthening of enterprises and from their business environment that builds competitiveness, whether these enterprises operate at local, national or global level.

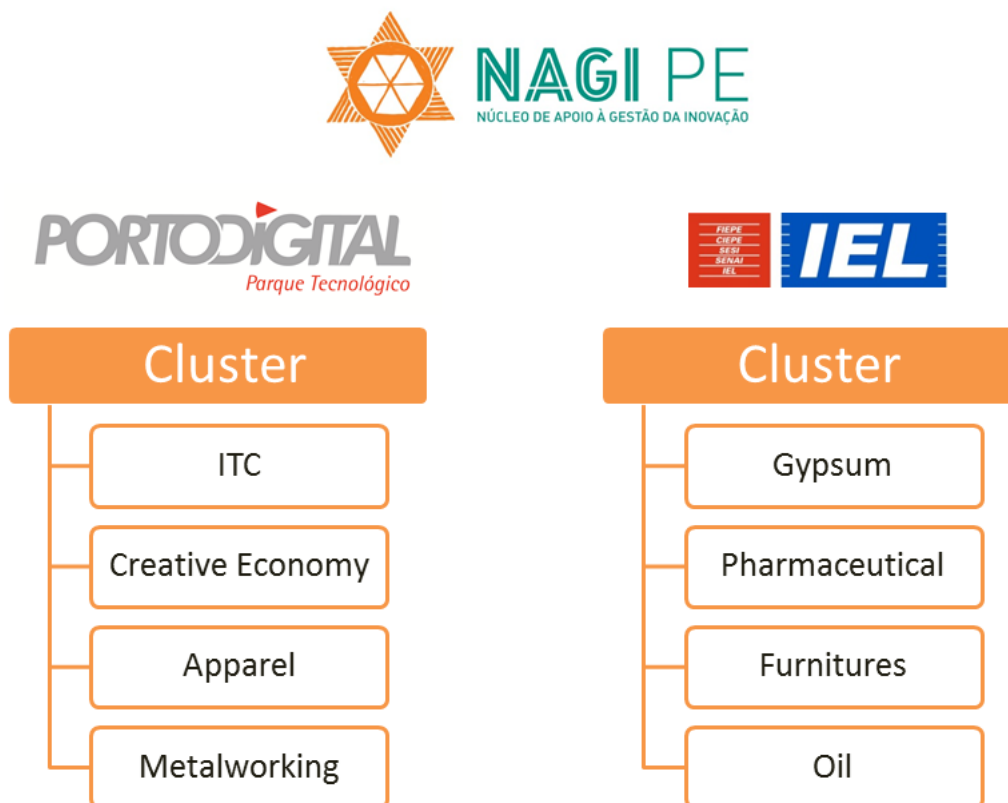


Figure 03 - NAGI´s clusters

Thus, the expected result of the project is to provide the increased competitiveness of enterprises and to introduce innovation management in the culture of the enterprises by: (i) analysis, processing and dissemination of LPA sectorial information, (ii) intervention aimed to achieve the autonomy to innovate and to be competitive of the target enterprises with highly qualified consultants, (iii) supporting in the elaboration of innovation management plans and (iii) conducting implementation of the innovation management plans developed in the company with the assistance of innovation agents.

4. THE NAGI METHODOLOGY

To guarantee the perfect integration between the innovation management practices in all sectors benefit by the project it was necessary to develop a specific methodology for its execution. So, two main points were chosen to develop this work, which was: (i) entrance requirements and (ii) the project structure.

The methodology was the key point to establish a level of efficiency, cohesion and standard to the project. All the details of both thematic groups follow below.

4.1 Entrance requirements

Aiming the guarantee of positive results to NAGI, it was crucial a selection process to choose not only the best companies, but committed and responsible ones. At the same time, however, it was not indicated a long and bureaucratic process to select them. The solution, therefore, was to establish some entrance requirements bringing about a simple and consistent selection process. The exigency that the companies must fulfill to be able to join the NAGI project was as following below:

- I. Monitor changes and trends in their competitive environment, analyzing the dynamics of the customers, suppliers and competitors;
- II. Have the understanding of what is important react to these changes quickly and effectively;
- III. Have the concern to detect market opportunities;
- IV. Understand that for the enterprise to remain competitive it is important to delegate responsibilities;
- V. Have the concern to develop the “enterprising spirit” among employees;
- VI. Have the clarity that it is important to build internal skills and empower them, including learning at work;
- VII. Encourage collaborative environments in the enterprise and external partnerships;
- VIII. Look for systematize the past mistakes and successes and learn with them to define future strategies.

4.2 Project structure

After the entrance requirements, the project needed a structured execution methodology to attend sequentially 04 groups of 40 entrepreneurs in a period of 02 years, fulfilling the objective of assisting 160 companies with FINEP. The methodology was developed in three different stages as it is possible to see in the figure 04. Each phase has its own activities and takes 2 months. So, to execute the whole process it is necessary 6 months. Then, each stage will be detailed.

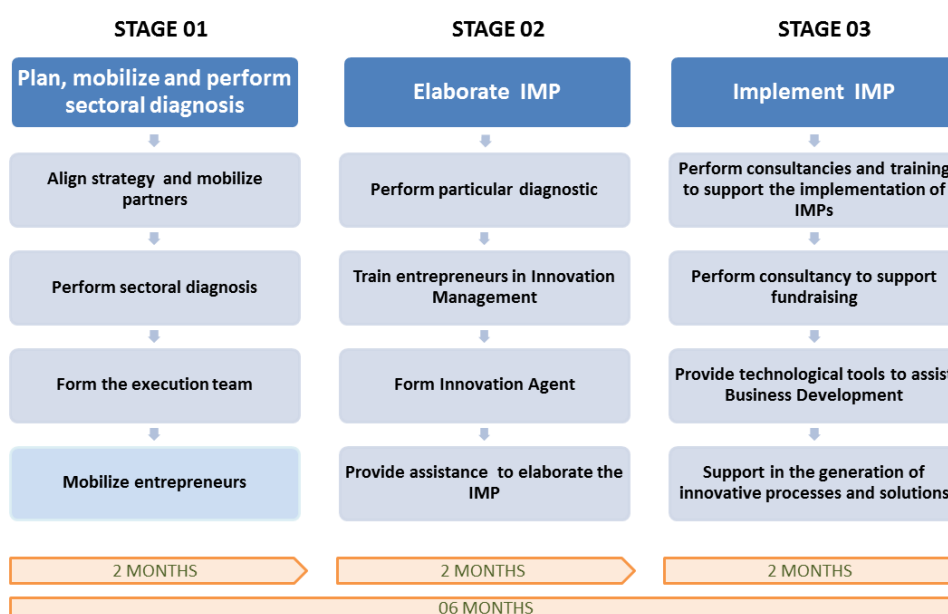


Figure 04 - NAGI Stages per group

4.2.1 STAGE 01: Plan, mobilize and perform the sectoral diagnosis

In this first stage, it is necessary to plan the activities that will be performed in the group of 40 enterprises that will be mobilized to participate of the project. The consultants of NAGI perform a diagnosis of difficulties and potentialities in each cluster. Understanding the cluster involved in the Project through the practices of how the enterprises structure their innovation management individually, creating conditions to innovate in increasingly way, and from more complex forms.

4.2.1.1 ALIGN STRATEGY AND MOBILIZE PARTNERS

Maximize financial and human resources within the Porto Digital and IEL-PE. The institution not only develops programs and projects; but provides support to Innovation and Technology Development Management and other strategic partners. Exhibiting a didactic way what are the steps involved to strategically align NAGI and systemic changes needed to ensure employee commitment with this productive way of working.

4.2.1.2 PERFORM SECTORAL DIAGNOSIS

Organizes the understanding of the characteristics and sector performance highlighting the factors that hampers the competitiveness of the enterprises, this step was divided into (i) technical analysis which is reading and systematization of documents and reports on the sectors, features and structures of the productive chains and their importance in the State of Pernambuco and organization and analysis of official data on the recent behavior of the sector and its segments and (ii) meeting with experts which is a working meeting with some entrepreneurs and experts from each productive chain to capture their perception about the sector in Pernambuco, its features and its performance, and especially about the bottlenecks that undermine competitiveness and sectoral growth.

4.2.1.3 FORM THE EXECUTION TEAM

Collect and analysis of documents, reports and bibliographies on productive chains, innovation management, models of organizational innovation, competitive strategy, consulting behaviors, characteristics and structure of each productive chain. Elaboration and organization of contents, summaries and bibliographies and slides for presentation, based on didactic learning. With this collection of information was done the planning of the training of the forming execution team that was structured as follows: (i) strategic management, (ii) Innovation Management, (iii) Productive Chains and systemic competitiveness, (iv) innovation and competitiveness and (v) procedures for consulting.

4.2.1.4 MOBILIZE ENTREPRENEURS

To open a channel of communication with entrepreneurs of the sectors involved, presenting NAGI as a differentiated project, and gain new members to participate of it. Through achievements of sectoral meetings that will allow a closer relationship with potential candidates to join the NAGI and consequently will have a clearer view of the issues to be focused on future IMPs. These meetings, in addition to providing a better understanding of sector dynamics will serve to a

systematic work to attract potential participants. A selection of the participating enterprises depart of the following assumptions: (i) It is relatively recent the systematic search of innovation by enterprises in Pernambuco; (ii) There exists no a consolidated culture in Innovation Management; (iii) It is understood to be essential that the participating enterprises have as one of its principles the search for greater competitiveness, to differentiate themselves in the market. Innovation Management can be understood as the systematic consideration of the appropriateness and enterprise changes in their routines, in the search for new structures that enables a competitive advantage in participating in the market better.

4.2.2 STAGE 02: Elaborate Innovation Management Plan

This stage aims to provide assistance in elaborating the IMPs for enterprises attended by NAGI Project. Providing subsidies, technology and resources to improve a systematic innovation process.

4.2.2.1 PERFORM PARTICULAR DIAGNOSTIC

The diagnostic aims to identify the maturity of the enterprises attended regarding to its organizational and technological structure with the aim of mapping the bottlenecks in the innovation process of each enterprise. The process consists of mapping the sectoral bottlenecks by applying standardized questionnaires in each enterprise of the all sectors involved in NAGI to diagnose the major problems faced in the development of the innovation process, and make individual diagnoses of the situation of the innovative capacity of the enterprises.

4.2.2.2 TRAIN ENTREPRENEURS IN INNOVATION MANAGEMENT

Create conditions for entrepreneurs to develop their skills to (i) know the steps and strategies of the process of innovation management, (ii) understand the importance of adopting practices of knowledge management for innovation by enterprise, (iii) engage in search of possible actions of innovation management and (iv) propose appropriate actions of the process of innovation management.

4.2.2.3 FORM INNOVATION AGENT

Conducting ongoing medium to long term training for innovation agents and technological diffusion which aims to develop the skills/functions: (i) acting in the processes of innovation, diffusion and transfer of technology, (ii) the joint process generation and absorption of technical and scientific knowledge in experimental development, (iii) identification of market demands and translate them and disseminate them to generate technical and scientific knowledge, (iv) identification of the possibilities of using technical and scientific expertise to meet the demands of the market, (v) formulation of projects for fundraising and implementation of technological innovations, and (vi) the understanding of innovation and technological diffusion system.

4.2.2.4 PROVIDE ASSISTANCE IN ELABORATING THE IMP

The process consists of the following activities: (i) reviewing the reports related to mapping of sectoral bottlenecks, (ii) elaborate the IMP Standard by sort of productive chain based on key

problems and bottlenecks identified, and (iv) assist in the preparation of IMP for individual enterprises.

4.2.3 STAGE 03: Implement Innovation Management Plan

In a third stage, 25% of the initially selected enterprises will be chosen to implement these IMPs along with the execution team of NAGI. Selection will be based from the analysis of the projects developed during the previous stage.

4.2.3.1 PROVIDE CONSULTANCIES AND TRAINING TO SUPPORT THE IMPLEMENTATION OF IMP

Aims to support the enterprises attended in the implementing the IMP by designing and providing tools to support the innovation process. The process consists of the following activities: (i) develop and provide computerized management tool maturity of the innovation process, (ii) incubation of innovative design solutions model, and (iii) advise and assist companies in fundraisings for implementing their IMPs. In developing this process, it is expected that the following products are generated: (i) management system maturity of the innovation process, (ii) incubation of innovative model, and (iii) progress report of the results of the fundraisings.

4.2.3.2 PROVIDE CONSULTANCY TO SUPPORT FUNDRAISING

Support enterprises in their efforts related to innovation, by providing advice on fundraising and assistance in developing competitive projects. Attended axes: (i) Development of Projects and refining proposals, (ii) Monitoring the submission of projects, and (iii) Support in Accountability.

4.2.3.3 PROVIDE TECHNOLOGICAL TOOLS TO ASSIST BUSINESS DEVELOPMENT

This innovative solution promotes the establishment of a management model based on indicators and targets, as well as the systematic monitoring of the execution and results. The ultimate purpose is that the entrepreneurs develop not only innovative strategic thinking, but also the practice of establishing innovative strategic for business development, in order to direct them and guide them towards making better decisions, which are the result of reflection, research and knowledge of their environment of operation.

4.2.3.4 SUPPORT IN THE GENERATION OF INNOVATIVE PROCESSES AND SOLUTIONS

Practical-Creative method of solving problem or issues with a view to a future outcome. In this sense it is a way of thinking based solutions or focused on solutions, with an initial goal, instead of starting with a given problem. Then, focusing on the present and the future, the parameters of the problem and its solutions are explored simultaneously.

5. RESULTS

This paper presents the evaluation of the first group of enterprises attended by NAGI from October 2013 to March 2014 and it helps measure the progress resulting from the efforts made by

entrepreneurs and by the team of innovation management advisers, through the comparison between the initial and final positions.

NAGI-PE already achieved incredible results, such as:

- Definition, selection and training of the 20 consultants (team trained);
- The realization of 4 Seminars involving 117 participants and 86 enterprises;
- 35 entrepreneurs trained in Innovation Management;
- Total of 656 hours of innovation management consultancies and mentoring;
- 20 innovation agents formed;
- 28 companies were followed up by NAGI-PE's consultants to help them in write the Innovation Management Plan;
- 08 sectorial diagnoses realized;
- 87 enterprises diagnoses realized;

The project has also generated a lot of benefits, such as:

- I. **Better understanding about the company:** The methodology guided entrepreneurs and professionals involved in Innovation Management Group (IMG) to reflect better about their current situation. It encouraged entrepreneurs and professionals to reflect about the bottlenecks and enterprises skills from the analysis of the IMP Matrix (tool used during the consultancy);
- II. **Business decision-making improvement:** Implementing NAGI helped companies to systematize their actions and processes, through the innovation management acquired knowledge, consequently improving the business decision-making;
- III. **Projects/Business Improvement:** The methodology has a tool called "Network Observer" which is used to collect structured information from the external environment, such as: map the stakeholders, their needs, the environment situation, map the technological and marketing tendencies, etc. It stimulated the reception and analysis of qualitative and quantitative information from the external environment to the company what helps and stimulate the companies to have innovative ideas or improve the ideas already existent;
- IV. **Introduction of a new innovation concept:** NAGI demystified the concept of innovation, presenting the theoretical framework disseminated by the Oslo Manual 3rd edition, as well as disseminates the idea of introducing an innovation agent in each enterprise, which makes the innovation something more close to their reality and really practical.
- V. **Increase funding in the region:** NAGI has contributed to business development and companies growth through: local businesses supporting, particularly SMES; formation of spin-out companies and; increasing of Brazilian funding into the region.

Although all positive results observed throughout the project, it is necessary to ensure the NAGI position as a fundamental active to enhancing competitiveness and modernization of the state of Pernambuco economy. Besides that, it is important to mention that as a technology park, Porto Digital has contributed a lot to the NAGI development once the technology is a transverse sector, being applicable in all the sectors, helping to improve the business development and also the Pernambuco economy.

As all projects, this one has also faced some difficulties during its implementation, such as:

- I. **Mobilization of entrepreneurs in a unique environment:** It was identified that the mobilization of entrepreneurs from various sectors simultaneously, trying to present the NAGI in the same environment for all eight sectors was unproductive. This is because there is heterogeneity in the profile of the industries and businesses that make it difficult due to the different approaches strategies that should be applied for each sector.
- II. **Lack of formal documentation and templates in the workshops:** The workshops presented to the enterprises generated no formal products from the IMG professionals. The consultants missed a formal documentation to keep the knowledge generated during the workshops.
- III. **Lack of commitment by the entrepreneurs:** There were many cancellations of scheduled meetings due to the homeworks that weren't done. The methodology provides some homeworks to be done by the entrepreneurs. However, they had difficulty in providing time for execution and analysis of the homework in the time needed.
- IV. **Loss of focus in the tool used:** The IMG Matrix tool of consultancy lost its focus, instead having a focus in innovation management it addressed the strategic management due to the fact of the tool was aiming to resolve the organizational bottlenecks rather than stimulate the innovation through idea generation, idea selection and then implementation.

The results also list the main corrective and preventive actions issued by this given project, such as:

- I. **Mobilization of entrepreneurs in a unique environment:** In regards to difficulties faced, there are some measures to be taken, such as: benchmarking other NAGIs projects in Brazil to search for better practices and developing a mobilization plan for each attended sector in the NAGI project in partnership with leaders and representatives of trade unions;
- II. **Lack of formal documentation and templates in the workshops:** To solve this problem a team of 02 consultants and 01 administrator will be responsible for develop and distribute the templates and formal documentation for the appropriate stakeholders. Next group of entrepreneurs are going to receive them before the beginning of the workshops.
- III. **Lack of commitment by the entrepreneurs:** To deal with this problem it will be propose to induct activities to be carried out during the workshops rather than homeworks to prevent the cancellations of the scheduled meetings. It also will be developed a ground rules document for a greater commitment of the entrepreneurs.
- IV. **Loss of focus in the tool used** In regards to difficulties faced related to the tools used during the consultancies it was decided to create an Innovation Management Committee to tighten the focus in innovation management rather than strategic management. This committee should include well-known technology and business development professionals from the partners' institutions. This committee is also responsible to monitoring & controlling and closing of the innovation management

consultancies in order to motivate the IMP to continue, to strengthen and expand the actions for the innovation management.

To the next group of participants(entrepreneurs), the methodology will be adjusted to be more participative, promoting the collective construction of the results and should be applied in enterprises of different sectors, different sizes and levels of organizational maturity, motivating them to continue their work focused on the innovation management, even after closing NAGI activities.

4 CONCLUSION

Being Porto Digital a technology park responsible to promote innovation and stimulate the competitiveness of enterprises, it has contributed to the socio-economic development of the State through the NAGI project.

To facilitate the growth of innovation management businesses based it is needed to have a right balance between technology and business development. That's what NAGI propose once it has a methodology that connect the business development through the use of technological tools and the introduction of a new innovation concept.

The project has helped companies to improve their competitive advantages, consolidation, survival in the market, tools and concepts that aid the achievement of their objectives. It also has diagnosed multiple sectors which uses technology as a mean to grow, forming innovation agents for business development, providing consulting in innovation management and training entrepreneurs.

At Porto Digital Technology Park it is extremely important that the NAGI project be culturally aligned with the enterprises participants. For making it happen a group of consultant was hired to understanding the local culture and the kind of environment they are located.

NAGI is structured in such a way that the interests of the main key stakeholders are aligned and incentive for toward sustainably growing the enterprises participants, contributing to the socio-economic development of a region. The NAGI is lean, financial sustainable, based on value-derived funding, and culturally consistent with the enterprises participants.

During over ten months of work, NAGI provided a great learning experience both to the execution team and the entrepreneurs of Pernambuco, once it executed some actions related to the development of the Innovation Management consulting in the enterprises being "face to face" with businessmen or company's main representatives, but not least for the other actions as mentioned before.

Up to now 20 consultants have being trained in NAGI methodology to provide consultancy. 656 hours of innovation management consultancies and mentoring were spent reaching 28 companies that were followed up by NAGI-PE's consultants to assist them in improving their Innovation Management Plan. 4 Seminars was done, involving 117 participants and 86 enterprises; 35 entrepreneurs were trained in Innovation Management and 20 innovation agents were formed. Eight sectorial diagnoses and 87 enterprises diagnoses were done.

Everyone involved in the NAGI project wanted and had the commitment to assertiveness, resulting in an propitious environment to overcoming the difficulties, so that the best result is the one focused on community, causing often a reassessment of decisions already routed, demanding flexibility to absorb the changes that could happen suddenly. It is for this reasoning line that the execution team orients itself, presenting a proactive manner and eager to contribute to the success of projects and enterprises led by NAGI.

The correct identification of qualification for business and the productive sector, and the implementation of an appropriate and comprehensive training program for the companies tied to business qualification provides the Pernambuco State a competitive advantage compared to other places in the world, offering companies the most fundamental input to the innovative and competitive activity today and contributing to the socioeconomic development of the State.