Potentialities of remote teams in the innovation process in an organization through the design management

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Abstract

Design management and innovation give companies competitive advantages. In this scenario, the involvement of employees for generation of innovation is an important factor to be developed within the organization. Therefore, this research aims to identify the potentialities of employees from Sales and Technical Assistance areas for the innovation process. These remote teams work outside the organization in touch with the market and know the necessities of the market and consumers. This survey of the potential is motivated by the possibility of integration of employees who work in the field to participate and get involved with innovation in the organization. The research was conducted through a bibliographical research and application in a case study in a construction consumer goods company, based on design management and human centered design. The case study is divided in two steps: mapping and diagnosis, to easily collect information. As a result, in this paper, we will demonstrate the requirements and potential correlation of these teams that allow the creation of an innovation process focused on the routine and life of these employees.

Keywords: design management, innovation, remote teams, employee.

Introduction

Nowadays, companies are seeking for ways to differentiate themselves in the market, either through their products, services or new processes. This differentiation gives the companies more competitive advantages and also bigger value delivered to the client. In this sense, the innovation has become a central element for the construction of the value, and it can be obtained in the organizations through the design management extended in all their departments and activities. According to Gimeno (2000), from a strategic point of view, both innovation and design are essential elements for an organization to achieve competitiveness. These are the results of the internal and external exploration of the resources of a company.

In order to integrate all the organization resources for the promotion of innovation, the design management performs its role in the tactical level, also known as functional design management, which according to Mozota (2011) who states that, at this time the nature of design changes the focus on the product or object to become a function and permeate the organization so in this way the design is finalized and implemented. Consequently, the potential of the design management for the generation innovation is not based only on the relation between the market, the company and the product, but also on the internal capacity of the company to manage their different areas in order to promote collaboration and creativity.

In this scenario, the areas of the organization are the environment whereby the design will be effective in quest of innovation and employees represent the changing element. Therefore, the challenge is to mobilize through design management all the employees of the organization to get engaged in the innovation process.

Based on the employees' perception as fundamental part for the innovation process, the organizations remote teams have an even higher challenge when the subject is the integration in the processes. Due to the characteristic of the work is focused outside the company, because their work is in the field, their activities are not always connected to all the company's actions. They do a job of extreme importance, which is the connection with the market, the client or the consumer, however, these attributes impede them to follow the day-to-day organization changes.

Therefore, the following article seeks to identify the potential of the remote teams in the innovation process of the company, through design management, in order to those remote employees play an even greater role in the organization, which is the promotion of innovation. This team has in its routine direct contact with customers and consumers of the organization, it can even say that they are the eyes of the company in the field and when well integrated and managed, this can bring great results for the company.

As for the methodological procedures, this article is splitted into two stages: the first is a theoretical stage, through bibliographical research about the design management issues and innovation and a second stage is a case study in a civil construction goods organization, in which the characteristics of the remote employees are

mapped, using a human centered design approach and identifying their potentialities to the innovation process.

Design management and innovation in the organizations

Design is an activity that allies creativity, innovation, technology and society concepts, without leaving out the focus on the user (Burdek, 2010; Buchanan, 1992; Bonsiepe, 2012). In this way, according to Manzini (2014), the design involves a human view and critical at the same time about what is observed.

Among the different functions in the creation process, it is necessary to integrate all these aspects with synergy. In this sense, according to COTEC (2008), appears the Design Management (DM) whose mission is to create and stimulate the relation between design and other areas of the organization. The Design Management thus has a systemic approach which combines the various actors and variables that compose the same context (Blum *et al.*, 2014).

The Design Management is a set of management techniques directed to maximize, at the lowest possible cost, the competitiveness that the company gets through the incorporation and use from the design as a tool of their business strategy (Martins and Merino, 2011; Gimeno, 2000). In this sense, Franzato (2010) defines that the implementation of the strategic vision of design is linked with the way that the company matures the design management.

In order to manage the integration of design in the company, the functional management of Design takes on the responsibility of implementation. This deployment of design is under the tactical level and it can take the form of a specific design department or it can be allocated into other existing departments.

The design can be incorporated in the company through the creation of an internal department or hiring external services which produces the necessary changes for the realization of the design, but either way, the design management will require development in the skills in creativity, interface with the user and technology, as well as building an experts team from the advanced design to the redesign which seeks consistency between goals, tasks and deadline (Gimeno, 2000; Mozota, 2011).

Thereby, the design management function in the organization is to manage the way which the design will be applied to assure the company's strategy effectiveness. In this sense, Mozota (2011) defines that the design in the organization should provide research concepts for new products, which are consistent with the strategic positioning and segmentation; it should also provide the revitalization of the innovation process in relation to the marketing and technical departments; and the supervision of the project realization after being accepted, checking if the design in the manufacturing stage is in accordance with the initial project.

This execution of the business strategy and the unfolding design in the whole organization provides the creation of competitive advantages that arise when the company creates greater value for the customer. This value is expressed in the form of value chain that correlates the primary and support activities which the company performs and are keys to generate perceived value (Figure 1). The different activities that make up the value chain are tied between them. While seeking competitiveness the company must manage and coordinate different activities of the chain so that design and production are interlaced (Gimeno, 2000).

According to Gimeno (2000), as primary activities and high customer impact are the after sales service, external logistics, internal logistics, production and marketing and sales. In this sense, the design has greater possibility to intervene and add even more perceived value, either in the form of higher technology, service, or a better product directed to consumption. Sales and after-sales teams are the base of the pyramid and are primary activities; they form the remote teams that carry out their activities normally outside the organization and have direct contact with customers and consumers.

In this regard, working on the base of the pyramid through the integration design and the primary activities areas, increases the competitiveness and maximize the design organization effects, generating greater value. For Mozota (2011), creating design value is appreciated by the observation of their impact on activities that support the company's value. The design performance is estimated according to the way that it affects processes such as:

- Changes in the company mentality that becomes more innovative;
- Improving decision-making processes and innovation management;
- The information circulation in the company;
- Suppliers relationship;
- Reducing time for new products development;
- Customer value;
- Design role in the total quality.

The value creation gives to the company higher competitive position, this advantage is described by Gimeno (2000) as a resulting factor from the relation between the market, the company and the product. In this strategic triangle among business, marketing and product, the industrial design is a management tool that permeates all relations, in order to generate differential for the organization (Figure 2). The company has a suitable structure for the type of the product and market, which produces their goods and services. It has its organizational peculiarities, integrates different areas and works for the customer's satisfaction. The product is indicated by the production

Figure 1. A company value chain (translated from Gimeno, 2000).

capacity and the technology level that the company has in a specific market. The market is defined in a wide sense, as the way in which the company sells its products based on their productive resources and organizational characteristics. In this sense, there is an interdependent connection between the three elements, which design allows the perfect fit and a final result focused on competitiveness optimization and maximization.

For that matter, the company, based on design, should be related with the market to generate products and services with higher perceived value. This relationship suffers tensions derived from systems instability and according to Gimeno (2000), it can be described as technology changes and the continuous modifications in the market, which might cause the constant organization evolution in their techniques and targets related to design management.

These changes in the market and technology require the company to develop constant improvements in its processes, activities, products and services that can be obtained through the design management. Consequently, the design is connected with the innovation either incremental or radical, because design promotes and influences the change of mentality, eliminates cultural blocks and supports the decision; these factors produce countless economic effects (Gimeno, 2000; Mozota, 2011; Meroni, 2008).

On the other hand, innovation according to Bes and Kotler (2012), should not be always understood as a new product, service or application that comes up and completely change the market rules, but also as something gradual and built step-by-step, which does not require large leaps but makes the business sustainable. In this sense, Frederick et al. (2012) states that the innovations with greatest impact are the materialization and the value

creation associated with the introduction of new products or solutions to attend latent or emerging opportunities that are appearing in the outside world.

According to Gimeno (2000), for a company to innovate, it should be based in their own technological knowledge use and the application of its skills in knowing how to the develop products, services or improve its processes. In this sense, Gimeno shows that the shape and attitude that the company deals with the market knowledge and implement their innovation processes in its strategy determine its position compared to the others.

In this context, Silva (2003) states that companies are more likely to survive in the middle of crisis if they develop the creative potential of their employees as soon as possible. And in this scenario of providing opportunities for teams to develop their creative potential, companies can achieve innovation. Thereby, for Dyer et al. (2011), innovators systematically engage questioning, observing, networking work and experiment behaviors to unleash new ideas. As for Souza and Meyer (2016), interaction and compatibility among people makes them commit more in the search for opportunities to develop and to generate solutions. In this way, companies that desire to be innovative must develop processes that encourage questions, observations, networking work and experimentation with their employees, so knowledge can be improved and consequently greater are the correlations to lead to new associations ideas.

Ideas, according to Mozota (2011), arise from an intrinsic source based on ideation and from the collaboration of the company and from other extrinsic source based on the market and on technology data. This requires a process of ideas generation that allocate resources and time for creativity, as well as in support of creativity programs applied in various areas and functions.

In this respect, the value of the remote teams, reside precisely in the capacity to integrate the different internal and external contexts of the organization (Figure 3). They are a rich source of market information and articulate with the various organization customers, from the reseller or distributor to the final customer. Its creative potential that stimulates innovation should be more exploited to generate better results and create perceived value.
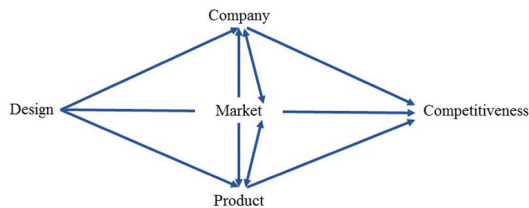
Remote teams: Technical assistance and sales

Remote teams are employees who have their duties outside the company and also constant activities contact
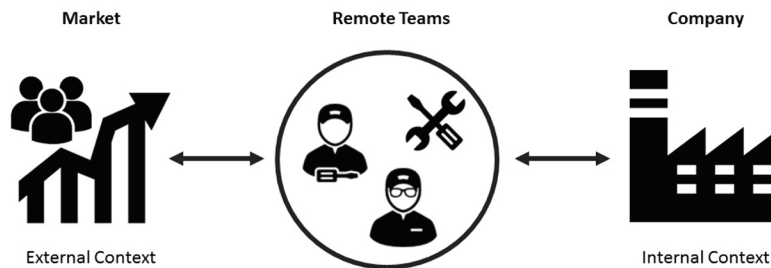

Figure 2. Industrial Design performance on company, product and market (translated from Gimeno, 2000).

Figure 3. Integration of the remote teams with the market and the company.
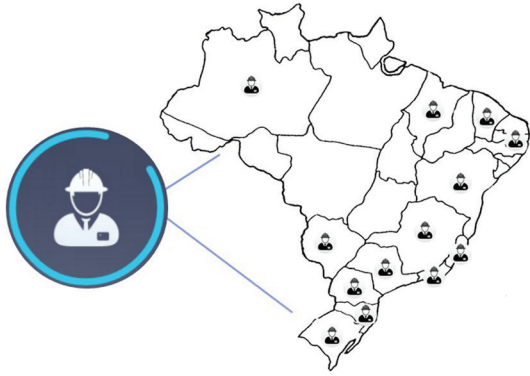
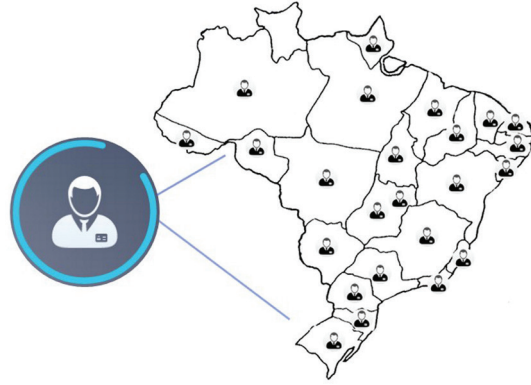**Figure 4.** Technical Assistants coverage in the federal states.

Figure 5. Sales team coverage in the federal states.

with the market. Normally remote teams in organizations may be as Sales, Technical Assistance or After-Sales, Market Training and Trade Marketing. Each area perform different activities with the market, depending on the function:

- Sales: deals with the clients and sells items of the company;
- Technical Assistance or After-Sales: performs the items monitoration in the field, providing repair services and support to customers and consumers.
- Market Training: normally is a service offered by the company to the community such as courses and capacitations about their products and how to use them.
- Trade marketing: perform the interaction with the point of sales promoting the ambiance of sites to keep the brand identity visual in each sales campaign.

The company targeted in this study is an organization of consumer goods for civil construction, within the company's staff, some workers work in offices and factories, however there are also those who work remote. These employees are spread all over Brazil territory and attend the region near where they live. They have a feature the remote work, the displacements between clients and attendance and contact usually by cellphone or email.

The company has about four teams of these remote work characteristics, which has approximately 350 employees all over Brazil.

Among these teams, two of them understand the research opportunity aims at mapping and diagnosing these employees, those are the teams of Technical Assistance and Sales.

The Technical Assistance team, in this organization, has about 20 contributors. This area is responsible for the attendances and resolutions of cases in which the customer has a problem or difficulty, also responsible for a more technical training and focused on strategic customers such as construction companies and large resellers. The representation of employees in Brazil is made from the federal states. The Figure 04 depicts the distribution in the country and indicates which states have the presence of Technical Assistants.

On the other hand, the Sales team has about 200 employees and is responsible for all the sales, negotiations, focused training on resellers support and also improvement actions and product displayed in the stores.

The Figure 5 shows the representation of states coverage by the sales team.

These teams that work remotely have a little contact with the manufacturing units and offices of the organization and, for this reason, they do not follow the project development routine, but they want to participate in the innovation process and contribute with the field experience.

Methodological procedures

The conduction of study were based on the Design Management and its concepts related on the user experience by the phases of mapping and diagnosis of the case studied from these teams to identify their potential.

This study was divided in two phases: Bibliographical research and Case Study. The Bibliographical research intended to construct a knowledge about Design Management, Human Centered design and Innovation. This phase was initiated by a systematic review and after that a conceptual synthesis was done about the themes.

The second phase that was the Case study was divided in two steps, Mapping and Diagnosis. In both parts some tools from human centered design were used. In the Mapping step it was accomplished an immersion on the employee life and environment, based on design management and human centered design principles. In this phase, experiences were carried out with the employees which included trips and displacement to experience the routine and the day in the life of this public.

In the Diagnosis step was performed a synthesis and analysis about the information that was collected and requirements for an innovation program was generated. In this step the research was centered in workshops and meetings in company, in order to understand and synthesize all the information collected for the generation of personas and the map that characterized each team. After it was done an analysis of identified and generated aspects.

Between the steps of mapping and diagnosis, discussed tools were described by Giacomin (2012) for the study of the user and understanding their experiences and needs. In this regards, the mapping phase is performed through observations, customer journey, cultural probes, depth interviews and card sorting for processes. The Figure 6 summarizes the tools and activities to be performed in both phases of research.
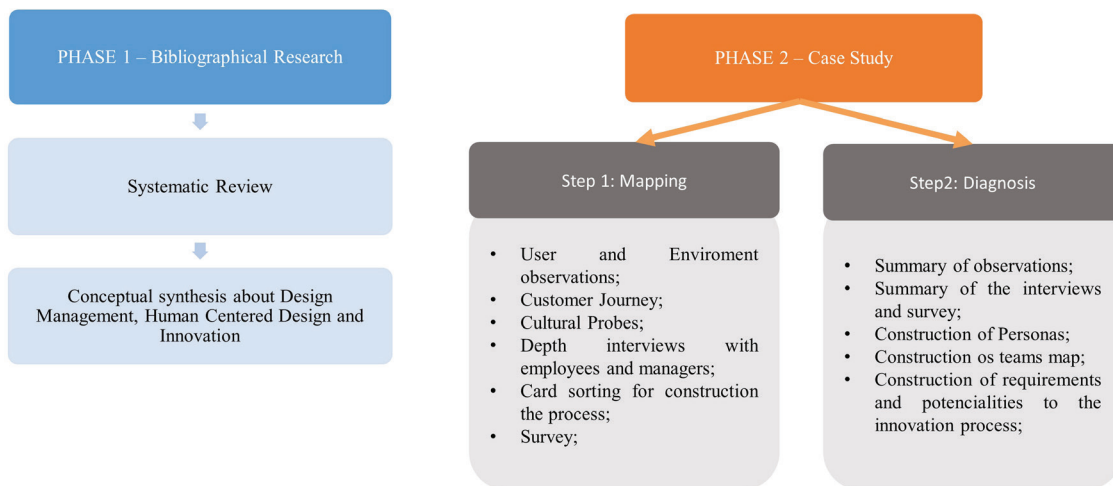
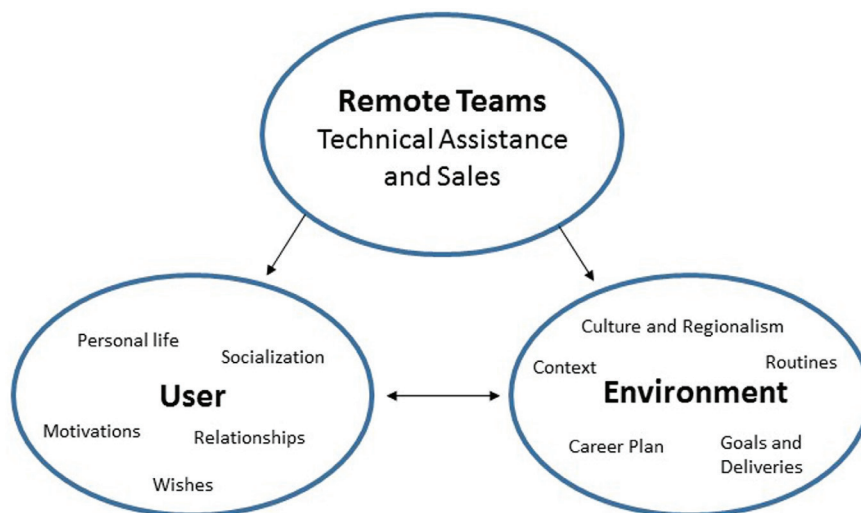**Figure 6.** Tools synthesis and activities for the research.

Figure 7. Synthesis of the aspects that were studied in each team.

The understanding of the surrounding concepts of these users experience is a part of the project, such as the environment and the individual itself (Figure 7). According to Silva *et al.* (2015), knowing and understanding the users and their characteristics when it proposes a new product or process is vital. Thereby, it was necessary to understand the environment, the context, the day-to-day routine, the connectivity experiences and existing goals. As in terms of individual, it seeks to search their motivations, desires, career aspirations, personal lives, relationships and socializing.

After doing the phases 1 and 2, it was possible to list the necessary requirements for the implementation of the innovation process that includes these employees.

In this sense, the contribution potential from the teams are attached with the work conditions and requirements that affect the execution of a program directed to innovation.

The research was performed in a period of two months, embraced employees from both teams and in the whole country.

Results and discussion

During the mapping, the routine of those professionals was clearer and could be guided under displacements, multifunctionality, time division, use of technology tools and languages aspects that characterize the employees from the teams and base the personas creation.

Through the participant observations from the teams, that is the routine experimentation, it was possible to collect the day-to-day life from the remote employees that are dynamic, because most of them attend more than one city and do several visits during the day (Figure 8). In front of that, the displacement is an intrinsic factor from the function, and because of this, most of them spend much time of the day on the road.

Beyond the displacement, the multifunctionality characteristic is also present in these employees. Between visits, it is common, during this pause, answer emails, make phone calls or other administration activities that require a computer.
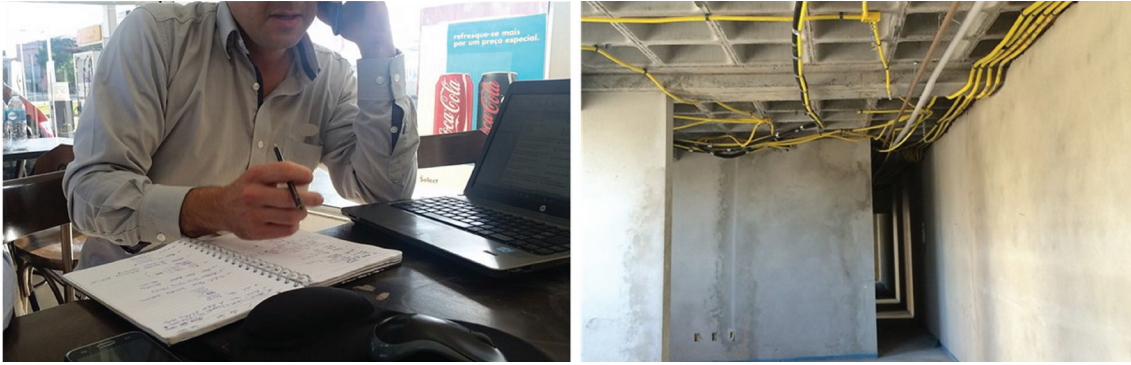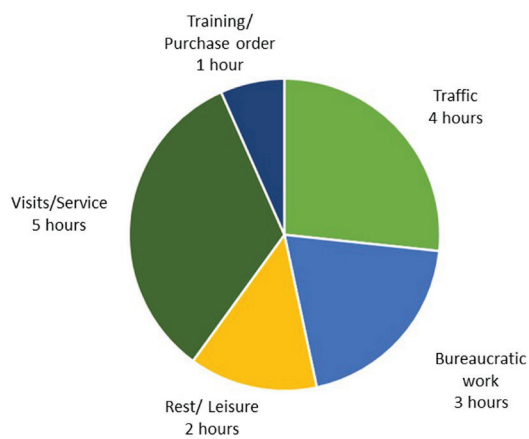
Figure 8. Field routine observations.

Figure 9. Time division from the day activities.

The way the employees deal with their time during a work day was searched, in function of the dynamism from the activities, time must be well managed by those professionals, and otherwise they cannot finish the assignment. In general, the employee split their day activities in: displacement, client visits, administration activities and family (Figure 9).

Due to the fact that most of the activities extend through the night, there is no clear activities division, to this employees, between family time and the company's routine. Among the intervieweds, they are split on those that do their private activities during the morning and dedicate the afternoon and night for the company activities and those who dedicate the morning, afternoon and a little bit of the night time for the company, leaving not much time for the family (Figure 10).

The activities journey is determined by the region where they live, and the weather conditions and traffic are the key factors. São Paulo, for instance, has a critic traffic in the morning and in the end of the afternoon, due to this fact, the employees from this state start to make their activities only after 10 a.m. In the States of the northeast, like Ceará, the weather is warm and humid, so, during the summer, the employees start really early in the morning making their outside activities and in the period from 10 a.m. to 14 p.m., hottest period, they stay at home or do their administrative activities.

Besides the time and displacements, the language characterize an interesting aspect from these teams. During the day-to-day activities the team make contact with different publics from the organization, in addition to make connections between market and company as well. And in those diverse public, they have the necessity
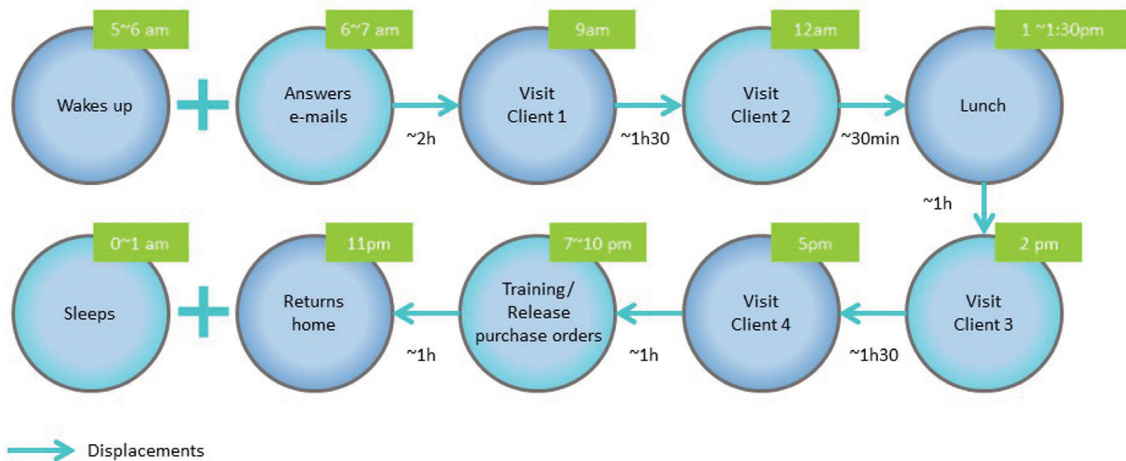

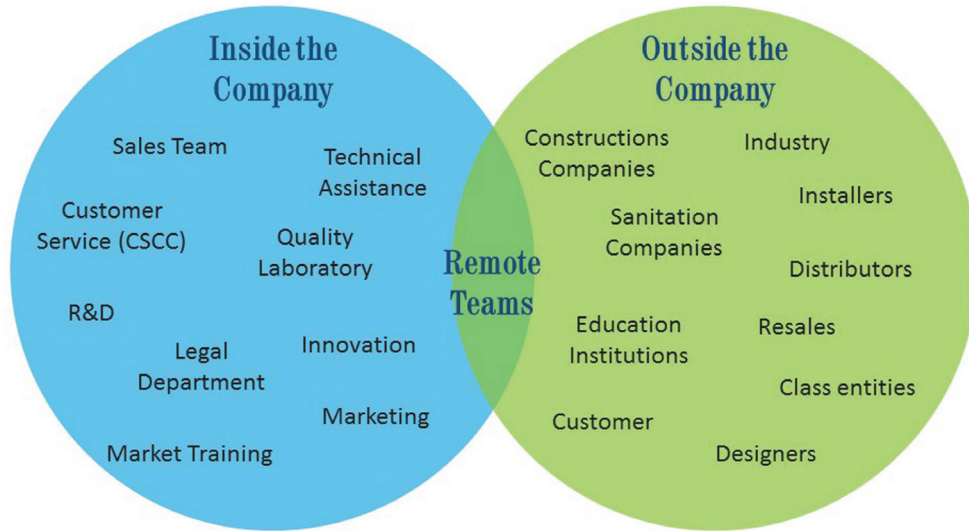**Figure 10.** Day time activities general journey.
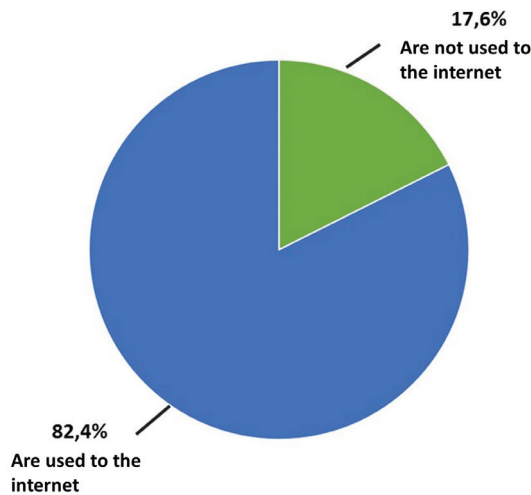
Figure 11. Contact nets between teams.

Figure 12. Technological resources interaction.

to develop a specific contact language for each of them. Figure 11 shows the contacts net from the remote teams. If the contact is directed to sales, the language must be commercial, highlighting the attributes and benefits of buying determined product, however, if the contact is with the final consumer, the language must be more colloquial and highlight the brand image passing credibility and confidence.

Finally, another relevant aspect in the performed work between the remote teams professionals is the technological tools. The employees from the Technical Assistance and Sales, in general, have a cellphone, a tablet and a notebook to work with provided by the company. This tools assists in the day-to-day administrative activities, customer contact, orders list and in the visit route mapping. However, not all the employees have a good relation with the technological resources causing some delay in the activities or difficulty with the tools interaction. It was identified at the survey that only 82% of them are used to

the internet, others have some difficulties to search or to interact online (Figure 12).

This and other data supported the personas creation that characterize the remote teams. In total it was created three personas, which differ by age, work routine, knowledge of the activities and interaction profile.

The persona 01, as shown in Figure 13, is represented by Fábio and symbolize the proactive employee, who has post-graduation and has worked over 10 years in the company. This employee usually has a family, digital affinity and a highlighted professional profile with great technical knowledge and high level of criticality and has a good relationship and communication power.

The persona 02, is represented by Luis and symbolizes the employee, who meets the challenges but he still chasing professional recognition, he is attending post-graduation and has more than 7 years in the company. This employee usually has family and children in school-age, has a great digital affinity and his professional profile is still under construction, with technical knowledge and criticality moderated, having great speed in its communication due to the easiness of using of digital resources (Figure 14).

The persona 03, is represented by Juarez and symbolizes the employee that is in the comfort zone, this professional is graduated, has specialization and has worked for over 15 years in the company (Figure 15). This employee usually has a family, children and grandchildren, he has low digital affinity and he is more unconcerned about his career, because he is already close to retire and his concerns is aimed at maintaining his job. He has a great technical knowledge and has projetual thought, but it is slower in communication speed due the difficulty of using technological tools.

Based on the analysis of these personas and other collected data, came to the diagnosis of these teams. This diagnosis represents the requirements ratio that must be attended when an innovation program is planned with these employees. The requirements list demonstrate, based on the routine and the professional life of the employees, the list of the necessities to be reached for the

PERSONA 1 – FÁBIO
{Proactive}

Profile / Personal informations

- Age: 40 years
- Married and has no children
- Post graduated
- Has professional achievement
- Committed, proactive and enthusiastic

ACADEMIC EDUCATION   FAMILY   DIGITAL AFINITY   PROFESSIONAL PROFILE

Figure 13. *Persona* Fábio.

PERSONA 2 – LUIS
{Corresponds to the challenges}

Profile / Personal informations

- Age: 35 years
- Married and has children of school age
- Graduated and attending post graduation
- Wants to improve career
- Valorize the time with family

ACADEMIC EDUCATION   FAMILY   DIGITAL AFINITY   PROFESSIONAL PROFILE

Figure 14. *Persona* Luis.

implementation of a concise engagement process with innovation, according to Table 1.

The mapping and diagnosis from this remote teams helped the employees to understand and define the potentiality for the innovation process:

- Great knowledge for generation of ideas;
- High technical competency;
- Absorb easily different demands;
- Transit easily between the various public;
- Easily follow moving activities;
- Can generate ideas during the working day;
- Dynamic routine;
- Desire to be always involved with the processes;
- Interested in being part of it;
- Has the technological tools for interaction.

The team potentiality is expressed by the great involvement of those employees with the market and the knowledge that they get from the different publics as well as the company interactions.

Thereby, when planning the interaction with these professionals through an innovation process, it should

PERSONA 3 – **Juarez**
{Comfort Zone}

Profile / Personal informations

- Age: 50 years
- Married and has children and grandchildren
- Graduated and with specialization
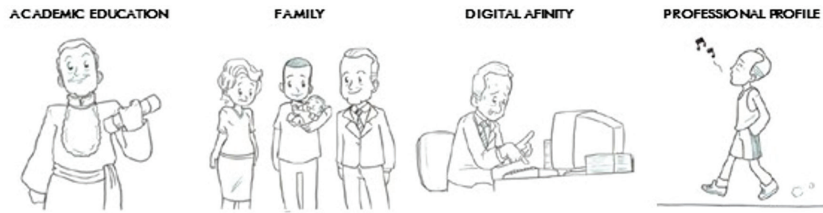- Search financial security
- Is resistente for changes

ACADEMIC EDUCATION   FAMILY   DIGITAL AFINITY   PROFESSIONAL PROFILE

Figure 15. *Persona* Juarez.

Table 1. Diagnosis and requirements.

Diagnosis	Requirements
Scope: They have multifunctional and with great power of articulation feature as interact with several clients and several areas internally.	- Create an innovation process that fits within the scope of work; - Take advantage of this interaction with the various stakeholders.
Planning: Do the agenda planning but during the day changes occur as immediate demands arise.	- Have a flexible interaction regarding deliveries and dates; - Have activities and deliveries not weigh and do not crash into the daily routine.
Safety: Due to security factors and internet connection planning agenda is carried out via the system, but prefer to print and load physically. Similarly prefer to perform the bureaucratic activities at home.	- Create a program that does not require that the team has connection / interaction during the field day; - Think of interactions beyond the computer; - Provide tools that do not endanger their safety.
Idea Generation: New ideas are generated by the field work or for questions and customer demands. Thus the group is composed of people who have ideas proactively and those who are passive because they depend on the verbalization of clients.	- Encourage the creation beyond the field; - To stimulate the generation of ideas to solve problems/needs.
Labor demand: Routine causes are always in the field with little time or a few stops on the base to concentration times. Furthermore consider that there is work overload, large displacement and high concentration of night demand.	- Encourage participation in small time slots available; - Reconciling the high demands program; - Make sure they can devote exclusive time to interact with innovation.
Motivations: Group demonstrates motivation towards professional growth, benefits package the company and time for leisure and family. Also, they want to interact and feel part of the process and see it as recognition.	- Promote the role in relation to the professional growth; - Make the involvement in the process will not interfere in the free time; - Make them involved in the whole process.
Digital interaction: Group has technological tools (notebook, tablet and mobile) but have appreciation for the role. Regarding the innovation initiatives, the group demonstrates little affinity interactions in digitas but state research that has no difficulty.	- Provide a program that does not depend exclusively on the computer; - Provide personal interactions and materials with tactile elements.

be considered its potentialities for the process building. In this way, Dyer *et al.* (2011) corroborates when states that the ability to generate innovative ideas is not only a function of the mind, but also of the behavior. Which means that if changes are provided in the behavior, a great creative impact can be generated in the companies.

These potentialities demonstrate that although the team has different profiles, it has great experience and willingness to contribute to the innovation process that is conducive to building a program which is routine and also promotes engagement.

These behavior changes reflect the company's preparation to synchronize the activities and to build a process that provides interaction among the employees. Therefore, the success of the construction and interaction of the innovation process depends on how these requirements will be implemented and how close they are to these employees reality, in order to make sense and create value for those who will interact.

Conclusion

The design management enables the organization a mapping and understanding of the design developments in the company. According to Gimeno (2000), design can be classified as an intangible value of innovation, because from the basic and applied investigations you get the new ideas that can become new products, services and processes. For that matter, Silva *et al.* (2015) corroborates when states that Design Management must be in all organizations sectors and participate in product development processes or processes from their conception, production, communication to consumption. According to Mozota (2011), it is the design management responsibility the creation of a framework for the innovation management, which extracts the design contributions in the company because it resembles on the methods and creative processes of this.

This relation between Design Management and innovation is given by the organization potential to make creativity the reality and to implement the generated ideas. In this context, employees play an important role which through them, the creativity takes the form of a new idea for a product, service or process. According to Silva (2003), the company that stimulates the creativity of its employees provides a higher degree of satisfaction, because the sense of contributing with something from yourself and self-expressing are intangible prizes.

Thereby, either through creative programs mentioned by Mozota (2011) or increased performance as a company in triangulation between the product and the market mentioned by Gimeno (2000), the employee profile must be molded on the innovation shape, so, it provides the creativity and interrogate, observe and correlates aspects of the field in order to generate ideas.

The research in question was intended to identify the potential of remote teams to contribute with the innovation in a company. Based on the design tools centered on the human being, it was performed the mapping and routine diagnostic and life from the employees through a study case in a consumer goods of construction company.

Although the remote employees routine have considerable displacements, various activities, customer service and bureaucratic activities, these teams have great potential to innovate and it is necessary to get the involvement and interaction with these employees to generate new ideas.

These teams have a great knowledge of the company's customers, interaction routine with the field, elevated technical competence and desire to be involved and to be part of the new processes. This close relation with the market optimize the innovative actions and promotes the creativity with greater easiness, because it provides an immersion in customers and ensures the view from the outside to inside of the company.

In this regard, it is also highlighted the importance of creating a process that fits the employees routine to promote engagement and create value through other routines. The way this process should be implemented is a further study needed and not included in this research.

In this case, is great the remote teams collaborative potential within an organization as long as they are directed for their expertise and that their involvement occurs in a flexible and embedded process in the routine.

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