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Knowledge Transfer among Cross-Functional Teams as a Continual Improvement Process

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***Abstract*—**The culture of continuous improvement in organizations is very important as it represents a source of competitive advantage. This article discusses the transfer of knowledge between companies which formed cross-functional teams and used a dynamic model for knowledge creation as a framework. In addition, the article discusses the structure of cognitive assets in companies and the concept of "stickiness" (which is defined as an obstacle to the transfer of knowledge). The purpose of this analysis is to show that an improvement in the attitude of individual members of an organization creates opportunities, and that an exchange of information and knowledge leads to generating continuous improvements in the company as a whole. This article also discusses the importance of creating the proper conditions for sharing tacit knowledge. By narrowing gaps between people, mutual trust can be created and thus contribute to an increase in sharing. The concept of adapting knowledge to new environments will be highlighted, as it is essential for companies to translate and modify information so that such information can fit the context of receiving organizations. Adaptation will ensure that the transfer process is carried out smoothly by preventing "stickiness". When developing the transfer process on cross-functional teams (as opposed to working groups), the team acquires the flexibility and responsiveness necessary to meet objectives. These types of cross-functional teams also generate synergy due to the array of different work backgrounds of their individuals. When synergy is established, a culture of continuous improvement is created.

***Keywords*—**Knowledge transfer, continuous improvement, teamwork, cognitive assets.

I. Introduction

CURRENTLY the creation and transfer of knowledge is seen as a competitive advantage for companies. This study proposes to develop a framework of what are called knowledge repositories [2]. As well as identify and recognize the interactions between people, tools and tasks, in order to fit the context of unique companies and to facilitate the transfer of knowledge (this knowledge is embedded on the aforementioned interactions and provides the basis to obtain a competitive advantage in business). The transfer of knowledge can be identified by observing a change in the performance of the receiving company, and therefore the transfer can be measured by changes in knowledge or changes in performance.

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To perform this measurement, however, it is first necessary to identify repositories of knowledge. These repositories can be observed in the interactions of people-tools, people-tasks and task-tools. Knowledge can also be integrated in the tasks of the organization and their interrelationships. The network is the sequence of tasks or routines and uses standard procedures of the organization.

The structure of reservoirs of knowledge is utilized with the assumption that the knowledge can be reused in the future. According to [2], knowledge is embedded in three basic elements of an organization: people, tools and tasks and the various sub-networks formed by combining these basic elements. These framework deposits show why knowledge transfer and knowledge can be difficult, because some types of knowledge are more difficult to transfer in different contexts.

Reference [2] proposes that the interactions between people, tasks and tools are less likely to adapt to the context of unique companies and are therefore more difficult to transfer. However, if such interactions are successfully transferred, organizations gain a competitive advantage through an internal transfer of knowledge while avoiding an external transfer to competitors.

Interdependence between various knowledge components (people, tasks, tools) can inhibit their transfer, and it is important to analyze interactions so that a solution can be found that will allow for a smoother process. The transfer of knowledge through routine and repetition can be effective, although the specific characteristics of the routine (as well as the source and destination of interrelationships of the organization) influence the chances of success in the transferring. The differences in the sub-networks involving people across different contexts make the transfer of knowledge problematic.

As noted above, in order to enable a successful transfer of knowledge, the knowledge deposits or the imported sub-networks from a unique company must be compatible or adjusted to the receiving company. Compatibility between contexts of sub-networks that involve people is more problematic, because people usually differ more when tools or tasks are more specialized. The transfer of technology is more effective when the tasks flow with people, as people are able to adapt these tools and technologies to the receiving company. Because people play the most important role in the success of the transfer of technology, it is important to determine the role of members and sub-networks involved.

Businesses need a greater understanding of the processes of socialization and training, due to the fact that these processes modify and change people (and therefore affect the transfer of

knowledge). It is also important to examine whether strong group identities need analysis, as such groups are frequently dense and often associated with "stickiness". Strong identification with a subunit, or department, can lead to unfairness and favoritism in groups where members of one group are perceived as more favorable than members of other groups. Members can identify primarily within their own working group, with the department in which their group is included, with the largest division that the department belongs to, or with the company. An organization in which members identify more strongly with their work groups may have more difficulty transferring knowledge.

II. Development

A. The Creation of Cross-Functional Teams

When teams are formed, it is important to evaluate operational control, which is defined by [9] as *cross-functional teams function*. Regular meetings, preferably daily and with an agenda that makes efficient use of the time dedicated to this activity, are necessary. There are existing technologies regarding teamwork such as technology groups, improvement teams, quality circles, etc. Differentiating these technology groups from traditionally shaped groups is important, due to their functional relationship within the company (e.g., quality and production, maintenance and production, warehouse shipments and sales). These groups already have an operational efficiency oriented towards sales goals and routine production goals. In this respect, the Japanese techniques for the general care of cleanliness, order and maintenance of the workspace are a good foundation. Good order and cleanliness ("house-keeping") are important elements in order to avoid physical security risks, fire hazards and other aspects of personal health. In the daily operation process, establishing a framework of minimum reference for housekeeping enables the right environment for improvement, either for the production process or even to improve product design and processes. To create an organizational culture of improvement, it is necessary to establish opportunities for an exchange of knowledge between the different working teams. There are two aspects which must be highlighted:

1) Training in problem solving techniques based on the scientific method.
2) Organizing periodic events for recognition such as Quality Month, annual follow up examinations, suggestion boxes, etc. The important aspect as an organization is to create a culture of improvement and to enable the right environment for the exchange of information, including informal aspects that contribute to a climate of confidence conducive to the transfer of knowledge.

B. Dynamic Model of Knowledge Creation

Knowledge management aims to direct its attention to organizational knowledge reflected in the practices and routines that the company uses to transform resources into valuable products and services. Today the belief persists in some organizations that technology will replace the skills and criteria of an experienced worker. However, as [5] have mentioned: "The assumption that technology can replace human knowledge or create something equivalent has been proven to fail repeatedly."

In order to create or generate organizational knowledge, different methods and approaches might be used through the transfer process, what we learn from others and the skills that we share. And (once this process starts) it must become internal (internalization); in other words: to modify and translate knowledge so that it can fit within the context of an organization with a unique identity. To understand this process [8] established two important distinctions: tacit and explicit knowledge. This difference is considered to be the cornerstone for the authors of this model and is considered to be the basis for the creation of knowledge from the transfer and conversion of tacit knowledge. And since what ultimately matters is the organizational knowledge, in [8] establish their own ontology, which itself focuses on the different knowledge creating entities: individual, group, organizational and inter-organizational.

Tacit knowledge includes cognitive and technical elements, what Johnson-Laird [8] call *mental models*. Humans create models of the world by creating and manipulating analogies in their minds. Mental models, such as schemes, paradigms, perspectives, beliefs and views, help individuals to perceive and define their world. The technical aspect of knowledge contains the "*know-how*", specific trades and skills. The differences between tacit and explicit knowledge are shown in Table I:

TABLE I
DIFFERENCES OF KNOWLEDGE

Tacit knowledge (Subjective)	*Explicit knowledge (objective)*
Knowledge experience (body)	Rational knowledge (mind)
Simultaneous knowledge (here and now)	Sequential knowledge (there and then)
Analog knowledge (practice)	Digital knowledge (theory)

C. Conversion of Knowledge

According to [8], the dynamic model of knowledge creation is based on the awareness that human knowledge is created and expanded through social interaction of tacit and explicit knowledge. This interaction is called *knowledge conversion*. It is considered to be a social process that is not limited within the individual, as this has a social interaction when he or she perceives things. Then, through this process of social conversion, tacit and explicit knowledge expands both in quantity and quality.

On the premise that knowledge is created by conversion between tacit and explicit knowledge, the authors suggest four types of knowledge conversion, which in the case of this analysis are listed in the following sequence (see Fig. 1):

1. From tacit to explicit, or externalization;
2. From explicit to explicit, or combination;
3. From explicit to tactic or internalization; and,
4. From tacit to tacit, which we call socialization

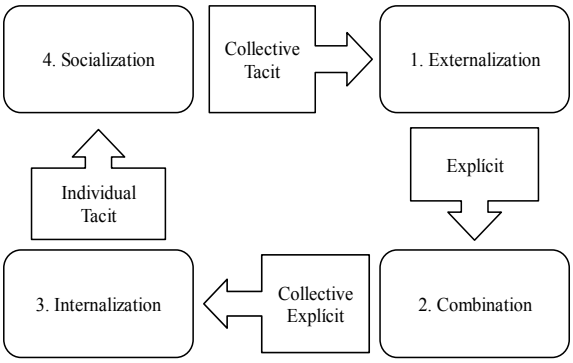

Fig. 1 Model of knowledge conversion [8]

From these four types of knowledge conversion, the authors define five phases of knowledge creation:

1. Sharing tacit knowledge, because the tacit knowledge of individuals is the basis for the creation of organizational knowledge, a natural step for this process is to begin by focusing on the tacit knowledge of the individual. However, the characteristics of this knowledge are not easy to communicate or transfer to others, as they are acquired mainly through experience and cannot always be expressed in words. Sharing tacit knowledge among individuals with different backgrounds, perspectives and motivations is essential for the creation of organizational knowledge. The emotions, feelings and mental models of individuals should be shared in order to achieve mutual trust.
2. Creation of concepts, when a mental model shared in the field of interaction has been applied, the self-organizing team states then this through a continuous dialogue in the form of collective thinking. The shared tacit mental model is verbalized into words and sentences, and finally crystallized into explicit concepts. This phase corresponds to the externalization.
3. Justifying the concepts; knowledge is defined as a justified true belief. This justification includes an assessment of whether the created concepts are truly useful to the organization and to society. Verify if the intention is still intact and ensure that the concepts generated meet the needs of the organization as a whole. For companies, the normal criteria of justification are cost, profit margin or profit and the extent to which a product contributes to the growth of the company. However, the criteria for justification can be qualitative and/or quantitative. In a knowledge-creating company, the main role of top management is to formulate the criteria for justification in the form of organizational intent, which is expressed in terms of strategy or vision.
4. Build an archetype, in the fourth phase the justified concept becomes tangible and concrete - an archetype. This can be thought of as a prototype in the case of the process of new product development. In the case of service or organizational innovation, the archetype can be seen as an operating mechanism model. In all cases, it is constructed by combining the newly created explicit knowledge with the existing explicit knowledge. Attention to detail is the key to managing this complex process. Both the variety of requirements and information redundancy assist in this process. This archetype will be reflected in a manual operation for the organization, including policies, lines of action, procedures, specifications, and formats.
5. Expand knowledge, organizational knowledge creation is an ongoing process that constantly updates itself. The new concept, which has been created, justified and modeled, continues forward into a new cycle of knowledge creation at a different ontological level.
6. In summation, this interactive and spiral process (which we call cross of knowledge distribution) takes place internally and within the organization (Fig. 2) in order to establish the cycle and exchange between tacit and explicit knowledge and the product of their combination.

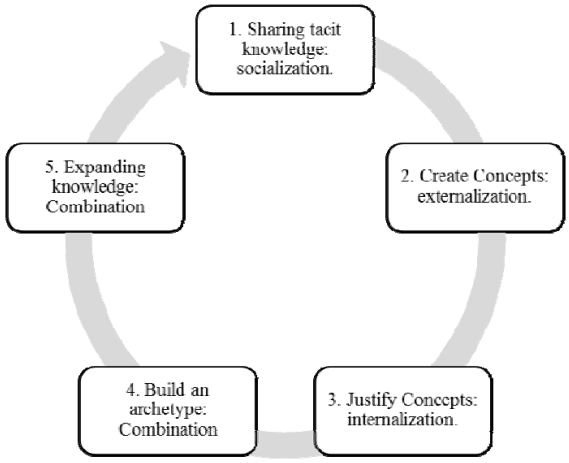

Fig. 2 Knowledge management methodology proposal [8]

D.Stickiness

One of the most common and effective practical manifestations of organizational learning is the transfer of knowledge and *best practices* within the company. A phenomenon that happens frequently in the transfer of knowledge is "*stickiness*" and it refers to the degree of perceived difficulty in the transfer of new knowledge in organizations [6], [7], and [10]. Ambiguity and lack of absorptive capacity of the receptor appear to be the most important precursors of "stickiness". The characteristics of the receiving unit, especially its absorption capacity, become more significant during deployment. In [7] a model to increase the absorptive capacity of the receiving company is proposed through a coordination and combination of resources and capabilities of the company through sharing and innovation. The transfer of knowledge in organizations "is the process through which a unit (group, department or division) is affected by the experience of another" [2]. This transfer is expressed in changes in the performance of the receiving

company. Thus, the transfer of knowledge can be measured by measuring changes in knowledge or changes in performance.

The start of a transfer may require a great effort to define the scope of the said transfer. This includes selecting the time, evaluating the costs and establishing the responsibilities of each of the participants. However, before the transfer is performed, it is necessary to document the process. For example: by creating process maps or flow charts, an entity can first choose what is necessary to transfer. This acts as a kind of fingerprint that can be compared with receptor activity of knowledge so that it can be rebuilt later. The decision to proceed with the transfer inevitably occurs under some degree of uncertainty or ambiguity. The experience that the work team shares (and their habits) can negatively affect the transfer of tacit knowledge. The performance measures used are difficult to identify and subject to fluctuations. However, this uncertainty is reduced when there is evidence that the knowledge to be transferred has proven robust in other settings and that the source is reliable. On the contrary, when the source is not perceived as reliable or well informed, it will be more difficult to initiate a transfer of the source and its credibility can be questioned.

The degree of difficulty for a transfer can be mitigated through planning. However, the extent to which enforcement activities can be scheduled depends on the depth of understanding of the practice. Namely, in the ambiguity. Carelessness during planning can be compensated through mutual adaptation. The effectiveness of planning, coordination and mutual adjustments will likely depend on the quality of relationships between source and receiver. Similarly, when the transition to the use of new knowledge is gradual and not abrupt (i.e., when the new practice coexists in time with the practice that it intends to replace), efforts are duplicated. Unexpected problems are more intractable at later stages in the ramp-up (acceleration) because versions of the new practices have already become a habit prematurely and are more difficult to change. When new knowledge is implemented simultaneously instead of sequentially, the incidence of unexpected problems will generally be larger. Two of the most common and effective practical manifestations of organizational learning are the transfer of knowledge and the best practices within the company. Discovering small differences in the performance of similar units, companies multiply efforts to leverage existing knowledge through the transfer of best practices.

Transfers are seen as best practice exchanges among peers - organizational knowledge between a source and a receiver unit that is important in both the characteristics of the source and the recipient. In general, the pattern of results is consistent with the general expectation that the factors affecting the transfer opportunity are more likely to cause difficulties during the initiation phase, while factors that affect the execution of the handover are more likely to produce difficulties during the implementation phases. The characteristics of the source device (or source), such as motivation and perceived reliability are very significant in the first three stages of the transfer. The characteristics of the receiving unit, especially its absorption capacity, become more significant during deployment. Ambiguity is important at all stages of the transfer. Ambiguity and lack of absorptive capacity of the receptor appear to be the most important precursors of "stickiness".

To facilitate a transfer, it is necessary to increase the absorptive capacity of the receiving company and/or prevent viscosity (stickiness). In [7], a model is proposed to enable the absorptive capacity of the receiving company by utilizing the coordination and combined resources and capabilities of the company and through sharing and innovation. This process is performed based on tacit organizational knowledge, which is in the context of the issuing company. Therefore, in order to be received, knowledge must first be adapted to the context of the new company. This implies a deconstruction of the previous context to generalize and then rebuild the new context of the receiving company. This is where the capacity of the recipient company must be valued, assimilated and applied to the new knowledge.

E. "Knowing" as Group Tacit Knowledge.

There is a cultural predisposition to favor individuals over groups, but in recent years there has been an increase of research on learning in groups and organization. In [3], it is argued that there are several forms of knowledge, and that technical differences are significant (both from a theoretical and practical point of view). They state that study leads to an effective understanding of organizations, which can be interpreted as the organizational learning, or the collective mind. Explicit and tacit knowledge have been mentioned before - the authors analyzed them in individual and group contexts and then combined them in new ways (as shown in Fig. 3): In this case, one can speak of explicit knowledge, whose main characteristic is that it can written formally and has the tacit knowledge that is associated with the ability or skill of the members of the group. Accordingly, explicit knowledge is what is known as organizational learning and is reflected in the procedures or routines that are performed by specialized working groups. In addition, explicit knowledge is reflected as individual abilities and skills that are not feasible to be used by the organization and are then turned into written form.

Each box in Fig. 3 represents four different types of knowledge, each in the same position as the other three. This means that none are subordinate to the other. According to [8], scholars of organizational learning consider that this learning focuses on the individual. Once internalized in the individual the next step is outsourcing, which is a process that links the conversion of tacit knowledge to explicit knowledge.

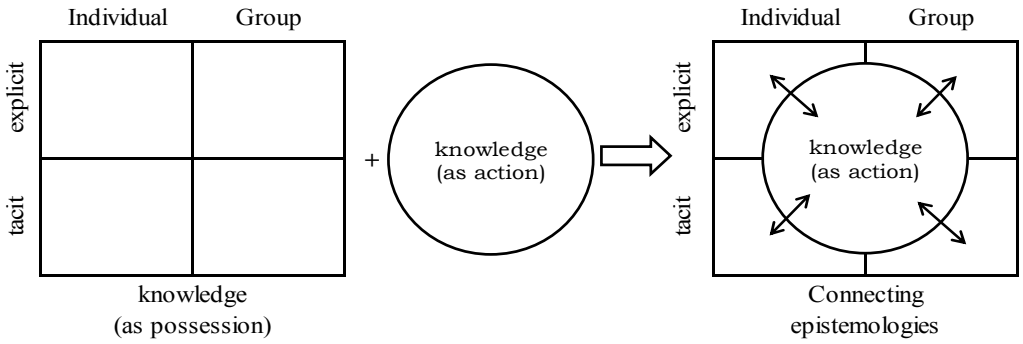

Fig. 3 Knowledge and know [3]

According to [3], there is an epistemological dimension that combines individual and group action, in which one can differentiate on knowledge used in action and learning as part of this action. Therefore, besides the traditional view of epistemology of learning as something you possess, a parallel point of view from the practice of epistemology must be associated with it. This positions learning as its center point. And from these distinctions, the authors see interaction as a process for generating human groups as a source of new knowledge, which resides in the use of knowledge as a tool of knowledge within an interaction held in the physical environment. There is a cultural predisposition to favor individuals over the group, but in recent years there has been an increase in research on learning in groups and organizations.

The practice involves either individuals or groups and involves actions such as playing a musical instrument like the violin or practicing a profession (i.e. doctor). Practice is defined as an individual or group coordinated activity, which is contrasted with the reality of real work in the context of a group or organization. Conduct and action must be distinguished from one another: any conduct to be considered, while action is considered to be conduct imbued with meaning [3]. More precisely, it is stated that there is a distinction between knowledge and knowing. Knowledge is the concept of something, which is given use in the action but is not the action itself. Comparatively, knowing refers to something that is part of the action, but not used during the action. Knowing does not focus on what is in the mind, but focuses on the physical and social interaction.

The interrelationship of the epistemology of possession and epistemology of practice (as defined by [3]) propose that there are four forms of knowledge that describe the function of knowing. They highlight a concept that they define as "genre" (see Fig. 4). Genre is the “spirit” or underlying theme that defines a group of people that share their combined knowledge and experience in order to create a greater whole. Similarly to individual tacit knowledge, organizational genre has meaning only in the context of the practice of a given group "and in that sense, is something the group has in common and is unique to them" [3].

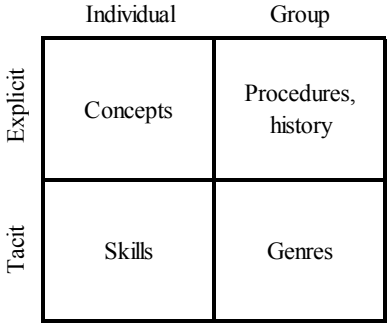

Fig. 4 Four forms of knowledge [3]

F. Cognitive Assets

Theories of knowledge generation have followed its development from many different aspects. One of the most recent theories is proposed by [4] on "cognitive assets" in addressing the issue of how organizations can effectively absorb and make use of the tacit knowledge of its members. Cook and Brown (mentioned in [4]), proposed that the integration of knowledge and knowing means that less attention should be given to the idea of knowledge transfer, and more attention to the processes of integration of knowledge.

"Cognitive assets" are assets of the organization that may be tangible and intangible assets and are constituted as sources of cognition necessary to coordinate action. These assets allow the integrity and efficiency of multiple conversions of individual knowledge into organizational knowledge. In particular, they focus on a specific process considered to be the core of organizational capacity: the generation and dissemination of collective knowledge. The fact that not all knowledge is explicit helps explain why this competitive advantage (based on the knowledge) is not easily duplicated; the product of this is called tacit knowledge [8].

As discussed above, in this process, knowledge is created through interactions between individuals with different types of content knowledge [8]. The four elements proposed in [4], labeled "cognitive assets", all have a positive impact on the creation of organizational knowledge, because they increase the efficiency of the conversion of tacit individual knowledge into collective knowledge. (See Fig. 5).

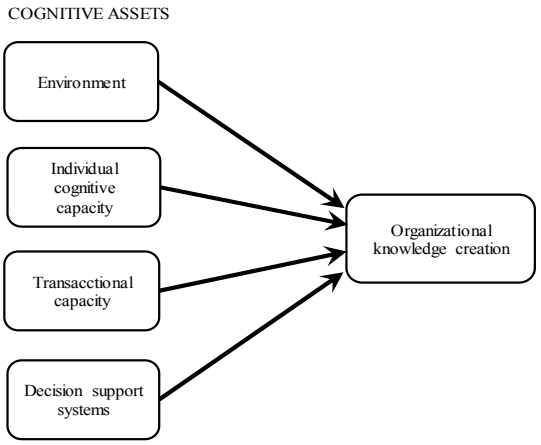

Fig. 5 Model of cognitive assets [4]

G. Experience Related to Knowledge Transfer: Transfer of Technology and Machinery from Indiana Plant to Queretaro, "Transmisiones Mecanicas" (Tremec)

In 1998, there was a transfer of technology and machinery between two companies: a Mexican company (Tremec) and an American manufacturing plant (Borg Warner) that produced standard transmissions. The transfer of technology was well-planned and it was established that the company being sold would not stop its supply of products to its main customers. The transfer of technology and machinery from the US plant to the Mexican plant was divided into four levels, each of which represented a family of parts (products) from the transmission.

For one of these part-families there was a transfer in manufacturing of 39 new products (speed synchronization products), with their respective production processes and supported by cross-functional teams (formed before the transfer). The transfer took place within an organizational culture that supported Tremec's updating of "cognitive assets" in relation to the organizational environment, the individual knowledge from the members of the group and the transactional aspects which enhanced the assimilation of new knowledge and its transfer to other business units.

The decision making was easy, as it was conducted in an environment in which there was an alignment of cross-functional teams. As described by [2], the knowledge transfer in organizations: "is the process through which a unit (group, department or division) is affected by the experience of another." The successful technology transfer between Tremec and Borg Warner was reflected in the changes in the performance of the receiving company (Tremec). In this case, the transfer of knowledge was observable by measuring changes in knowledge and changes in performance at the company.

The decision-making process occurred through daily meetings to prioritize and solve new or broken machinery, as well as the preparation of procedures that translated standards of the US company to the Mexican company regarding technical and quality issues. This translation was in terms of inspections, records and quality graphics that already existed in Mexico as normal production procedures - part of the explicit knowledge already operating within the "cognitive assets." Hence the explicit knowledge was transferred in the documents of the Mexican company, adapting the organizational environment and at the same time, a "know-how" was given at the group level [3]. That occurred in the context of meetings from interdisciplinary groups that addressed this "know" in different areas. These areas included production, quality, engineering, as well as maintenance, design, sharp tools and finally, technology of the new machinery.

Individual skills were very valuable for the success of the transfer program, as some of the machines were very old and required expert knowledge from some its members. What seemed like an obstacle was resolved "smoothly". Here the form of knowledge that [3] called "genre" was seen (Fig. 5). "So in addition to the traditional view of epistemology of knowledge as something you have, you must associate a parallel point of view of the epistemology of practice, which takes to be known as its central point" [3]. In this context the absorptive capacity of the Mexican company helped the transfer process "to enable the absorptive capacity of the receiving company through coordination and combination of resources and capabilities of the company's ability to share and innovate." [7].

III. Results

A. Combining Cross-Functional Teams with Cognitive Assets

In the Delphi case study in Ciudad Juarez Mexico [1], it was necessary to distinguish between teams and working groups. The transfer work was performed best by cross-functional teams rather than working groups because the work required synergy. The teams met objectives, as they shared information and made decisions within the scope their responsibilities, whereas the group's individuals made use of the information transferred between them, but doing so required additional effort. In other words; the cross-functional teams had the flexibility and responsiveness necessary to meet their objectives.

An important characteristic of teams is that individuals who make up the team complement each other in the performance of their duties and responsibilities. In a group, the result of its activities is the sum of individual efforts. But in the team, there is synergy that produces an increase in overall performance, and that cannot be interpreted as the sum of its parts. It is in this context that continuous improvement can be achieved.

At Delphi's plant in Mexico, at its facility in Ciudad Juarez, the experience of developing technological capabilities through the transfer of knowledge in work teams was offered. This process began with the creation of the Technical Center in Mexico [1]. As part of this facility, a team of advanced engineers was formed. The formation of this team enabled basic, intermediate and advanced innovation, and then, analyzed the accumulation of skills following the taxonomy of

Bell and Pavitt [1]. The three technical functions are broken down below:

i. *Technical Investment Function:* basic and intermediate abilities were gathered in relation to supplier selection of indirect purchasing of equipment and machinery. Skills and abilities were also acquired during the preparation and implementation of projects.
ii. *Technical Production Function:* intermediate and advanced abilities were accumulated in relation to the innovation of products and processes. And within plant, engineers developed capabilities to redesign, improve, validate and implement quality improvement techniques. In addition to the registration of intellectual property.
iii. *Technical Support Function:* advanced abilities were accumulated in the innovation of products and processes and in the plants the engineers developed capabilities to redesign, improve, validate and implement quality improvement techniques.

It is noteworthy that during the first nine years of Delphi's existence (beginning in 1979) only basic operational capabilities were developed. And during this time, other areas of the plant also acquired capabilities, particularly in the administrative area, which favored an organizational change. Most significant from the point of view of teamwork, is work of continuous improvement from an advanced engineering team, which favored the development of these capabilities.

At both Delphi and Tremec, explicit knowledge was transferred through the documents of the company, adapting the organizational environment. At the same time, there was the "know-how" (as mentioned by [3]), that occurred in the context of interdisciplinary group meetings. This "know-how" was addressed in different areas: production, quality, engineering; including: areas of maintenance, design tools, sharp and new machinery technology.

IV. Discussion and Analysis

The emotions, feelings and mental models of the individuals should be shared to achieve mutual trust. The self-organizing team periodically revises itself through a continuous dialogue, in the form of collective reflection, on an assessment of whether the concepts created are really useful for the organization. The role of top management is to formulate the criteria of justification as organizational intent, which is expressed in terms of strategy or vision.

It is important to create teams that will follow up (review) the operational control (which is known as cross-team function), to establish recurring meetings, preferably daily, with an agenda that makes efficient use of time dedicated to this activity. And this model will be reflected in a manual operation of the organization, including policies, lines of action, procedures and specifications and formats, thus creating opportunities for an exchange of knowledge between the different working groups of the organization with events such as Quality Month, annual surveys, suggestion boxes, etc. The purpose of this, as an organization, is to create a culture of improvement. It is necessary to examine whether there are strong group identities often associated with aspects of "stickiness" and dense social networks in organizations.

The transfer of technology is more efficient when it is accompanied by tasks that move people, because people are able to adapt the tools and technology to the new context. Because people play the most important role in the success of a transfer of technology, it is important to determine the role of members and sub-networks that involve them. A greater understanding is needed regarding the processes of training and socialization that modify or change people and how they affect the transfer of knowledge. This is needed in order to examine whether there are strong group identities often associated with aspects of "stickiness" and dense social networks in organizations.

An organization in which members identify more strongly with their work groups may have more difficulty transferring knowledge. When the source of a transfer is not perceived as a reliable, trustworthy or knowledgeable, it will be more difficult to initiate a transfer. It is important to note that part of knowledge remains within the organization in the form of *knowing*, which is the skill that develops continually when working as a team. The consolidation of individual knowledge and *knowing* in a group generates more knowledge and permeates the organizational culture

V. Conclusion

Although the transfer of knowledge in organizations involves individuals, the problem of transfer of knowledge in organizations goes beyond the individual level in order to include transfer to higher levels of analysis, such as the team, the product line, department or division. It is very important that management begins the process of transferring knowledge in order to establish the intent of the organization, thus declaring the strategy or vision of the company and establishing criteria for the creation of spaces where the interactive process for cross-knowledge distribution is promoted, either within the organization or between organizations. In these areas the transfer of explicit knowledge will be promoted and then combined in an environment that advocates mutual trust, thus contributing to sharing with the recipient organizations and establishing tacit knowledge in a group (genre). These aspects are shown in Fig. 6: *Aspects of teamwork and their interrelationships.*

The initial step in creating organizational knowledge is sharing tacit knowledge, based on the cognitive assets that will strengthen this knowledge as part of the competitive advantage of the company. One also needs to develop the structure that contains the *repositories of knowledge*, knowledge that is embedded in the three basic elements of organizations: people, tools and tasks. The next step is to identify and recognize the interactions between them to fit the new context and facilitate the transfer of knowledge [2].

As seen in the case of Delphi Mexico, it is helpful to use the analytical framework proposed by Bell and Pavitt (1995), which can identify the accumulation of capabilities such as vendor selection, purchase of machinery and project implementation. The purchase of machinery and its

installation allow embedded technology to be used in the production process and will contribute to company performance. This tool is highlighted, as it can be identified as a repository of knowledge and is noted by [2]. The accumulation of intermediate and advanced abilities for process and product innovation is necessary in order to achieve operational capacity. Especially with initial operations that require considerable time to learn and master the knowledge and the technology involved.

It is possible to identify the transfer of knowledge in the same way as we identify improvement. This is accomplished by measuring changes in performance, the knowledge generated in the form of more efficient procedures, new process designs and better quality performance. The formation of cross-functional teams to follow up the operational control is recommended. These teams must create opportunities for regular meetings and exchanges of knowledge between different teams in the organization, and with clear established intervals of meetings where recognition can be given to progress as well as improving the exchange of information within a climate of trust.

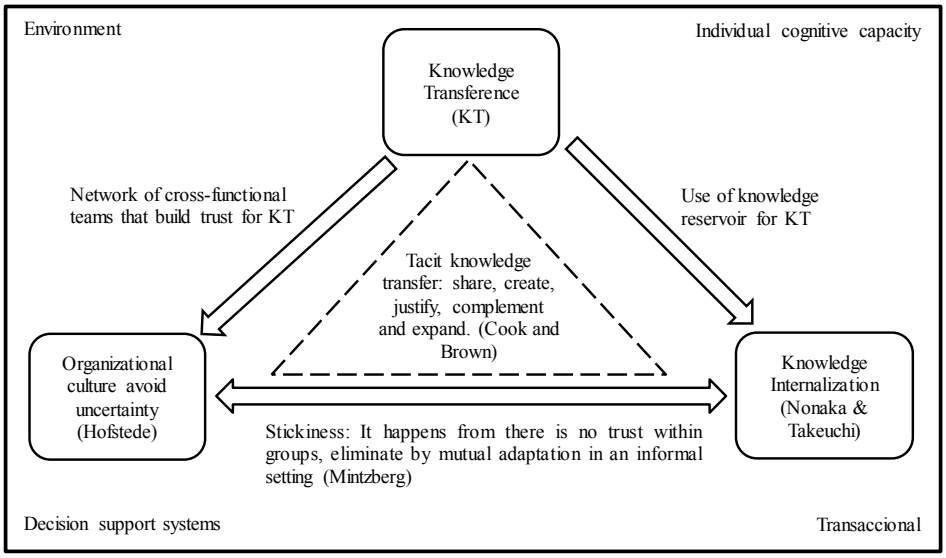

Fig. 6 Aspects of teamwork and their interrelationships Source: Own elaboration

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