

Research Paper

High Tacit Knowledge Deployment Model: How managers can design and potentiate tacit knowledge use within and across team processes

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The football industry, in particular, has shown extraordinary growth in recent years of between 10 and 15%, depending on the markets. However, this growth is expected to decelerate in the next few years, as a result of the global economic and financial crisis of 2008. The teams in Mexico's First Division of football have not been immune to the influence of all these aforementioned factors which affect the external environment, above all since the time that they began to take part in international tournaments. Some of these sports organisations dedicated to football in Mexico have begun to work with management models oriented towards continuous improvement (Kaizen, to use the Japanese term). Thus the main purpose of this research is to analyse the application of Kaizen in the specific context of a sports organisation dedicated to football. The research method adopted was the case study. Research was carried out in sports organisation dedicated to football, and adopted a retrospective focus. Three methods were used to gather data: direct observation, documentary analysis, and semi-structured interviews.

The Kaizen approach helped this sport organization dedicated to football to improve their management system and sport management results. A continuous improvement management framework drawn from analysis of the case study is shown. Research was based on a single case study. However, rather than seeking empirical generalisation, it tries to examine and explore how is the Kaizen approach applied in a specific environment such as that of a sports organisation dedicated to football in Mexico.

The research is effectively a guide for practitioners (Sport Managers) wishing to apply or already applying Kaizen in their sport management systems. A review of academic and practitioner literature on the subject indicated that application of the Kaizen approach in sport organisation dedicated to football had hardly begun to be explored. It is also significant that in Mexico and Latin America, examples of the transfer and implementation of this kind of approach are practically non-existent in academic literature on the subject.

Keywords: Football organization, Management System, Continuous Improvement, Mexico.

INTRODUCTION

One of the most valuable resources for organizations is tacit knowledge because it is essential in order to

generate competitive advantages, innovate, solve complex problems and contribute to achieving maximum value in knowledge assets (Krogh von, et. al., 2000; Lawson et. al., 1999; Leonard et. al.,1998; Spender, 1998; Nonaka, et al., 1995, Boisot, 1998; Barney, 1991). The question this article looks to answer is how, from the viewpoint of strategic management, organizations might

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Table 1. Common Behaviors in all three teams

Observed behavior	Identifier	Characteristics
Guiding or validating the practice	C1	The expert guides or validates actions in order to design, experiment or assemble.
Anticipating or identifying problems and results	C2	The expert values or anticipates a problem or a result in order to achieve the team's task.
Proposing solutions	C3	The expert proposes or generates ideas toward finding a solution to a given problem.
Visualizing opportunities	C4	The expert values an opportunity by knowing how to relate and be aware of what is happening around him/her.
Clarifying the phenomena	C5	The expert gives explanations by telling stories, using metaphors or examples that clarify the situation.

Source: Sandoval- Arzaga (2005)

manage this type of knowledge in order to potentiate its use and obtain better results.

It is in learning processes where teams create knowledge and share it among the members; much of the knowledge dynamic is tacit. Tacit knowledge is useful in finding new ways of interacting, as well as different paths for distinguishing and connecting (Tsoukas, 2003), in order to validate the knowledge of a given problem, guide members toward a solution, or anticipate the implications of a certain problem that have not yet been determined (Polanyi, 1966). Knowing how to potentiate the use of tacit knowledge allows teams to learn and improve their results, becoming a unique resource for the organization. For this reason the purpose and contribution of this article is to propose the theoretical model of High Tacit Knowledge Deployment which arises from the empirical analysis of three case studies of two world-class organizations. In this model the necessary conditions for the team, as well as for the organization, are specified in order to create, share and take advantage of this type of knowledge as well as possible. This means that managers can work with a possible tool which allows them to design work teams in which tacit knowledge is potentiated.

How to identify tacit knowledge presence: five commons behaviors

The fundamental debate in tacit knowledge is how to notice its presence. The definition of tacit knowledge is that we know (or we are conscious or semi conscious) of the particulars of something by attending something else, because we interiorize these particulars in a whole entity (Polanyi 1958, 1966).

Tacit knowledge can only be deployed or manifested when we act (Tsoukas, 2003). Tacit Knowledge is related to know-how and acting intelligently. It is the

ability to do things critically, not as habit, to continue to learn while acting. It is a matter of levels, whoever has developed the practice more will have greater knowledge (Ryle, 1949). People with know-how are called experts and it is in their actions that we can notice the presence of tacit knowledge. Not just as the result of a cognitive process, but as a phenomenon derived in a specific context, an expert is who reinterprets or re-contextualizes a certain practice, even though the act realized by an expert and a novice is the same (Bou, Sauquet & Bonet, 2004).

Therefore, the pattern of the experience is the aspect which allowed the tacit knowledge to be observed. In research, *five common behaviors* among the experts have been identified in the three case studies as emerging elements of tacit knowledge. These behaviors are:

- 1) Guiding or validating the practice,
- 2) Anticipating or identifying problems and results,
- 3) Proposing solutions,
- 4) Visualizing opportunities and
- 5) Clarifying the phenomena.

The following table shows of what these behaviors consist:

Tacit knowledge and team learning processes: The tacit knowledge deployment sphere.

The central question which led to the construction of the proposed model was, how is tacit knowledge related to teams' learning processes? Or stated in a different manner, how are the common behaviors of the experts as signs of tacit knowledge related to teams' learning processes?

The other basic element of this empirical research was

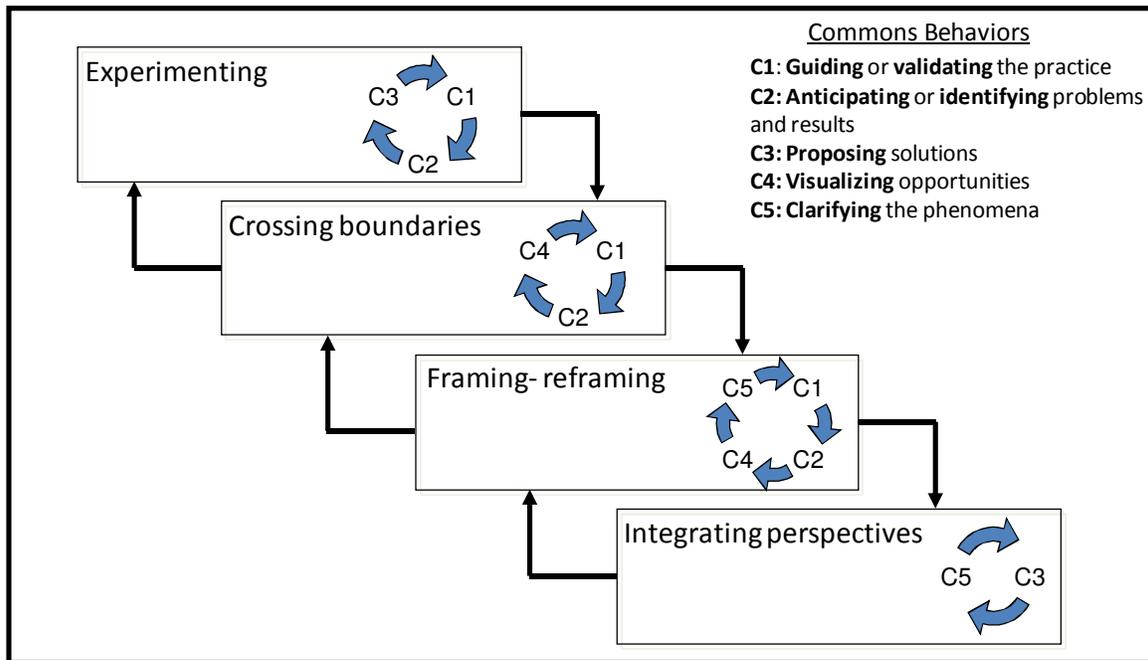
Table 2. Learning Processes and Common Behaviors in all Three Teams

Learning Modes	Fragmented		Accumulative		Synergy		TLS minimum
	Team A		Team B		Team C		
Learning Processes	CT	TLS	CT	TLS	CT	TLS	TLS minimum
Experimenting: the group's action to prove hypotheses or suppositions in order to discover something new or to evaluate the impact.	C1 C2 C3	9	C1 C2 C3	9	C1 C2 C3	12	10
Crossing boundaries: the individuals give or receive information through the interaction with other individuals outside of the group.	C1 C4	25	C1 C2 C3	29	C1 C2 C4	34	30
Framing-reframing: the individual's perception being transformed regarding an issue, situation or person in a new sense or significance.	C2 C4 C5	12	C1 C3 C4	15	C1 C2 C4 C5	19	15
Integrating perspectives: the group members synthesize their diverging points of view and their apparent conflicts are resolved through dialect.	C3 C5	18	C3	26	C1 C2 C3 C5	34	26

C1: Guiding or validating the practice
C2: Anticipating or identifying problems and results
C3: Proposing solutions
C4: Visualizing opportunities
C5: Clarifying the phenomena

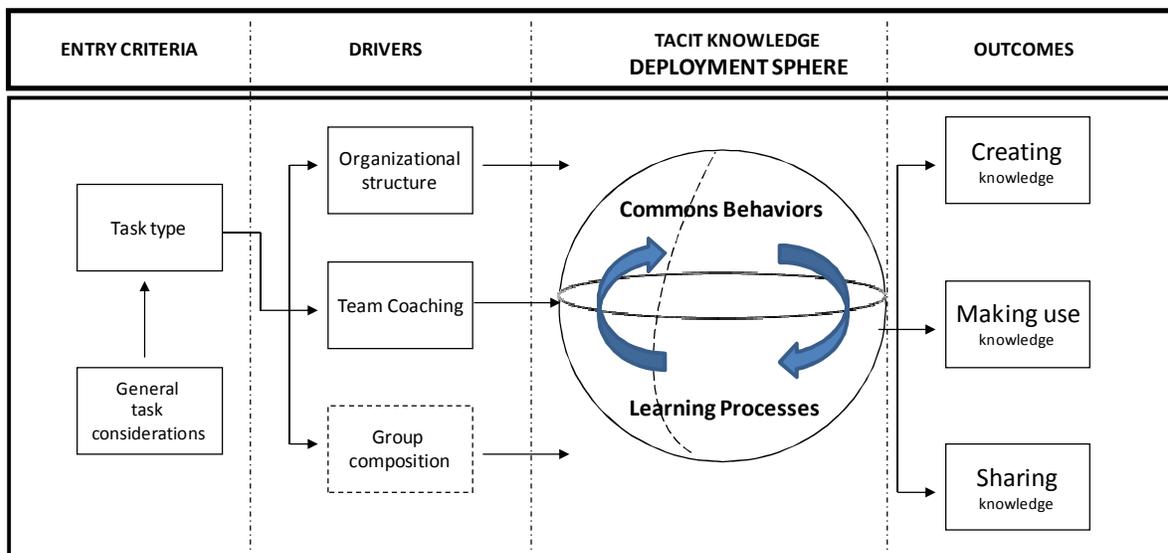
Source: Sandoval-Arzaga (2005)

Figure 1. Tacit Knowledge Deployment Sphere



Source: Sandoval-Arzaga (2005)

Model 1. High Tacit Knowledge Deployment Model



Source: Sandoval-Arzaga (2005)

observing the teams' processes by which they learn. Learning in teamwork is a process in which a group creates knowledge. Learning processes are the central part of the team's learning through interaction. There are four learning processes: experimenting, crossing boundaries, framing-reframing and integrating

perspectives. In this interaction, teams can reach a different type of learning: fragmented, accumulative or synergy (Kasl, et al., 1997).

Experimenting means using the group's action to prove hypotheses or suppositions in order to discover something new o to evaluate the impact. Crossing

boundaries implies that the individuals give or receive information through the interaction with other individuals outside of the group. Framing-reframing refers to the individual's perception being transformed regarding an issue, situation or person in a new sense or significance. Integrating perspectives means that the group members synthesize their diverging points of view and their apparent conflicts are resolved through dialect. (Kasl, et al., 1997).

Results show that for each team's learning process there was a major or minor presence of tacit knowledge observed through common behaviors. The following matrix shows this presence:

This allowed for different relationships to be established between each learning process and the experts' behavior. As you can see in the matrix above, the conclusion is that:

1 In the Experimenting process, guiding or validating the practice (C1), anticipating or identifying problems or results (C2), and proposing solutions (C3) were mainly present.

2 In the Crossing boundaries process, guiding or validating the practice (C1), anticipating or identifying problems and results (C2) and visualizing opportunities (C4) were mainly present.

3 In Framing-reframing, guiding or validating the practice (C1), anticipating or identifying problems or results (C2), visualizing opportunities (C2) and clarifying phenomena (C5) were mainly present.

4 In the Integrating perspectives process, proposing solutions (C3) and clarifying phenomena (C5) were mainly present.

Another finding that the matrix shows is that Team C obtained synergy in their way of learning and in which tacit knowledge was most observed.

Among processes and behaviors, we have called these relationships tacit knowledge deployment sphere. In this manner some authors have pointed out that the organization's management system can lead to team and organizational learning (Senge, 1990), which, through continuous innovation, can gradually lead to generating dynamic routines and capabilities difficult to copy or reproduce in other organizations (Fujimoto, 1994; Teece, et al., 1997; Spear and Bowen, 1999; Liker, 2004; Suarez-Barraza, et al., 2008; Suarez-Barraza and Lingham, 2008). In accordance with research dynamic routines and capabilities, which create an organizational competitive advantage, are the result of continuous learning that is forged in team processes and their own dynamic (Teece et al., 1997; Eisenhardt, et. al., 2000; Suarez-Barraza, et al., 2008), which is to say the tacit knowledge deployment sphere.

The following figure shows this idea of deployment of tacit knowledge in relation to learning processes:

Emergent components: task, leadership and organizational structure.

One component which emerged from the analysis of case studies, and might be of use to managers, was to identify the type of task which each team had to resolve. What was the relation the task had with tacit knowledge? The three teams amply and generally responded to a different type of task.

Literature on this subject explains that some teams must solve problems, others must create something and yet others must execute a plan (Larson et. al., 1989); the task of some is to create plans or ideas, while others have the task of carrying these out (McGrath, 1984). In the case studies we observed, one of the teams had to *solve a complex problem*. Another had to *execute a plan* and the last had to *create something* as its primary task. The results showed a distinct presence of common behaviors for these tasks.

The findings show that the team which carried out the task of solving problems demonstrated more presence of identifying and anticipating problems or results (C2). The team that executed at plan showed guiding and validating the practice (C1) most. And the team that created and developed new products showed the visualizing opportunities (C4) behavior the most. This shows the value of tacit knowledge because without the experts' knowledge surely the teams would not have achieved the results in the same manner.

The duty of the team leader or coordinator was another relevant pattern which surfaced in the case studies. In general terms the team leader or coordinator in a learning organization must forget the traditional role of authoritarian, controlling or heroic leaders and, instead, switch to the role of facilitator, coach or team members (Argyris, 1993; Senge, 1990, 1995; Hackman, 1990; Kelley, 1993; Cortina, 1997).

This type of non-traditional leadership would tend to facilitate learning in team processes and, therefore, favor the creation of knowledge and a way to share said knowledge. How did the team leaders act in the light of tacit knowledge and learning processes? In the teams which were observed, there were three types of coordinators:

- a) a task-oriented leader who interacted little with the group and did not favor participation or trust,
- b) a task-oriented leader who did favor a certain amount of important participation, but did not generate a sense of commitment or trust, and finally
- c) a task- and group-oriented leader who gave feedback and due credit to the members, as well as provoking participation.

In simple classification, the first is called a *Conformist* coordinator; the second, a *Focused* coordinator; and the third an *Inclusive* coordinator

In the cases observed, the Conformist accepts his/her function as a coordinator and, even though there is no interest in controlling nor manipulating, there is neither any trust or commitment and, therefore, this type of leader does not favor learning, while the Inclusive leader would tend to favor learning in teams, and a middle-ground would be the Focused coordinator. It is also clear in the case studies that which Hackman and Wageman (2005) theoretically suggest about Team Coaching, and that which Suarez-Barraza, et al., (2008) confirmed subsequently in the empirical study realized in the Toyota Motor Company, explaining that the coaches, or *senpais*, carry out a consultative or educative function. The results of this research demonstrate that the experts' common behavior fulfilled these functions.

The results of the research confirm that the team with the *Inclusive coordinator* was the one that showed a greater presence of tacit knowledge and their learning was in synergy mode. Also, it was confirmed that the team coordinator must be an expert. In one of the teams, the coordinator was a novice and in the meetings, his function as coordinator was naturally replaced by an expert member.

Finally, in accordance with the evidence observed in the case studies, two different, organizational structures were identified: one flexible and the other rigid, one functional and the other interdependent, one a bureaucratic machine and the other an adhocratic one (Mintzberg, 1980). A recent thought in this literature suggests that the *bureaucratic machine* minimizes the role of tacit knowledge, while *adhocracy*, or the *J-Form* structures, has the capability to generate tacit knowledge through interaction and experimentation (Lam, 2004). The empirical results of the case studies prove this theoretical argument.

The findings also allowed us to describe how these structures created an sphere for the expressions of the experts' behavior in a different manner. Facing the structure of the bureaucratic machine, departmental perspectives were imposed, impeding tacit knowledge of some behaviors to flourish in the meetings, in order to encourage this prevalently and informally between two or three members. Contrarily an adhocratic structure allowed, not only the expression of tacit knowledge through the behaviors in the meetings, but also facilitated contact between the team members and their environment, which is the opposite situation with the bureaucratic machine which looks within the organization unfavorably for tacit knowledge deployment.

The Outcome: High Tacit Knowledge Deployment Model

The integration of all of these elements: the team's task, the function of the team leader or coordinator, the

organizational structure and the tacit knowledge deployment sphere (the relationship between common behavior and learning processes) conform the dynamic of the proposed model of High Tacit Knowledge Deployment. The following figure shows the Model:

The High Tacit Knowledge Deployment Model (shown above) is described in the following:

a) Entry criteria. The general considerations of the task (infrequent, not routine and applied in a different, but similar context) assures that the task be carried out by the team intently uses tacit knowledge. The types of specific tasks will lead the team to the emphasis that should be placed on tacit knowledge deployment through a specific behavior. If the behavior is solving problems, they must deploy anticipating and identifying problems or results (C2). If the behavior is executing a plan, they must deploy guiding and validating the practice (C1), and if it is creating something, the deployment is of visualizing opportunities (C4).

b) The drivers. Once the entry criteria have been observed, it is important to distinguish that: a) one type of organizational structure of adhocratic form, or J-Form, b) team tutoring by an expert with an

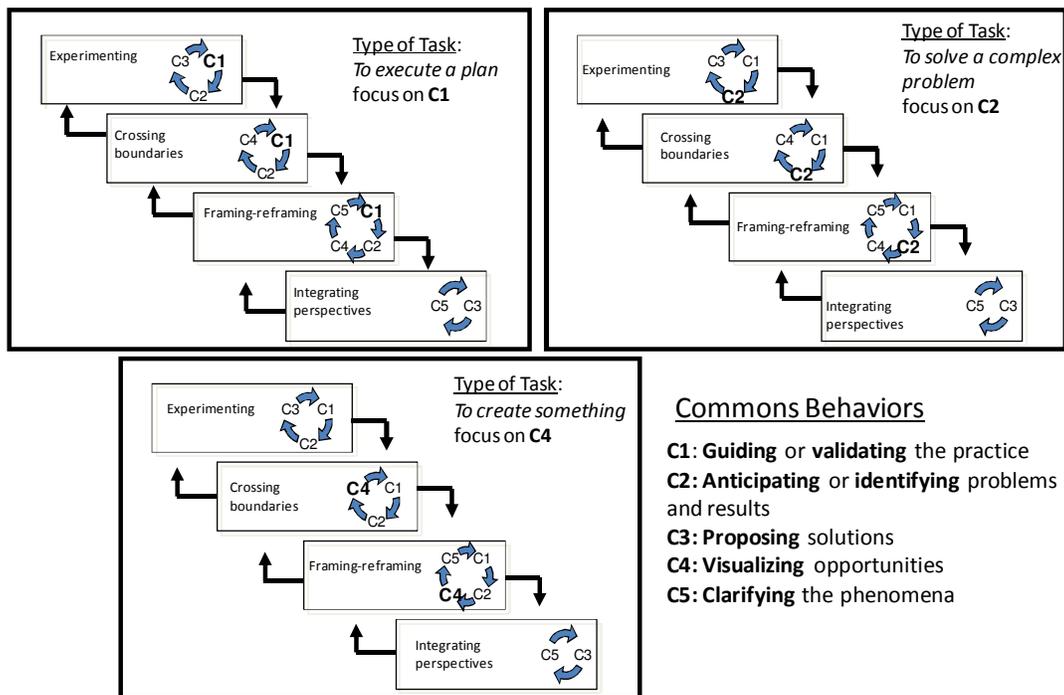
c) integrative style, and c) a group composition of experts and novices will facilitate the tacit knowledge deployment and learning processes.

d) The sphere for tacit knowledge and learning processes. This is where the team acts and reflects, as well as where the team members, through the group dynamic created by common behavior associated with each learning process (See Figure 2), tacit knowledge is deployed and learned in teams.

e) Outcomes. If the entry criteria have been differentiated, the facilitators have been identified and the sphere has been established, then the team will carry out the tacit knowledge deployment, which united with the learning processes, will allow for creating, making use of and sharing knowledge.

On the other hand, for each type of task, the tacit knowledge deployment should potentiate the presence of behaviors which support said type of specific task. So, the sphere for tacit knowledge deployment and learning processes can be visualized in the following manner: The High Tacit Knowledge Deployment Model is the result of an empirical, exploratory investigation based on the guidelines of qualitative methodology, grounded theory and case study (Miles and Huberman, 1994; Strauss, et. al., 1994; Charmaz, 2000; Yin, 1994, Stake, 2000). The empirical research consists of the observation of three teams whose task was not routine,

Figure 2. Deployment Sphere According to Specific Task Type



Source: Sandoval-Arzaga (2005).

nor infrequent, such as creating a new product, solving a complex problem and carrying out a new activity. It was this way precisely because in these situations is where tacit knowledge in teams surfaces (Dixon, 2004). The three teams observed were small, multi-disciplinary and included both experts and novices. The teams belonged to two different, world-class organizations. Multiple collection methods and data analysis were used: direct observation, in depth interviews, the Team Learning Survey (Dechant & Marscik, 1993) and document inspection.

Conclusions and practical implications

Based on the case studies we conclude that the High Tacit Knowledge Deployment Model expects to be a useful tool in strategic management an essential source of knowledge for organizations, since it allows for designing and potentiating the use of tacit knowledge within and throughout team learning processes. This Model allows us to extend an invitation to the researchers in the field to continue inquiring into the deployment of tacit knowledge and propitiating group learning.

In the presence of the ample discussion of the way in which tacit knowledge is understood (Tsoukas, 2003; Gourlay 2004), as well as the small amount of empirical research in group work (Gourlay, 2004), having been

able to carry out this empirical research and proposing a way in which this type of knowledge can be utilized and propitiates the progress of comprehending this topic and situating it in the organizational practice.

The academic debate of the value of tacit knowledge from the perspective of the competitive advantage establishes two positions: a) it is only useful if it can be codified and transferred, or b) it is not possible to codify it and that is precisely what makes it valuable, the fact that it is difficult to imitate. This research can open a different path because it establishes that knowledge cannot be codified, but neither would it make sense to leave it as it is if we do not potentiate its use to resolve organizational problems and the imperative necessity to innovate. The establishment that tacit knowledge can be manifested and *deployed* through the behavior of people who have accumulated experiences and intelligent practices in their professional environment has led us to propose the High Tacit Knowledge Deployment Model, which seeks precisely that this knowledge be highly deployed, through its manifestation and use by work groups.

Future research will be directed towards different confines. We will be able to observe the relationships that tacit knowledge has with organizational structures, specifically in relation to the J-Form in which the decisions made have a high level of uncertainty and knowledge is used to solve problems through active learning (Aoki, 1986) and in a “Kaizen” environment of

continual improvement and innovation (Imai, 1989). Other research also can be directed towards *team tutoring* in relation to tacit knowledge deployment, following the theoretical line that Hackman and Wageman (2005) propose, which is that team learning and expert-novice relationships seem to show an interesting field of research on the concept of “team coaching”.

Nevertheless the application of the qualitative methodology propitiated the creation of a well- founded model, circumscribed in a specific context, which is why it would be very important to quantitatively validate the Model. This would also permit evaluating, above all, the relationship in the sphere of tacit knowledge deployment, between common behaviors and learning processes.

The High Tacit Knowledge Deployment Model attempts to be a valid guide for tacit knowledge administration in organizations, where, through an adequate design for team work, encouraging creativity and learning is sought, more so than control and supervision. In view of this holistic vision that the model provides, managers can be capable of creating and potentiating dialogue, reflection and knowledge exchange, in which improvement and innovation are the central focus, for short-term, mid-term and long-term tasks.

The High Tacit Knowledge Deployment Model can help managers distinguish when an activity requires intensive use of tacit knowledge, and that being the case, can propose an adequate organizational structure, with a team leader who has an inclusive style, who is an expert and encourages tutoring abilities, where there is satisfactory room for the design of team activities. In this way the experts' behavior will have an enhanced result in order to manage the task and deploy tacit knowledge.

In this sense for the managers of organizations and their teams, this Model can be seen as a valuable guide for which we recommend:

- a) Using it to identify when an activity will require the intensive use of tacit knowledge.
- b) An adhocratic structure, or “Form J” be utilized so that it might help in achieving tasks in which something new is sought to be created, or that imply solving complex problems or highly specialized and non-routine performance. One way of carrying this into practice is through a process management approach.
- c) Avoiding that the departmental perspective be imposed upon the team vision.
- d) The team coordinator be an expert with “coaching” abilities (teacher, facilitator) who not only thinks of herself, nor of achieving the task at hand, but also of generating a commitment towards the group, creating trust and giving constant feedback.
- e) The managers form the group with experts and novices in order to allow for the group, as well as the organization, to learn, and express the expert behavior.
- f) And, of course, encouraging and opening the sphere,

the design of team activities for those expert behaviors which will have a better outcome in order to finish the task and achieve the learning process (deployment).

For example if the group is going to carry out a process of experimentation learning, it is recommended that the manager open a sphere within the team so that the experts can guide or validate the experimentation, offer solutions to the outcomes of the experimentation, and anticipate and identify problems before and after carrying out the experimentation. Another example could be that if the team has the task of developing a new product, it is recommended that the manager allow a sphere within the team, so that the experts can visualize opportunities and know how to see and relate new applications for the development of said products.

g) The High Tacit Knowledge Deployment Model can allow managers to identify types of key tasks for the work groups, which allow them to potentiate the focus of innovation of the product, as well as the process.

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