

KNOWLEDGE MANAGEMENT IN JOSÉ CABRERA NUCLEAR POWER PLANT

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Abstract

In October 2002, the José Cabrera Nuclear Power Plant (JC NPP) knew that in April 30th, 2006 the plant had to stop the operation. From that date, our organization initiated the development of the “change process”, designing what we thought were the most effective models and tools to face it. As a consequence of the completion of José Cabrera Nuclear Power Plant exploitation license, in April 30th, 2006, the installation began the “transition period to dismantling”, with the main objective of fit out the installation for the transference to ENRESA, company in charge of the final dismantling.

In the above referred change process, trying to adapt the organization to the new situation, our Organization recognized the Knowledge Management as one of the most powerful tools to face the new challenges. Our priority was the transmission of the associated knowledge at any position, to the new agents. From the beginning, we assumed our Organizations as a group, in which the knowledge of the group is significantly bigger than the addition of the individual knowledge, due to synergy processes.

Our challenge was the detection of the “knowledge” arising in every situation, and the defining of the tool to keep it inside the Organization. The target was the development of the adequate environment and tools, to achieve the collaboration and support of the main part involved in the process, the employees, but always taking into account the short period of time available from the planning of the organizational change to the implementation.

Nowadays, after the process revision (performed during the second semester of 2006), we consider closed the change process and we can say that the results obtained in the adaptation of the Organization to the shutdown of the plant, demonstrates that we have achieved (in a high percentage) the keeping of the necessary valuables to appear inside the standards of effectiveness and competitiveness.

Full Paper

Nowadays, one of the more valuable and important actives within the organizations, is the preservation of knowledge. The increasing competitiveness of the companies, and therefore its survival, depends on how this knowledge can be preserved and be used in an efficient way. In a nuclear context, this is very important, because it is influencing the capacity of the plant to generate energy with the greater safety and reliability guarantees, looking for getting the excellence in the exploitation, being compatible with the respect of the environment, workers and people.

The knowledge preservation becomes a priority in the case of organizations in which important changes are going to be produced, like generational changes, organizational changes, etc., that require the implementation of the adequate training to the new agents involved, in the knowledge associated to the position. This is particularly important, if we understand the Organizations as groups, in which the knowledge of the group is significantly greater than the addition of the knowledge of the individuals that are part of the group, due to the processes of synergy and information exchanges that take place inside it.

It is internationally recognized that, in Organizations, the physical and financial actives do not have the capacity to generate competitive advantages, and the actives that contribute giving real value to them, are the intangible actives. The intangible actives are a kind of resources belonging to the organization, but impossible to evaluate from a countable point of view. The intangible actives are also, capacities generated in the organization when the resources are working associated. Intangible actives are really everything what an organization uses to generate value, but they can not count.

Knowledge Management is the collection of processes and systems that allows that the Intellectual Capital of an organization increases on a significant way, through their problem resolution capacity management in an efficient way (in the shorter time), with the final objective to generate sustainable and competitive advantages.

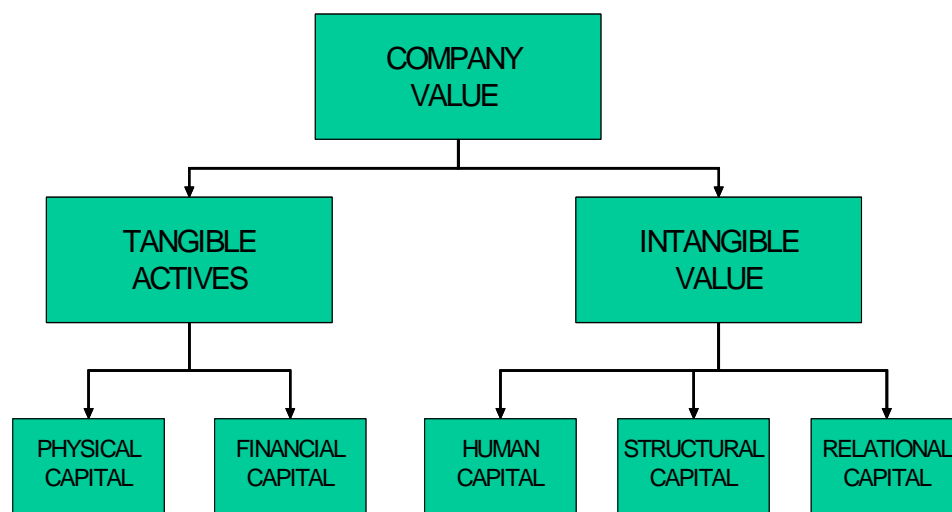
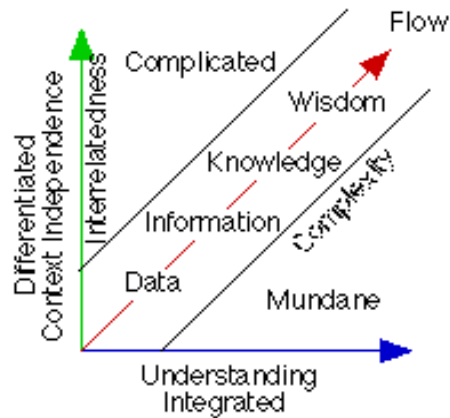
Knowledge management points to generate value from the intangible actives of an organization. It includes the collection process of the collective skill of a company in any place where this one resides (data bases, documents, people minds) and its distribution towards the directions where it helps to produce the best results, so to contribute value to the organization to obtain essential capacities and competences. What it pretended is to take the adequate knowledge in the adequate way and moment to the adequate people so that they can understand it and take the best decisions.

It is, really, the management of the intangible actives that generates value for the organization. Most of these intangible have to do with processes related to the data capture, structuring and transmission of knowledge. Therefore, the Knowledge Management main tool is the organizational learning. The Knowledge Management is a dynamic concept.

At this moment, we should consider which the differences between data, information and knowledge are. The first approach could be the following one: data are located in the world and knowledge is located in agents (people, organizations,...), whereas the information adopts a mediating paper between both concepts.

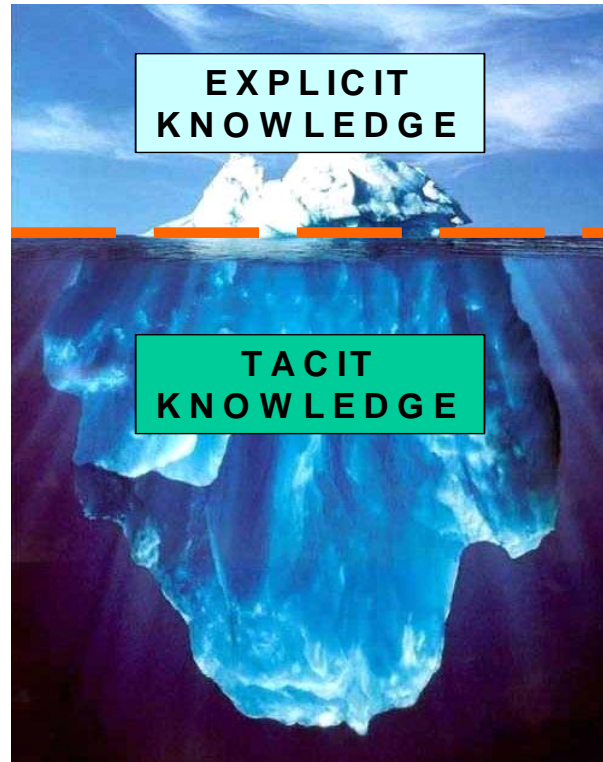
It is necessary to recognize that, in fact, which is flowing between different agents is never knowledge, but data (information). It is possible to approximate the knowledge of two agents sharing the same data, but due to its previous experiences and to the differences in the way to process the data (mental models, organizational models), they will never have the same tendencies for the action, nor identical states of knowledge. We only can obtain approaches, since the internal and external context of an agent always is different from another one. This is because the knowledge is information that is put within a context (experience).

The data, once associated to an object and structured, become information. The information associated to a context and to an experience, becomes knowledge. The knowledge associated to a person and to the personal abilities becomes wisdom, and finally the knowledge associated to an organization and to the organizational capacities becomes intellectual capital.



Two kinds of knowledge exist basically in any organization: explicit and tacit. The explicit knowledge is the one that we can obtain in a clear way, which it is written, that you know and that you can explain it. It is shared by the organization through documents, computer tools, etc. The tacit knowledge is the type of knowledge that we implant in a mechanical way, and we don't notice the way we have implanted it. This is tasks and attitudes unconsciously performed, for instance, use the gear in a car, use the cutlery eating, etc. They are activities performed in an intuitive way, without noticing in the way that you performed it.

The tacit knowledge is very complicated to explain, but vital in the organizations, because it provides the behaviours that have been improved throughout the time and they are the best approach to the adequate way to perform the specific tasks associated to every work. Being able to maintain this kind of knowledge, can give to an organization the added value necessary to highlight over the competence.



Although the tacit and explicit knowledge are different, they are closely united. In fact, an ideal performance should be able to manage the tacit knowledge, in such a way that the explicit one could be adapted properly, or, be able to turn the tacit into explicit.

Every change performed inside an organization, has a risk: you can lose capacities of it. It is a priority to be able to detect these capacities and to be able to control them and to maintain them. The organization must consider which are the strengths and the weaknesses associated for every change, and it must be able to perform to promote ones and to erase others.

In the particular case of C.N. José Cabrera, the preservation of this knowledge has been possibly the main critical point we have faced, due to the sudden shutdown of the plant. In a short period of time, lots of organizational changes have been performed (not only personnel leaving the plant, but redistribution of their functions too), caused by the specific situation in which the installation was. The challenge the plant has faced up was the attempt to detect all the knowledge surrounding each change, and to maintain this knowledge inside the organization. For it, the pursued objective has been the development of the adequate tools and environment, to get the collaboration and the support of the main part of this process: the employees involved in the change process, and to get the detection, the control, the use and the spreading of the knowledge.

We had the premise of that the tools defined, had to be, overall, compatible with the short period of time existing from the planning of the organizational change, to the implementation. In the case of explicit knowledge, C.N. José Cabrera has been based on the tools we had at that moment and we know they were working properly. The main value was the Document Management System existing at the plant, where all the information relative to the plant is stored, and where all the employees have access. The whole written information relate to every position and department is available in this computer tool.

In the case of tacit knowledge, two solutions were planned, the first one was to convert the most part of the tacit knowledge into explicit knowledge, and the second one was to perform adequate overlap periods between the two people involved in any position.

The first one solution would have required a huge period of time, because you have to put a person close to every expert, dedicated fulltime to this job, and writing down everything about all the activities performed, until you could be sure to have covered all the possible activities. Because of the short period of time available for the José Cabrera Nuclear Power Plant, this idea was rejected.

We thought that the most effective knowledge management formula, according to the specific characteristics of the installation, would be the execution of overlap periods between the people involved in the change, so that in the day to day of the plant, all the peculiarities of the position were discovered. It is remarkable the great effort performed by the organization (employees and management), because these overlaps periods were held in line with the normal operation of the plant. Documents supporting this process were developed, in which formats to assure that any point was reviewed were included. In this process, as well as being involved the person leaving the position and the person replacing him, the section managers were very involved too, because they had to participate in training sections, approving the schedules, checking the completion of the process, from a general point of view.

At the same time, this process were supported by the specific training program, created ad-hoc by the training section, in which every change of position or function redistribution were assessed and resulted with the definition of the specific training (scopes, duration, etc.) for every person and position. The effectiveness of this training process was measure by the training section usual measurement procedures and methods, obtaining for all of them, satisfactory results.

One of the main points for the adequate development of the change was the implication of the Plant Management. From the beginning, they were conscious of the importance of the process and several times they declared it to the staff, giving priority to the activities related.

Conclusions

Knowledge Management is a very important tool for the organizations to manage their change processes, in order to maintain the established values, responsible of the maintenance of the organization into the highest performance standards.

Knowledge resides in the people. The organizations must be able to manage adequately all the data, information, habits, attitudes, etc., to get the best results and to get the progress of them.

The development of the adequate tools to manage the existing knowledge and the transferring of the tacit knowledge to explicit knowledge, establishes a methodology and helps the rigor and accuracy of the process. These tools have to be dynamic and be able to adapt themselves to the special conditions of the environment.

The results obtained in C.N. José Cabrera after the shutdown of the plant, referring to the adaptation to the organizational changes performed, demonstrates that in a high percentage, we have been able to maintain the values that made the organization appearing within the high standards of effectiveness and competitiveness.