

A Methodology for the Identification of Key Knowledge to Improve Decision Making in the Training Area

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Abstract

There are organizations that ignore the valuable knowledge they have, and those that do not know what they need to improve upon in decision making during their training process. The aim of this paper is to present a methodology based on knowledge management to identify and locate the key knowledge in an organization, and the need to increase their productivity by better decision making and a more efficient resource use in staff training. The study determines the substantive processes based on performance indicators of efficiency and identifies the involved areas. Subsequently, it determines the profiles of the staff responsible for each area, and finally breaks down the knowledge of each job profile required by the organization. The study then identifies those who possess such knowledge, and in turn understand what they need, relying on hours of training as an essential aspect of intellectual capital measurement.

Key Words: *Knowledge management, Productivity, Training, Government sector, Knowledge Identification*

1. INTRODUCTION

Within the process of Knowledge Management (KM), the first step is to diagnose the health of the knowledge of the organization which is valuable by identifying the abilities, skills or talents that are existing or missing. In this paper, we suggest a methodology for the identification of knowledge, based on the philosophy of KM from the preparation and training of employees who structure an organization.

There are organizations, particularly in the public sector, which ignore the valuable knowledge they have or do not know that they need to improve decision making processes for personnel training. Organizations are not aware of their experienced personnel, employees who need guidance, or preparation courses that are to be offered, to name a few.

To analyze this problem and contribute to its solution, we examine a case study of a government agency in northwestern Mexico dedicated to law enforcement. This agency is composed of four

main areas—one administrative and three operational, where most of the responsibility lies, and which carry out the more important substantive activities within the organization.

This institution has a department responsible for training all workforce, which can be provided by internal or external trainers. The selection of employees to attend training events is based on factors such as rank, time availability and affinity of the course with the profile of the employees and the activities they perform, and not based on the real needs of individualized training. This implies that the knowledge gained through training builds up only in a small portion of workers, rather than being distributed evenly.

From the above survey and a meeting with the directors, it was found that the institution does not have any method or way to determine the key knowledge it has, or where one should turn when help is needed. The institution was also not aware of the knowledge it lacks, making it even more difficult to precisely decide the training courses to be offered, subjects to be taken, or selecting people to receive training. All of this contributes to a waste of the existing talent, which can be used to meet the knowledge gaps, ensuring better performance, decision making and productivity in the institution.

The intention of this paper is to present a methodology based on knowledge management, using training as a measurement indicator, which allows the identification and location of key knowledge in an organization, and which is needed to increase the productivity through better decision making and more efficient use of resources in training staff.

The paper first presents a theoretical framework explaining the most important concepts of this study, followed by the methodology used, results of its implementation in a government agency, and finally, the conclusions of this work.

2. CONCEPTUAL FRAMEWORK

The structure of literary analysis that supports model development methodology is presented here and its purpose is to gather information and contributions made by other research, related basically to the management of knowledge, identification of the existing and missing key talent and training processes, among others.

2.1. Knowledge Management

Over the years, the way to compete and staying in force in the market has changed constantly. According to economists, the resources that support the world economy (land, working capital and knowledge) have changed radically. In the past, the economy was based primarily on the possession of agricultural land, giving rise to the agricultural era; and later, during the industrial revolution, the economy was based on the production of goods and facilities for industrial building. Nowadays, knowledge is being given great emphasis as a resource to generate competitive advantage to organizations, resulting in what is termed as the knowledge era (Gorey and Dobat, 1996; and Bueno, 1999).

Although knowledge has existed since the remotest ages of humanity, defining and understanding the term 'knowledge' even in this age of information continues to be fraught with difficulties (Sanguino, 2003).

According to Nonaka and Takeuchi (1999), knowledge is something that cannot be managed in conventional terms, but it is possible to work in organizational dynamics that allows interaction and conversion of individual knowledge to achieve innovations.

Knowledge can be classified into tacit and explicit knowledge. Tacit knowledge is based on the experiences that people gain, while explicit knowledge is more precise, articulate, formal and documented (Hedlund, 1994).

The ability to manage intellectual capital is increasingly becoming crucial in today's knowledge economy. Its creation and dissemination are important factors for competitiveness. Knowledge is a valuable commodity that is embedded in products (especially high tech) and tacit skills of highly mobile employees. Although knowledge is increasingly seen as a commodity or an intellectual asset, it has some paradoxical characteristics that are radically different from those of other valuable products (Dalkir, 2011).

KM has tactical and operational perspectives; is more detailed than the management of intellectual capital; and focuses on how to publicize and manage the activities related to knowledge and its creation, capture, process and use. Its function is to plan, implement and monitor all activities related to knowledge and the programs required for effective management of intellectual capital (Wiig, 1993).

Therefore, KM can be applied in areas such as: (1) Decision-making in the public sector; (2) Incentives to increase citizen participation in public policy; (3) Capacity building to increase local competitiveness; and (4) Development of a workforce based on knowledge, among others (Peluffo, 2002). In this sense, we can say that KM is the theory of management that responds to the adaptation of the latest technological innovations in information, processing and telecommunications and technological progress that allows us to envision new management involving a profound change (Bustelo and Amarilla, 2001).

KM is faced with a number of difficulties that come from the same environment, especially cultural factors (individualism, lack of knowledge-based culture, isolation of the environment and the members of that environment, the guidelines short term, and more.) (Peluffo, 2002).

Authors such as Wiig (1993), Zack and Meyer (1996), McElroy (1999); Bukowitz and Williams (2000); and Probst et al. (2001), inter alia, have made various proposals to divide KM into phases, steps or processes, but generally, most allude to the following processes:

- Identification / Location of Knowledge.
- Acquisition / learning of knowledge.
- Creation / development of knowledge.
- Dissemination / transfer of knowledge.
- Application / use of knowledge.
- Storage / maintenance of knowledge.
- Measurement / assessment of knowledge.

This study discusses the identification stage of knowledge in a deeper way. It refers to the detection and location of knowledge of an organization either by members or others. The identification of this knowledge means the analysis and description of the knowledge environment of an enterprise (Probst et al., 2001). After identifying the knowledge, organizations develop strategies that allow to 'anchor' and use it (León et al., 2009).

KM aims to make the organization intelligent and efficient. It is, therefore, necessary to manage the most important asset owned by the organization, i.e., knowledge. It is a prerequisite to have it identified, and then develop a strategy and a model for the purpose of implementing such management. Because public administration is not evaluated in terms of profitability, sales, market share or profits, it is impossible to speak of actual competitive advantage, and therefore, it is understood that knowledge is critical when you have a direct impact on the desired results. Public institutions are required to operate under management standards similar to those of any other organization: They need to have a finish and an accurate profile of their customers and their needs, and accordingly design the value chain (Martinez, 2011).

The identification of the knowledge that the organization requires to fulfill its mission, vision and strategic objectives are important, because this process allows the organization to develop with a view to the future, improve organizational performance and lay out strategic and achievable goals (Hernandez and Martí, 2006).

From this essential diagnostic, organizations that manage knowledge may face the right strategy in terms of anchoring, acquiring or developing in each case. This process is supported by numerous tools that enable process efficiency (León et al., 2007).

2.2. The identification of existing and missing key knowledge

Nowadays, the challenge is not so much to find the information and talent that the organization has, but lies in dealing effectively with the enormous volume of information that can be obtained. Once located, you can manage it effectively and efficiently (Dalkir, 2011).

Arias and Durango (2009) recommend, for this activity, the model of six knowledge of Johnson and Lundvall (1994) as its starting point, as it is easy to understand even by those who do not know or are not as familiar with this area. Furthermore, it classifies the types of knowledge broadly and unambiguously: what, who, how, where, why and when.

Another process or method used for the identification of knowledge is called the knowledge audit. It is defined as the process by which a diagnosis is made in an organization to know the existing knowledge, who owns it, how it is created, where it is stored, how it flows between its members and how to use it (Perez-Soltero, 2009).

The identification of key knowledge is closely related to other strategic planning activities, such as establishing the knowledge gap, the definition of objectives and strategy of knowledge, technology orientation and human aspects, and activities related to post-identification processes (Arias and Durango, 2009).

Zack (1999) reiterates the importance of identifying key knowledge before implementing any operational initiative related to KM. On the other hand, in trying to implement its proposal, it is seen that it consists of primarily establishing the knowledge gap, i.e., the difference between what you should know and what you know, which is considered as a subsequent stage in the identification (Arias and Durango, 2009).

Haider (2003) argues that the survival of organizations and their growth depend mostly on their ability to identify gaps, holes or also called lagoons of knowledge and fill them.

According to Tehraninasr and Raman (2008), one of the main and biggest obstacles in implementing the strategies based on the KM is the missing knowledge, or the so-called gaps in knowledge, among the workforce of an organization. These knowledge gaps can be created at the time when employees are rotated or promoted to other positions, and their knowledge becomes inactive or unusable, and therefore, some companies think that promoting employees to leadership positions, is the only way to safeguard their knowledge (McBriar et al., 2003).

There are several proposals to identify the missing knowledge. Arias and Durango (2009) developed a tool for identifying knowledge gaps. Lin et al. (2005) also developed a model to identify knowledge gaps that may occur when trying to implement a KM system. McBriar et al. (2003) proposed two functions—standardized and non-standardized, both to identify and estimate the extent of the knowledge gap. Popper (2005) too presented his proposal for a tetradic schema.

Another alternative to identifying and determining whether there are gaps or voids of knowledge is by analyzing the description of the job profile and the requirements of the person holding that office. Thus, to compare what the job requirements are and what the person lacks (EmprendePyme.net, 2008), ask yourself, “What do the participants need to know to be able to do to perform the essential tasks on the job?” The answer to this question will produce a list of specific knowledge, skills and attitudes that form the basis for determining whether or not there are gaps in knowledge and thus help to shape the course content of training required to fill this gap (JHPIEGO, 2004).

2.3. Training as an indicator of knowledge identification

Intellectual capital is one of the most difficult concepts to measure in economics. Perhaps that is why there is little consensus in the literature about how to treat conceptually intangible assets and what constitutes a satisfactory measure of the same (Rodriguez, 2003).

Metrics in KM are a series of techniques currently used to measure the success of implemented management strategy and how well are the recommended KM initiatives implemented in the organization (Dalkir, 2011).

For the measurement of intangible assets of organizations, several authors have designed or created a variety of indicators and metrics, considering several factors in the organization.

Table 1 shows some of these indicators found in literature that take into account the training factor.

Meanwhile, JHPIEGO (2004) mentions that after the identification of missing knowledge and knowledge gaps, the most appropriate way to fill these gaps is by providing training.

Nº	AUTHOR	INDICATOR / METRIC
1	IMC Group, 1998	Training costs invested in employees.
2		Investment in training due to the production of new products
3		Administrative costs for training.
4		Employee profiles
5	Roos et al., 1998	Percentage of employees with advanced academic degrees
6		Number of hours of employee training
7		Number of hours spent on advice or consultation
8	Edvinsson & Malone, 1997	Investment in training
9		Administrative investment on training
10		Investment training about IT
11		Investment in education with the client
12		Time in training (days / year)
13		Annual cost per capita in training programs, communication, support for full-time employees
14		Annual cost per capita in training programs, communication, support for employees
15		Annual cost per capita in training programs, communication, support for temporary employees

Table 1. Metrics for intangible assets / intellectual capital based on the training factor
Source: Adapted from Liebowitz and Suen (2000)

3. METHODOLOGY

After reviewing the literature on various models and methodologies, such as those proposed by McBriar et al. (2003), Lin et al. (2005), Popper (2005), Arias and Durango (2009) and Perez (2009), among others, and due to the nature of the problem of interest, it was found that it was not possible to choose and strictly enforce any of them; so it was decided to take a few aspects and propose some adjustments and new elements that were more responsive to the issues raised in this study.

The proposed methodology describes each phase in detail, indicating the sequence used, the ways of carrying out the activities, tools to use, and what is expected as a result in each phase. As explained above, this approach comes after a review of available literature on the subject, and especially considering the characteristics, environment and problems which conduct this research.

Generally speaking, the methodology allows to identify the core knowledge of the organization—both existing and missing. In broad terms, it is determined from the general to the particular, starting by defining the key processes based on performance indicators of efficiency, identifying the involved areas in each process, locating the profiles of the responsible staff from each area and breaking it down into established knowledge for each work profile required by the organization, and locating the people who have it and in turn what they need (Figure 1).

PHASES OF THE METHODOLOGY	OBJECTIVE	TOOLS
Determining the key processes of the organization	Identify and define what are the key or core processes within the organization.	-Public document to define the institutional performance indicators.
Identification of areas involved in the execution of key processes	Identify operational areas directly involved in the execution of key processes.	-Manual of Procedure. - Interviews / questionnaires - Work meetings.
Determination of the labor profiles of key knowledge	Determine labor profiles and knowledge requirements of each position.	-Interviews. -knowledge-hierarchy formats. -Economic profile.
Identification of existing key knowledge within areas	Identify the key knowledge that exists within each area.	-Training Database. -Labor Profile. -Expert Profile Form.
Detecting Missing Knowledge	Identify what knowledge is missing in the organization and the magnitude of the gap	-Training database. -Labor profile. -Expert profile form.
Development of Knowledge Matrix	Develop a matrix of knowledge to concentrate the results of analysis of existing knowledge as well missing.	- Microsoft ® Office Excel Software
Dissemination of Knowledge	Make available to staff previously identified key knowledge	-Yellow pages style Software

Figure 1: Proposed methodology for the identification of key knowledge to support the training area

The following is a detailed description of each phase of the proposed methodology, its objective, specific activities and some suggested tools to support its implementation.

Phase 1. Determining the Key Processes of the Organization

- Objective: To identify and define the key or core processes with in the organization.

- Specific Activities to be Developed: (a) Consult the official document where the organizational performance indicators are defined; and (b) Translate the indicators, if necessary, so as to express as a process rather than a performance indicator, to help understand the process and to have a better comprehension of such.
- Tools which help the development of this phase: Official documents where institutional performance indicators, mission, vision and processes, among others, are defined. Its name may vary depending on the organization, sector, country of origin and rotation of the organization, among others; some call it annual operating plan or strategic plan, to name a few.

Phase 2. Identification of Involved Areas in the Execution of Key Processes

- Objective: To identify the operational areas involved or with direct participation in the implementation of key processes.
- Specific Activities: (a) Identify the different areas of the organization's staff; they can be very broadly classified depending on their roles, profiles and job requirements; and (b) Identify areas directly involved in the execution of the defined key processes; it can be determined by consulting the manual process or procedure, also by interviewing staff with recognized expertise or high commands.
- Tools: Manuals of procedures related to the key processes of the organization, questionnaires and/or interviews may be optionally required.

Phase 3. Determination of the Labor Profiles of Key Knowledge.

- Objective: To determine primarily the specific job profiles within each area of personnel, consisting of knowledge, skills, needs and attitudes, among others, required for each employee to perform their functions satisfactorily.
- Specific Activities: (a) Break down each area of personnel in different positions or labor profiles within them; (b) Determination of key knowledge: once the areas of personnel are broken down in different positions or job profiles that make them up, it lists the requirements, knowledge and skills that each profile demands of their occupant, which as mentioned above, are defined by the senior management and experts, based on different factors such as needs, requirements and national standards, among others; and (c) Prioritization of key knowledge: it performs a weighting of key knowledge to prioritize and give highest to lowest importance to these requirements and determines how that knowledge is most valuable and important to run each process identified as a key. It is recommended to be done in consultation with the person holding the job profile in question, with experts in the subject or with related high command.
- Tools: Job profile with knowledge requirements in the specified format to support the hierarchy of knowledge, interviews with owners and experts.

Phase 4. Identification of Existing Key Knowledge within Areas

- Objective: To identify and locate the personnel with valuable knowledge within each area.
- Specific Activities: (a) Take the database of the training department and adapt as necessary for analysis—determine what kind of knowledge employment profile is related or covers each of the courses offered to employees of the organization; for this step, it is

also advisable to consult subject experts, senior management and manager of the training department, among others; (b) Identification of the existing knowledge—identify what knowledge can be considered as covered or satisfied. For this activity, it is necessary to have an adequate database of the training department to compare the academic preparation of each employee with the requirements set out in the current job description, and establish criteria which will vary depending on each institution, in particular by the standards to be established and the academic situation in which the institution is located, among others. This criterion may, for example, consider the number of courses or number of minimum hours of training considered as necessary to determine whether the knowledge requirement is satisfactorily covered; (c) Build up a format for data collection and curriculum style to be used in interviews and activities described in the subsection (e); (d) Carry out a series of interviews with people who have key knowledge—on whom the analysis was performed, along with the database of training and results; and (e) Obtain information for the expert profile—while interviewing people who own key knowledge, the gathered information should be used to obtain the data needed to develop a resume or personal academic profile which contains information about the knowledge they have, their strong subjects, academic training, experience, skills and hobbies, among other data of interest and value to the organization.

- Tools: Database training department, job profile, defining decision criteria.

Phase 5. Detecting Missing Knowledge

- Objective: To detect the missing fundamental knowledge in the organization and its range.
- Specific Activities: (a) As in the previous phase, compare the academic preparation of each employee with the requirements set out in the current description of the job and establish criteria, which will vary depending on each particular institution by the standards to be established and the academic situation in which the institution is located, among others. These criteria may, for example, consider the number of courses or number of minimum hours of training considered as necessary to determine whether the knowledge requirement is covered, if so, whether it is satisfactory, or below criteria acceptance.
- Tools: Database of the training department, job profile, defining decision criteria.

Phase 6. Development of Knowledge Matrix

- Objective: To develop a matrix of knowledge to concentrate on the analysis results of both missing and existing skills.
- Specific Activities: (a) List in one column the personnel identified as owners of valuable knowledge or key to the organization, acknowledged from the analysis described in the previous phases; (b) Place horizontally on top of the columns the names of each area or category type of knowledge that the personnel must cover; and (c) Fill in each of the intersections, in particular, with the number of hours of class each employee has in the different categories; in case the requirement is completely covered according to the factor

or defined decision criteria, mark it so that it is easier to identify the knowledge areas covered by each employee and to identify where knowledge is required.

- Tools: Matrix format of knowledge, Software Microsoft Office ® Excel/Word.

Phase 7. Dissemination of Knowledge

- Objective: To develop or identify a software tool that helps in the development and dissemination of a portal, similar to a yellow pages directory, in order to make available the previously identified key knowledge to the staff of the organization.
- Specific Activities: (a) Refine, synthesize and organize information obtained through the exercise of the methodology and interviews in order to obtain more and better information of the experienced employees detected; (b) Develop or adapt any free type software according to the requirements or needs of the project; (c) Load information into a Web application and/or attaching it to the institution's intranet; (d) Spread throughout the organization the existence of this site and provide training for its easy use; and (e) Periodically update the information stored on this site depending on the changes made in the database of the training department, staff movements, obtaining staff expertise by external institutions.
- Tools: Software style yellow pages such as Pivot©2012, the COS software developer ProQuest, LLC.

4. RESULTS OF IMPLEMENTATION: CASE AGENCY OF GOVERNMENT SECTOR

To validate the proposed methodology and solve the problem that triggered this study, the same was implemented in seven phases in a law enforcement agency. The following is a description of how these steps were implemented in each phase.

Phase 1. Determining the Key Processes of the Organization

At this stage, to determine what were the key or core processes of the institution, it was necessary to consult the official planning documents of the organization, such as the annual operating plan, medium-term sectorized plan and organizational medium-term plan, among others. These documents are instruments of strategic planning of the government agency that combine activities and projects consistent and coherent with respect to itself or to certain sectors, which establish the achievement of the objectives, programs and goals involved in the short term, with the firm intention to achieve them within the term of the administration in which they were defined. After consulting these documents, the results were collated with senior managers and industry experts to corroborate the same.

The result of this first phase was to obtain indicators of institutional performance which should provide the key organizational processes, as these indicators are defined based on the main activities of the institution and are activities that define the rationale for each institution.

The key findings of the processes are:

1. Consignment of preliminary investigations to the courts to initiate further investigations.
2. Resolution of preliminary investigations by any legal way
3. Procedural or functional quality.
4. Compliance to dispatch the arrest warrants.

Phase 2. Identification of Areas Involved in the Execution of Key Processes

The identification of the involved areas in the implementation of key processes of the institution mentioned above was achieved by consulting manuals of procedures, organization, method of direct observation, and through consultation with managers, directors and experts on such topics. Thus we analyzed each of the processes and those responsible for the implementation, watching carefully which operational areas are involved in developing them. The results of this phase are presented in Table 2.

N°	PROCESS 1	PROCESS 2	PROCESS 3	PROCESS 4
1	advocacy staff	advocacy staff	advocacy staff	Police staff
2	Criminology investigative staff	Criminology investigative staff	Criminology investigative staff	
3		Police staff	Police staff	

Table 2. Key Processes and Associated Operational Areas in Each Process

Phase 3. Determination of the Labor Profiles of Key Knowledge.

To determine the employment profiles of key knowledge, we consulted the recently updated 'competency profile' which was composed of homogeneous institutions of Mexico. This document contains a description of each specific job profile that integrates operational substantive areas of this type of dependency with national validity. The knowledge that each role requires to cover, or to have, to carry out their activities in a satisfactory and qualitative way is listed in Table 3. After the determination of these profiles, the knowledge gained is hierarchized and ordered from highest to lowest importance to obtain just that knowledge that is really important and indispensable to the institution and its employees. This ranking was done in consultation with the senior management of each operational area and the director of the training department of this institution. Table 3 shows the results and the key knowledge that each profile must have, hierarchical, from highest to lowest importance.

Nº	ADVOCACY STAFF	CRIMINOLOGY INVESTIGATIVE STAFF	POLICE STAFF
1	Penal law	Chemistry	Study of crime
2	Penal procedural law	Land transportation	Tactical Analysis
3	Criminology	Ballistics	human rights
4	Investigation techniques	Dactyloscopy	The chain of custody
5	Oral proceedings	Graphoscopy	Preservation of crime scene
6	Human rights	Forensic medicine	Police report writing
7	Justice for adolescents	The chain of custody	interrogation
8	Information Technologies	Document Examination	oral proceedings
9	Writing ministerial documents	Oral proceedings	police investigation
10	Gender perspective		

Table 3. Labor profiles of Key Knowledge

Phase 4. Identification of Existing Key Knowledge Within Areas

For the development of this phase, we analyzed the academic status of each employee to identify and detect the specific knowledge that they currently own and obtained mainly because of the training offered by the agency. For this phase of the methodology, there was a significant stratified sample with 95% confidence level proportional to the population of each of the areas of operating personnel to be studied. A quantitative study was performed by comparing the database of the training department which has registered the academic courses per hour for each employee of the department, against the requirements demanded in the job descriptions of key knowledge obtained in the Phase 3. To determine when a person is considered to have valuable knowledge or experience, we first determined the decision criterion, which is defined through the regulations governing these types of institutions, which stipulate that employees must have a minimum of 60 h of specialized training during the year. Given this data and the decision criterion-specified 60 class hours, an employee, who equals or exceeds the 60 h of training in different areas of knowledge, is considered capable or experienced in the respective area. As a result of this phase, we found that only 15% of staff sampled equals or exceeds 60 h classroom training in one or more areas. We obtained the names of these employees and placed the employees with the highest number of hours in class in each of the areas considered as the most experienced in their field.

Phase 5. Detecting Missing Knowledge

In the same way, the key existing knowledge was also identified. It revealed staff with less than 60 h class lacking knowledge. This result showed that 85% of the sampled staff had no knowledge required to efficiently perform their work activities.

Phase 6. Development of Knowledge Matrix

After the information was analyzed and the existing and missing knowledge was detected, a matrix summarizing the results of this analysis to support decision making regarding the training needs was performed, showing every person of the dependence, different areas of knowledge and the class hours available to each employee, what knowledge has and which one is needed. This information would help the training area to determine the courses to be taught. Table 4 shows the matrix of knowledge which are the fields of knowledge that should cover different areas; the example shows the case of criminology investigative staff. It indicates the number of class hours per person in each field of action or areas of knowledge and the total hours of training per person.

In addition, gray-shaded boxes in Table 4 represent those who own or exceed 60 h class of the decision criteria in different areas or fields of knowledge. In the same way, those with a darker shade show the person within each area of knowledge that reaches the largest number of class hours, thus representing the most qualified employees with a higher degree of knowledge in their respective areas.

KNOWLEDGE MATRIX												
CRIMINOLOGY INVESTIGATIVE STAFF												
Nº	STAFF	CAMPOS										TOTAL HOURS PER PERSON
		Chemistry	Land transportation	Ballistics	Dactyloscopy	Graphoscopy	Forensic medicine	The chain of custody	Document examination	Oral proceedings	Others	
1	JOSE ARTURO					30						30
2	ALEJO	68						60				128
3	ALEJANDRA BEATRIZ	190		40	120		80	44	30	310	268	1082
4	HUMBERTO											0
5	EDGAR DANIEL	60	80	40	140		80	84		200	504	1188
6	EDUARDO	274		40	40		80	84		304	290	1112
7	ALFONSO											0
8	LEOPOLDO	30	40	40	40		40	20		110	270	590

Table 4. Knowledge Matrix

Phase 7. Dissemination of Knowledge

In addition to the results presented above, the information obtained at the preliminary stage is made available to all the internal employees of the institution, especially in the curriculum vitae of people with greater experience or training, for this to be explored and used in a better way. In particular, we developed a software tool that helps the spread or dissemination of knowledge, a portal similar to a yellow pages directory, in order to make available to the staff of the unit the previously identified key knowledge, allowing one to visit the portal and locate and identify the right person who has the key knowledge for future reference in case of specific questions and/or support in solving problems.

5. CONCLUSIONS

In the organizational environment of the public sector, the definition of productivity is related to the proper and efficient use of resources; that is why this methodology proposed to implement a system to identify key knowledge in an organization, help solve problems in less time, perform decision making for more supported and therefore better decisions, and avoid wasting time and money on unnecessary training.

This methodological proposal based on KM facilitates the identification and location of key knowledge in an organization for improved productivity through better decision making and use of more efficient resources in staff training.

From the foregoing, the reason why it is important to identify and quantify the levels of knowledge and/or ability of people within an organization is to improve and develop a greater degree of those skills, in addition to helping them to improve skills and attitudes, increasing the knowledge of the occupants of the posts at all levels, improving morale and satisfaction of the workforce, guiding the staff to identify the objectives of the institution, creating a better image of both the staff and the organization, and improving relations between bosses and subordinates. Finally, all this has a direct impact and positive influence on the performance of the institution.

The development and implementation of this methodology provides a tool that allows the detection of knowledge gaps and training problems and facilitates the formulation of strategies to solve these problems and fill the gaps, thereby allowing the development and growth of employees, and consequently the organization. Similarly, this tool allows the identification of experts who have valuable knowledge so that the institution can take advantage of their expertise.

Also through this instrument, the situation of the organization with regard to their knowledge assets, its use and training needs can be regularly measured and monitored, which in turn serves as criteria for making decisions regarding the implementation of training events, namely, what courses to offer, what issues, who leads them and what do people require more. On the other hand, it helps to identify or determine in a precise manner the key processes that are most important for the institution, and helps to define more precisely the functional job profiles of substantive knowledge of personnel within each area, supporting decision making and focusing on the measures to be taken in these areas to increase productivity and staff performance.

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