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# KNOWLEDGE SHARING IN A CULTURAL HERITAGE CONTEXT: AN EXPLORATORY STUDY

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## Abstract

*Once discovered, an archaeological find starts some sort of new "life-cycle", throughout which it will cross several events, sometimes repeatedly. Each find brings with it a lot of information (concerning its nature and history). Also each event it will cross (restoration, study, exhibition etc) generates a lot of additional information. All the information gathered are useful, and often crucial, in order to deepen the scientific contribution received by the find, to make every time the best decision about its management, and, in the end, to give a proper sense to its discovery and overall to its expensive conservation.*

*Despite their fundamental role in such domain, the information are often considered as individual knowledge, not specifically managed, almost always not filed in digital archives. Usually they are not available to persons different from the ones implied in each single event. The problem of the use and sharing of the knowledge potentially brought by an archaeological find is further increased by the presence throughout the life-cycle of several professionals that usually work separately.*

*It is then highly interesting to examine a project promoted by an Italian regional Monuments Department, together with six other Italian and European Departments, in order to design and develop a powerful and easy to implement system to solve such problems. By adopting an action research approach, this paper will describe the birth and develop of this project, under a knowledge management perspective, to investigate organizational conditions and IT role in facilitating knowledge creation.*

*The research results demonstrate that some organizational solutions adopted in the project and some system features can promote knowledge creation and sharing in the cultural heritage context, also by reinforcing weak ties among operators.*

*Keywords: archaeological finds, organizational knowledge, knowledge sharing, decision making, cultural heritage.*

# 1 INTRODUCTION

Once discovered, an archaeological find (both a mobile one, like a jug, a statue, or even a fragment, and an immobile one, like a site) starts a sort of new "life-cycle", throughout which it will cross several events (among them: storage, cleaning, restoration, study, exhibition, grouping or consolidation with other finds…), sometimes repeatedly.

Just for its discovery in a certain place, at a certain depth, close to some other objects, each find brings with it a lot of information (about its nature and history), even when it is impossible, at the first glance, to interpret its original form or material (e.g. in case of single or multiple fragments). For example, a group of pieces of Etruscan black ceramic, although it is impossible to identify the object (or even objects) they were part of, found in a northern Italian zone at a certain depth, testifies the existence of some kind of relations between that zone and the Etruria in a certain period.

Moreover, each event a find may cross (restoration, study, exhibition etc) generates as well a lot of additional information. Sometimes such actions change the nature of the find (e.g. after a consolidation of fragments found in different moments) and its interpretation (e.g. after a study that details its origin or dating).

All the information gathered are useful, and often crucial, in order to deepen the scientific contribution received by the find, to make every time the best decision about its management, and, in the end, to give a proper sense to its discovery and overall to its expensive conservation.

Despite their fundamental role in such domain, the information are often considered as individual knowledge, not specifically managed, almost always not filed in digital archives, and then not available to persons different from the ones implied in each single event. The problem of the use and sharing of the knowledge potentially brought by an archaeological find is further increased by the presence throughout the life-cycle of several professionals (archaeologists, restorers, storekeepers, archivists...), that usually work separately, even when their activity is intersected.

After the recovery on site and for a long-lasting period (often forever), normally the object is merely known by the person who collected it. This includes not only the historic and scientific perspective, but even its collocation and its needs of conservative interventions, with an evident negative reflection on traceability and, at the same time, on management and programming of interventions.

Retrieval and collection of data related to the finds does not follow standardized procedures. The operational procedures are highly diversified, and are specific for each agency, organization, or even individual that works on the finds, but very often they follow the individual practice or the context pressure (e.g. an urgent excavation during works on a railway). Actually, information on finds, when immediately collected, are recorded on many different non-standard supports, like: single paper sheets, registers, sides of the wooden/plastic boxes where the finds are gathered, and so on. Rarely, and almost always after a long delay, such data are stored on a computer, but in personal files with different formats and supports. In all cases, however, they are difficult to be transferred or interoperated.

Objects maintenance, finally, encounters problems too. In the vast majority of cases, finds are stored in boxes inside depots, and the identification of the box contents is based on the hand-written data on its side. In a context where the other information on a find have been registered by different persons, on various non-standard supports, separately located, it can be hard to use and connect all these information in order to properly manage and even identify single objects.

The only exception to this practice is the insertion of a find into the Official Catalogue, a tool based on a set of multiple forms, mainly introduced to serve scientific purposes. The Catalogue, usually supervised by a public agency (in Italy, the Cataloguing and Documentation Central Institute, under the Ministry for Cultural Properties and Activities), contains only the file cards related to the archaeological finds studied, analysed, and moved to the Public Inventory. Each file card reports an ample and structured set of information, on many aspects of the good: discovery, material, state of

conservation, origin, relevance, connection with other objects, and so on. All these data must be manually filled and signed by an operator with a high amount of competences, usually an archaeologist. Such operation, which consumes long time, can be done only after the find has received some actions (cleaning, restoration …), and after an appropriate period of study and research. For all these reasons, only a very small share of the finds is inserted in the Official Catalogue, however long time after their discovery.

Despite these limititations, in the last ten years, software development in the archaeological domain has mainly been addressed to the Catalogue management or to Geographical Information Systems (GIS). Such systems, even when well realized, are specifically devoted to relevant properties that do not cover the complete management and that usually are not interrelated. No system appears targeted to the finds life-cycle management, along which a lot of information are generated, and modified.

In such scenario, the informative potential embodied by each find (characteristics of the object, characteristics of the site where the object has been found, type of interventions received and so on) is lost (usually forever) making the recovery and the storage of a scientific "dumb" object useless.

It is then highly interesting to examine a project, named "giSAD - Recouvrement du Potentiel Informatif des Sites Archéologiques Démontés" ("Potential Information Retrieval of Archaeological Mobile Sites"), promoted by the Monuments Department of the Italian autonomous Region of Valle d'Aosta, together with six other Italian and European Departments, in order to design and produce a system (named ArcheoTRAC - "Information System for the Tracking, Recovery, Assessment and Conservation of the Archaeological and Documental Heritage") to solve the described problems, both powerful and easy to implement.

By adopting an action research approach, this paper will describe the birth and develop of this project, under a knowledge management perspective, whose aims are the capture and organization of all the knowledge linked to a single archaeological find, and its sharing to all the people that have to use it for work or study reasons.

After the definition of the research questions and a brief description of the used methodology, this paper will propose the identified theoretical framework in the knowledge management domain, and the description of the project context and characteristics adopted as case-study. Then a discussion on the findings and some conclusions will follow.

# 2 METHODOLOGY

The present research paper introduces an exploratory case study (Yin 2003) which analyses the giSAD project, involving cooperation among different subjects and organizations, to design and develop the ArcheoTRAC information system and its supporting role in knowledge management processes. The analysis of the giSAD project is presented in this paper to investigate the two following research questions:

1. What conditions facilitate knowledge creation in organizations?
2. Can IT enhance knowledge creation by enabling weak ties to develop and by reinforcing existing close ties?

Action research is the adopted methodology. In action research projects, researchers usually collaborate with practitioners to solve practical problems while expanding their scientific knowledge (Jönsson 1991, Baskerville & Myers 2004). Citing Blum (1955), Baskerville and Myers (2004) argue that action research is a two-stage process: "First, the diagnostic stage involves a collaborative analysis of the social situation by the researcher and the subjects of the research. Theories are formulated concerning the nature of the research domain. Second, the therapeutic stage involves collaborative change. In this stage, changes are introduced and effects studied". The two outcomes are the action taken to solve the problem and the generation of research findings that inform theory (McKay and Marshall, 2001).

Participatory action research extends traditional action research approaches (Baskerville 1999). In participatory action research the responsibility for theorizing is attributed both to practitioners and

researchers; practitioners have the status of “co-researchers” as they “bring situated, practical theory into the action research process” (Baskerville 1999).

This is the case of the project targeted in this research paper, where the research group has played an active role, being involved in project activities since the very beginning. The research group has contributed to the design and after to the development of the ArcheoTRAC system, by following its evolution since its birth. In particular, the research group has contributed to write the preliminary project on the basis of the document reporting their needs produced by the Monuments Departments. Following the preliminary studies, the research group has contributed to manage the development activities under the supervision of the leading Monuments Department. During this period the research group has experienced several interactions and interviews with different subject involved in the ArcheoTRAC design process.

# 3 THEORETICAL FRAMEWORK

Information Systems that support processes linked to knowledge management take the name of Knowledge Management Systems. These systems help in acquiring, storing, distributing and applying knowledge, as well as in supporting processes for creating new knowledge and integrating it into the organization (Laudon and Laudon 2000). Knowledge Management Systems are employed in Knowledge Management processes mainly with the aim of supporting them (Alavi and Leidner 2001).

Knowledge, the object with which these systems have to deal, is a blurred concept and its definition engaged philosophers for thousand years (Walsham 2001). Usually knowledge is derived from one or information which are formed by one or more data. Under this point of view, knowledge does not present particular challenges for information systems, because it is not so different from data or information (Fahey and Prusak 1998). Additionally this distinction can be reversed (Tuomi 1999). As knowledge does not exist outside the mind of a knower, it is influenced by his/her needs and his/her initial stock of knowledge (Tuomi 1999). Knowledge must therefore exist in the mind of the knower before information and data can be formulated or measured. As a matter of fact "raw" data do not exist: each piece of data is the result of a knowledge flow that influenced its identification. As a consequence, to have a knowledge exchange among individuals, they have to share a certain knowledge base (Tuomi 1999). Under this point of view, Information Systems designed to support knowledge in organizations may not appear different from other forms of systems but will have to allow users to assign meaning to information and to capture some of their knowledge in information and/or data (Alavi and Leidner 2001).

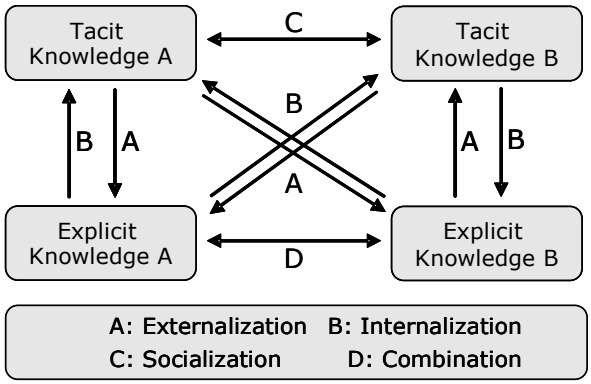


*Figure 1: Knowledge Creation Modes*

It is agreed that knowledge, when viewed in an organizational context, assumes two different forms, tacit and explicit (Polany 1962, Polany 1964, Nonaka 1994), and involves different processes of transformation (and consequently of knowledge creation) from one form to the other. The knowledge related processes are defined as socialization, externalization, internalization and combination. Fig. 1 shows these processes referring to the knowledge exchange between two hypothetical individuals (Nonaka 1994, Nonaka and Takeuchi 1995).

The tacit dimension of knowledge includes both cognitive (the individual's mental models formed by mental maps, beliefs, paradigms and viewpoints) and technical elements (concrete know how to be applied to a specific context) (Alavi and Leidner 2001). The explicit dimension of knowledge, instead, is codified, communicated and communicable in symbolic form and or natural language (Alavi and Leidner 2001). Moreover, knowledge can individual or collective (Nonaka 1994): the first form of knowledge is created and exists in only one person, while the social knowledge is created by the collective actions of social groups.

In an organizational perspective, knowledge is also referred to as memory and has been classified in two different forms: semantic and episodic (El Sawy et al. 1996, Stein and Zwass 1995). The semantic memory is the one linked to explicit and articulated knowledge inside the organization (embodied for examples in reports and archives), while the episodic memory is linked to specific circumstances and their related decisions, actions or outcomes. A relevant need in organizational contexts is the knowledge about where the knowledge resides (Andreu and Ciborra 1996). Advanced (computer based) storage and retrieval technologies can contribute to enhance organizational memory (Alavi and Leidner 2001). These tools are therefore required to support knowledge transfer processes inside an organization, which are necessary to move available knowledge to the locations where it is needed. These processes are usually impeded by the weakness of the systems used by the organizations and by the ignorance of knowledge location inside it (Alavi and Leidner 2001). In literature, knowledge transfer processes have been described as composed by five elements: perceived value of the source unit's knowledge, motivational disposition of the source, existence and richness of transmission channels, motivational disposition of the receiving unit and absorptive capacity of the receiving unit (Gupta and Govindarajan 2000). A lack or a difficulty in one of these elements may prevent the knowledge transfer process.

Usually Knowledge Level Systems find place in the Anthony’s pyramid in an intermediate level between the transactional and managerial level (Laudon and Laudon 2000). These systems are required to deal both with the explicit and the tacit dimension of knowledge, therefore they have to deal with unstructured sources of information. Since there are many forms of knowledge or, better to say, knowledge can be defined in many different ways, for each definition the role of the Knowledge Management System varies (Alavi and Leidner 2001).

Knowledge Level Systems have to adapt to and need to cope with moody environments. To be useful these systems have to connect people and to support knowledge exchanges among them. Therefore they have to inherit technical characteristics from other specific systems like business intelligence, collaboration, distributed learning, knowledge discovery, knowledge mapping and opportunity generation (Ser and Lee 2004). A detailed review of Knowledge Management Systems functions and features can be found in Park and Kim (2006). A Knowledge Level Information Systems has to be designed in order to have the power to enhance the knowledge management activities applied within a specific organizational context. To achieve this need, Information Systems supporting Knowledge Management should be guided by an understanding of the nature and types of organizational knowledge (Alavi and Leidner 2001). The explicit dimension of knowledge presents minor challenges for Information Systems implementation and it is common to focus primarily on this form of knowledge in an implementation process (Alavi and Leidner 2001).

The importance of Knowledge in an organizational context have to be seen under the contribution that it may deliver to strategic decision process in order to create competitive advantage (Nonaka and Takeuchi 1995, Nonaka et al. 2000, Prahalad and Hamel 1990). Under this perspective IT promises to increase and enhance the effectiveness of organizational knowledge by embedding knowledge into organizational routines (Alavi and Leidner 2001). Anyhow, there are few research contributions suggesting principles to design computer-based Knowledge Management Systems (Richardson et al. 2006). In spite of the great interest and the great attention devoted to the technology in Knowledge Management Implementation, it has been noticed that technology, by itself, does not offer a proper solution to the question. Among the difficulties encountered in the diffusion of Knowledge Management Systems there is the impact on people’s behaviour and routines that usually are altered by the introduction of technological solutions (Chua 2004).

The contrast between the tacit and the explicit dimension of knowledge, along with intrinsic difficulties in mapping the organizational knowledge to make the implementation of a KMS effective are among the sources of difficulties that organizations encounter in implementing these kind of systems. As a matter of fact, the real impact on organizational performance and the real effectiveness of this kind of systems are disputable (Shin 2004) and maybe need to be evaluated case by case. What emerges, on one side, is the need to cope with the blurred and multi-faceted object (the knowledge) in a computer based Knowledge Management System design process and, on the other side, the need to free the user from any constraints and allow him to make its own links and give him the techniques needed to construct and interact with knowledge (Walsham 2001).

# 4 CASE DESCRIPTION

The Italian Autonomous Region Valle d'Aosta, by means of its Co-financed Projects and Research Direction under the Monuments Department, started in 1992 a study ended (1999) with the development of a first prototypal system (named ArkeoKeeper), mainly devoted to the management of the restoration activities. The results of such experience were encouraging (overall the benefits derived from the coming out and codification of a piece of knowledge (Polany 1962, Polany 1964, Nonaka 1994)), but there were also important limitations, primarily linked to two aspects:

— the need of integrating the knowledge and the points of view of other specialists, in order to reach a more complete vision of the finds;
— the opportunity of anticipating, up to the moment of a find appearance (e.g. since the discovery), the data retrieval, in order to cover its entire life-cycle.

Taking into account these results, in 2001 the Direction promoted a new, more ambitious project, named giSAD and co-financed by the European Union. This time, a partnership with other regional Monuments Departments, both Italian and European (from France, Portugal and Spain), was established. Even though each partner's context was different (for rules, practices, resources, size of the territory, number of finds), they operated in the same field (the archaeological heritage management) facing a scenario similar to the one described at the beginning of this paper. Their common aim was then to define an integrated, shareable and transversal operative methodology and to create an interdisciplinary information system, capable of supporting everyday activities such as recovery, documentation, depots management, storage and valorisation.

Multiple objectives were addressed with this project; they can be gathered in three dimensions:

— *strategic*, with regard to:
    — the exploitation of the huge amount of finds not studied, through the recovery and sharing of their informational potential (Nonaka 1994);
    — the opportunity of improving resources use (Nonaka and Takeuchi 1995, Nonaka et al. 2000, Prahalad and Hamel 1990), by estimating interventions cost and planning them on the basis of their possible information contribute;
— *organizational*, referred to the achieving of higher finds' protection, improved management, reduced costs, and overall of a greater collaboration and involvement of all the professionals;
— *scientific*, in term of research progresses achievable through the availability of much more information, based on more trustworthy data, and a greater exchange of knowledge among diverse disciplines (El Sawy et al. 1996, Stein and Zwass 1995).

Another ambitious goal was the creation of conditions to implement innovative policies in finds management, up to the re-burying of some finds, once their informational potential has been totally "extracted" and acquired in a reliable system.

The choice of involving other (even foreign) partners, was explicitly made to raise the expectations and the possible results of the project, on the basis of the thought that in this domain the practices and knowledge were (and still are) individual, or however not largely shared. Thence, the greater the experience involved and the more the needs considered, the greater would have been the knowledge acquired on how to operate, and the better the operational methodology defined, increasing available memory stock (El Sawy et al. 1996, Stein and Zwass 1995).

Another important choice of the project was the involvement of all the professionals – archaeologists, restorers, archivists – that intervene all along the finds life-cycle. The aim of such choice was the knowledge and needs exchanges promotion, as these subjects often operate without a close connection among them, even when they work around the same object (Gupta and Govindarajan 2000).

The project was designed involving a first long phase devoted to declare, and to analyse the practices adopted by each type of professional. The intent was to find a common methodology that was, at the same time, respondent to everyone's culture and applicable to everybody. Moreover, this phase included sessions devoted to search a possible way to retrieve, store, and share information among different professionals, with the aim of identifying the most feasible way to anticipate the data collection, in order to avoid multiple keying and most importantly to exclude the risk of loosing data.

All the possible situations were examined, including every kind of find (either mobile objects or sites), any event they may pass, and also the treatment of the huge amount of finds actually stored in the depots, even when many of their data could already be lost. As a result of this demanding phase, the project produced several documents:

— the definition of a set of information needed by each type of professional, on the characteristics of finds and also depots, archives, events, and so on, then enabling both the knowledge creation and mapping (Andreu and Ciborra 1996);
— the design of a possible common database;
— a set of thesauri for each information (a task which required a vast effort);
— the design of process segments which assure a correct data retrieval and management.

In 2005, once the preliminary activity of study and design was over, the development of an archaeological and documental heritage management support system (with the name of ArcheoTRAC) was started . Having in mind the project goals, and taking into account the knowledge acquired in the previous phase, the system was designed in order to maximize data sharing and interrelating (respecting the different needs of each professional at the same time), and to warrant the traceability whatever and whenever of each object.

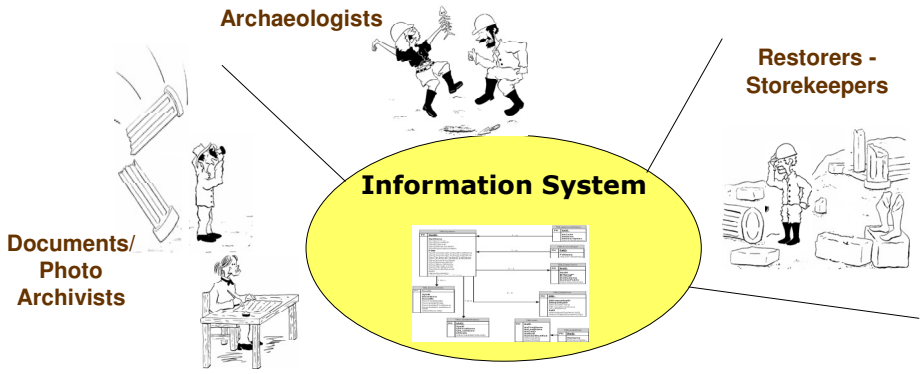


*Figure 2: Different view for each professional, but sharing the same data.*

The system presents many interesting features: it is a totally web-based open-source licensed system, it largely uses advanced technologies, like UMTS connections, UHF RFId tags, handhelds, access control, and so on. However, for the scope of this paper, there are three characteristics to point out: interdisciplinary collaboration, adaptability to different needs and cultures, knowledge maps about a find.

About the first aspect, ArcheoTRACK let all the professionals use the same Information System and share the same database (see fig. 2): thence a continue interdisciplinary co-operation is promoted among experts in different branch of learning (Tuomi 1999).

With regard to the second aspect, any professional has the possibility of adapting the system on the basis of his/her needs and culture, by:

— choosing (see fig. 2) the presentation form (view) that better suites his/her needs and preferences (Walsham 2001), as it contain only the relevant information for him/her;

— including in the system (then in the database and the views) other non-standard information which only he/she will store and read, because he/she is used for personal culture or practice to collect and make use of such information, then minimizing a possible barrier that may prevent the use of KMS (Chua 2004).

Finally, by recording all the events of any sort (even when repeated), ArcheoTRAC can trace the entire objects history after their discovery. It can build two kinds of map, which give a great contribution both to the research and the management:

— a timeline for each find, reporting all the treatments, the movements, and other scientific activities concerning it;
— a relations network of a find with other ones (see fig. 3, where finds are identified by a code), that shows its active connections, both deriving by a scientific activity ("Concerning") or by a restoration action ("Aggregated in").

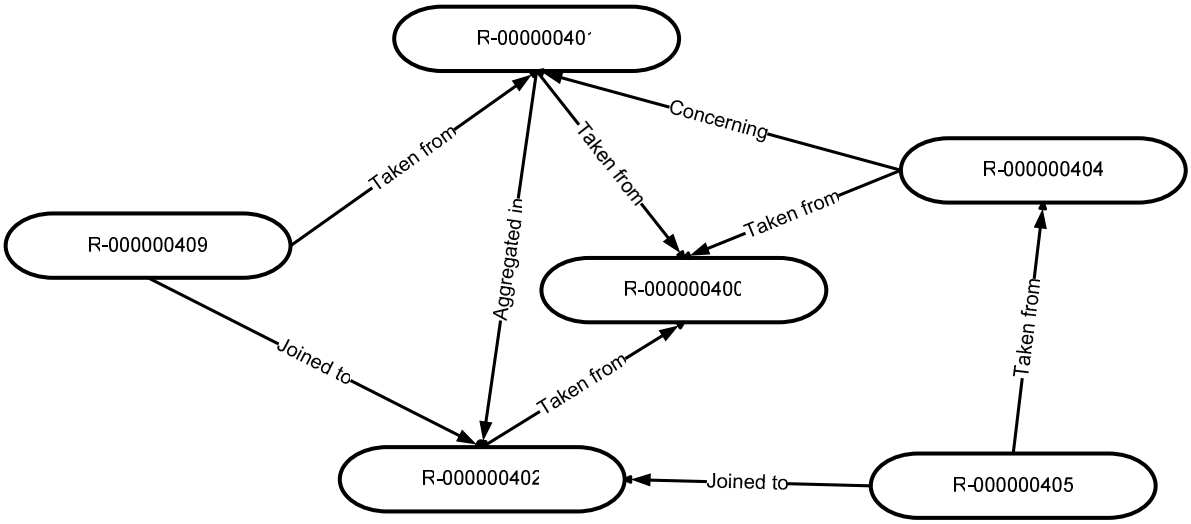


*Figure 3: Relation network among single finds.*

In 2007 the development of ArcheoTRAC ended, and an experimental programme for its adoption was launched. Even though the lapse of time is still short, and not enough to use the system in all of its operative conditions, it can already be said that the first users have adopted it in a short time, and they state that their work it is having a sort of bootstrap.

# 5 DISCUSSION ON FINDINGS

The ArcheoTRAC system represents, according to our opinion, an interesting case to be studied as it offers many cues and opportunities of analysis that could be relevant for the information systems research. First of all, it has to be pointed out that the adoption of information systems in support of cultural heritage processes is a quite neglected field of research. Under this point of view, the ArcheoTRAC system and its surrounding organizational setting, is a case of study that could give relevant insights, particularly for the fact that it is one of those rare situations where it is possible to observe and study the adoption of an information system in a "virgin" context.

Interpreting through a knowledge management lens the organizational setting preceding the project, the abundance of tacit and episodic knowledge, as well as the absence of real efforts to make it explicit and semantic can be noticed. Looking at both the knowledge taxonomy and the knowledge transformation processes described by Nonaka (1994) and Polany (1962, 1964), it can be noticed that the life cycle of the find, as well as the organizational routines that are normally in place without the use of the ArcheoTRAC system, tend to foster the internalization process. As a consequence, knowledge gained by a single archaeologist on a particular find in most cases remains at the episodic level (El Sawy et al. 1996, Stein and Zwass 1995), and can easily continue to be tacit or, even worse,

can be forgotten.

The giSAD project and the adoption of the ArcheoTRAC system, have a great impact on this organizational setting. The giSAD project itself, contributed to improve socialization and externalization processes (Polany 1962, Polany 1964, Nonaka 1994) among subjects involved. Under this point of view, the project offers two organizational cues that can be taken into account to answer the first research question. The project had the merit to get together professionals of the same segment of the entire life cycle of a find, even though they were coming from different realities (both national and international), as well as professional of different segments.

By grouping different professionals along the horizontal (the entire life-cycle of a find) and the vertical (a single segment of the life cycle of a find but seen in different organizational settings) dimension, the giSAD project was able to enhance knowledge creation and transfer among the involved individuals, preparing the territory for elements that constitute prerequisites for these processes (Gupta and Govindarajan 2000). At the same time, grouping these professionals together helped in the sharing, among them, of that specific amount of knowledge (Tuomi 1999) that is necessary to start knowledge transfer processes.

Finally, the ArcheoTRAC system constitutes an interesting example of information systems able to foster knowledge creation and exchange (Laudon and Laudon 2000), capable to promote knowledge externalization (Nonaka 1994) without altering users' organizational routines (Chua 2004). The final aim of the ArcheoTRAC system is the externalization of tacit knowledge (Nonaka 1994). The ArcheoTRAC system helps all the people involved in the life cycle of a find in archiving and restoring information on it. By doing so it offers each actor his own space (Walsham 2001) inside which he can work seeing the finds from his perspective and his culture. The system gives to the user the possibility to change fields, views, thesauri, and other settings, offering him a comfortable environment, without imposing routines, workflows or data models (Chua 2004).

Under this perspective, the ArcheoTRAC system constitutes the basis for the knowledge exchange among involved actors (Tuomi 1999). By means of this knowledge sharing, which is a prerequisite for knowledge transfer and creation (Tuomi 1999), along with the freedom in the environment configuration, ArcheoTRAC system really fosters knowledge externalizations and increase the size of semantic knowledge in the organizational setting (El Sawy et al. 1996, Stein and Zwass 1995).

These considerations enable us to answer to the second research question. The information registered inside the ArcheoTRAC system are the elements necessary to strengthen weak ties. In the organizational settings without the ArcheoTRAC systems, individuals were connected with weak ties sharing episodic knowledge, and had an intrinsic tendency towards the internalization. The ArcheoTRAC system forms the shared knowledge space (Tuomi 1999) that is necessary for knowledge exchange. Without the ArcheoTRAC system, each event connected to the life cycle of a particular find was more often only known to the person who worked on it, implying that different individuals on different stages of a find life-cycle were hardly connected, or even completely isolated.

The ArcheoTRAC system can consolidate the knowledge on a single find, even when collected by different individuals in such a clear and precise way that it can build proper presentations of this knowledge by itself. With the ArcheoTRAC system the weak ties become close and part of a network that can be used to transfer and generate knowledge to any individual in it. The knowledge embodied by the information collected within this network is so explicit (Nonaka 1994) and semantic (El Sawy et al. 1996, Stein and Zwass 1995) that can easily be accessed also by a possible newcomer professional that may use the system, even if he/she has not played any role in the find life-cycle.

# 6 CONCLUSIONS

In this paper we analyzed the design process and the first development outcomes of a knowledge level system called ArcheoTRAC. With an action research based case study, this research paper investigates the use of knowledge level systems in the archaeological context, which is a quite neglected topic in the information systems research.

The giSAD project and the ArcheoTRAC system constitute a relevant case, according to our opinion, both for the novelty in the field of research and for the peculiarities of the previous organizational setting, that did not use any information system in support of its activity.

The research results show that the analysed organizational solutions adopted (study phase involving all professionals to make knowledge explicit and semantic) and the system features developed (interdisciplinary collaboration, adaptability to different needs and cultures, knowledge maps about a find) can promote in the archaeological domain the knowledge creation and sharing, also by reinforcing weak ties among operators.

The ArcheoTRAC system, as well as the giSAD project that led to its design, are interesting contexts to analyse, as they can give relevant information for the IS research. For this reason, further research will be addressed to deepen the understanding gained in this research paper.

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