

KUBE: A knowledge centred way to manage projects

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Abstract. MIK Corporative Portal is a Web Solution that encompasses under the same platform our corporative image, all projects document management and the so-called – KUBE – Virtual Community for Research in Management, that constitutes a revolutionary KM space for collaboration and experimentation where multiple and geographically dispersed organisations can easily generate, coordinate and manage projects.

KUBE includes under the same platform the six core areas of a project life-cycle: Generation of New Ideas, Project Proposals, Team Forming, Project Offer and Presentation, Administrative Formats and Project Workflow.

This new space of knowledge and innovation arises from the alliance signed between **Mondragón Innovation & Knowledge** (MIK S. Coop.), Research Centre on KM and experimentation on advanced tools and models for Direction and Management and **Ever Documentica** a leading software provider that develops, markets and installs software for image, document, and content management.. The supporting platform system is called EverSuite, which is a set of Web services developed in JAVA around the J2EE standard.

1. Introduction

Let's start with a fact [1]: Actually only 15% of the information available in our organisation is used to develop our projects. The other 85% on the information is "unstructured": Web Pages, e-mails, good practices, bibliography and lots of other information that strains everyday in our offices or is available somewhere "out there". Under this premise, It is central for any organization to secure that their knowledge workers have an effective and just in time way to access information that sometimes maybe crucial.

MIK's cooperative portal has its location and virtual centre at MIK and is open to every person, group, institution or company eager to create, share and manage ideas, knowledge, projects and so on. Figure 2, shows the three main streams of the Corporative Portal:

CORPORATIVE IMAGE: A minimal part of this structured knowledge lies in the institutional information about MIK S. Coop that is offered to the general public in the area called Corporative Image or Web Page. Apart from reflecting our vision, value, identity, research areas, etc., one of the main innovations added, is the possibility to edit and modify the content of these pages by any of MIK members, with no need of previous abilities on HTML or ASP, enabling them to modify their CV, areas of interest, projects and so on.

INFORMATION MANAGEMENT: This is the second pillar upon which our corporative portal is built. This part arises with the idea of being eminently dynamic, that is why, it allows managing sections that need to be frequently updated in a web such as those referring to articles, publications, news and so on. Thus, it enables general public to collaborate by means of links, articles or even by attaching comments on news published in our portal, always undergoing our moderation filter. It also allows news facilities such as subscription, calendaring, opinion forums, and so on.

Apart from this free entrance area, here we have developed a more restricted space called Collaborative Intranet, which constitutes a virtual meeting point for MIK researchers and manages all the documentation internally generated at MIK. This intranet is organised by projects and work areas and is intended to be for internal use only. Some functionalities of this area are create or modify folders, insert documents in multiple formats, calendaring to summon internal meetings, notice board for internal announcements, document versioning and so on.

However, which really makes our portal totally revolutionary compared to portals developed so far is the **Virtual Community for Research in Management (KUBE)**, which is the real solution that allows optimise the generation and coordination of projects from the knowledge, strategy and teams point of view upon a dynamic and collaborative platform developed from the alliance signed between MIK S. Coop. – Research Centre for Management and Innovation – and Ever Documentica – a leading software provider that develops, markets and installs software for image, document, and content management.

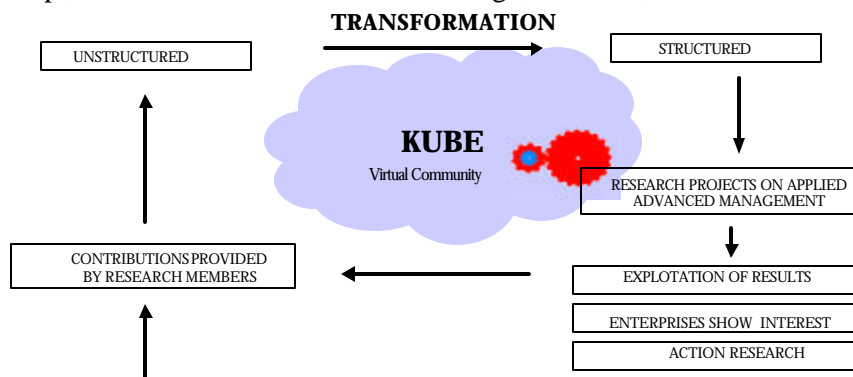


Figure 1: KUBE: Transformation of contributions into projects

2. KUBE: A knowledge centred way to manage projects

The very important aim of KUBE is to build a collaborative, dynamic and secure environment able to collect all the unstructured information of the organization and analyse, categorize and disseminate it from the KM point of view to improve the productivity and the decision making strategy of the individuals aiming to provide the right information just when it is needed. This new way of interact, coordinate and work has huge improvement potentialities when managing projects and facilitates the integration of the different work groups that integrates the project.

KUBE includes under the same platform the six core areas of a project life cycle:

2.1. Generation of New Ideas.

This is the place of the Virtual Community where researchers and collaborators propose, create and exchange ideas in such a way that as a result of this interaction and osmosis new proposals and ideas may arise that can give birth to future projects. Trying to offer a dynamic and creative space, four different scenarios have been designed to motivate and make explicit users' knowledge:

- *Creativity tools*: This is the place where ideas must flood, allows us to play between fiction and reality, makes us doubt about everything we know but also gives us the chance to learn and experiment new knowledge, technologies, ways of interaction and so on. In fact, it is a seed plot where to plant our ideas, where contrast them against other researchers' ideas, etc. The proposed facilitators in this context are the following:

- Software for Creativity and New Ideas Generation developed by MIK, such as Germinal [2] and Roadmap Tool [3] that are periodically updated with new versions.
- Possibility to insert, in a simple manner, new tools for creativity and innovation.
- Store links to web pages devoted to software for brainstorming, generation of ideas...
- Links to bibliographic references about techniques for generation of ideas.
- *Knowledge exchange forum*: Place equipped with a notice board to pin up suggestions, chat, calendaring service to summon internal meetings to discuss and exchange opinions, documents, etc. on different subjects.
- *Crazy Ideas*: This forum will allow registering and going public all sorts of ideas and suggestions independently how wild they might be.

In order to promote participation in this area, free access is granted to anyone willing to participate and expose their ideas and thoughts to the rest of the Virtual Community.

2.2 Project Proposal

This place of the Virtual Community will gather all the ideas emerged in the area of Generation of New Ideas and that are considered to have certain viability and have arisen support and interest on the rest of researchers in the community.

Put together all this unstructured knowledge (ideas, opinions, interested individuals or organisations) in a standard document, it is followed by an evaluation carried out by MIK based in three different approaches:

- Viability from technical point of view.
- Viability from economic point of view.
- Viability from Consortium or possible participants' point of view.

This last criterion is pondered automatically by means of a module called Management by Competencies, which based on a KM point of view, contents a categorization of MIK researchers and externals according to areas of interest, competencies, hourly rate, calendar availability and so on.

In the end of this stage those proposals are recorded in two different categories:

- *Refused*: Projects evaluated and considered NOT viable, but stored cause can be of interest for the future or for future project specifications.
- *Accepted*: Projects evaluated and considered viable, being susceptible to make up bids.

2.3 Team forming

This is the following stage in a project lifecycle. Once overcome the technical, economic and participants' viability, we must decide which of the possible participants are accepted, refused or needed to push forward the project. For this, we will use again the module of Management by Competencies, which will help us to search, contact and invite institutions, enterprises and individuals who have the right knowledge, profile and experience to match those areas of the project that are not sufficiently covered by the actual consortium...

Thus, at this stage we set up a multidisciplinary and multinational team, defined to the very low level of their names, experience and interest areas, hourly rates or calendar availability which will be able to interact to develop the concrete proposed project.

2.4 Project Offer and Presentation

This is the space where, finally, all the unstructured information that has been produced in past stages gets coherence and approximates to what we call a project, because we gather

all this information and dump into any of the standard proposal documents designed by our organisation. This way, in the end, we obtain a global view of the project, from the quantitative point of view – project budget, duration, participants – as well as from the qualitative point of view – objectives, application areas, impact on the research area, etc –.

Here, we can across another one of the ideas that makes KUBE a revolutionary and KM centred system, because at this stage we already have execution timetables, human and material resources, objectives, work packages, tasks, etc. that may be used to design an “incipient workflow”, which, in case the project would be approved by any institution or enterprise, could be dumped to a visual, dynamic workflow that will allow to operate on it, assigning and modifying tasks, periods, budget, persons, etc. as we will see further on.

As a result of the importance that in this stage of offer presentation acquires details such as format, periods, budgets, etc. this area has all the functionalities needed to automate tasks that so far have been really tedious like:

- GANTT diagrams featuring periods, dates, project tasks, etc.
- Generate work package structures and its content.
- Find and easily insert the CVs of the project team members.
- Logotypes of the participating organisations and institutions.
- Budgets broken down by years, work packages, etc.

This area plays also the role of repository since it stores current, refused and accepted offers and is used as historic and documentary repository to complement future projects.

2.5 Administrative forms

Being MIK a Non Profit Research Centre, a fairly high percentage of our offers are delivered to Public Institutions and administrations. Basically, we have got a close relationship with four different administrations: Local Administration, Regional Administration, National Administration and European Administration.

And the big problem dealing with those institutions is that each of them has its own forms, standards, formats and whatever you got to attach to, when presenting offers to them. This challenge is faced by KUBE in two different ways:

- On the one hand, we have an intelligent and KM centred monitoring system, which is able to detect, and alert interested subscribers and researchers, whenever any change happens in webs marked as interesting by them (CORDIS, UE, etc). Normally those webs may content public institutions’ forms, budget, periods, etc., that are important to keep them inform of new calls, proposals and so on.
- On the other hand, these particular administrative forms are stored at KUBE, and for each of them we map its data structures, design its necessary formats, analyse the diverse types and typologies (fonts, data tables, etc) in order to automate and speed up the process of dumping the information and generate its documentation.

Lastly, to face the multi-language issue that presents the different administrations we deal with, KUBE incorporates some mechanisms of translation on the fly and offering also the possibility to choose among several built-in translators. The only problem of this solution is that, nowadays, the reliability showed by those translators is really low, exasperating I would say. Anyway, the platform has been left open in order to incorporate new advanced translators in a simple and ease way.

2.6 Project Workflow

At this stage we are in a scenario where the project has been approved by any institution or

enterprise. The start up of the project execution will be as easy as dumping what we called “incipient workflow”, created and structured all over the stage of Project Offer and Presentation, to a dynamic, completely visual workflow that allows us complete operation and manipulation on it by modifying and adding periods, resources, times, and so on and that also allows visualise at anytime the real situation of the project.

This environment will be managed as an ordinary dynamic workflow, where we will have among other functionalities the following ones:

- Personalisation and visibility adapted to each profile.
- Modelisation and development of projects.
- Tasks’ inputs and outputs definition.
- Monitoring of individualised tasks.
- Analytic accounting (cost of hour/resource, hours break-down, etc).

Evidently, all individuals involved in an specific project will be popped up with their individual task list, periods, objectives and a concise list of rights and permissions to allow them to access and modify their private areas, make analytic breakdown of hours, accounting, version check, handouts check in and check out, work documents, etc.

3. Conclusions

As a conclusion we may say that in order to experiment new forms of thinking, together with new creative work environments that will help us to master a wide catalogue of skills such as collaborative management, flexibility, facilitate the innovation, etc KUBE has focused on specific fields like New Technologies, Creation and Exchange of Information, Management by Competencies, etc. where a true revolution has been carried out. Here we emphasize some revolutionary contributions of KUBE that make it unique, and facilitate the extension of cooperative work and knowledge management:

3.1 Incorporation of New Technologies – WALL DISPLAY [4]

The underlying technological infrastructure of KUBE is modular according to J2EE standard, keeping it open to new tools that may go arising in the areas of creativity, interaction, new technologies, etc., and new software and Web Services embracing the .NET standard.

In the effort of integrating cutting-edge tech tools we present **3M Wall Display** which is a tactic display that provides multiple functionalities in addition to videoconference, such as, in motion image transmission, animation and graphics, instant connectivity with nearly any multimedia system, collaborative blackboard, file capture and transference, etc.

The hot issue here is interaction: This tool allows community members to edit, discuss and modify information on the display in such a way that other researchers connected to the system can see what it is going on, capture this information in digital format to be able to play or disseminate it when necessary... forcing this way a dramatic increase of creativity, brainstorming and interaction real time and face to face with rest of community members.

3.2 Levels of Management

It is obvious that it is necessary to manage somehow, the access to the existing information in the system for security, efficiency and content personalisation purposes. To accomplish this functionality, a complete personalised access management system, broken down in four different levels, has been designed form a KM point of view for each profile

of community member, in such a way that, this feature will allow them to access the bits and only the bits of information they are interested in and are allowed to in the most efficient format to carry out their tasks. This way, we have designed four different levels, depending on user profile:

- **Activity Level:** It will allow researchers to carry out activity related tasks: effort hours accounting, upload and download handouts, documents, etc. All these tasks will automatically translate into milestones and work advances in the workflow system.
- **Operative Level:** Allows the user to visualize the whole task, as well as its status, members that are taking part, assigned deadlines, budget, events, bottlenecks, etc.
- **Executive Level:** It will allow the person in charge to have a general overview of all the tasks scheduled in a concrete project, access to all the documents and handouts of the project, ability to change periods, assignments, budget, insert new tasks, members, etc.
- **Strategic Level** Allows to have a global visualization of all the projects being carried out in the organisation or department, different implication of members involved in the stages both by budget or by hours scheduled, what is the state of each of the projects, statistics of projects, proposals broken down by different concepts, etc.

Obviously those are accumulative levels, which means, that at strategic level any of the tasks entitled to the most restrictive levels (Executive, Operative and Activity) can be carried out and consequently same thing top down for each of the levels in the scale.

3.3 Management by Competencies

Management by competencies will allow coordinate at anytime the allocation of researchers in the different projects, as well as know how available they are in terms of hours or budget for future projects, know their areas of interest, attitudes, aptitudes, etc.

All this information is kept stored and accessible in a knowledge based competencies tree at personal level and at KUBE Virtual Community level. The competencies tree of the Community is a dynamic tool, which will automatically reflect even the smallest change carried out in the personal competencies tree of any particular researcher such as added interest areas, involvement in new projects, etc. This mechanism keeps always updated the competencies tree, easing for example the management of human resources department, the identification of core competences of the company, etc.

3.4 Intelligent Search Robot

Another “intelligent” facility provided by KUBE is the option to program processes that will be executed automatically and periodically as specified by the user. Examples of this functionality is the possibility to implement a “watch system” such in a way that the user is notified every time that any of the Webs identified as interesting, by the user, changes.

Also this robot allows to make internal searches inside KUBE’s document repository, independently of what format or extension the information is stored in or even if they are physically stored in different machines. This robot can integrate different search engines, such as: Verita (Search 97 and K2), Oracle Intermedia and Microsoft Index Server.

References

- [1] Source: Inxight Software, Inc.
- [2] Beta version developed at MIK S. Coop by Iker Jaukikoa. jaukikoa@mik.es
- [3] Version 1.0 developed at MIK S. Coop., available at <http://www.mik.es/login.asp>
- [4] Product developed by ©3M 1995-2003.