

# I-PORTAL, MANAGEMENT FRAMEWORK FOR MOBILE-BUSINESS

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**ABSTRACT:** This paper presents an innovative approach to business management and manufacturing process management by introducing a new collaborative portal framework that unifies the work teams and provides access to essential documentation, functionality and services within a SME. Mobile-Business (or m-Business) is a software suite for document management, project management, decision support systems, collaborative work and other business related activities, that unifies them an single web-interfaced access point. This takes the form of a web-portal that is called iPortal; it is a virtual location with a dashboard interface that integrates all m-Business modules and introduces the concept of *project based activities* to focus the collaboration around projects.

**KEY WORDS:** m-Business, iPortal, decision support, knowledge management, portlets

## 1. INTRODUCTION

*Mobile-Business* (or *m-Business*) is a software suite for document management, project management, decision support systems, collaborative work and other business related activities, unifying them all in a single web-interfaced access point. The solution is in the form of a web-portal that plays an active role for SMEs employees, partners and customers by managing business content, unifying work teams and providing access to essential documentation, functionality and services with the help of well structured wiki.

This web-portal is called *iPortal* and it is a virtual location with a dashboard-like interface integrating all m-Business modules and therefore offering the user a central information point. From here the user can log-in and access the information depending on his / hers given rights.

iPortal introduces the concept of *project-based activities* to focus the collaboration around projects. It also provides a set of tools and components for supporting the above mentioned features and these also adopt the *project-based* concept to normalize the collaboration activities.

A brief presentation of the portlet technology and iPortal is made in *Chapter 2* followed by a more detailed description of iPortal's inner components in *Chapter 3*. Conclusions and future work (*Chapter 4*) close the paper.

## 2. I-PORTAL

This section starts with a brief description of the web-portal and portlet technologies, followed by an overall iPortal presentation which also explains the *project-based* concept and *user and role management* component.

### 2.1. Web-Portals and portlets

A *web-portal* or commonly referred to as simply a *portal* is a web site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and other on-line services. It provides a single point of entry, in the form of a web-based user interface, and is designed to aggregate information through application-specific *portlets*.

*Portlets* are pluggable user interface components that are managed and displayed in a web portal. Portlets produce fragments of mark-up code that are aggregated into a portal page. Typically, following the desktop metaphor, a portal page is displayed as a collection of non-overlapping portlet windows, where each portlet window displays a portlet. Hence a portlet (or collection of portlets) resembles a web-based application that is hosted in a portal. Some examples of portlet applications are email, weather, reports, discussion forums and news. iPortal allows registered users to personalize their view of the website by turning on or off portions of the webpage, or by adding or deleting features.

## 2.2. The iPortal web-portal

This section's title simply expresses that iPortal is in-fact, a web-portal, customized for the m-Business suite. As depicted in Fig. 1, it is a virtual location with a dashboard-like interface integrating all m-Business modules and therefore offering the user a central information point. Users can log-in and access information depending on his/hers given access rights. iPortal database stores only filtered data from each m-Business application. For example, in case of decisional support system, the user will see for each project: the data posted by team members for a specific thread (comments, new input); deadlines and inputs required etc; all this information belongs to the iDecisionSupport application (to be detailed in section 3.4), but through the portlets technology it can be accessed from iPortal dashboard.

iPortal is developed upon the Liferay Portal Framework using J2EE technology and it provides

The screenshot shows the iPortal dashboard with the following components:

- Header:** iPortal Web Collaboration logo, navigation links (Home, Knowledge Repository, Help, Add Page), and a user greeting: "Welcome Alexandru Georgescu!"
- Domino Mail:** A portlet for checking and sending mail, showing "You have no unread messages".
- Notes:** A portlet for adding and viewing notes, showing "No notes have been found".
- Skype Users:** A portlet for managing Skype users, showing a user "Laurentiu Ciovic" with status and actions.
- Message Boards:** A portlet for managing message boards, showing categories, threads, and posts.
- IDSS Portlet:** A search and data table for IDSS. The table shows:
 

Name	Category	Phase	Start date	End date	Report
Session1	Discussion List	Initial	03-06-2009	03-06-2009	N/A
Session1	Discussion List	Finished	03-02-2009	03-02-2009	N/A
Votare cu raport	Vote	Finished	03-05-2009	03-05-2009	
Discussion session	Discussion List	Finished	03-05-2009	03-08-2009	N/A
- Repository:** A portlet for managing projects, applications, templates, and documents, showing a table of projects:
 

Name	Category	Phase	Start date	End date
iPortal test	Prototype Designer	Setup	2009-03-03	2009-03-27
IDSS Integration	Factory Constructor	Setup	2009-03-02	2009-03-13
- Domino Calendar:** A portlet for viewing a calendar, showing "Wednesday Mar 25, 2009" and "No Events".

Figure 1. iPortal dashboard.

### 2.2.1. The project-based concept

iPortal introduces the concept of "project-based" activities to focus the collaboration around projects. This enhances managing data and capturing knowledge on specific topics, and also determines a better organization of tasks and solutions. Project content is managed using a project repository (see section 3.1) and can be easily referenced and accessed from the existing

conceptual and functional integration of the business processes through the portlets technology.

m-Business iPortal has the following features:

- **Single Point of Entry:** single sign-on capabilities between users and various other systems. This requires a user to authenticate only once.
- **Integration:** the connection of functions and data from multiple systems into new components / portlets.
- **Personalization:** users can customize the look and feel of their environment.
- **Permission:** the ability for portal administrators to limit specific types of content and services users has access to.

applications. There is no need to create duplicates of the documents or go through additional authentication procedures. Tasks in the m-Business environment can be part of defined enterprise workflows, where the workflow stops until the collaborative work inside the m-Business is completed at which point it automatically continues processing.

### 2.2.2. User and Role Management

This component provides identity management, multi-layered and object security to ensure that only authorized users have access to sensitive business information. It provides standard-based authentication with industry leading LDAP Directory Servers and Single Sign-On (SSO) providers; this means that user and group information is managed and maintained within the SMEs security infrastructure.

Users and roles management is implemented using the *iSecurity* component (detailed in section 3.3) which is designed to manage this kind of concepts in a very general way and also relate them to different external components. This makes it very easy to change for example the role that on user as in all the m-Business components.

## 3. M-BUSINESS ARCHITECTURE

m-Business architecture can be described by presenting the components that make up iPortal and the way they support the functionalities presented in the previous chapters. The main components are presented (iDocument, iDecisionSupport, iFinance, iManagement,) also the collaboration support tools (Mail and Calendar Portlet and Skype)

### 3.1. Project Repository

Project Repository is the component (portlet) through which the *project-based* concept is implemented into iPortal/m-Business. It's has an interface through which a user can define a new project or open/modify existing ones. When a new project is created it automatically appears into all iPortal integrated applications.

At project creation, the application propagates this event to all registered components. When a project it is created its corresponding wiki space is automatically also created (described in the following section). After creation, the wiki space contains only those documents inherited from previously defined template.

The Project Repository component also allows the user to manage the templates that are used to create new projects.

### 3.2. Wiki

Wiki is the component that support the content generation of project content and project templates, and it is implemented using the *XWiki* software. XWiki is advanced wiki software which includes a number of professional features like user/rights management, version control, content and site design, plug-ins, API, etc.

Using this, the wiki component allows any user can create documents where he/she can share his experience and expertise with the newly members of the community or just exchange ideas with professionals that are part of the entire virtual environment. It also allows the creation of objects and classes. This way, forms can be developed in a very short time span and be reused to enter data on the wiki following a specific template. This means that end users can be presented with a page on which the layout is already drawn, where they can directly fill in the fields needed.

### 3.3. iSecurity

This component is a mature, original java-based framework build upon server-client architecture offering management services, SSO capabilities that replace the ones provided by Liferay Portal, custom directory connectors and a secure environment.

Through web-services, all the provided services are made available, fact that allows different client implementations to be accepted. So the iSecurity server can very well communicate with a .Net, PhP or Java clients – feature that gives great development flexibility.

### 3.4. iDecisionSupport

This component is designed to be a collaborative decision-making support system with safety, utility, efficiency, effectiveness, and usability. It is also referred to as iDSS. The development of iDSS is based on the principles of Decisional Support Systems, interactive software and related development techniques. By taking advantage of abundant information on the Internet, networking and database technologies, iDSS provides decision-makers: comprehensive information access to internal and external data, communication facility, and friendly interface with multiple-user access.

The iDSS component provides intelligent workflow and decisional support customized for specific m-Business needs, enhancing organizational memory; decision-making tools (brainstorming, voting, categorize etc.) are integrated within iPortal and customized for m-Business flows. The advantage of using the integrated decisional support tools consist in better quality of the groups decisions for their tactical and operational activity.

### 3.5. iFinance

iFinance is a warehouse management application build to increase the efficiency of the SME through easy exploitation and quickly

answers from accounts information. It was design according to actual accounting settlements and is flexible for future modifications of the legislation.

### 3.6. iManagement

This component addresses organizational needs within various business sectors, and it aims to optimize the internal processes via thorough resource planning, tracking and control. One of its main competitive advantages consists in the possibility of managing multiple projects in the same time, considering the same human resources, fixed deadlines and budgets. Moreover, two major actors are being considered: firstly, the organization itself, along with its own internal activities; secondly, the customer, who is given the opportunity to check the progress during the entire project lifecycle.

### 3.7. Collaboration support tools

iPortal also contains a suite of collaboration support tools in the form of portlets. Among these the most important are Mail, Calendar and Skype.

#### 3.7.1. Mail

This is a small portlet that displays a short preview of you're e-mail inbox. The user can open his/hers mailbox from this portlet and also start composing a new mail.

#### 3.7.2. Calendar

This is a portlet that display a summary of the events in from the user's personal calendar.

#### 3.7.3. Skype portlet

Is a web-based Skype "clone" which provides features such as: skype-to-skype calls, conferences, user profile, user status on the web (if this is made public).

## 4. CONCLUSIONS AND INTENTIONS

Summarizing, the paper illustrates the following main ideas, architectures and functionalities:

- informing the management about the SMEs business and economic processes and also about it's interaction with the external environment
- tracking the SMEs performances and outlining aspects that hide potential problems or crisis situations
- iPortal it is a virtual location with a dashboard-like interface integrating all m-Business modules and therefore offering the user a central information point
- iPortal is made up different components (Project Repository, Wiki, iDSS, etc) which

actually support all the above mentioned functionalities of m-Business

- being integrated with iSecurity, iPortal also provides highly secure environment so confidentiality and privacy can be maintained

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