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IMPLEMENTING A WEB DESIGN PROJECT MANAGEMENT SOFTWARE IN A COMPANY

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Abstract: Project management is the planning, organization, monitoring and control of all aspects of a project and the motivation of all involved to achieve the project objectives safely and within agreed time, cost and performance criteria. We made a few years ago a managerial research in 9 Romanian coal company and it reveals a lack of corelations. All the studied company have the same problem, they have to optimize the activities, the resources in the shortest time. We have designed a software in a web manner, were the customer software consists only in installing the given operating system, gifted with web-browser.

1. WHAT DOES IT MEAN PROJECT MANAGEMENT FOR A COMPANY

Unlike repetitive business processes or ongoing operations, projects are defined as work that happens one time only. Each project produces some unique outcome and has both a clear beginning and an end. We will bring forward three project management functions and their related activities and outputs.

- Project Definition. The main activities are: to determine the purpose, goals, scope, outcomes, and constraints of the project; to identify stakeholders, their contribution and needs; to establish basic project management controls. The outputs are: business case; charter; statement of work; responsibility matrix; communication plan.
- Project Planning. The activities are: to estimate resource requirements; to make detailed scheduling; to create risk profiles; to develop procedures for risk and change management; to build the project team, and the outputs are: task list; network diagram, schedule; budget; resource plan; risk profiles, risk log, risk management plan; change request form; change management plan; cost-estimating worksheet.
- Project Control. The activities are: to lead the project team; to measure progress; to monitor the project for new risks; to take corrective action; to communicate progress; to close out the project, and the outputs are: status reports for different audiences; cost-tracking guidelines; cost and schedule tracking charts; issues log; change request log; changes to scope, deliverables, responsibilities, communication plan, project deliverables; final evaluation close-out report.

Also a project has four phases.

- **Initiation.** Business case analysis, project charter, and project strategic alignment is completed by the upper management or sponsor, the broad direction for the project is provided to the project leader by the sponsor, the objectives are: limits, project priorities, and constraints, and outputs are: Business Case and Project Charter.
- **Planning.** Define project stakeholders, select the team members, define the scope of the project
- Plan phases and milestones of the project, define any risks associated with the project and develop ways to prevent them, determine the resources required to complete the project and the output is the Project Plan.
- **Execution Phase.** Create the deliverables, monitor project progress, resolve issues, communicate progress, manage changes to the plan, and the outputs are: Status Reports; Final Deliverable(s).

➢ **Close-Out Phase.** Evaluation of customer satisfaction, assessment of lessons learned and output the Close-Out Report.

The main Project Management Key Documents and Forms are:

	Sponsor	Customer	Project Manager	Functional Management	Project Team Members
Business Case	W	S/G	G	G	G
Project Charter	W	G	G (often W de facto)	A	G
Statement of Work	R/A	G	W	A	G
Project Plan	A		W	A	G
Responsibility Matrix	S		W	A	G
Communication Plan	A		W	A	G

Figure1. Project Management Key Documents

Business case analysis examines the business dynamics of the proposed project and demonstrates its contribution to the overall organizational strategy and business results. Critical project selection criteria include strategic fit, competitive advantage, and potential return on investment.

Project Charter shows the overall direction, expectations and constraints that are use by the team when they plan the project. It contains the name and purpose of the project, the project manager's name, and a statement of support from the sponsor.

The Statement of Work contains: **Purpose Statement, Scope Statement** – puts some boundaries on the project; specifies what is within and beyond the project's scope; names major activities clearly enough to define what the project will and won't do; lists major activities that are critical to success of the project, but beyond the scope of the project; defines a project place in a larger scenario, **Deliverables** – tells the stakeholders, especially the project team, what the project is supposed to produce; lists both intermediate and end deliverables; references product descriptions, **Cost and Schedule Estimates** - explains budget and deadline; not deliverables, **Constraints, Success criteria**, **Chain of command** or management guidelines, **Assumptions, The Project Plan** with its sections has to define any risks associated with the project and develop ways to prevent them and determine the resources required to complete the project. It is made by the following documents.

Section	**Document or Form**
Initiation	Business Case BS
	Charter
Team	Responsibility Matrix
Scope	Scope Statement
	Customer Acceptance Criteria
	Stakeholder Form
Organization	Subproject Tree
Risk	Risk Form
Resources	Milestone Schedule
	Outcomes Schedule
	Spending Estimate
Change Management	Change-Management Process

Figure2. The Project Plan

The Responsibility Matrix is an agreement developed and agreed to by the team that describes how the team members fit in the system as a whole, the roles of the team members and the guidelines that they will follow as they work together as a team.

A project communication plan is the written strategy for getting the right information to the right project stakeholders at the right time. Each stakeholder has different requirements for information as they participate in the project in different ways.

Knowing all these concepts and specific documents for PM we can start the designing of an own software for this kind of Enterprise Resource Planning (ERP).

2. DESIGNING AN OPEN SOURCE WEB SOFTWARE FOR PROJECT MANAGEMENT

In this ERP field named Project Management (PM) we have an outstanding software named Microsoft Project. MS Project cover all aspects of a Project Management application, however all main features required to create and report status of a project are described in detail, including; how to create a project plan; setting up the software; defining calendars; adding and organizing tasks; formatting the display; adding logic and constraints; using tables, views and filters; printing reports; recording and tracking progress; creating and assigning resources; task types including effort driven tasks; understanding the different techniques for scheduling.

Planning and scheduling with a PM software include four levels of complexity;
Level 1 - planning without resources
Level 2 - tracking progress without resources
Level 3 - planning with resources
Level 4 - tracking progress with resources

But in opposite my own Project Management Software drives the workflow of an entire project. It is a reliable, scalable and secure solution for projects ranging from a single user to a large corporation. The system manages tasks and assignments, schedules events, encourages work breakdown and delegation and improves the accuracy of time estimation. Changes are tracked through history and the current status of the project is revealed through a vast number of reports. My own Project Management brings the customer closer to the project and makes communication between project members efficient. Templates can be used for repeating common workflows and give the ability to create a customized way of working in the project.

In this software case, the customer soft can often be organized from the server side and can consists only in installing the given operating system, gifted with web-browser. All the needed software component parts are in the “open source” category.

- **The Apache Web Server** – it is a web server (its name comes from “a patchy”- a little bit from www soft development), that uses the specification CGI (Common Gateway Interface) that is a communication specification between the server (such as program that generate dynamic documents) and the server itself. This server allow that the CGI program output to be inserted in HTML existent pages, thru directions written direct on the HTML page.
- **Data Base Firebird Server** in the same time with the development of the Internet Network and its employment in accessing the data-base, the applications in this area use exclusive the architecture customer-server. Firebird is a server application (for data base) able to carry out a great number of SQL commands. It is sharable and can be install on the PC working under different operating systems (Windows, Linux, Unix, ...).
- **The PHP language** – Coding in HTML and the ones used in the C CGI scripts, can offer the required support for every Web site. In the mean time with the Internet extension appeared some specialized languages that can contribute to achieve additional functions on a Web page displaying by a browser or that allows to achieve easier the CGI scripts. Name PHP (meaning Personal Home Page) explains its functionality- writing the Web-pages. Being known even as “Hypertext Preprocessor”, it is a scripting language (directly

performing), includes the HTML language and rolls up on the server. The language syntax is borrowed from C++, Java and Pearl and allows the writing of the Web pages in real time (fast and dynamic).

This application is structured on two levels. The first one (the data base level) consists of a data base called “Project (TestDB)”. The second one (the applications) consists of PHP programs written around the script index.php.

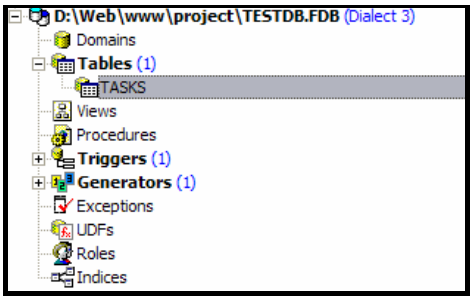

Figure3. The “Project” data base

SQL Assistant | Dynamic Help

D:\Web\www\project\TESTDB.FDB\Tables\TASKS

#	Key	FK	Fields	Type	Domain
1			ID	INTEGER	RDB$882
2			NAME	VARCHAR(20)	RDB$883
3			DURATION	INTEGER	RDB$884
4			ID_PREVIOUS	INTEGER	RDB$885
5			START_DATE	DATE	RDB$886
6			COLOR	VARCHAR(20)	RDB$887
7			PREVIOUS_LATE	INTEGER	RDB$888

Figure4. Database Firebird 1.5 with its Task table

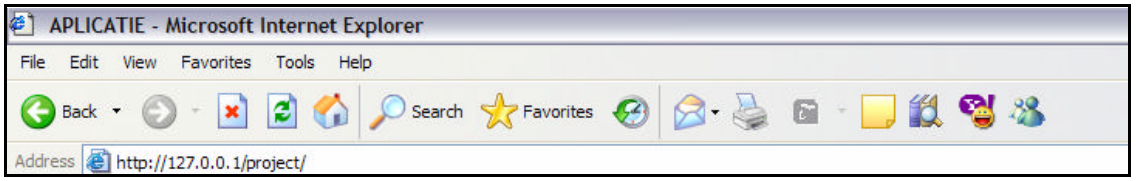

Figure5. StartUp Application

Project Management

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Nr.crt.	Task Nume	Duration	Stat	Previous Task	Diff. Prev. Task	Color
1	Activitate 1	6	04/01/2007		0	
2	Activitate 2	3		Activitate 1	0	
3	Activitate 3	8	04/09/2007		0	
4	Activitate 4	5		Activitate 2	3	
5	Activitate 5	6	04/19/2007		0	

Figure6. Task List Interface

Begin of the project: 04/01/2007
End of the project: 05/01/2007
Duration of the project: 31 days

Task	Start	End	Days
Activitate 1	04/01/2007	04/09/2007	6
Activitate 2	04/10/2007	04/12/2007	3
Activitate 3	04/09/2007	04/18/2007	8
Activitate 4	04/18/2007	04/24/2007	5
Activitate 5	04/19/2007	04/26/2007	6
Activitate 6	04/25/2007	05/01/2007	5

S M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T

Figure7. Graphical Gantt Interface

3. IMPLEMENTING A PROJECT MANAGEMENT SOFTWARE IN A COMPANY

We have decided to implement this software in a Romania coal company because this sector has major problems. We made a few years ago a managerial research concernning the hardware, software and IT personell qualification that reveals a lack of corelations.

We have studied 9 companies having 40 firms and 46.700 employees.

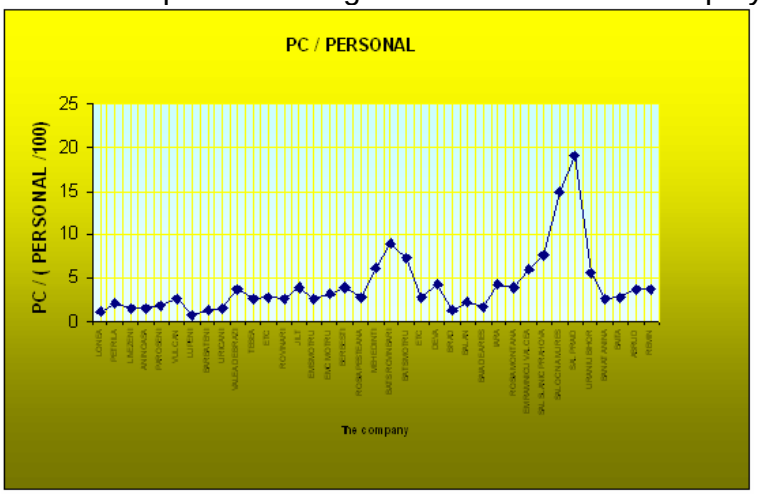

Figure8. Corelation betwen the number of computers and the number of emplyees

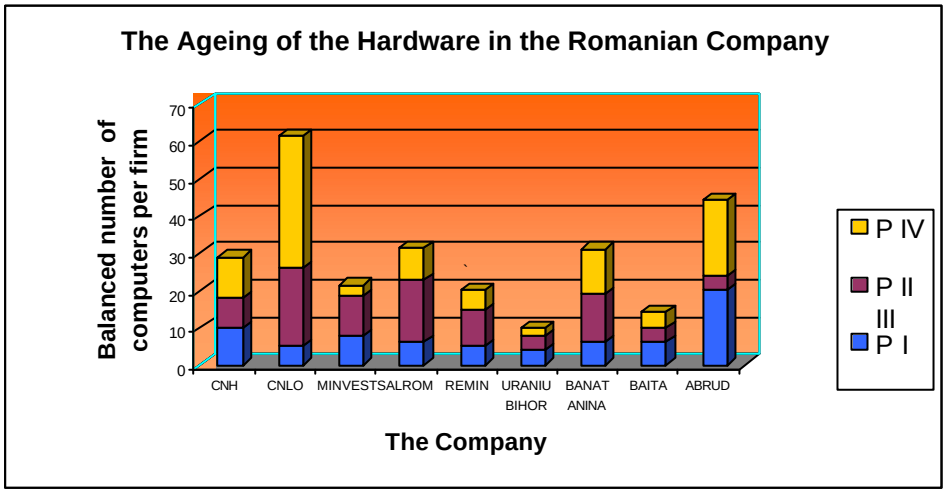

Figure9. The ageing of the hardware in Romanian company

We have in mind the Romanian energy production and consumption. So, in 2005, the final internal Romania electricity consumption was 50,328 GWh and 56.7% of electricity was produced from fossil fuels (coal, oil and gas) at high production costs. An amount of 29% of the national electricity production was produced in the hydro power plants, while electricity produced in Unit 1 of the Cernavoda nuclear plant accounts for 9.3%.

The gross internal consumption of primary energy was 41.4 million toe 16 in 2005, out of which 66% was covered by domestic production (which was about 28 million toe), while the remaining 34% was covered by imports. Taking into account the dependency of imported primary energy resources that will reach around 50% of total primary energy consumption by 2015, according to estimations, and the expected yearly increase in energy consumption of about 3%, the following lines of action are essential: refurbishment/upgrading/rehabilitation of existing production capacities based on fossil fuels and hydro energy resources leading to reduction of energy intensity and also a better

capitalization of renewable energy resources. Most of the energy production capacities in Romania are outdated - they have run for over 30 years. Only 10% of the installed capacity in thermo-power plants has been upgraded / refurbished in the last years.

The upgrading of the existing production capacities does not take place at a sufficient pace and is very costly. The relatively low performance of energy production capacities leads to a lower energy efficiency in Romania, compared to EU member states. In 2005, the primary energy intensity in Romania was 0.511 toe/10 3 Euro 2005 and the final energy intensity was 0.358 toe/10 3 Euro, 2005 (the latter was 3 times higher in Romania compared to the EU 25 average which was 0.109 toe/10 3 Euro 2005).

All the studied company have the same problem, they have to optimize the activities, the resources in the shortest time.

4. CONCLUDING REMARKS

For running this designed application, the Firebird database servers will be installed on the PC servers and the Apache server applications also, and on the customer PC will be installed the Internet Explorer browser. For an accurate installation, even if the server is the same with the customer workstation, will be installed the soft package which contains the Apache-Firebird-PHP triad.

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