

## E-commerce Project Management

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*In the first part of this paper is established the role of eCommerce project management in company life. Also are highlighted the dependences and the differences between eBusiness and eCommerce projects and implicit the management of those projects. There are presented the major area of knowledge management where a eCommerce project manager should activate, eCommerce architectures and tools to achieve the best solution for such kind of projects.*

**Keywords:** *eCommerce models, project management, ePayment, eBusiness, dual signature, SET payment scheme.*

### Introduction

The term eBusiness and eCommerce have many definition in IT fields. One of them is that the **eBusiness** is the integration of a company's business including products, procedures, and services over the Internet [ANIT00]. Usually and in practice a company turns its business into an eBusiness when it integrates the marketing, sales, accounting, manufacturing, and operations with web site activities. An eBusiness uses the Internet as a resource for all business activities.

This paper concern **eCommerce**. We can understand **eCommerce** as a component, a part of an **eBusiness**.

The term of Electronic commerce or "eCommerce" is related with a wide variety of on-line business activities for products and services, of different type business-to-business – B2B and business-to-consumer – B2C, through the Internet or even through IntraNets – private networks, including mobile ones.

After the opinion of different specialist, eCommerce is divided in two components:

- *Online Shopping* - the activities that provide to the customer or to the business partner the information about products or services traded. This information help them to be informed and to take the proper decision regarding the buying process.
- *Online Purchasing* - "ePayment" - the activities through a customer or a company actually purchase a product or a service over the Internet or private networks. Also another

type of using for Online purchasing is described in [Anne00] like "a metaphor used in business-to-business eCommerce for providing customers with an online method of placing an order, submitting a purchase order, or requesting a quote".

E-Commerce project management means more than a simple project management because we are talking about particular features or characteristics of eCommerce activity. The CEO – Chief Executive Officer and staff are concerned not only about eCommerce activities but also about the integration of eCommerce projects and their management with all the important departments and activities from a company.

### The role of eCommerce projects management in company life

The companies and corporations that are involved in "normal" Businesses to Business – B2B and Business to Client – B2C activities become eBusinesses when the organization succeed to integrate standard activities with their electronic information system. This electronic information system could be an outsourcing solution for web and mobile sites or portals or an "in house" developed system. For example, someone who work in sales department could consider the web and wap – wireless application protocol – site a sales tool. When he or she speaks with a customer, shows to the customer the product and service presentations on company's web or even wap site, goes with the customer in virtual

tours of the newest products and services. The Marketing Department releases products and services on the web and wap site first, providing eLearning courses, online presentations and brochures. Another department like Customer Support host FAQ – Frequently Asked Questions, support chat lines, and moderate newsgroups on the web site. Purchasing uses the web to obtain prices on necessary components and place orders, and Shipping uses the web to schedule deliveries and notify customers of product arrival. So if a company “is making” in eBusiness way, then for each department the web site, wap site and electronic information distributed open systems are important tools they can use to be “number 1” in business. E-Commerce in the previous case have an important role in sales and accounting department but is bound with all departments concerning the input/output information that can provide. The customer or the company’s client use eCommerce “channel” for achieve services and products, faster, more secure and with less costs than before.

Also, someone who is involved in *eCommerce Project Management* have to take care of and to be connected with following fields-departments: package selection, business intelligence, knowledge management, customer relationship management, project portfolio management, services-application-solutions development and research, process improvement, audit management and human resources management; especially if this tasks are in a big enterprise environment.

*Package selection* – some software companies have already focused on several real business problems. They created some remarkably solutions in markets like Supply Chain Management (SCM), Customer Relationship Management (CRM), Enterprise Resource Planning (ERP), E-Procurement, e-Commerce and m-Commerce – mobile commerce. It is difficult to choose and select the proper software/hardware solutions from the given number of vendor and choices. *The challenge* for a company is to select the vendor and package solution from hundreds of products, philosophies and solutions in order

to make the right choice when implement them. *The solution* is designed to provide to the company the resources on how to confront with the challenges – processes and methodologies, tools – templates and software/hardware, and an opportunity to learn from what others have done – articles, books and discussions [PACK04].

*Business Intelligence* – means the procedures and techniques used in order to achieve information about company’s customers, competitors and internal business processes. Now many companies are in transition between traditional business models towards eBusiness models, and they are forced to interact with customers and competitors in digital competitiveness. By using business intelligence, organizations can analyze client and customer trends, evaluates the effectiveness of internal processes and study competitor patterns. To enable effective business intelligence practices, organizations need to use a wide variety of tools and techniques and integrate those with existing business processes [BUSI04].

*Knowledge Management* – is the ability of company’s staff and employees to search and find out in their company’s electronically stored documents the information which they need. Technologies used for Knowledge Management include: Search engines – with artificial intelligence features, Databases – relational or object oriented ones, Meta tags like XML, Classifications – maybe using neuronal networks [KNOW04].

*Customer Relationship Management* – this is the interactive and knowledge based age, where success of the company, could depend on its ability to learn how to treat each customer as an important individual.

*Project portfolio management* – this one have a great impact over the C-level –CEO, CIO, CTO – decision maker. Important thing here is how managers can analyze projects both on an individual and in an aggregate manner, metrics and corporate strategy. Also important is to know how to use tools and technologies to choose the best project for improving company skills and competitiveness even if that project don’t make so much

profit for company.

*Services-application-solutions development and research* – this is about how to provide software and hardware solutions in time into the market. It means the company have to handle with Time to Market (TTM) problem. Nevertheless, managers' answer to the problem is usually to shorten the development schedule and place even more pressure on developers. But this is not the proper approach on TTM problem. This department must explain strategies and technologies that will help department manager to optimize TTM. The managers involved in this field have to find out best practices that will help them to meet challenging schedules, and technologies such as Web services and distributed systems that enable software on computers and mobile devices to connect and interoperate with each other across platforms, programming languages and applications [SOFT04].

*Process improvement* – stakeholders are concerned about the company rank in the market and about the amount of profit that can be done by company. If it is done correctly, it can align the organization's operations with its strategic objectives. Process Improvement have the scope and the goal to improve products and services all the time in order to achieve desired outcomes.

*Audit and evaluation risk management* – this kind of management is used to approximate and establish the economic and social implications of the company decisions in the future, based on observations done during the examinations on business activities.

*Human resource management* – that means people-management. The people that are in this field have to take care how they hire the best human people for the company interests in order to get commitment without any problems from production teams, stakeholders and upper management when is working in a project. An important thing is to avoid conflict and project obstacles by discovering and working with company's personality.

So, even if the *eCommerce* is part of *eBusiness* now we can see how many implications

have *eCommerce* projects in company life and of course how important is to have the best management for such kind of projects.

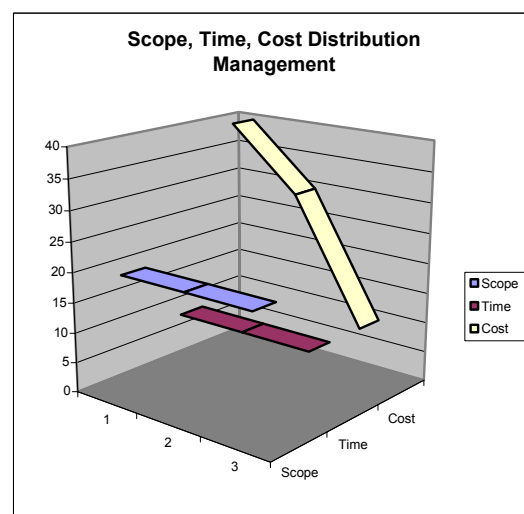
### The dimensions of management in eCommerce projects

Even in our days many IT projects and of course many *eCommerce* projects are not successful. Also can be observed that the need for IT and *eCommerce* projects is increasing all the time. Any project is a temporary effort undertaken in order to accomplish a unique purpose. The management goal is to distributed resources during the time in order to accomplish this task. Some specialists consider that a project have to have following attributes: have unique purpose, is temporary, require resources often from different fields, should have a primary sponsor and/or customer, involve uncertainty.

In real life every *eCommerce* project, even every project, is restricted in different ways by its:

- Scope objectives
- Time objectives
- Cost objectives
- Quality objectives – client satisfaction

It is the project manager's duty to balance these three often competing goals. The idea of this constrains is depicted in figure 1:



**Fig.1.** The Triple Constraint of Project Management.

Project management is “the application of

knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project” [PMBK96]. So now we have the idea what means at least conceptual a eCommerce Project Management. The framework of eCommerce project management contains briefly the following knowledge areas: **Scope Management, Time Management, Cost Management, Quality Management, Human Resources Management, Communication Management, Risk Management, Procurement Management**. Those knowledge management areas are bound through **Project Integration Management** using appropriate tools and techniques. The project managers of such projects have to use different tools like: Project Charter and Work Breakdown Structure for Scope Management; Gantt charts, PERT charts, critical path analysis for Time Management; Cost estimates and Earned Value Analysis for Cost Management. Another important thing in eCommerce project management is that the stakeholders – people involved in or affected by project activities – to know all the time the state of project. Sometimes eCommerce project manage could be tougher than every project management or general management. A project manager must have experience an knowledge in general project management, general management and in application area of project, usually have to know very good eCommerce models patterns and the technologies within can develop the model. Of course the last thing but not the least is that a project manager have to obey to project management code of ethics developed by Project Management Institute. So any eCommerce Project that is developed with adequate have many benefits: improved communication among participants, mechanisms for performance measurements, identification of problems areas, clarification of project goals, clear understanding of project scope, quantification of project risk.

All knowledge area have to be passed through all phases: Concept, Development, Implementation and Close-Out. Also this phases are a common project’s life cycle.

Many new project managers have trouble looking at the “big picture” and want to focus on too many details. In each knowledge area the Project Plan Development is important because it must taking the results of other planning processes and putting them into a consistent, coherent document named **the project plan**. Project Plan Execution must carrying out the project plan and Overall Change Control must coordinating changes across the entire project.

eCommerce Project Plan is a document used to coordinate all project planning documents. The main scope of this plan is to guide project execution. eCommerce **Project Management Plan Manual** assist the project manager in leading the project team and assessing project status. Those activities – and project plan – are parts of integration management, the connection between all other knowledge area.

The content of Project Management Plan as a result of Integration Management – essential part – coordinating manual in eCommerce Project Management is highlighted in picture 2.

This are the most important chapter from the main paper of an eCommerce Project. If the implications within knowledge areas are big can be created every project plan for every knowledge area. In this document and in other documents is recommended to be used different management procedures described in this chapter. Also, we strongly recommend to use a software application – Project Management Software that help the manager work. As annexes to this documents or at Scope Management Document it is a common use to attach Stakeholder Analysis Document that contains: A stakeholder analysis documents important (often sensitive) information about stakeholders such as: stakeholders’ names and organizations, roles on the project, unique facts about stakeholders, level of influence and interest in the project, suggestions for managing relationships and a resume of each participant. Another important thing is that if the eCommerce project is made in “outsourcing” or “in house”. If is developed by you for a special

company – even if is “developed in house” is recommended – that in “Technical Chapter” from Project Plan Management to exist links to technical papers like: “User Specifications”, “Design Manual”, “Development Manual” – contains software libraries and packages also class hierarchies description used in eCommerce project, “Acceptance Tests Manual” and “Maintenance Manual”.

**Project Plan Execution** involves managing and performing the work described in the Project Plan Manual. The majority of time and money is usually spent on development and deployment. The application area or the project directly affects project execution because the services offered by the project are produced during execution.

	Chapters	Section Contains
Project Management Plan – Sections	1. Introduction	Overview, evolution of project plan, reference materials, definitions.
	2. Project Organization	Process model, organizational structure, common and standard interfaces, project responsibilities.
	3. Managerial Process	Management objectives and priorities, assumptions, dependencies and constrains, risk management, monitoring and controlling procedure. Also here is depict the links between other management documents from different knowledge area: Scope, Time, Cost, Quality, etc.
	4. Technical Process	General technical framework, B2C and B2B features, eCommerce model adopted highlighted in 2 different position “online shopping” and “online purchasing – ePayment”, methods, tools and techniques, documentation and project support functions and link to technical papers that contains the software development cycle described eventually in UML – Unified Modeling Language.
	5. Schedule and Budget	Dependences and resource requirements, budget and resource allocation and schedule.

**Fig.2.** Content of project plan management.

**Overall change control** involves identifying, evaluating, and managing changes through the project life cycle. Three main objectives of change control: influence the factors that create changes to ensure they are beneficial, determine that a change has occurred and manage actual changes when they occur.

Of course, the management process depends of technological constraints and by the experience and knowledge of the project manager. A project manager have to create as many projects as it is possible and to pay interest at all knowledge area managements. This help him or her to collect funds and support because have very solid financial arguments highlighted in Scope Management

through financial analysis methods: NPV – Net Present Value Analysis, ROI – Return of Investments analysis and Payback analysis.

**eCommerce architectures and security features**

Before taking in account eCommerce models and implicitly ePayments, models is better to have a general view about eCommerce architectures on level of beginning of the year 2004:

- **Conceptual Frameworks:** REA Meta model, UMM;
- **General Frameworks:** Biztalk Framework, Building Blocks, ebXML Technical Architecture, FIPA, eCo Framework Specifi-

cation, IMPRIMATUR Business Model, STEP, Java EC Framework, J2EE Framework, MPEG-21, OMG eCommerce Domain Specifications, Open-edi Reference Model (ISO 14662), SPIRIT, TOGAF;

- **Trading Models:** Ad Hoc Functional and Process Models, Global Commerce Initiative & Protocol, cXL, Internet Open Trading Protocol (IOTP), Open Applications Group Integration Specification, Open Buying on the Internet (OBI), OBI Express, RosettaNet, Secure Electronic Market Place for Europe (SEMPER);

- **Payment models:**

- **Macro-payment electronic schemes:**

- 3D Secure – VISA last technology – credit card based solution;

- SET – Secure Electronic Transaction – Mastercard/VISA credit card based solution;

- iKP – IBM, credit based solution;

- CyberCash – CyberCash Inc., credit based solution;

- DigiCash – DigiCash Inc., eCash – cash solution;

- NetBill – CMU, e-payment transfer over Internet – direct fund transfer;

- FSTC E-check – Financial Services Technology Consortium, eCheque – cheque solution;

- Other – *credit card, cash, cheque, direct fund transfers* schemes.

- **Micro-payment electronic schemes:**

- Millicent – DEC-Digital Equipment Corporation, eCash;

- PayWord – Rivest and Shamir, eCash;

- MicroMint – Rivest and Shamir, eCash;

- NetCard – Anderson 1995, eCash;

- NetBill – CMU, e-payment transfer over Internet;

- **Mobile commerce models:** OMA – MeT.

There is no software product in our days which dominate the market. A thing common in practice is to analyze which model or framework will be choose. Any eCommerce project/solution have o provide at least to parts: “online shopping” and “online purchasing”. So if for “online shopping” is enough to have a good organized web application or portal solution, for “online purchas-

ing” – ePayment is more complicated. Usually if eCommerce solutions are forced to work with banks they have to include credit card schemes of macro-payment models. So this are constrains so the manager is faced with serious problems because he can not choose the proper technological solution for his problem.

All eCommerce architectures have particular frameworks and provide different secure technology to get a safe ePayment process. The most important part regarding the security and reliability of an eCommerce solution. That’s why a project manager involved in eCommerce Project Management must have solid knowledge about eCommerce architectures and technologies. That means he or she is connected with computer science field and comprehension very well the facts from eCommerce world. If he or she understands eBusiness world in an adequate manner this is an advantage.

For example if a constrains came in his eCommerce solution that is saying that for ePayment module have to use SET payment scheme because the bank or card processor company accept only this scheme, during the project management have to be recalculated all estimation regarding the time, cost, risk and quality.

The project management is responsible for the choose solution and have to take in account the characteristics of ePayment schemes:

- System security – ability to protect against various forms of fraud e.g., repudiation and authentication in payment process;

- Transaction cost – the big expenses needed to process the payment;

- Traceability of payment – ability to find out who has involved in the payment;

- Acceptability – whether the payment can be accepted in different environment e.g., not only by the issuer;

- Transferability – the ability to transfer payment without the need of a third party e.g., a bank;

- Divisibility – the ability to divide a value V to an arbitrary number of smaller values - “banknotes” with a total value of V.

Now is obvious that a project manager have the responsibility to delegate the most qualified people to advice him about adopted solution and to realize that a better knowledge's in eCommerce and management fields ensure him or her the success or failure of an eCommerce project management.

### Conclusions

A good project management of eCommerce solutions. All the time the team leader and project manager have to realize that is better to use as much as is possible standard technologies and solutions. There are special requirements about communications, knowledge background and flexibility of the project manager in order to ensure a good development environment. In the paper was presented only hints and general ideas, and a person who is involved in management staff should discover the management practice in a special field like eCommerce solutions.

It is recommended that in project management activities the project managers, team leaders, general and department managers and C-staff to use professional specialized tools like: Microsoft Project Server 2003, Replicon Web Time Sheet, SmartDraw Management, Change Management System 2.0.1, ConceptDraw Project 1.1, Intellisys Project Desktop 1.22; specialized techniques and technologies in order to make a complete genuine management – containing the most important knowledge management areas: scope, time, cost, quality, human resources, communication, risk, procurement and integration management.

A proper project management of eCommerce solution has many advantages and in this kind of project it is worth to do a high professional project management than an “empirical” development and deployment of such solutions. Some advantages of a proper project management are:

- Good project management provides assurance and reduces risk;
- PM provides the tools and environment to plan, monitor, track, and manage schedules, resources, costs, and quality;

- PM provides a history or metrics base for future planning as well as good documentation;

- Project members learn and grow by working in a cross-functional team environment.

All the time we have to keep in mind that the company staff, customers, and other stakeholders do not like failed projects and the project management in generally is not a simple task, and in particularly – eCommerce field – requires special knowledge and skills.

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