

REQUESTED RECORDS TO SUPPORT MATERIALS MANAGEMENT PROCESS AS PART OF PROJECT MANAGEMENT

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Abstract: *Materials control, procurement, receipt, storage, preservation and issue for construction, commissioning and operations purposes and co-ordination, control and issue of all material related information represent the first step to start the work in the enterprise. This process starts with establishing procurement requirements and concluding with project material and equipment issue. We present in this paper the requested records for material management process in an industrial site based on past first author experience from Quality Surveillance Receiving Inspector position in the Nuclear Power Plant Unit 2 Cernavoda site.*

Key words: *material records, materials management, materials procurement, project management.*

1. INTRODUCTION

An important factor for the enterprises in the products and services development is to know to establish, to translate and to define the customer requirements (Fig. 1) using quality methods, tools and techniques [1]. In the enterprises it is request a quality management system which that demonstrate their capability to supply products in conformity with customer expectations, to planning, to control and to supervise the products execution process for products added value and to provide the human and material resources. The quality represents the products or services characteristics and properties assembly who confer this property to satisfy the explicit and implicit necessity.

It is clear in the new economy context than for thorough success the enterprise must be offers products and services who:

- Satisfy a necessity, a utility or a scope clear define and satisfy customer expectations.
- To be available with a competitive price.
- To conform it the codes, standards and specifications and the laws.
- Price sales bring the profit.

Today, the enterprise trends depend of European Union market, market trends, change necessity, business infrastructure development, economic conditions, technologies, competition in the globalization markets, public expectations.

To improve European products and services competitiveness, European products must evolve into high-added value product and services. According to this, emphasizes are on [2]: continuous innovation in manufacturing processes as well as in products, increase Engineering and Design strengths, enabling technologies, such as innovative materials (smart materials, intelligent and adaptive structures), nanotechnologies, IT&C and mechatronics, and incorporate them into product designs, customized and with short delivery times products – to fulfil and even exceed customer's

expectations, regardless of their geographical location; the business focus will increasingly shift from designing and selling physical products only, to selling a system of products and services (described as 'product/services' or 'extended products') that are jointly capable of fulfilling specific users' demands, and life-cycle orientation, to gain more opportunities for innovation and market development, more and longer-term customer relationships and better feedback from consumers.

2. PROJECT MANAGEMENT

Project Management is a method of organizing and managing resources (data, information, knowledge, skills, tools, techniques, etc.) so that the project is completed within defined destination, quality, time and cost constraints. Generally, projects need to be performed and delivered under certain constraints. Traditionally, these constraints have been listed as destination, time, and quality and cost - see Fig. 1 [3] where each side represents a constraint.

In the enterprise, we can distinguish some basic project components (steps) in the development of a project [3, 4]:

- Start of project study;
- Start project planning;
- Start project execution;
- Basic project design ready;

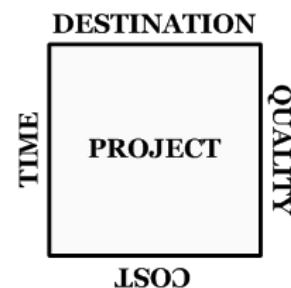


Fig. 1. The project constrains.

- Project introduction;
- Project monitoring and controlling;
- Release project product;
- Project product acceptance;
- Close project;
- Retrospective investigation of project.

Enterprise project management is all that mix of components of control, communications, leadership, and teamwork, resource management, which goes into a successful project basis on complete quality process components.

In all industries branch can be found project managers. Their numbers have grown rapidly as industry and commerce has realized that much of what it does is project work. And as project-based organizations have started to emerge, project management is becoming established as both a professional career path and a way of controlling business. The role of the project manager in project management is one of great responsibility. It's the project manager's job to direct, coordinate and supervise the project from beginning to end. Some important manager roles are the following:

- To define the project and to reduce the project to a set of manageable tasks;
- To obtain appropriate and necessary human and material resources;
- To constitute an interdepartmental team or teams, to perform the project work;
- To ensure than each department provides the specific information and knowledge to representative person from work team project;
- To set the final goal for the project and must motivate his workers to complete the project on time, etc.

Good project management deals with three factors: time, cost and performance. Projects are successful if they are completed on time, within budget, and to performance requirements.

In order to bring the many components of a large project into control there is a large toolkit of techniques, methodologies, and tools. These techniques provide the tools for managing different components involved in a project: planning and scheduling, developing a product, managing financial and capital resources, and monitoring

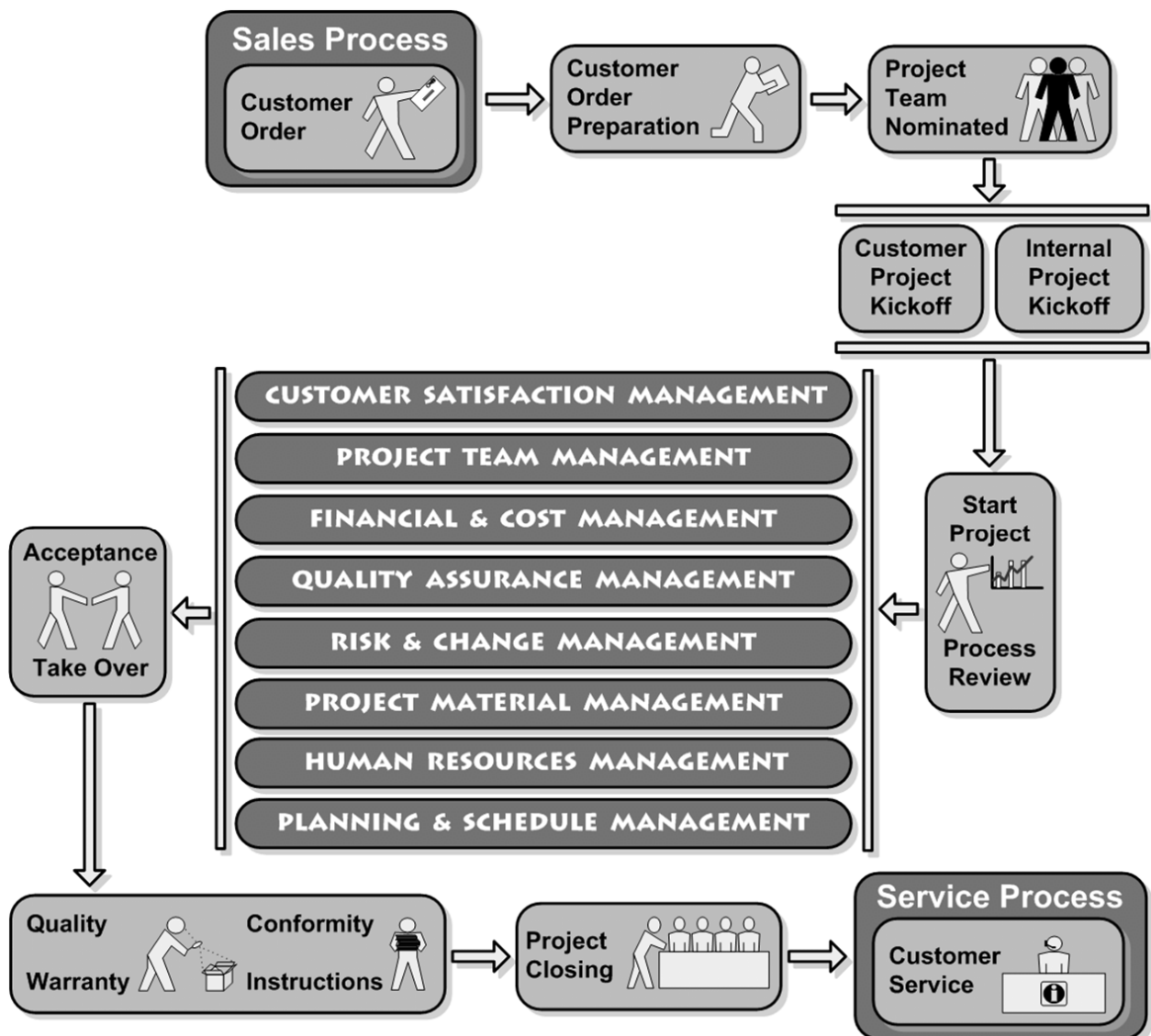


Fig. 2. Project management – process overview.

progress (see Fig. 2 [3]). However the success of a project will always rest on the abilities of a project manager and the team members.

3. ENTERPRISE MATERIAL MANAGEMENT

Material management represent the methodology for the control of material, establishing procurement requirement, monitoring procurement and controlling receipt, storage, preservation and issue of project material and equipment.

The departments (depends of enterprise internal organization and profile) involve in this process (Engineering, Quality Assurance, Manufacturing, Marketing, Procurement, Material Supply, Commercial and Warehouse) is responsible for the following:

- Issuing and updating of Bills of Material;
- Issuing Work Packages, which establish material requirements;
- Recording, coding and compiling materials requirement into the project materials inventory system (e. g. database system);
- Recording all receipt and issues of materials into and from the project warehouse;
- Maintaining all inventory records and administration of the system;
- Verifying procurement requirements against inventory and material issues.

For the beginning, the necessary records can be the next:

- Material Catalogues;
- Project Material Requests;
- Purchase Requisitions;
- Purchase Orders;
- Project Bills of Material.

The records after materials delivery are the following:

- Shipping Documents;
- Materials History Files or History Dockets;
- Material Quality Documents;
- Work Orders;
- Receiving Reports;
- Nonconformity Reports (for materials over, short and damage);
- Material Issue Requests;
- Material Warehouse Location;
- Material Return Forms.

Materials must be stored in warehouse facilities to required storage level by the Warehouse Department conform *warehouse storage procedure*.

Warehouse storage locations of materials are entered and permanent maintained.

Warehouse storage locations of materials are entered and permanent maintained. Also, materials are preserved to necessary preservation requirements, as per *materials preservation procedure* and are issued from the warehouse based on Work Package.

It will be store and maintain Materials History Files and History Dockets and Materials Quality Documents Records as per *receiving, registration and control of quality assurance records procedure*.

Therefore, for the enterprise, which continuous develops projects, a database system to assist the material management process is required. During to materials acquisition process (tendering process) to simplify the process specific activities is better to have a database with competitor's products information (see Fig. 3).

Engineering or other applicants for project requirements create materials purchase requisitions. Material Supply or Commercial Department performed the tendering process (depends of *enterprise tendering procedures*).

If we have a materials database and this database contain all these records it is easy to issue some typical analysis reports such as:

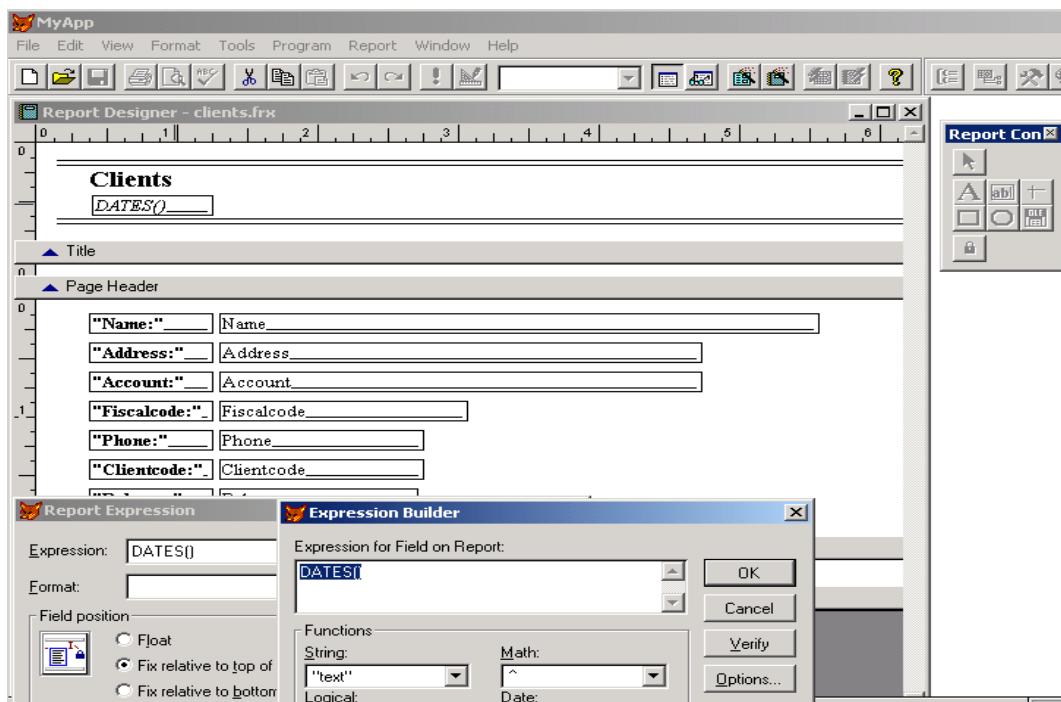


Fig. 3. Database with competitor's information.

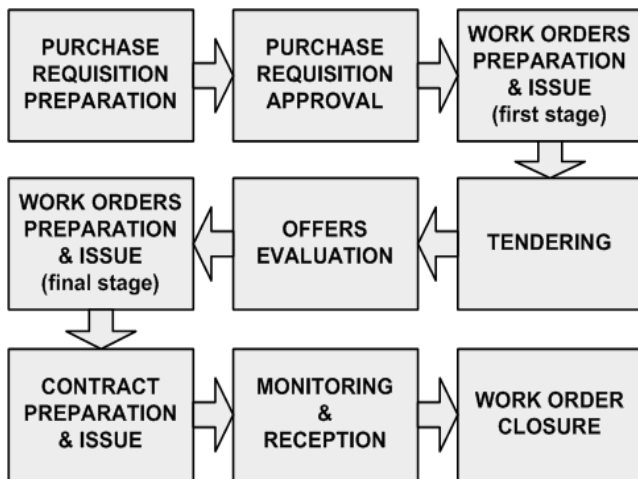


Fig. 4. Materials procurement process flow chart.

- Bills of Materials vs. Purchase Requisition material supply to see if all material from Bills of Materials are included on a Purchase Requisition;
- Purchase Requisition material supply vs. Purchase Orders / Work Orders material supply to see if materials request is the same with procured materials from Purchase Orders;
- Material Request from Work Packages vs. Purchase Orders / Work Orders material supply to see if materials request from Work Orders are the same with material procured materials from Purchase Orders;
- Project Material requirements correspond with project materials demand?
- Material request from Work Packages vs. material request from Bills of Materials demand, etc.

Anyway, an important actor for materials management process at the enterprise level is the Material Supply Department.

If this department have an efficient process flow chart (see Fig. 4) can be the interface with suppliers to support delivery schedule.

4. CONCLUSIONS

Activities improvement is a priority in all enterprise. Companies in a wide range of industries are finding that success in the modern marketplace requires effective competition in global markets with reduced cost and lead-time. Here, we advance a materials management process model

based on requested records as part of project management process. In the last time the enterprises continuous implement IT strategies & architectures to improve manufacture, research, products quality, sales, and service and to control costs. All enterprises have a local area network, an intranet or/and Internet, servers and workstations for operations, administration and management who work together for the same objective: profits. For optimized the material management process it can use these tools and first results will be the time reducing.

REFERENCES

- [1] Roșu, S.M., Drăgoi, G. (2007). *The necessity study – department cooperation's & data bases*, Proceedings of the 4th International Working Conference *Total Quality Management – Advanced and Intelligent Approaches*, May 27th - 29th, Belgrade, Serbia, pp. 117-122, ISBN 86-7083-594-0.
- [2] Majstorović, V.D., Šibalija, T. (2007). *European platform for manufacturing – Manufuture*, in the Proceedings of the 4th International Working Conference *Total Quality Management – Advanced and Intelligent Approaches*, May 27th - 29th, Belgrade, Serbia, pp. 117-122, ISBN 86-7083-594-0, 2007.
- [3] Roșu, S.M., Drăgoi, G., Guran, M., Roșu, L., (2007). *Material management process with database support for virtual project development by virtual teams at the enterprise level*, Proceedings of the 9th International Conference on Management of Innovative Technologies - MIT'2007, October 9th - 10th, pp. 99-106, ISBN 978-961-6536-19-6, Fiesa - Piran, Slovenia.
- [4] Roșu, S.M., Drăghici, A. (2008). *Information system risk estimate as part of project development by virtual teams using expert systems*, Academic Journal of Manufacturing Engineering, Vol. 6, No. 2/2008, pp. 135-142, ISSN 1583-7904.

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