Turbine Industry Scenario Using SAP PS

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ABSTRACT:
In today’s complex environment and competition within industries, the various business processes like Engineer to Order, make to order are difficult to be mapped and tracked throughout the life cycle. Turbine design is an extensive field in mechanical engineering and it finds application in most important fields like rocket propulsion etc… In such scenarios the business process simulation plays a vital role to succeed in dynamic conditions. In this case the scenario is mapped as Engineer to Order business process. An ERP approach using market leader SAP and it is limited to PS (Project System) for the application. In this paper, the discussion is about various steps involved in Turbine industry either manufacturing or purchasing some of the components. This is solely dependent on how the company works with various projects, so it is one method of mapping the business process according to current trends in the industry. Scheduling and structuring which are the core components of PS are discussed in detail throughout this discussion.

Introduction:
One of your company’s main tasks is the production of high-quality and technically complex turbines, which you manufacture on behalf of power plant construction companies, and so on. You purchase some of the turbine components from suppliers, the rest you manufacture yourself. You manage the manufacture of turbines as project business. This allows you to plan and monitor dates, costs, and revenue on a project-basis. Because of your long years of experience in this area, you already have standard project structures, such as project plans, and networks, as well as standard production data, such as task lists, prices, duration, and so on. You can use these templates at the start of a new project, and tailor them to the individual needs of each project.

Methodology adopted:
Solution:

a) Inquiry and Quotation Processing

The aim of inquiry and quotation processing is to quickly hand over a binding quotation that is attractive for the customer and justifiable from a business point of view. An initial specification of the product is created in line with the customer’s requirements in the process.

On receipt, the inquiry is checked for completeness, and any queries are raised to the customer. The inquiry is then checked for its commercial and technical feasibility, and the importance of the customer for the company is evaluated. Taking order probability into consideration and on the basis of the information gained from the checks and evaluations, the company decides whether to create a quotation.

The next step is to process a technical solution. The technical solution is used in costing any manufacturer costs that might arise. Production and replenishment times are used to determine the delivery date. The quotation is completed by fixing the quotation price, which is determined on the basis of the price the company expects the customer will accept, or on estimated competitor prices.

On completion of the quotation phase the quotation itself is created and sent to the customer. Quotation processing ends with either order placement or rejection of the quotation by the customer.

The scenario used here begins with a planning quotation. The quoted technical solution is based on estimated activity and function values, approximate measurements and weights, drawings, and brief descriptions of the main assemblies. The commercial contractual agreements indicate approximate delivery dates and general delivery terms. The quotation is created using a suggested retail price for the overall object, as well as assembly costs, and any services that might arise.

b) Order Entry Processing

The customer has accepted your offer for the turbine project. Now you create a sales order in the system and assign it to the project. When you create the sales order you can use the quotation as a reference. In this case, you receive different order items reflecting the services to be provided. If you create the order without reference, you can create a single item that describes the overall product. During the contractual negotiations, you agreed on terms of payment with the customer. You store a billing plan in the sales order. You delete the billing plan for the WBS element to enable the billing dates to be transferred from the sales order to revenue planning for the project. When the customer accepts the offer, you release your project and confirm the first activities. When you confirm the activities, the customer's down payment automatically becomes due through the milestone linkage. A down payment request to the customer is created. You bill the down payment to the customer. When the customer makes the down payment, you post the incoming payment.
c) **Project Processing**
Once you have received your customer's down payment, you begin processing the project. If the construction department has released the bill of materials (BOM), you assign the components on the BOM for the turbine to the network activities of the project. You explode the turbine assembly BOMs using material requirements planning (MRP). You order some of the turbine components from a vendor, and produce the rest in-house. You confirm each activity, and once a certain milestone has been reached you bill a partial invoice.

d) **Turbine Assembly**
In this process it is presumed that the turbine is assembled in the plant. Delivery to the customer takes place as a whole and is not entered explicitly in the system. After the turbine has been successfully assembled and inspected, the last activities are confirmed and the final invoice is created.

e) **Period-End Closing**
This is possible to interpret only with real time data.

**Conclusion:**
From this paper an overview about how to map an engineer to order scenario using SAP PS was discussed. This helps the top level management to take decisions at right times and change the priorities to optimize their plan. A lot of discussion about integration aspects of Sales and Distribution, Materials management, production planning and finance and controlling was discussed. An important aspect of MRP (Materials requirement planning) which is core of any ERP package is explained. Here, thorough simulation of how to map a business process of turbine industry is discussed.

**References:**
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