

ERP Software Selection Process at a Mid-size Manufacturing Company

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Abstract: Several articles have been written about the selection and the implementation of Enterprise Resource Planning (ERP) systems. However, there is a lack of articles outlining the selection process in detail. In this article, we itemize the selection criteria for a new ERP system at a mid-size manufacturing company. We also list lessons learned from our experience.

Key words: ERP software, mid-size manufacturing, implementation of enterprise, selection process

INTRODUCTION

Laughlin^[1] defines ERP system as software packages that affect everything from order capture to accounting and procurement to warehousing.” Any organization will greatly benefit from a successful implementation of an ERP system. As Jenson and Johnson report, Fujitsu, after a successful 10-month implementation of SAP, was able to reduce its quotation cycle time from 20 days to 2 days, improved its on-time delivery and reduced the financial closing times from 10 to 5 days^[2]. There is no lack of discussion about the benefits of an ERP system, but not enough discussion about the realities of implementation^[3]. Several experts agree that the selection process is as important as other factors such as top management commitment, education, training, etc. ^[1-7].

Several suggestions are reported in the literature on the avoidance of costly mistakes. Cliff recommends that instead of treating the ERP implementation as a large-scale information-technology project, companies should consider it as a new business venture^[4]. Krupp proposes that the business must define the features and characteristics of a system before the selection process^[3]. Travis gives a list of who should be involved in the implementation process in addition to a recommended list of interview questions with software vendors^[7]. Prosser and Cauty compare the request for proposal method (RFP) with Proof of Concept method^[8]. Cameron and Meyer list adequate preparation, planning and project management as critical success factors for the successful implementation of an ERP system^[9]. Jenson and Johnson describe major milestones in the ERP implementation process^[4]. Lebinski insists that vendors of ERP applications should prove that their products work. He also reports the findings of a survey by Decision Drivers Inc. (DDI) concluding the existence of severe deficiencies

in the selection process. Laughlin offers a game plan” for a successful implementation, which includes three key areas: The required processing capacity, integration with legacy applications and data conversion^[1].

All of these articles offer very constructive ideas with regard to the ERP selection process. In particular, we strongly agree with one idea suggested by Glover *et al.*,^[10]

Therefore, in this article, we report, in detail, the experiences of a mid-size manufacturing company in the selection process of an ERP software hoping that other manufacturing companies with similar characteristics and requirements would learn from our struggles.” First, we give some background information about the company. Then, after a description of the selection process and criteria, we report lessons learned from this experience.

COMPANY BACKGROUND

Hoffco Comet Industries’ home office is located in Richmond, Indiana. They are the manufacturer of a diverse selection of products that include small tillers, post hole drills and lawn edgers that are marketed under the name of Hoffco Power Equipment and sold through their own distribution network. Private label outdoor power products are also custom manufactured for several well-known brands.

They also manufacture drive systems for off road recreational vehicles such as utility vehicles, snow mobiles, go karts, mini-bikes, appliance and industrial equipment. These products are supplied to companies such as John Deere, Yamaha, Kawasaki, GE, Amana and many others. Other products include high performance shock absorbers, disc and band type brakes, clutches, differentials, transmissions and cabs for consumer and industrial equipment.

The company has been in business since 1949 and employs 250 people at two manufacturing locations.

Hoffco|Comet had been using an MRPII system since the mid-80s. Because of newer technology and re-licensing that was due in January of 2000, the decision was made by the IS department, accounting and supported by top management to purchase a new ERP system.

The selection process: The following process was used to procure an ERP software system to replace the current MRPII system. This process took about six months from the time the initial team was formed.

The pre-selection process: A decision was made to pursue the purchase of new manufacturing management software.

- A small team was formed including the Director of Materials, the IS manager and the Master Production Scheduler.
- Benchmark visits were made to determine what types of software other manufacturers with similar operations were using.
- Some demonstrations of different types of software were viewed on site.
- Several different software systems were researched as to their type, availability, costs, etc.
- We determined our commitment to continue the pursuit of new software.

The selection process:

- A cross-functional team was assembled and chaired by the Director of Materials. The team consisted of the MIS Manager, the Master Scheduler, a Production Planner, the Director of Purchasing, the Director of Manufacturing and the Controller.
- All departments were surveyed to learn their expectations and perceived needs of the software. (See Selection Criteria.)
- The team attended a two-day software show in Chicago, Illinois. Using the following preliminary criteria, we developed a list of six prospective software products:
 - size and sales of the vendor;
 - their customers;
 - their implementation and training procedures;
 - their recommended hardware platforms.
- The team then reduced the list to three products by majority vote.
- The team involved representatives from the Sales, Purchasing, Engineering, Warehouse/Receiving departments and the shop floor.
- Demonstrations were made using some of our products and bills of materials through simulations.

- More visits were made to companies using the three products on the short list.
- The list was shortened to two and more benchmark visits were made.
- Contract negotiations began with the two software providers.
- The team included the company President in a blind majority vote.
- The final selection was made after confirming the negotiated price, education and delivery details with the vendor.

The Selection Criteria: The following criteria were used to evaluate the prospective software systems. These criteria were determined during meetings with representatives of each department:

Sales and Marketing

- Comprehensive order information readily available
- Detailed part information
 - what is it?
 - What does it go with?
- When is it to be delivered?
- Access orders by due date
- Access past due status of orders easily
- Add and maintain all customer parameters
- Forecast simulation and tracking forecast error
- Access sales history data and customer activity
- Check stock status easily
- Ease of use to outside users
- Tracking customers and their order status
- Generate sales report by
 - sales representatives
 - territory
 - customer
- Warranty reports
- Vendor lists
- Generate inventory reports
 - By division

Master Scheduling:

- Finite scheduling capabilities
- Available to promise capabilities
- Advanced planning and scheduling capabilities
- Way to track forecast error

Production

- Ease of use in gathering, processing and inputting information
- Cross-referenced data on one screen without extensive navigation

Accounting

- Staff working more productively with output and improved accuracy
- Cash position and cash forecasting information easy to determine
- Inventory fully integrated and valuation accurate
- Month end closing in five work days or less
- • modules integrated and only a few manual journal entries necessary
- • financial statements from system in proper format
- • budget information and financial statements
- • reversing journal entries automatic
- Payroll calculation and distribution agreement
- Expedient A/R cash posting
- A/R collections more automated, with letters and statements tied to faxport
- Ease of A/P entry with over-time reduced
- Accurate A/P reporting of sales and use tax
- A/P reporting and printing of 1099s
- Standard cost easy to analyze and understand
- Management daily information automatically updated
- Visual assistance in the annual budget process for expenses and/or sales information

Human Resources

- Master information for each employee
- Automatic tracking of attendance
- Automatic updating of affirmative action information
- Notify when employee due for 120 days, vacation, etc.
- Automatic labor reporting
- Automatic reconciling labor reported hours to WO hours and work center hours

Administration

- Reports generated without aid of reformatting
- Daily summary reports reviewed on screen.

Purchasing

- System for MRO items
- System for quotes to be organized and communicated
- Affectivity dates
- Purchase order, vendor and part number history retention
- Prompt information on new parts
- Part number integration
- Concise and explicit reports
- Viewing invoice status

Manufacturing Engineering

- Ability to document internal and external setup times

- Effective dating of BOM and routings
- History of changes

Engineering Design

- New part number issues date and revision date
- ECN package for effectively controlling dates and inventory
- Filter of listing option
- Part/Assembly release process control and tracking
- Paging option to next part number and tracking
- Cost of part or assembly by operation
- Costing of non-issued parts and assemblies
- Eliminate phantoms
- Easy handling of charted drawings/part number correlation and revisions
- Inventory control by part revision level
- Electronic routing of part number issue and release activity
- Multi-route issues and changes
- Outside versus inside types of handling (sub-contract, purchase, make, operation routing)

Manufacturing

- Daily notice of what is sent out and what comes in from subcontractors
- Increased coordination with subcontractors and shipping
- Ability to track the stage of process of the part number
- Capacity versus load to be measured by department and shift
- Inventory to be consumed as used as opposed to backflushing
- Process for hold for disposition (of scrap and quality reasons) to keep inventory accurate in a more timely manner
- Less screens to trace parts in plant
- Identify which material/parts/components are late and flag them and accumulate by reason
- Prioritize warehouse picks

Warehouse/Shipping/Receiving

- Integration of UPS/shipping machine
- Sales narrative on pick list
- Special shipping instructions attached w/customer master
- Blanket orders need to sort with newest pick first
- Freight rates stored in computer system
- Tickets to send items to floor to be printed by computer
- Tracking information on inquiry for sales and others

Quality Assurance

- Establish tractability of product from receiving dock to shipping dock
- Supplier certification program
- Availability of information on continuous improvement events

LESSONS LEARNED

In addition to the above-suggested criteria used for the selection of a new ERP system, we would like to share the following lessons learned from this experience:

- *Caveat emptor*... Watch out for sales representatives that will do or promise anything to make a sale. They may not know the software as well as they appear to. But they can know enough to sell the product to companies/people who are not familiar with the product.
- Find users of the product on your own. Do not rely on the references that you will be provided by the sales representatives. Some software companies pay users to give favorable references to potential customers.
- Insist on enough demonstrations to feel comfortable manipulating the software. Provide the sales representative with your own part numbers, bills of materials, routings, etc. and ask that second and third demonstrations be made using your company's information. Take charge during the demonstrations. Potential customers / users should sit at the keyboard and drive through real life scenarios.
- Be a good customer. Find out all you can about the software, the manufacturer and their partner companies. Software, maintenance, education and implementation are expensive. Once you are in the midst of implementing an ERP system is no time to decide that you made the wrong choice.
- Expect surprises. The things that you learn through happenstance may be your biggest challenges. You cannot ask too many questions or understand too well.
- Budget enough money for education and consulting. Most software providers will want to establish an education account. Money will be deposited and the account debited when training and consulting services are used. The unused balance of this account is refundable.

CONCLUSIONS

In this article, we intended to share our experience in selecting a new ERP system. Several articles have been written about this subject and excellent recommendations can be found in all of them. As a matter of fact, during the selection process, these articles were very helpful. Also, articles on the implementation of a new manufacturing software system were very helpful. They helped managers understand the pain associated with the implementation process and make them aware of the learning curve of new software. Moreover, it also helped the implementation team to stay aware of the impact on all associates as we organized our approach to training and education, keeping the users in mind.

As Robert F. Bennett expressed, we strongly believe in controlling one's destiny by controlling one's selection processes. Similarly, when a manufacturing company decides to use a new ERP system, its needs to excel in the selection process in order to better control its implementation.

Obviously, every manufacturing organization needs to develop its own criteria and devise its own plan of action depending on its resources, its infrastructure and most importantly, its culture. We hope that our experience will help guide reader's journey through the implementation of a new ERP system.

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