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Essential Features of Manufacturing ERP Software

Scott Priestley | June 04, 2010

Introduction

Enterprise Resource Planning (ERP) systems can seem like giant beasts when you realize how integrated they can be with nearly every function in your business. From the Sales and Quoting process through Material Planning, Procurement, Scheduling, Shop Floor Control, Quality Management, Outside Services, Shipping & Logistics, Customer Service, Finance and Human Resource Management, an integrated system can be tied into nearly every function.

This brief will help you understand how the functions link together, help reduce the overwhelm and highlight where you can realize the most value.

Analysis

The Five Building Blocks of an Integrated ERP System: When doing process analysis it's imperative to identify your requirements from beginning to end - from Quote to Cash. However, when looking at the overall components of ERP, its helpful to segment it into the five building blocks - customer relationship management (CRM), manufacturing execution systems (MES), quality management systems (QMS), supply chain management (SCM) and executive information systems (EIS).

Customer Relationship Management: Effective management of the Customer experience certainly begins with Sales, but includes touch points throughout the order cycle. Typical CRM functionality includes:

- Lead/Contact Management
- Sales Process Management
- Quote and Order Entry
- Contract Management
- Order Status
- Shipment Tracking
- Customer Service
- Field Service / Performance Tracking
- Returns/Exchanges/Warranty Service

Manufacturers can improve pre and post-sales processes as well as the entire customer experience by integrating some or all of these functions.

Manufacturing Execution System: This portion of the system enables the manufacturer to reduce material, inventory and labor costs through demand-driven procurement, lean scheduling opportunities and increased real-time visibility throughout the production cycle. Typical processes include:

- Material Planning
- Workcenter Scheduling
- Labor and Material Costing
- Shopfloor Management
- Traceability
- Plant Maintenance

As the core of the Enterprise, an integrated MES can provide real-time visibility and enhance strategic and tactical decision making.

Quality Management System: Many organizations maintain quality standards for compliance with standards such as ISO, QS-9000, TS-16949, AS-9100, etc. But even organizations that are not required to be certified to these rigorous standards benefit greatly from managing quality throughout their organization. Common process integrations include:

- Quality documentation
- Process Management
- Product Data Management
- In-process Inspection
- Vendor Performance Management
- Customer Satisfaction
- Employee Development
- Preventive Maintenance and Gage Calibration
- Audit Management

The overall benefits from such features includes reduced cost of quality, better vendor performance, improvements in process repeatability, production to tighter tolerances, reliable throughput, fewer defects and greater customer satisfaction.

Supply Chain Management: This discipline permeates every function within the organization. Program Management including the research, testing, lifecycle management and product launch teams benefit from integrated systems. SCM

encompasses Electronic Data Interchange (EDI) for automated transactions, logistics and shipping, supplier performance management. SCM is also integrated throughout the sales order, purchasing, shipping/receiving functions and more. Key components:

- EDI
- Logistics
- Vendor Contract Management
- Warehouse Management

Executive Information System: This essential building block includes tools and systems that provide greater visibility and decision-making criteria to the people tasked with daily management of the organization. Common integration points includes:

- Finance
- Business Intelligence (BI)
- Costing
- Human Resource Management

Along with MES, the Executive Information Systems record and report transactions and information that is integral to strategic planning and daily operations. Key components may also include dashboard reporting, employee self-service or executive data systems available via mobile devices such as the Blackberry or iPhone.

Conclusion

Additional considerations include technology requirements, on-premise versus software as a service (SaaS) and total operational costs.

Understanding how these building blocks are linked together should assist you in determining which components add the most value for your organization and how your existing systems may be integrated with new tools and systems to help make your company more efficient, produce better quality products and reduce costs throughout the product and order lifecycle.

Disclosures and References

Scott Priestley is the President and Founder of Lionshare Software, Inc., independent ERP and CRM Selection Consultants. Lionshare Software works with small and mid-market manufacturing and professional services companies to help them evaluate and select ERP and CRM software that best fits their unique needs.

Recommended Reading

- 5 Things SMB Decision-Makers Aren't Getting Right Yet About ERP
- What is ERP in 2010?
- 25 ERP Experts, Blogs, and Influencers to Track in 2010

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