

ADVANCED PLANNING AND SCHEDULING TECHNOLOGY PAPER



ERP/MRP II – Replace or Enhance

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Introduction

Manufacturing companies increasingly are looking to investments in manufacturing software to provide a competitive edge. To get a proper return, understanding underlying technical trends is important. However, it is even more important to understand how well any new manufacturing software solution fits with your company's existing software and overall business strategy. You can then decide to choose the latest evolution of your current software, or to adopt revolutionary new software approaches.

Current Situation

Many larger manufacturing companies have some sort of business system in place that they use to help them manage internal and external affairs. These systems are transactional in nature. Personnel throughout the organization enter data into the system, and the data, over time, becomes a valuable company asset. MIS staff and end users massage the data and generate reports, either on line or in hard copy form, to gain insight and help solve problems.

For quite a while, typical manufacturing oriented business systems were called MRP II systems, or manufacturing-resource-planning systems. More recently, they have become known as ERP systems, or enterprise-resource-planning systems. While their core functionality has not changed in more than thirty years, their breadth has been expanding to involve more of the entire company, or enterprise.

Evolutionary Advances

Advances in computer technology have enabled MRP II\ERP to evolve so that it affects more of the organization and runs more efficiently. ERP/MRP II has moved from running on large, expensive to maintain mainframe computers, to faster, cheaper minicomputers. Wide and local area networks have allowed efficient data flow between computers throughout the company, and among customers, suppliers and vendors. Powerful personnel computers on user desktops have enabled client server technology and allowed end users to interact with ERP/MRP II systems through graphical user interfaces. Improved data base technology and software advances, such as object oriented programming, have given MIS staff and end users alike the ability to manipulate data easily.

Revolutionary Advances

These advances in computer, communication and operating system technology have also fueled the emergence of revolutionary new software technologies. Many of these new systems have been commercially viable for only the past five or so years. Examples of this new technology are warehouse management systems, advanced planning and scheduling systems (APS), transportation planning systems, supply chain management systems, fast MRP simulators, manufacturing execution systems (MES), and forecasting and demand planning systems.

These new systems are different than ERP/MRP II in scope and purpose. Rather than being transaction oriented like ERP/MRP II, they focus on fundamentally changing and radically improving decision-making processes. This enhanced decision-making allows companies to do business in new and innovative ways. Organizations reap the biggest gains in competitiveness through changing business processes, policies and procedures, rather than simply performing existing tasks more efficiently.

This new class of decision support software does not seek to replace ERP/MRP II in its role as the organization's primary data repository. Rather, decision support software seeks to complement ERP/MRP II. In order for the two classes of software to work together properly, software links must be established to supply data from ERP/MRP II to decision support software.

Replace or Enhance

In a perfect world, companies could benefit simultaneously from both improved ERP/MRP II systems and a wide range of new decision support oriented software. In the real world, software budgets are limited, and, even more important the availability of skilled systems implementation staff is constrained. Therefore, organizations need to decide whether to first replace existing business software with a new ERP/MRP II system, or to first integrate new decision support software with the existing business system.

The Case for Replacement

Staff should carefully weigh the decision to replace or enhance existing business software relative to their company's individual circumstances. Usually, actions to replace existing business software with a new ERP/MRP II system are evolutionary.

The company is typically moving to a newer generation of a stable, well-understood technology, and risk is relatively low. Such a move can do much to reduce data processing costs, tie together different organizational areas, and improve communication.

Some newer ERP/MRP II systems may have also incorporated some limited decision support functionality. Most ERP/MRP II systems on the market today will effectively handle the year 2000. Finally, a new ERP/MRP II system will allow a company to get the most out of its MIS resources by putting the latest generation of programming tools at their disposal.

The Case for Enhancement

Incorporating decision support software is revolutionary, and therefore, usually more risky. However, a decision support software system, by its very nature, has far more functionality in its area of concentration than general purpose ERP/MRP II. Focusing appropriate decision support software on the organization's highest leverage problems or opportunities can yield astronomical returns.

Also, while interfaces must be built between existing software and decision support software, often these interfaces are no more involved than those that must be built to transfer data between an old business system and a new ERP/MRP II system. While focused decision support solutions are usually less costly than new ERP/MRP II systems, they have the additional benefit of requiring training only for the users involved. The organization can thus avoid the sometimes staggering costs associated with retraining the entire enterprise in the use of new ERP/MRP II software. Finally, because they allow better and more objective decision making, decision support software also can eliminate areas of contention and also improve communication and teamwork between different organizational departments.

What's best for you?

Should your company invest in the latest evolution of ERP/MRP II, or incorporate revolutionary decision support software into your existing business system? Clearly, the choice depends upon the businesses involved.

Your organization is probably better off with a new ERP/MRP II system if:

- It has geographically far-flung divisions involved in a wide range of different business activities.
- Its existing software has problems handling the year 2000.
- Its MIS costs are out of line.
- It accepts the value of investing in new technology, but cannot identify high leverage business opportunities.

Your organization is probably better off with decision support software if:

- It is tightly focused on a single or few related core businesses.
- It is cost conscious without being risk averse.
- It has specific, well-defined problems or business opportunities that must be solved or exploited for its continued growth and success.

About the Author

Charles J. Murgiano is a principal with Waterloo Manufacturing Software. He has had more than ten years experience helping clients apply manufacturing decision support software. Mr. Murgiano received his MBA, Masters in Engineering in Operations Research and BS in Mechanical Engineering from Cornell University. Mr. Murgiano is active in the American Production and Inventory Control Society and is certified in production and inventory management by this organization.

More Information

Excerpts from this paper appeared in Manufacturing Engineering. The paper is being provided with compliments from Waterloo Manufacturing Software. For more information about Waterloo Manufacturing Software's advanced finite capacity planning and scheduling system, TACTIC, or Mr. Murgiano's other papers, contact:

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