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Database Management of Manufacturing Work Instructions

For many years now, high-level manufacturing information (Bills of Materials, Routings, Operations, Work Orders, etc.) has been maintained in a relational database format in a variety of MRP/ERP systems. This organization of information allows for management of the information as discrete “objects.” This structure offers several advantages:

- ✘ Information is organized in a structure that easily lends itself to manufacturing –everyone understands the philosophy that a *Subassembly* is made of *Parts* that are assembled in discrete *Operations*.
- ✘ Information managed as objects can easily be reused from part to part; and,
- ✘ Information managed as objects can easily be tracked for revision history at a discrete level.

The modern day versions of these systems often offer end-to-end management of materials and resources through an organization. However most, if not all, stop short of managing the core information that manufacturing organizations need every day on the shop floor to build or assemble their products.

Managing work instructions (WIs) has historically been left to conventional text-editors or desktop publishing software systems. The major difficulty with non-relational / free-form text editors is that they do not have the inherent “structure” to accommodate manufacturing information. It is left to the user to build this structure into the documentation. As a result, authors spend a significant fraction of their time on non-value added tasks, i.e., organization and formatting of information, as opposed to focusing on content and knowledge capture. Also most ERP systems can produce a simple BoM or Routing document that some companies use with their paper shop floor job package. However, these typically do not provide the level of detail on how to perform very complex tasks.

Sequence allows the information common to manufacturing operations to be extended to include the detailed work instructions needed to carry out the manufacturing process in the widely accepted structure found in ERP/MRP systems.

- ✘ Information is once again organized in a structure that easily lends itself to manufacturing –a *Subassembly* is made of *Parts* that are assembled in discrete *Operations* by carrying out a series of specific *Work Instructions* that contain both a *Text* and *Media* component.

By again storing this information as discrete objects in a relational database model, information can be reused, controlled and disseminated in a very structured fashion.

