**Manufacturing process management (MPM)**

Manufacturing process management (MPM) is the discipline of defining how products are manufactured so production processes can be made more efficient and responsive. The MPM process starts with manufacturing engineers evaluating the requirements of the product design and defining the necessary production qualities, including whether partners will be involved.

Manufacturing engineers work closely with design engineers on advanced manufacturing planning, during which time they prepare a preliminary manufacturing bill of materials ([MBOM)](http://searchmanufacturingerp.techtarget.com/definition/bill-of-materials-BoM) that lists the product's components, initiates requests for machine tooling, and produces time and cost estimates. They might also make design-change requests to improve manufacturability.

Next, the manufacturing engineers compare production alternatives to optimize the manufacturing process, examining variables such as specific production lines and work centers within a factory, other factories or outsourcing partners. Simulation software might be used to test the scenarios.

Once finalized, the production plan is documented in a manufacturing process definition in computer-aided design/computer-aided manufacturing ([CAD/CAM](http://whatis.techtarget.com/definition/CAD-CAM-computer-aided-design-computer-aided-manufacturing)) software or a similar tool, and work instructions are prepared for production operators. The process definition is usually sent to enterprise resource planning ([ERP](http://searchsap.techtarget.com/definition/ERP)) and manufacturing execution system ([MES](http://searchmanufacturingerp.techtarget.com/definition/manufacturing-execution-system-MES)) or manufacturing operations management ([MOM](http://searchmanufacturingerp.techtarget.com/definition/manufacturing-operation-management-MOM)) software, which executes and monitors the production process, including outputting printed or electronic work instructions.

**Benefits of MPM**

MPM focuses on *how* to manufacture a product, while product engineering centers on *what* to manufacture. Nevertheless, MPM requires product-design and production people to work closely together. Production, for example, might use the MPM process to provide feedback that leads design engineers to modify a product to improve its manufacturability. Conversely, the product-design department can, for example, take advantage of the flexibility provided by MPM to suggest more frequent design changes or new products knowing that the manufacturing side has the information it needs to accommodate such changes.

Parts of the MPM process are often handled manually in spreadsheets and word-processing documents, but more automation can speed the process and facilitate data sharing and communication.

Benefits of MPM include the following:

* Improved efficiency of engineering and design processes through reuse of standardized products designs and production plans
* Faster production ramp-up through the use of digital simulation and training
* Reduced scrap materials and rework
* Lower costs of product-design changes

MPM software is largely provided by vendors of [product data management](http://searchmanufacturingerp.techtarget.com/definition/Product-data-management-PDM), [product lifecycle management](http://searchmanufacturingerp.techtarget.com/definition/product-lifecycle-management-PLM) and [3D](http://whatis.techtarget.com/definition/3-D-three-dimensions-or-three-dimensional) design software