People managing production process need a new kind of decision support in the business environment which is being changed rapidly. They need new tools for dynamic modelling of enterprise processes to search for answers to the following basic questions: What is to be changed? To be changed into what? How to change it? This paper presents some new trends in the area of simulation of [manufacturing systems](https://www.sciencedirect.com/topics/engineering/gas-fuel-manufacture) and gives some recommendations

Simulation programs are increasingly being used to solve material flow problems. These programs are primarily used for the simulation of production or transport processes. Testing of a new type of control in-process would mean stopping production and testing experiments with uncertain results. To avoid this lengthy and above all expensive way of any change, simulation programs have been used. Simulations of production processes in these programs enable better production planning and examination of bottlenecks in the production process by proposing changes, such as robots, conveyors, or also various logistics controls. The advantage is not only the fact that the production does not have to be interrupted, but also that it is possible to try many different experiments in a simulation process. The article is focused on the analysis of the production process in a selected production enterprise. After the analysis, the Tecnomatix Plant Simulation program was used for the creation of production process simulation. Results and improvements to the production process were proposed from the initial simulation with a focus on practical use.

manufacturing companies are under increasing pressure from customers. Customers have great options in choosing the product they want to buy. They also have increasingly demanding requirements for their selected products. For companies to remain competitive with other companies, they must fully meet the wishes and needs of their customers, which means responding flexibly to modern trends. Rising competition, market globalization, lows costs, available new technology, or changes in living standards, etc., present several variables which have a great impact on manufacturing enterprises today

Some common aspects of manufacturing that simulations can help with include:

* Design and balancing of assembly lines
* Throughput and capacity planning
* Production logistics and material flow – including transportation management and facility relocations or additions
* Management of inventory levels, replenishment rates, batch sizes, production planning, etc.
* Facility layout and resource allocation
* Clarity of work instructions and revision management
* Programming robotics and automation equipment
* Improving build quality and validating alternative raw materials

Including AAS as a standardized file format to for data-exchange between different aspects of manufacturing will not only help in reducing the data redundancy or faulty data but will also improve the efficiency of production and better customization according to