

Success Stories



Production Improvement

Hewlett Packard is a worldwide leader in the development and manufacture of electronic equipment. For more than a decade they have been using simulation to improve their production throughput and process times and increase profits to their bottom line.

► The Challenge

One such project was at the Queensferry Microwave Division (QMD). At QMD simulation has been in use for almost 5 years. Ian Harrison of QMD surveyed the market for simulation products in 1997. His criterion was to find a simulation package that would "significantly contribute to a better understanding of our manufacturing processes and greatly improve our ability to do capacity planning." The package he chose was SIMUL8. They used SIMUL8 to model the assembly and test process within the manufacture of test and measurement products. The inputs for the model for one particular product family needed to be a comprehensive mix of data including cycle times for process stages, machinery failure rates, labor availability, shift patterns and storage capacities.

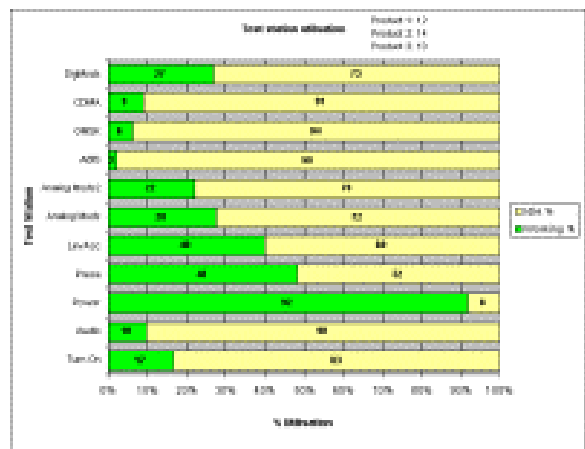
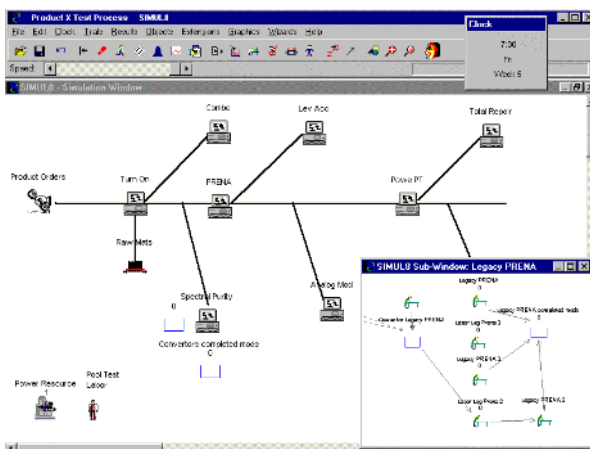
► The Solution

The screenshot below shows a simplified view of the resulting model.

By varying orders and labor availability the simulation was able to help determine the most effective set-up of the production line. According to Ian the model not only met it's objectives but also illustrated "the delays and constraints within the process and presents opportunities to reduce and eliminate non-value adding activities."

SIMUL8 was also able to demonstrate manufacturing techniques such as Goldratt's Theory of Constraints. According to Ian, "Simulation is particularly speedy at highlighting the major constraints within critical processes and thus enabling the model builder to construct the correct event sequence and buffer sizes to keep the major constraint(s) fully utilized."

The chart on the right shows that in one particular set-up the critical constraint was the Power process.





▶ **The Result**

Up to the beginning of 1998 simulation in QMD and other HP divisions tended to reside in a single user or a small number of users within one department. Within QMD Process Engineering, the number of simulation users quadrupled in a 12-month period. This is almost completely due to the fact of SIMUL8's extremely competitive price and its comprehensive, intuitive and easy to use features.

Ian noticed "By dispersing simulation into the rest of the engineering community and first level management, many more processes are analyzed and improved". More users also mean easier training and more innovative applications, as users push back the traditional boundaries to its use. Another major benefit brought by SIMUL8 is that it provides a platform where simulation has become more familiar, and easier to use as a desktop productivity tool. As a training tool, it has become easier to illustrate management fundamentals such as Goldratt's theory of constraints or the need for KANBAN.

This particular project saved HP an estimated \$100,000 annually in opportunity costs as well as other productivity gains.