QUEST®

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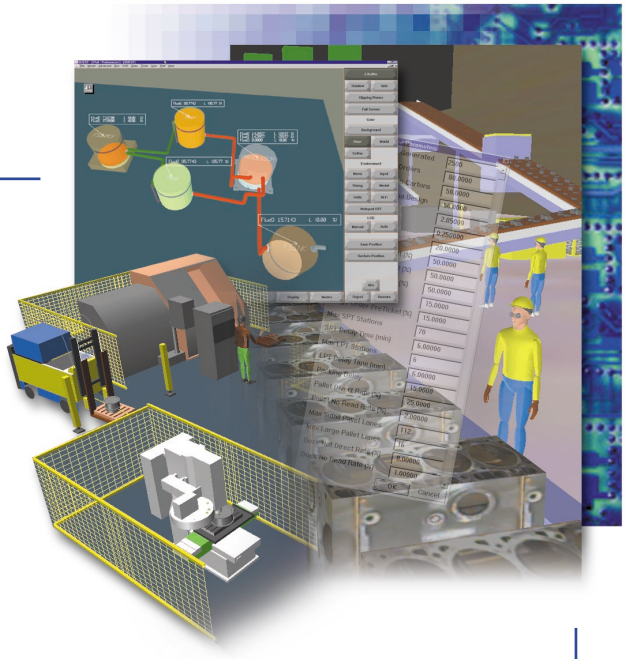


The Systems Integration, Process Flow Design, and Visualization Solution

The Next Level of Integration

QUEST® is a complete 3D digital factory environment for process flow simulation and analysis, accuracy, and profitability.

QUEST provides a single collaborative environment for industrial engineers, manufacturing engineers, and management to develop and prove out best manufacturing flow practices throughout the production design process. Improve designs, reduce risk and cost, and maximize efficiency digitally, before spending money on the actual facility, to get it right the first time. By using QUEST to experiment with parameters such as facility layout, resource allocation, kaizen practices, and alternate scheduling scenarios, integrated product teams can quantify the impact of their decisions on production throughput and cost.

QUEST's flexible, object-based, discrete event simulation environment combined with powerful visualization and robust import/export capabilities makes it the engineering and management solution of choice for process flow simulation and analysis.

Powerful Solutions for Every Discipline

QUEST is a powerful simulation development and analysis tool for validating and visualizing the impact of process flow decisions made for meeting production requirements. Reduce risk by validating affordability measures, and minimizing problems and unplanned costs associated with facility startup. QUEST provides a complete solution, providing the tools necessary for both efficient process flow analysis and effective presentation of results to customers, managers, and other engineering disciplines.

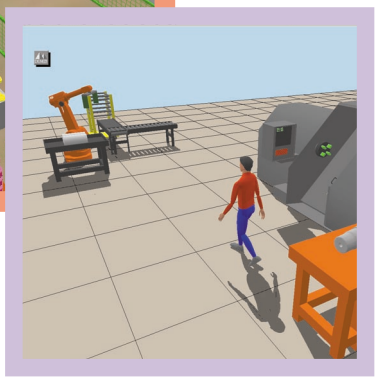
From Concept to Implementation

QUEST allows you to quickly build a simulation model to the level of detail required, adding more detail as necessary to improve accuracy throughout the design process. Conceptualize your processes by populating the model with intelligent objects and pre-built submodels from your libraries. Once your proposal is accepted, carry the same model into the design process by integrating it with existing design tools such as 2D/3D CAD, Microsoft spreadsheet and planning software, and other types of simulation

applications such as ergonomic workplace assessment. Use the QUEST model to document the lessons learned through the systems integration process, quantifying the impact of design decisions.

As your facility springs to life in the digital world, the system's behavior is emulated with real processing times, speeds, staffing levels, schedules, failure rates, and timing. This interactive digital environment allows accelerated "what if" analysis to be explored, for evaluating production scenarios, product mixes, and other alternatives. Results are efficiently communicated back to the product/process team for incorporating the best solutions.

Finally, as the facility is built, use QUEST to author an Express model of your proprietary processes and integrate the simulation using QUEST Express™ with your MES, ERP, MRP, PLC, or scheduling systems for assisting in production floor analysis and systems monitoring. In each stage, analyzing and presenting QUEST results to decision makers is simple and effective.



Reuse Existing Data

Leverage the results produced from your engineering counterparts to dramatically reduce your data collection and model building time. Simply read in process data from standard databases, and use the CAD geometry from product designers to facilitate recognition. Use a distributed modeling approach by communicating real-time via sockets protocol between QUEST and any application, such as another QUEST model, other DELMIA products, and production monitoring systems.

DELMIA's integrated solution allows you to automatically link to related simulation analysis, thus reducing the time to build and modify the model. Read DELMIA recordings from other DELMIA products into QUEST, to speed up model building and help generate a better understanding of the processes being simulated.

Link and jump to other DELMIA products, maintaining a close association to the actual location of data origination. This capability also provides faster feedback and modification requirements to other engineers.

Object-based Model-building Means Reusability

QUEST includes a rich resource library of geometric objects that library… enables users to quickly and accurately model a production facility, such as buffers, machines, material handling systems, and docks. Save and reuse objects on multiple levels — elements, classes, groups, submodels, or just logic and geometry. Combine this custom library with the default libraries available in QUEST to efficiently simulate your new facility.

Intelligent Material Handling System Templates

QUEST incorporates real production variables, such as physical lengths, speeds, accelerations/decelerations, and plant layout to analyze the effects on material handling equipment and labor. For example, QUEST simulations enable parts of different sizes to accurately accumulate on conveyors, and automatically generated or user-defined labor paths to determine the overall time spent by operators walking between work stations in a job shop. Use available templates to accurately simulate material movement systems such as labor, forklift trucks, conveyors, power and free systems, automated guided vehicles (AGVs), cranes, kinematic devices, and automated storage and retrieval systems (AS/RS).

Analyze Throughput, Manpower Requirements, Inventory Levels, Routing Behavior Effects

Use the interactive, true 3D animation and statistical results to allocate resources appropriately, allowing you to justify or reduce costs associated with Work In Process (WIP) inventory,

QUEST provides a single environment for building and running the model, allowing instant visualization of any model change, thus eliminating lengthy edit/compile/run/analyze cycles.

Use the intelligent search algorithms in OptQuest for an efficient, automated Design of Experiments process.

labor scheduling, equipment failure, and capacity planning. Display analytical results in customizable numerical tables, bar graphs, pie charts, histograms, and time series graphs. Export the data to an external analysis tool such as a spreadsheet or other charting package. Compare multiple runs graphically and through confidence intervals. These analytical tools assist you in identifying and quantifying the impact of bottlenecks on your facility, and measuring value-added vs. non value-added activities for lean activities.

An Open Architecture Approach to Modeling

QUEST models directly emulate real-world system behaviors through distributed logic, used to associate with each resource, such as routing logic, buffering policies, built-in push and pull production attributes, and composite processes with requirement/selection rules. Easily select the most commonly needed behavior logic from comprehensive logic menus that are parameter-driven for even greater flexibility.

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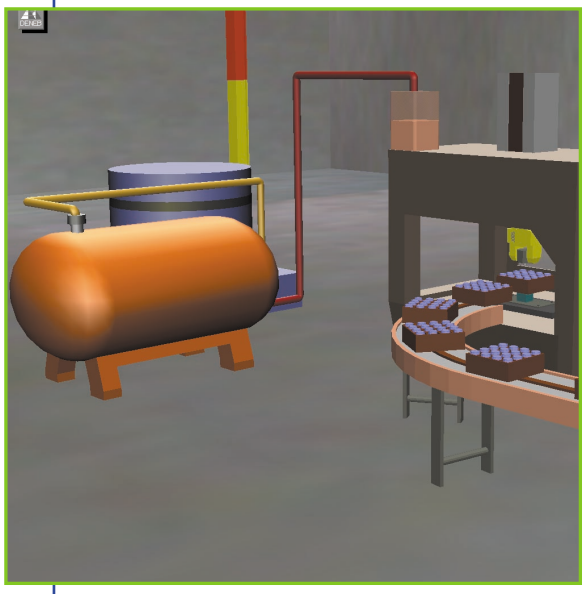
For unique problems, QUEST's robust and flexible simulation language provides distributed processing with access to all system variables. This high-level, structured language allows users to define custom behaviors and gain unlimited control over the simulation. Users can simply modify any default logic since all logic menu selections are written in this powerful language, providing an efficient alternative to the tedious task of creating a "workaround" for near-correct logic. Instead, develop your own library of custom logic, accessible through the menu interface.

QUEST provides flexible and robust communication abilities. Output statistical information to external files for use in presentations or other analytical forums. Use virtual reality immersive devices, such as stereo glasses or head-mounted displays to fly through the facility. Generate 2D and 3D images and movie files.



Communicate Quickly to Complete the Task

The 4D simulation accelerates human recognition and understanding, allowing the model builder to efficiently complete the simulation task — easily explaining impacts to those not intimate with the model, such as managers, customers, and other engineering disciplines. Effectively reduce risk by increasing the level of understanding that the decision makers possess regarding the impact of problems and proposed solutions. With real-time control of the model viewing world, the user can view any potential problem area.

FACTORY SIMULATION

5500 New King Street
Troy, MI 48098
+1 248 267 9696
FAX +1 248 267 8585