

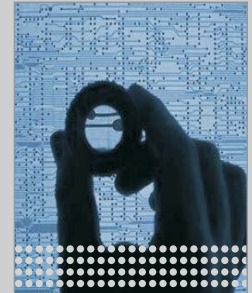
Total Quality Management Zero Defect Manufacturing & Supply

Pro-active Quality Management - Significantly Increasing Material Quality & First Passed Yield

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VALUE STREAM TECHNOLOGY™



' High quality assembly & supply processes
ensure high quality products '

Higher quality products ensure customer satisfaction, customers buying your products again, recommending your products for their quality. Accurate, high quality manufacturing operations reduce or eliminate rework, drastically reduce costs, and they increase profits.

Total Quality - Zero Defect - Zero Tolerance - Total Customer Satisfaction

Zero Defect for assemblies and products, and Total Quality Control for materials, Total Quality Management, these are the main goals of Lean Manufacturers. However, one of the goals is also keeping inventory levels extremely low, which on the flip side makes manufacturing and supply processes much more sensitive to material shortages; often caused by material quality issues.

More and more companies move quality control to the only right place. This place is not the goods receipt; Lean means streamlined processes, there is no time for random quality checks. It is not the quality department, where materials arrive, when it is already too late. This place is the shop floor workstation, where the assembly team processes every material, one by one. This process provides the opportunity of Total Quality Management. Lean means: Quality is the responsibility of manufacturing operations, not of administration.

Higher product quality can be achieved only, if assembly workers work more accurately, when they have guidance in assembly processes and quality issue detection, when they are able to process TQM extremely fast and simple, but thoroughly.

Visual Factory guides assembly workers through Total Quality Assembly Processes, the integrated application Interactive Total Quality Control™ ensures reporting of any quality issue interactively, within a second. Pro-active Total Quality Monitoring™ provides actual real-time TQM information, and Value Stream TQM™ does not even stop at the plant gates, it is also available for all suppliers, real-time.





Functions & Features

- Visual Factory™ Interactive Quality Applications
- Interactive Total Quality Control™ with simple and fast point & click for materials and assemblies
- TQM Escalation Management™ provides quality information constraint-based and real-time
- Pro-active Yield and Assembly Quality Monitoring™ for all departments involved in quality assurance
- Pro-active Material Quality Monitoring™ for internal and external material sources
- Internet-enabled Supplier TQM Monitoring™ provides suppliers with real-time quality information
- Color-coded alerts for severe quality issues
- Quality issue reporting with and without pre-defined defect codes and detailed Q-Information
- Interactive Metrics & Quality Data Control™, Comprehensive Lot & Serial Number Tracking and complete Product & Quality Documentation
- Real-time integrated to ERP/ SAP®

The application suite Total Quality Management means Total Quality Monitoring of internal and external supply chains. It is fully integrated into Visual Factory Manufacturing Operations, Manufacturing Engineering, Flex Logistics, and all Value Stream Portals. Value Stream Technology can be used stand-alone with Legacy systems, and fully real-time integrated into ERP/ SAP..

Value Stream Technology interactive and pro-active TQM applications enable all responsible to detect quality issues immediately, and maintain a zero-defect, total quality manufacturing and supply environment, with the simplicity of point & click.

' Value Stream TQM - the Key to Lean '

The application suite **Visual Factory** provides electronic Visual Work & Quality Instructions™ for higher assembly process and product quality, reduced rework, and rapid capturing of actual quality indicators. It also integrates several interactive applications, from Product Metrics & Quality Data Control™, lot & serial number control and tracking, to comprehensive product documentation - creating **New Dimensions for Lean Total Quality Management**.

High supplier material quality, however, is not necessarily guaranteed, and **only early identification of quality issues and their source ensures smooth production processes and higher product quality**. In the past quality issues identified during the manufacturing process were usually handled in two ways: Either the worker had to fill out quality issue reports, a time consuming effort, or material was just thrown into a "rejected material" bin, to be picked up later, possibly many hours later. Valuable actual quality information was lost; and potentially this had a severe impact already. If more than just a couple of materials were defect, quality issues could not be recognized fast enough, and may have resulted in material supply issues, and even assembly line stoppages.

Visual work & quality instructions enable the worker to report quality information such as actual measurements, checklists, and quality issues of assemblies and materials with a **simple point & click directly in visual instructions**. For the worker it may mean only 'one more' defect material, reported quickly in one second, but for Total Quality Management it is much more:

Pro-active TQM Monitoring™ applications pick up this information, and pre-defined **TQM Flex Limits™** are checked in the background. The application may identify that this was not the first or single material defect, but one among several in this shift already. If this represents a certain critical percentage, it requires quality action and follow up. TQM Flex Limits can be pre-defined according to your individual needs and the **TQM Escalation Management™** submits quality issues to personnel and management who need to know. Issues below a limit of '0.5' percent may not represent a real issue and is only 'statistics', '0.7' percent may be already important for the quality department, '1.0' percent may potentially cause material supply issues already, and at another predefined percentage the line manager or the supplier should be informed about critical quality issues, automatically and immediately.

All TQM Flex Limit levels initiate information flow instantly and provide an 'Early Warning' to internal and also external quality responsible personnel, for example with the Internet-enabled **Pro-active Supplier TQM Monitoring™** application. All pro-active quality monitors enable responsible personnel and management to oversee all manufacturing and supply operations and color-codes point to the areas with TQM issues or severe problems. This provides time to react, to identify the potential source for quality issues, and to eliminate the issues, systematically.

