Digital Manufacturing Research Center

ものづくり先端技術研究センター

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Research Mission

➢ Development of IT-Based System to Enhance Manufacturing Ability for Japanese Manufacturing SMEs (Small & Medium Size Enterprises)

Main Project

"Fusion of MT (Manufacturing Technology) and IT to Enhance Manufacturing Capability"

5-year (FY2001-2005) national project entrusted by Small Medium Size Enterprises Agency, METI
New Energy and Industrial Technology development Organization (NEDO)
Research Subjects

Competitiveness of Japanese SMEs
- Develop and adopt sophisticated technology
- Maintain and build up the skills of workers

Extend advanced skill
Overcome being behind in introducing IT

Project mission

- Digitalize manufacturing skills
  - Network-based database for manufacturing mechanical parts
- Develop easy-to-customize software for manufacturing
  - Platform for design and manufacturing support applications
Strategy for Fusion of MT and IT

Introduce information technology into manufacturing system

Platform

Computer system
Network system

MT

IT

Database system

Simulation system

Describe manufacturing process using computer systems
Database System for Manufacturing Mechanical Parts

Benefits for SMEs
- Reduce setup time
- Enhance product quality
- Kaizen (improvement)
- Get new knowledge

Data
- Heat treatment
- Thermal spraying
- CVD/PVD
- Plating
- Arc welding
- Laser welding
- Laser cutting
- EDM
- High-value added information for each metal processing method
- Fundamental technological and engineering knowledge

Utility
- Simulation
- Trouble shooting
- Searching engine
- Injection molding
- Cutting
- Grinding
- Polishing

Database system
- Forging
- Casting
- Press

Internet
Platform for Design and Manufacturing Support Applications

Easy-to-customize software to develop application software for SMEs’ own use

Diagram:
- User application A
- User application B
- Pre-developed applications
- XML-component Transmutation
- Component bus
- Component library
- Application builder
- Platform
- Event Handling between Components
- label, Menu, Image, Button, Graph, ...