

# Enabling standardization in Resource Management

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# Typical problems



- ▶ No common system to manage resource data
- ▶ Time consuming searching for resources
- ▶ Resources are expensive
- ▶ Systems are not communicating
- ▶ Is an alternate resource available?



# Teamcenter Resource Manager



- ▶ Teamcenter Resource Manager is a classification tool to organize enterprise assets in a hierarchical structure to:
  - ▶ Improved enterprise visibility through access to common repository for manufacturing content
  - ▶ Improved reuse within the enterprise
  - ▶ Reduced resource costs due to better volume leverage over reused parts
  - ▶ Reduced time to market





# Manufacturing Components



Product  
Definition,  
BOMs, Math Geometry,  
Product Visualization,  
Product Configuration,  
Change Management

Associativity Link

Plant  
Factory Organization,  
2D/3D Math Models,  
Plant Visualization,  
Documents



Process  
Organization,  
Configuration  
Management,  
Sequence, Timing

Resources Manager  
Library Management  
Attribute Definition  
Classification

Relationship Model

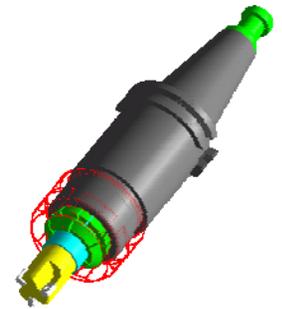




# What are Resources?

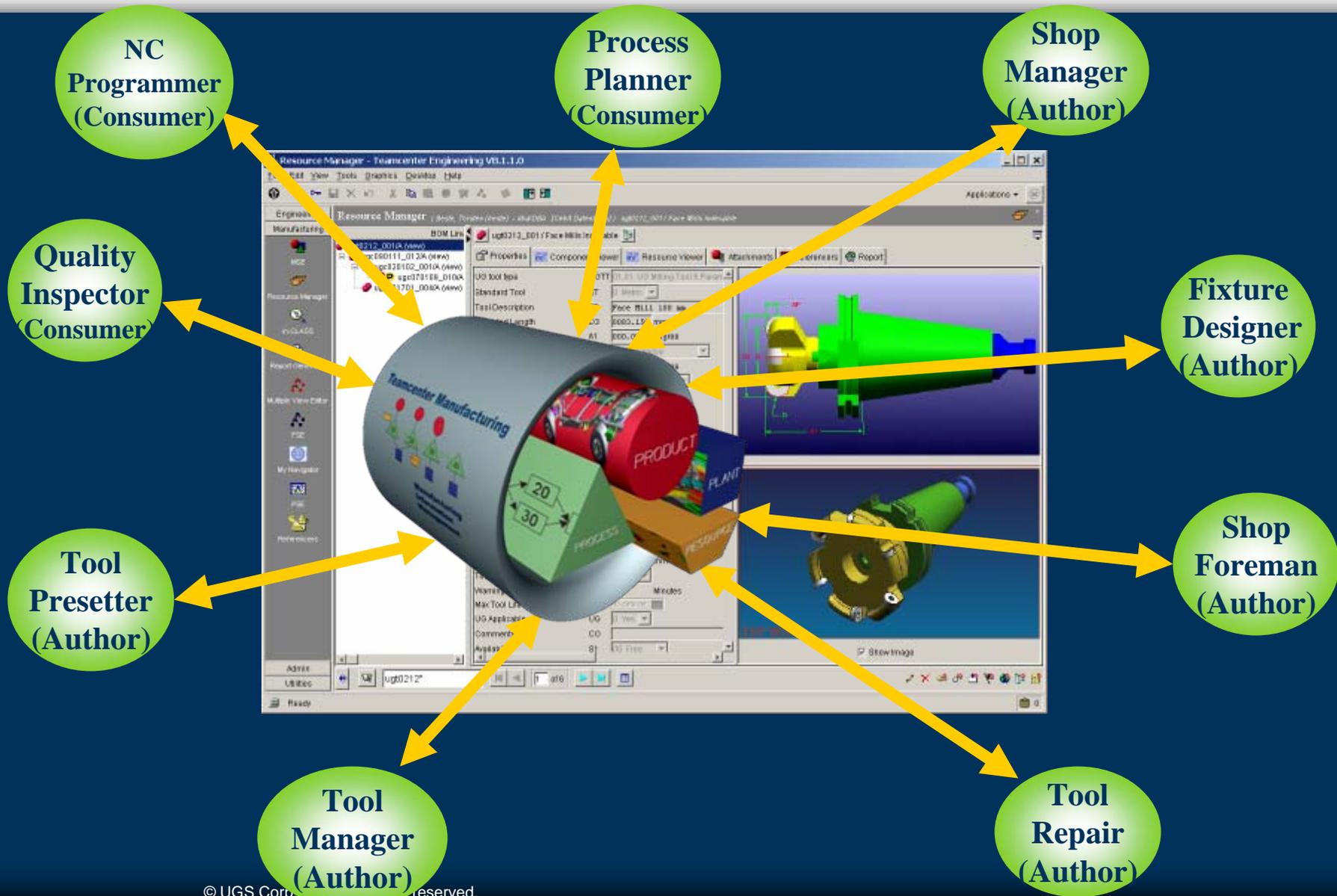


- ▶ Cutting tools
- ▶ Fixtures
- ▶ Gages
- ▶ Robots
- ▶ Weld Guns
- ▶ Machine tools
- ▶ Means of transportation
- ▶ ... any kind of manufacturing equipment





# Who Is Working With Resource Data?



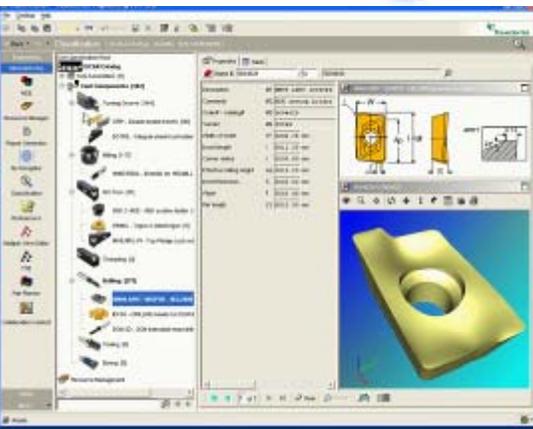


# TC Manufacturing - Resource Manager/Classification



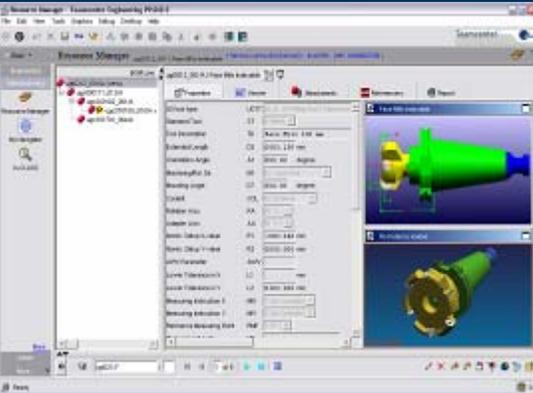
## Classification

- General Classification Application
- User defined Classification library for resource components and assemblies
- Controlling access to groups, classes, and classification instances
- Separate application to setup and maintain the classification hierarchy



## Resource Manager

- Allow users to create a resource component and resource assemblies
- The use of automated routines for reporting, change control, workflow
- Attach documents and graphic files e.g NX, Catia, AutoCAD



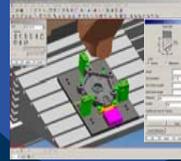


# TC Manufacturing - Resource Manager integration



Resources can be retrieved from different applications

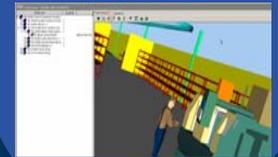
*NX  
CAM*



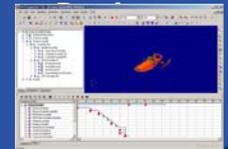
*Process Planner*



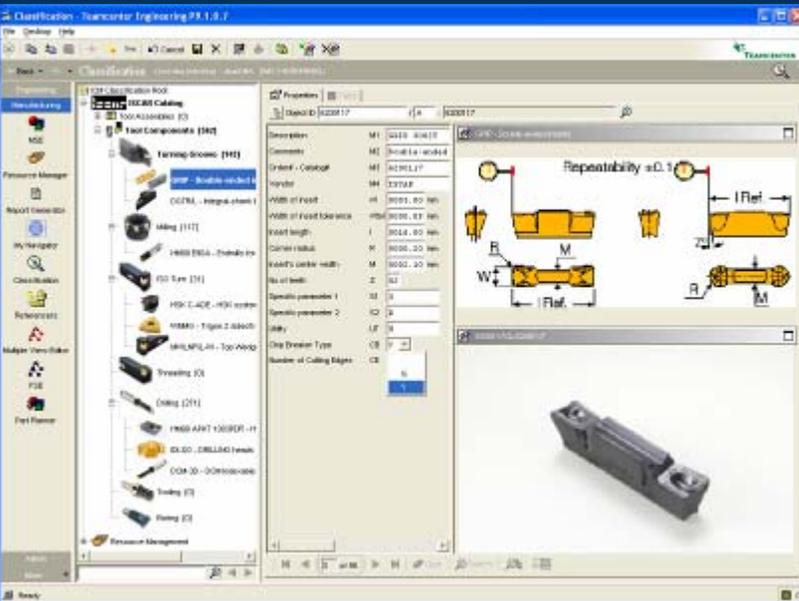
*FactoryCAD/Jack*



*Tecnomatix  
Process*



*Machine Line  
Planner*





# Resources in Process Planning



Resources are assigned to the Manufacturing process

The screenshot displays a software interface for process planning. On the left, a tree view shows the 'Process Structure' for a 'Bike' assembly. The selected item is 'ugw010101\_001/A'. On the right, a table displays 'Class Attributes' for this item. A red callout bubble points to the 'Catalogue Number' field, which contains the value '12-PHR-0923'. To the right of the table is a 3D model of a yellow robotic arm.

Tip Opening (Z Dimension)	000410.000	mm
Weld Stroke	000120.000	mm
Back-up Stroke	000085.400	mm
Design Force	000020.000	Kg
Weight	000130.000	Kg
Loop Area	000001.250	Sp
Gun Style	00 C-Gun	
Power Supply	00 AC Trans Guns	
Air Equalized	01 Yes	
Catalogue Number	12-PHR-0923	

Notice we have the class attributes displayed here

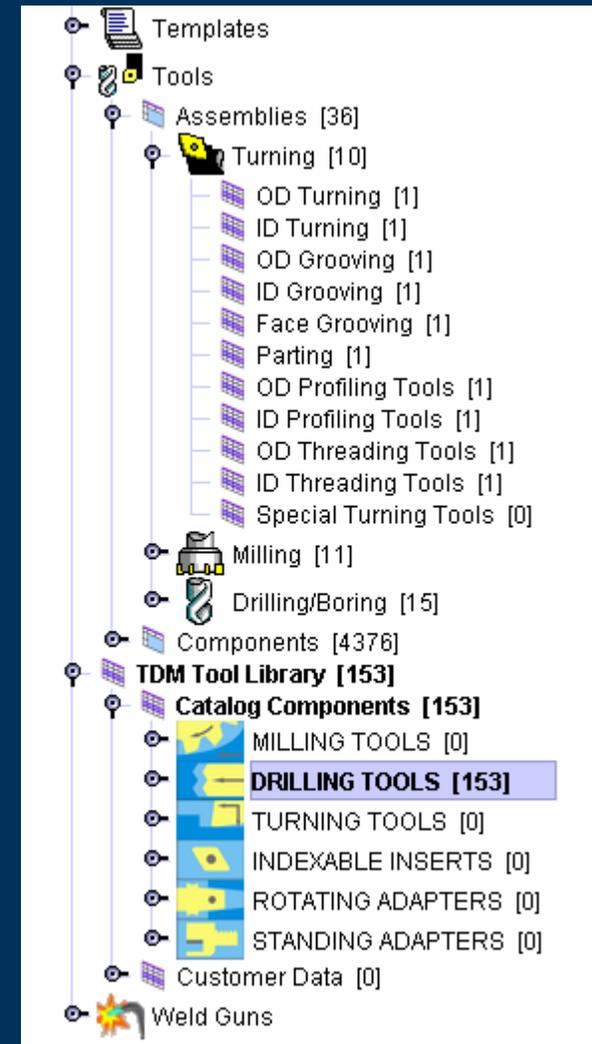


# Managing Resources: Classification is the Key



With literally thousands of resources, how can a person looking for a resource find one?

- Solution is TC Classification
  - The Resource Manager uses TC Classification to store the resource data in combination with classification information in a hierarchical schema
  - Each folder and class has properties which can be used for searching
  - Properties from the parent folder/class are inherited down
  - User-specific or group-specific views
  - Import/Export functions





# Searching for manufacturing resources



- ▶ Searches are performed within the scope of a Class therefore selecting a class is always the first step
- ▶ The values for the search criteria are specified in the standard form
- ▶ All Attributes can be used for search
- ▶ As many attributes as necessary can be used in one query (automatically combined by AND)
- ▶ Supported search criteria

= != > / >= < / <=

Range Wildcard ( \* \_ )

& (and) | ( or )

Cutting Diameter	D1	>= 010.000	mm
Tool Material ID	MT		
Tool Material Name	MN		
Flute Length	B	< 012.000	mm
# of Cutting Edges	N1		
Flute Direction	N2	R Right	
Corner Radius 1	R1	02.500   003.000	mm
Corner Radius 2	R2		mm
Total Length	L1		mm



# Guided Component Search – following company standards

- ▶ Allows you to search for only those classified resources which fit into the assembly at the position you indicate
- ▶ “Connection Types”, “Connection Point Definitions” and “Connection Points” define what components fit together
- ▶ Newly added components will be positioned automatically at the correct position



Existing GCS Connection Types		Attributes & GCS Comparison Criteria				
9 COLLET_ER_2		Attribute ID	Attribute Name	Socket Sided Value	Operator	Plug Sided Value
10 CYLINDER_A		-4121	Chuck Clamping Range - min		>=	
11 CYLINDER_B		-4122	Chuck Clamping Range - max		<=	
12 CYLINDER_C		-4100	Parallel Shank Type		=	



# Resource Management - Benefits

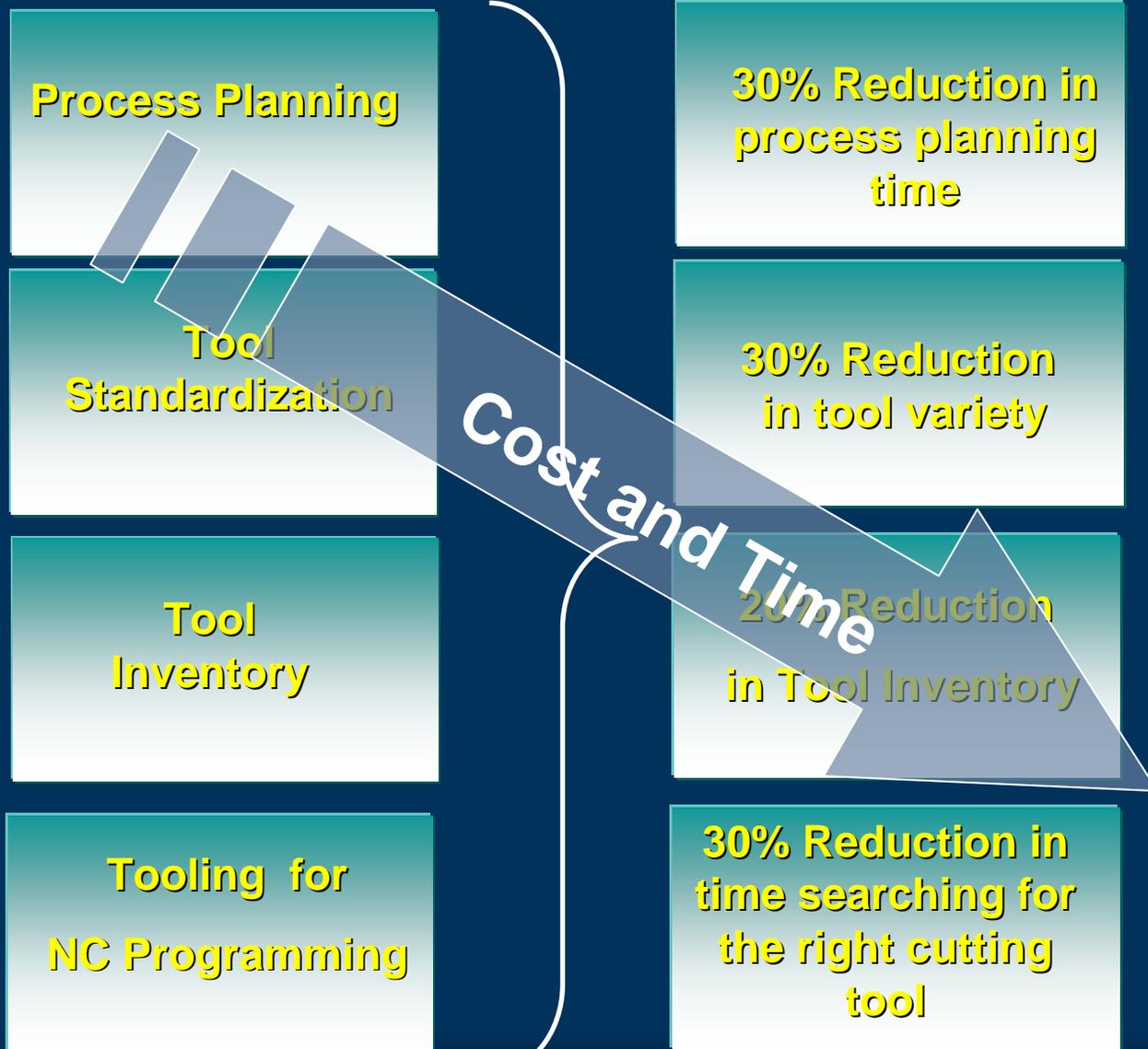


- ▶ Reduce Manufacturing Part Planning efforts and duration
- ▶ Increase manufacturing process quality, commonality and consistency
- ▶ Reduce cost of change
- ▶ Reduce time searching for resources
- ▶ Minimize resource variety
- ▶ Maximize resource re-use





# Resource Standardization – Cost and Time savings



## Tool Data Management Example

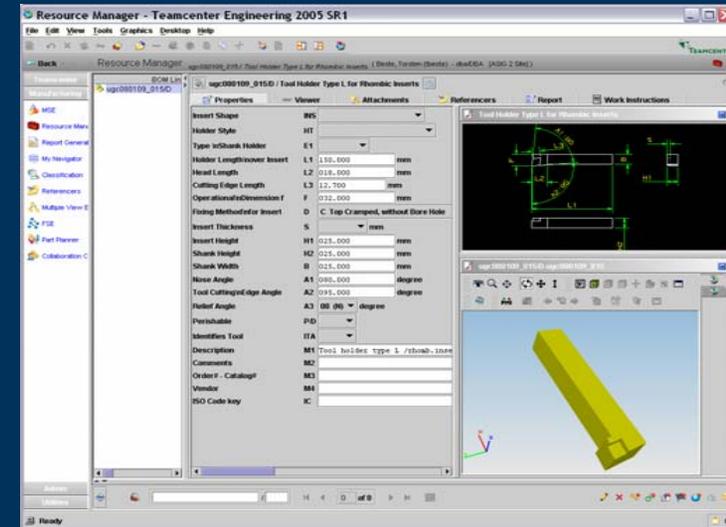
- ▶ Based on 40 machines with 2000 cutting tools



# 3D – Graphics creation with Resource Manager



- ▶ Real savings with Teamcenter Resource Manager 3D graphic generator
  - ▶ Generating cutting tools 3D solids
    - ▶ Create 3D solid manually in 3D CAD systems – **50 minutes**
    - ▶ Create 3D solid with Teamcenter Resource Manager graphic macros – **2 minutes**
- ▶ Time savings: **> 90%**





# Resource Manager – Summary



- ▶ UGS Tecnomatix Resource Manager enables to
  - ▶ **Reduction** in Manufacturing Process Planning efforts and duration
  - ▶ **Increase** in manufacturing process quality, commonality and consistency
  - ▶ **Integrates** the supplier
  - ▶ **Improved** enterprise visibility through access to common repository for manufacturing content
  - ▶ **Improved** reuse within the enterprise
- ▶ **The Resource Manager Solution is current released software**



[www.ugs.com](http://www.ugs.com)