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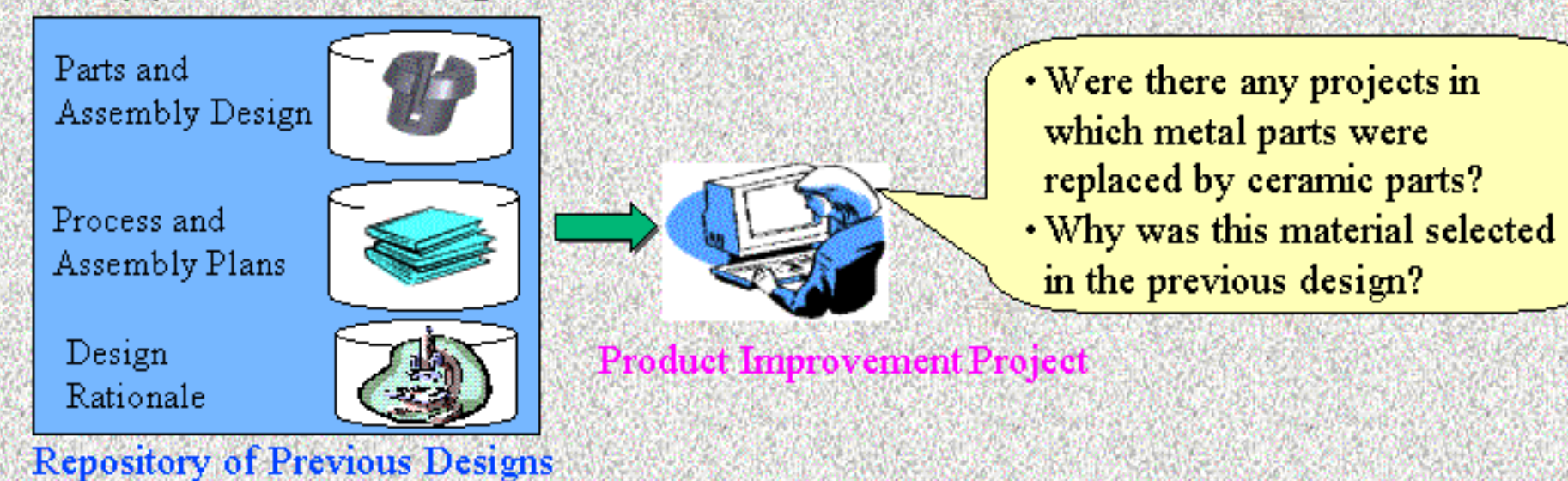
## Motivation

- Existing techniques
  - Information is archived using natural language
    - cannot be searched/browsed efficiently using computers
  - Interaction with senior designers
    - does not work when senior designers leave the company
    - inefficient use of senior designers' time
- Needed -
  - A computer-searchable representation of design information being generated to support product improvement projects

1

## Goal

- Develop information management system to manage design information in product improvement projects to -
  - record how design features relate to requirements
  - capture design changes in computer-interpretable form
  - support searching of archived information



2

## Our Approach

- Develop **computer-interpretable representations** for recording all relevant design information
- Develop **interconnection models** for linking different levels of design representations
- Develop **design rationale taxonomy** for recording reasons behind design changes
- Develop **search algorithms** for retrieving archived information based on a wide variety of needs

3

## Anticipated Benefits

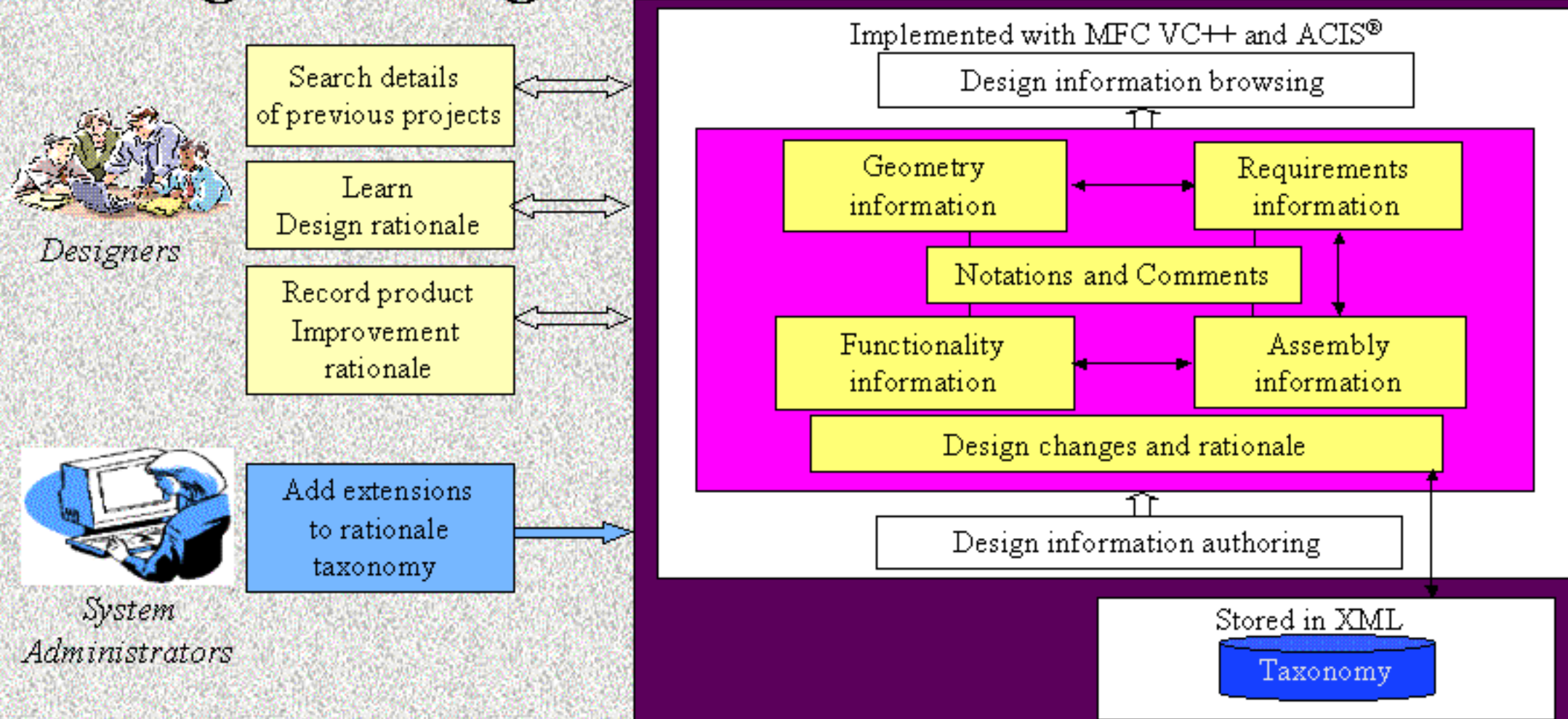
- Significant reduction in time needed to track rationale behind design changes
  - New design team can quickly learn why certain decisions were made
- Products can be improved in a systematic manner consistent with organizational goals
  - No need to consider changes that were already evaluated and discarded

Improved Design Information Management in Product Improvement Projects

Significant Reduction in Product Improvement Time and Cost

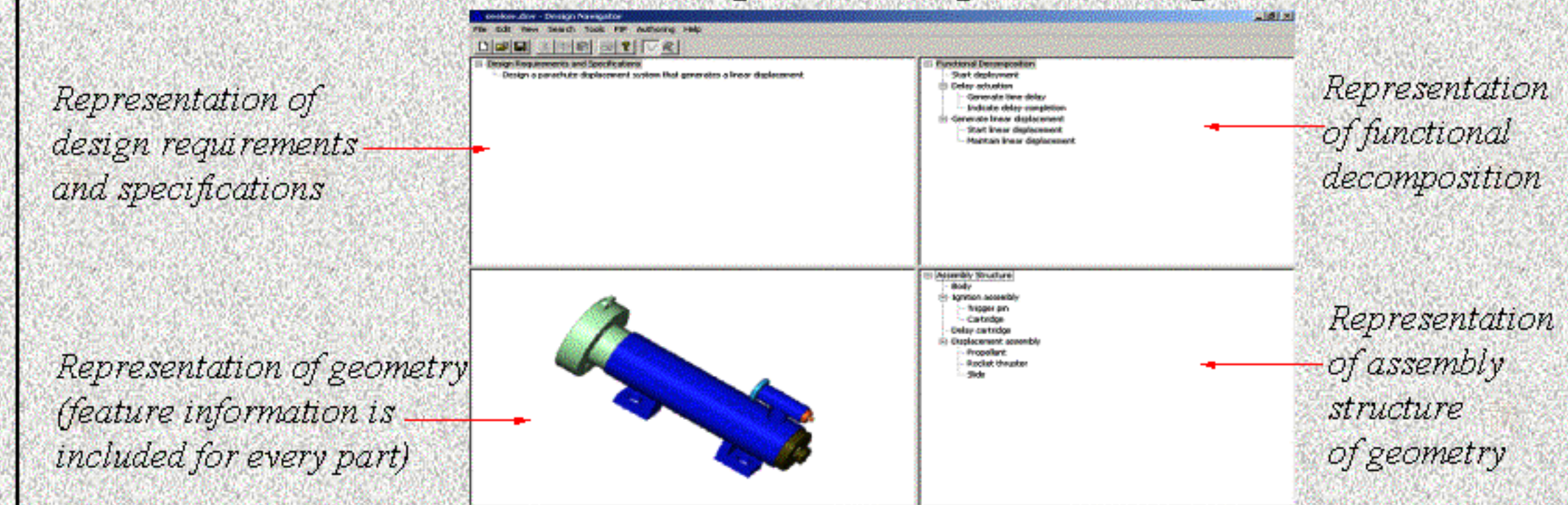
4

## Design Navigator - System Architecture



## Design Navigator System Feature

Four Interconnected Computer-Interpretable Representations

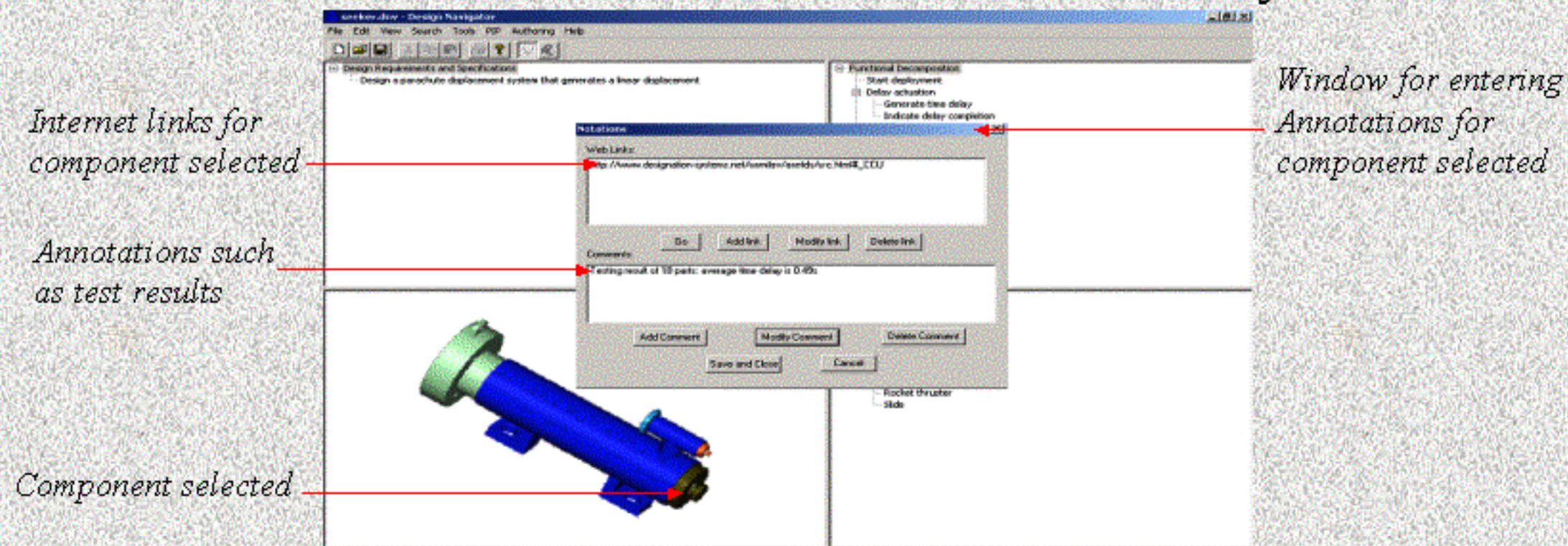


- Clicking on an item in one window highlights items in other windows
- Features on parts can be traced to requirements and specifications

6

## Design Navigator System Feature

Notations and Comments Can be Attached to Any Item

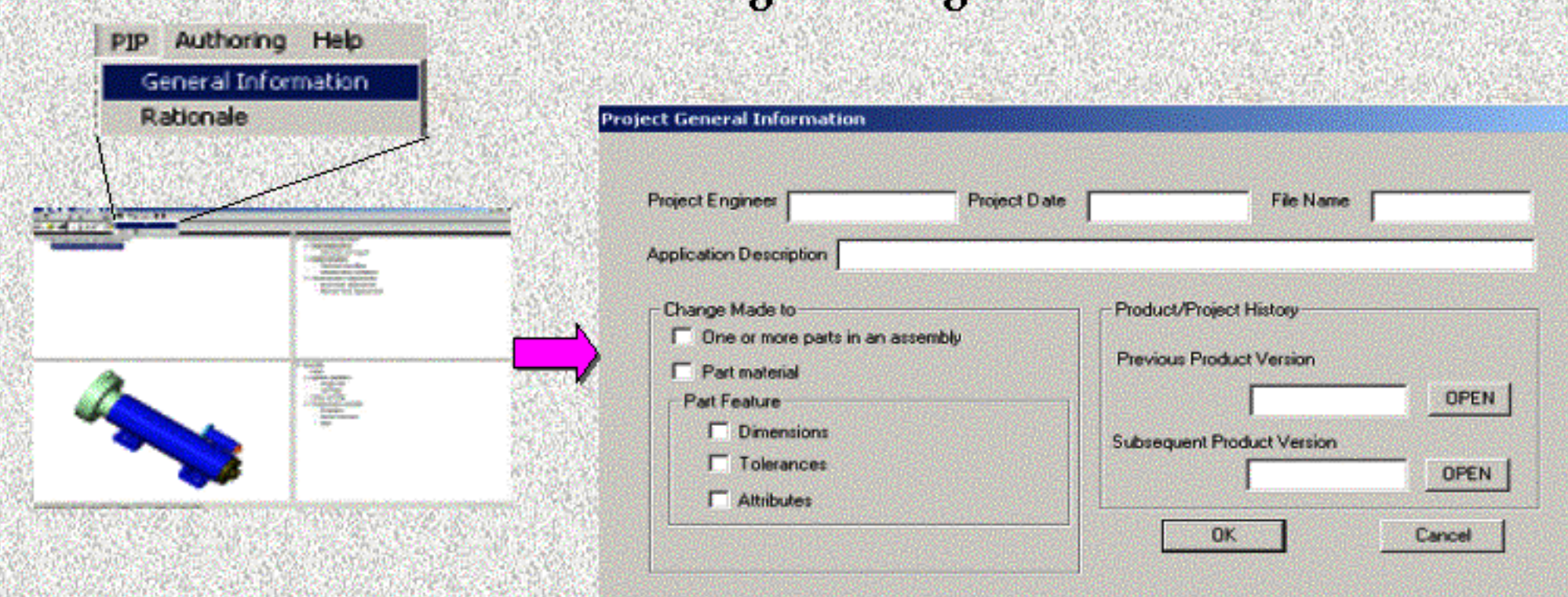


- One can select an item in any window to bring up a separate window to attach comments and notations

7

## Design Navigator System Feature

Rationale Behind Design Change Can be Recorded



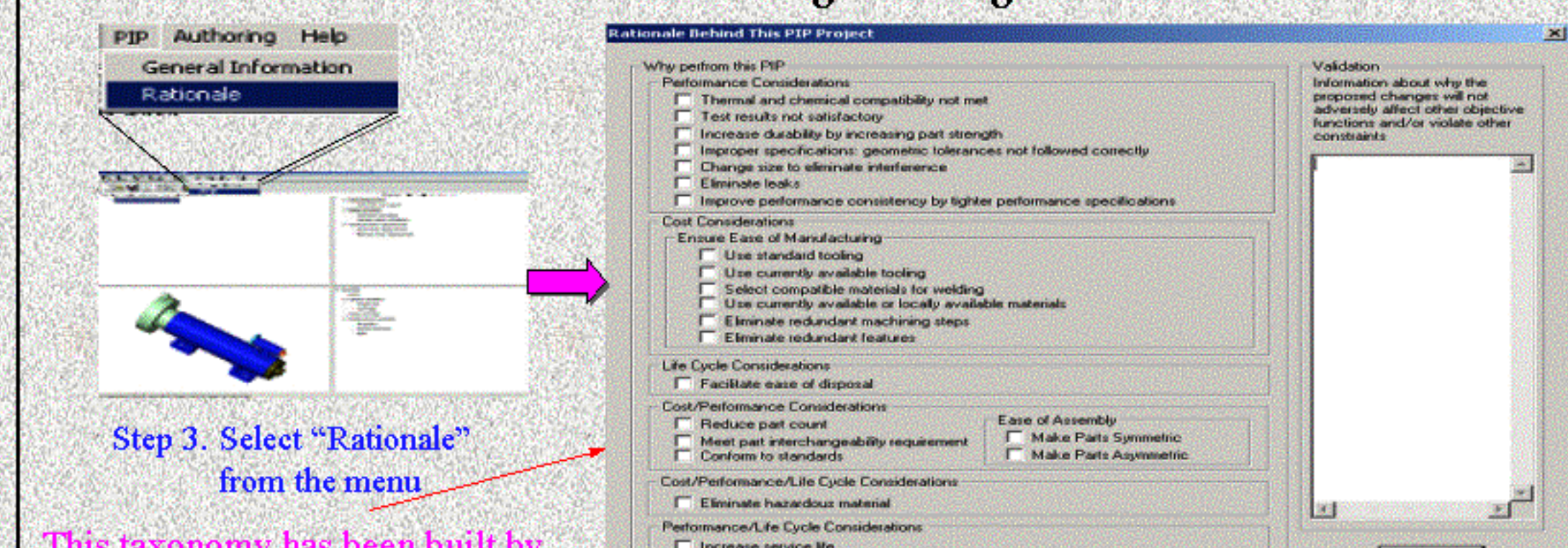
Step 1. Select "General Information" from the menu

Step 2. Enter administrative information

8

## Design Navigator System Feature

Rationale Behind Design Change Can be Recorded



This taxonomy has been built by studying many project improvement projects at NAVSEA Indian Head

Step 4. Enter rationale using taxonomy and additional comments

9