

# RASOP

Rational Software Production

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Presented by Wolfgang Stulken

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## RASOP partners

2i Industrial Informatics, Freiburg

AiD, Nuernberg

Krupp Atlas Elektronik, Bremen

Nixdorf Computer, Muenchen

SCOPE, Muenchen

SCS, Hamburg

Siemens, Erlangen

Universitaet Dortmund

VDI/VDE-TZ, Berlin

(project management)

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## Contents

- Rationale of the project
  - Concept for tool integration
  - RASOP interfaces
  - Concluding remarks
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## Rationale

SEE-Tools were hard-wired

- > predefined hardware/software
- > predefined Software-Life-Cycle

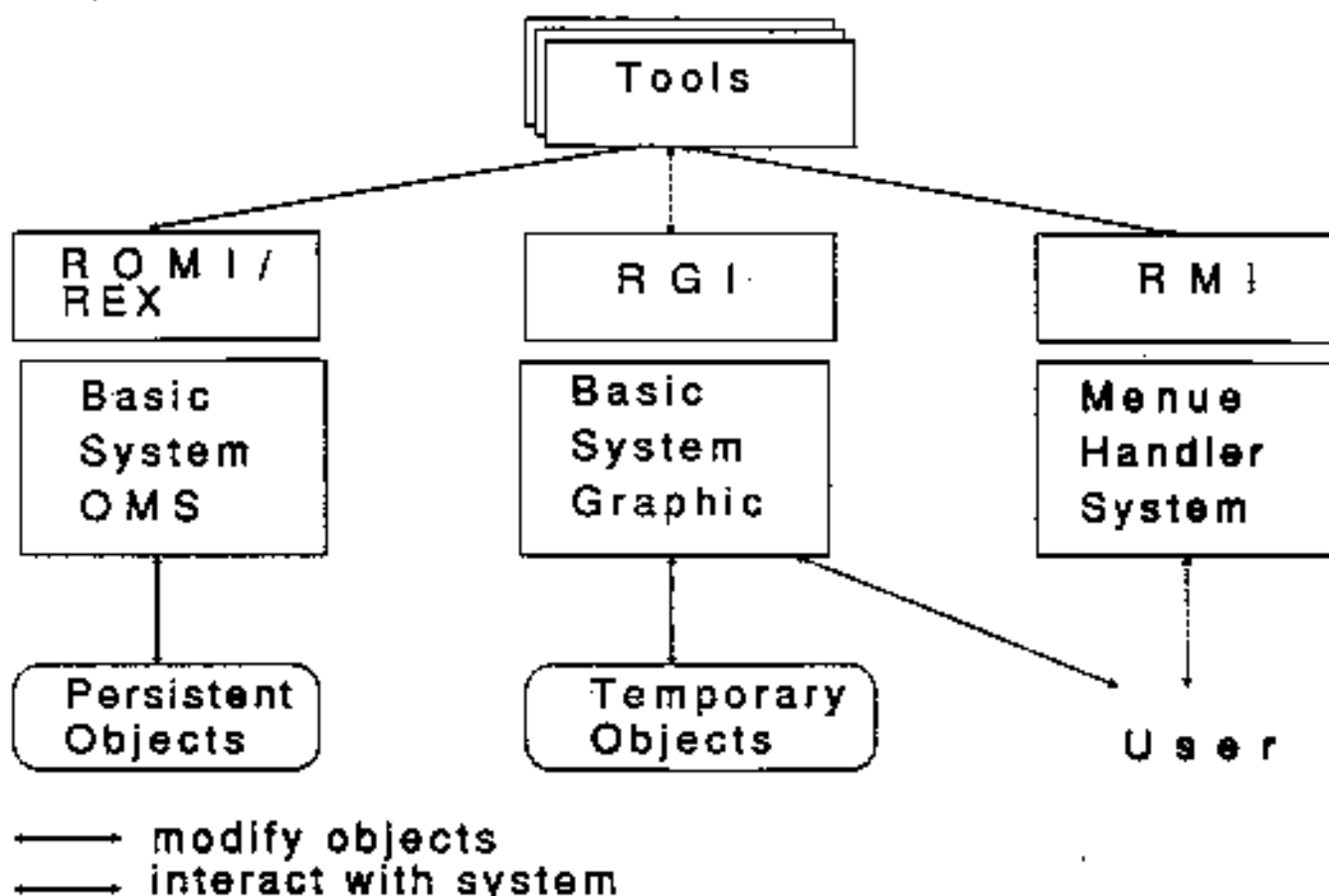
Concept of a Tool Box

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## Requirements

- Concept to share objects
  - Concept for a uniform user interface
  - Concept for tool integration
    - a. minimal transformation between objects of different tool models
    - b. minimal lost of information
    - c. minimal duplication of requests
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# Standards



ROM	RASOP Object Model
ROMI	RASOP Object Management Interface
REX	RASOP Exchange Format
RUI	RASOP User-Interface
RMI	RASOP Menu Handler Interface
RGI	RASOP Graphics Interface

# Language OBER

Class concept + semantic properties

Predefined categories of properties

- Access rights
- Release requirements
- Relation types

## Class Object

Attributes Class\_Id (A=1) : int ;

Relations is\_father (T=S , R=O) : -> Object

A=1 Initialize attribute when created

T=S Relation is structured

R=O Relation shall not be empty at release time

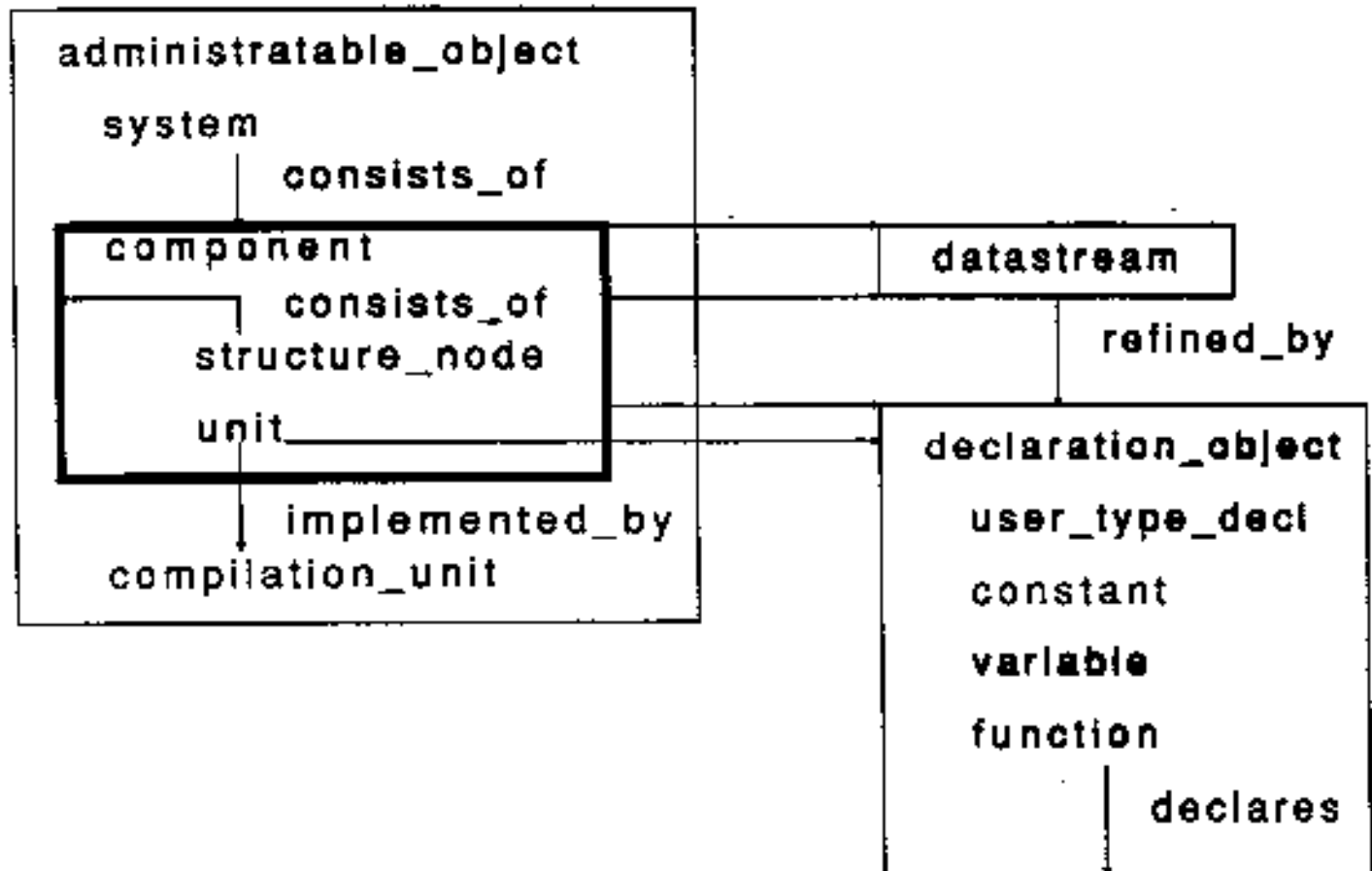
## Views

- hiding objects and their relationships between different tools
    - > allows to integrate tool specific object classes using the OMS facilities of version management
  - hiding semantic properties not relevant for other tools
  - forcing a unique name space for tools sharing common object classes
  - protect data from unauthorized access
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# R O M

## RASOP Object Model



## Evolution of a software product

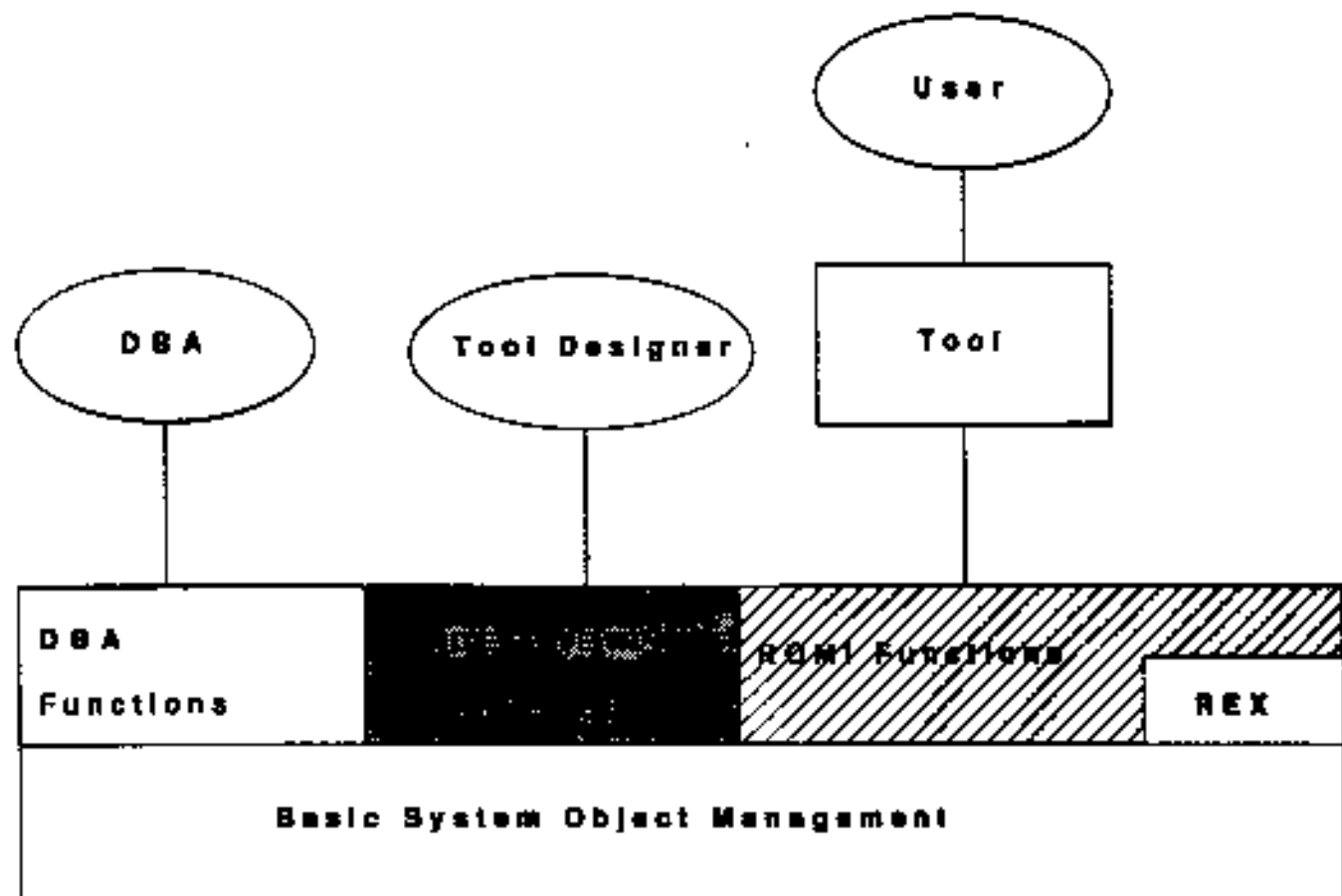
- 1 Data assigned to components
- 2 Structuration of components
- 3 Refinement of data
- 4 Modularization of components
- 5 Export/Import-Relationships
- 6 Coding of modules (units)

## Advantages of ROM

- Support of a complete Software-Life Cycle
  - Support of different programming languages (C, PASCAL, PEARL)
  - Provision of a kernel convention about structural dependencies and functionality on software objects
  - Guidance for tool configuration
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# ROMI

## RASOP Object Manipulation Interface



- Interface to ROM
- Storing and retrieval of objects wrt. a view definition
- Provision of short and long transactions
- Use of symbolic references (handles)

# REX

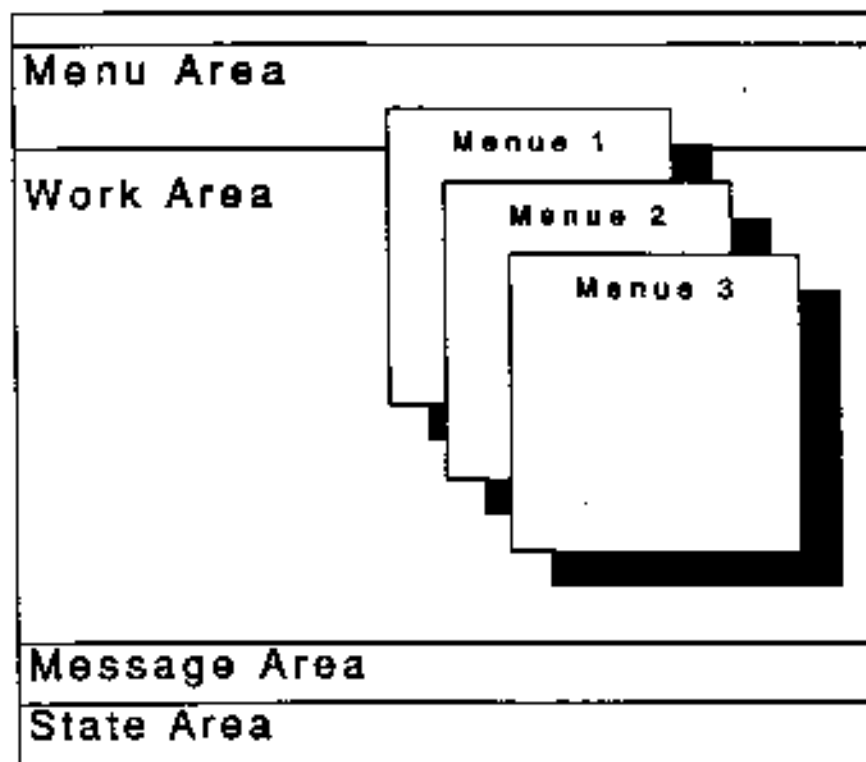
## RASOP Exchange Format

- Exchange of data as files
- Contains schema information
- Checkout of data
  - > local work space
  - > archive of data

# RUI

## RASOP User-Interface

Work Window



Help Window



- layout and position of windows
- names and semantics of functions appearing in a menu
  - a. Edit commands
  - b. Management commands
  - c. Presentation commands

# RMI

## RASOP Menu Handler Interface

- Functions to store, load and navigate in menu hierarchies
  - Provision of a kernel configuration file (RASOP-Defaults for menu attributes)
  - Support of
    - a. pop-up menus
    - b. pull-down menus
    - c. temporary menus
    - d. static menus
  - Creation of menus at run-time
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# RGI

## RASOP Graphics Interface

- Initial class hierarchy for graphic objects (like ROM)
  
  - Based on OBER
    - > Extendability, Inheritance
    - > Reduction of progr. effort
  
  - Management of graphic objects based on GKS functionality
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# Approach

## Provision of standard interfaces

- Object Management
- User Interface
- Common Object Model
  - a. object oriented
  - b. incorporation of views

## Support for tool adaption

- Menu Handler
  - Graphics
  - Exchange format
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## Concluding remarks

- Produce of different tools chains running on different hardware
  - No formal semantics of OBER, but a mechanism to support conventions
  - Integration of file-oriented tools
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