
Some issues of ISO/IEC 19763-9 On Demand Model Selection

HE Yangfan, HE Keqing, WANG Jian, WANG Chong
2009-08-21

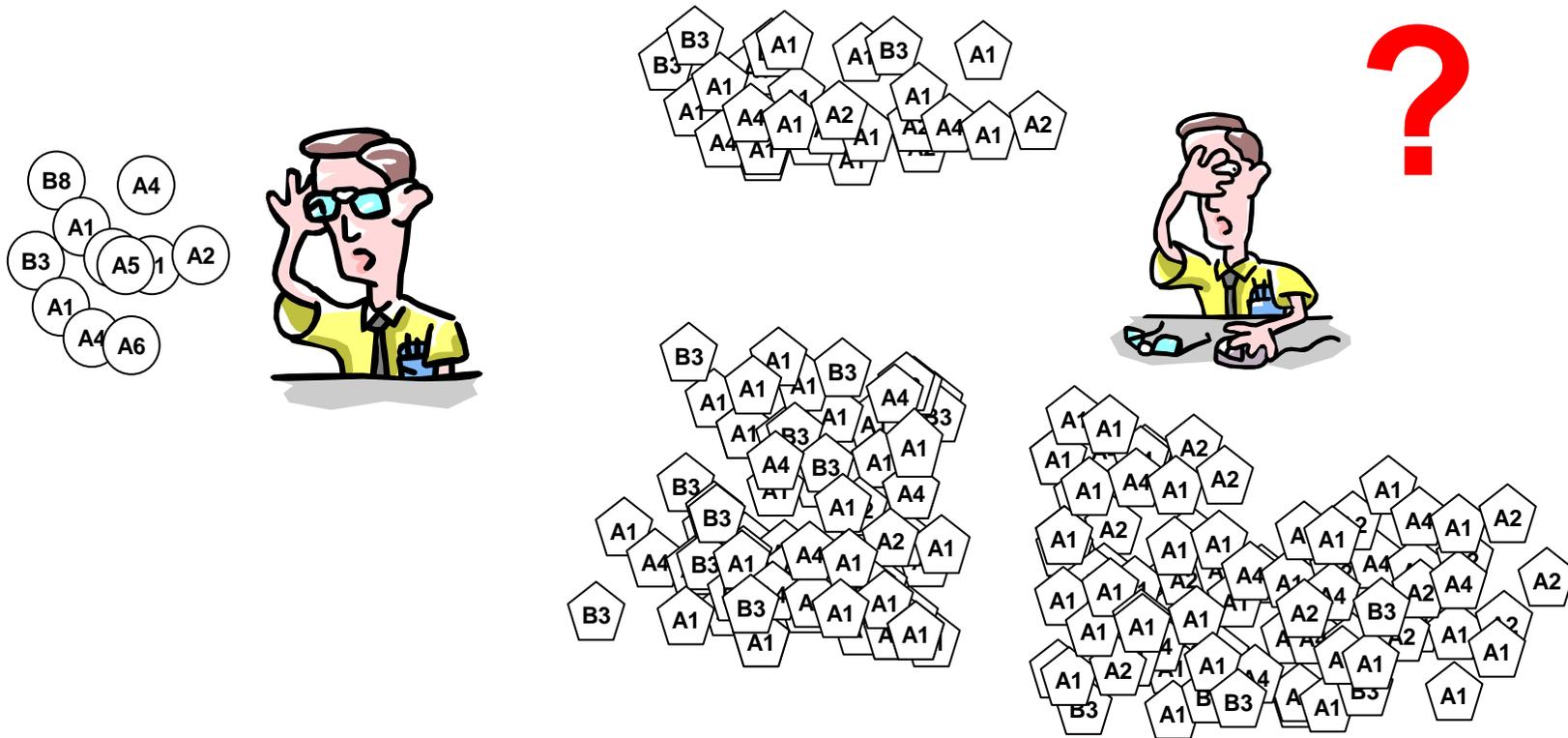
Content

- Background
- What will be covered in MFI-9
- RGPS vs. ODP
- RGPS vs. ROR

Content

- **Background**
- What will be covered in MFI-9
- RGPS vs. ODP
- MFI-9 vs. ROR

Difficulty of Model Selection



Why **On Demand Model Selection** will be useful?

- Personalized and diverse requirements
- Abundant and heterogeneous model resources

Scope

- This ISO/IEC Technical Report specifies a technical guideline on how to use R, G, P, and S metamodels to select appropriate combinations of models and/or services to meet users' goals.
- It also specifies how to use the RGPS infrastructure to support operational harmonization and interoperability within and between industries.

From resolution of Wuhan Meeting, September, 2008

ISO/IEC JTC1 SC32 resolution of MFI-9

Resolution WG 2 / 2: SC 32/WG 2 Project Subdivisions

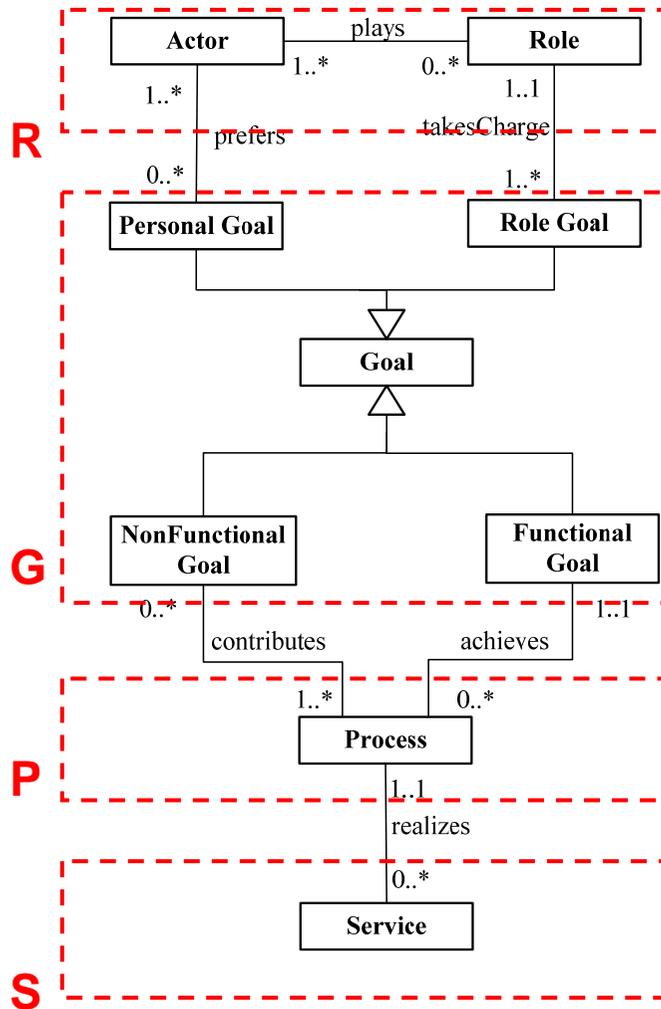
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|--|--|-----------|----|
| | ISO/IEC TR 19763-9 Information technology – Metamodel Framework for Interoperability (MFI) – Part 9: On Demand Model Selection | Keqing He | *3 |
|--|--|-----------|----|

ISO/IEC JTC1 SC32 plenary, 2009

Content

- Background
- **What will be covered in MFI-9**
- MFI-9 vs. ODP
- MFI-9 vs. ROR

Topic 1: Relationship between separate parts of RGPS



- **Relationships between Role and Goal**

- Roles take charge of corresponding *role goals*
- An *actor* prefers his *personal goal*

- **Relationships between Goal and Process**

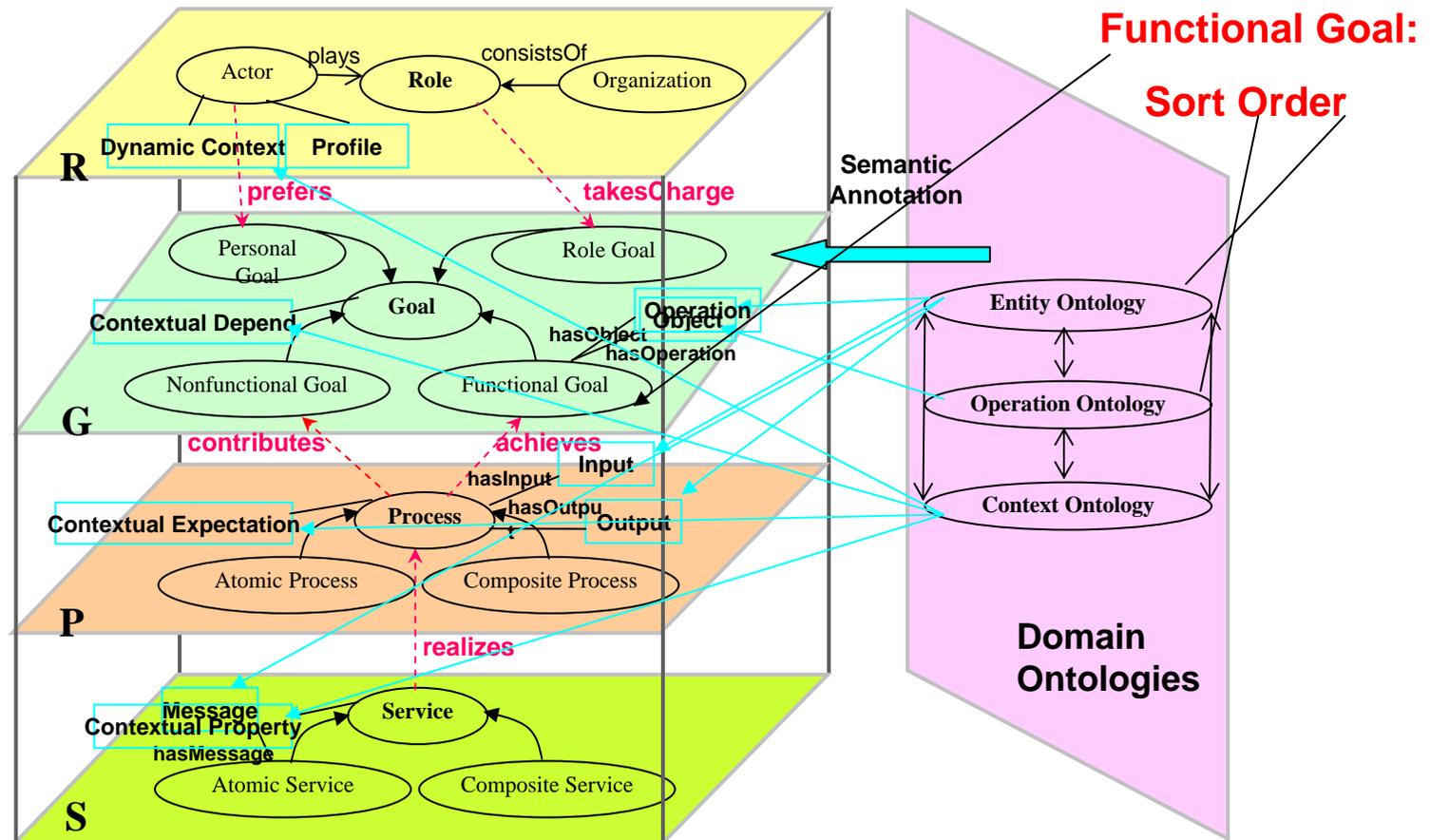
- Processes achieve *functional goals*
- Processes contribute to the fulfillment of *nonfunctional goals*

- **Relationships between Process and Service**

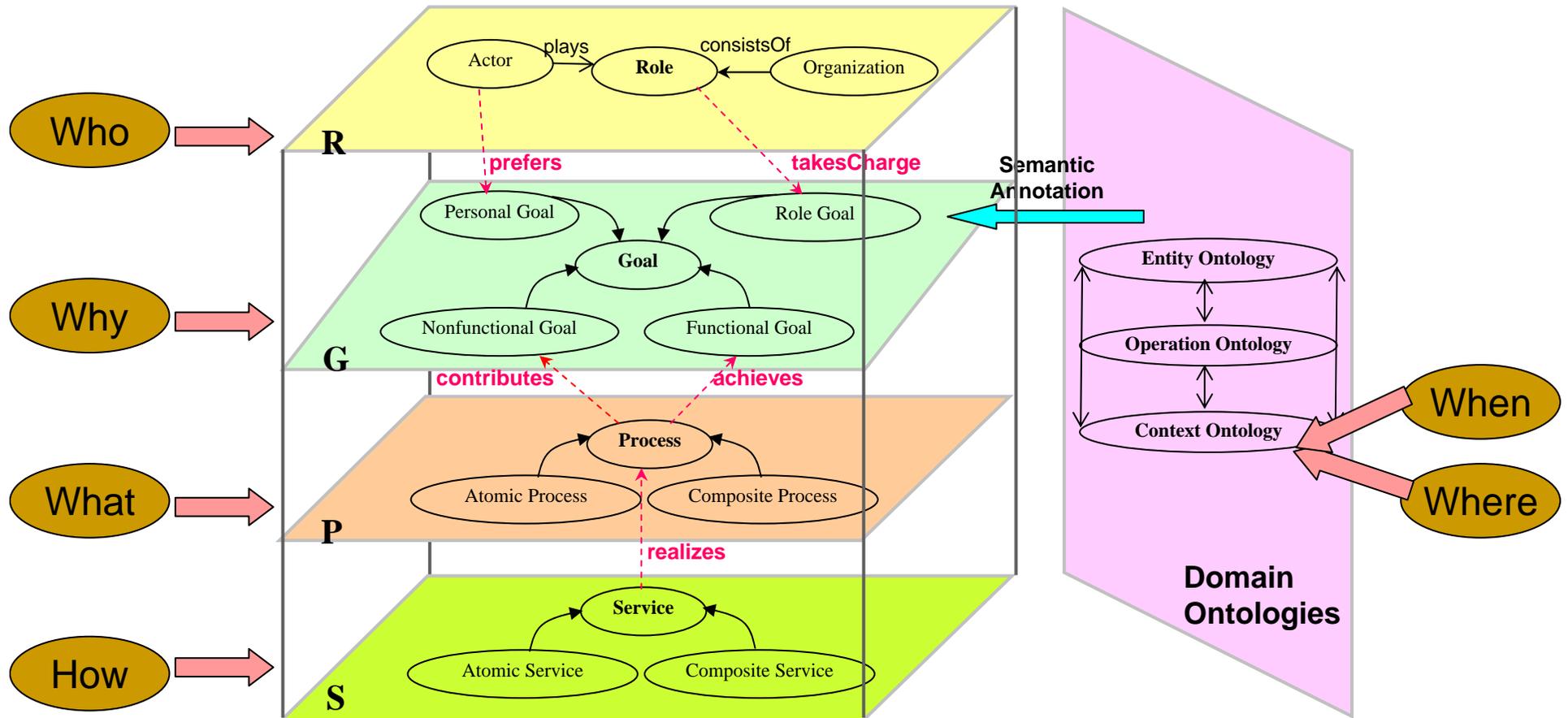
- A *service* realizes a *process*

Topic 2: Semantic annotation

Domain model: the basis for MC



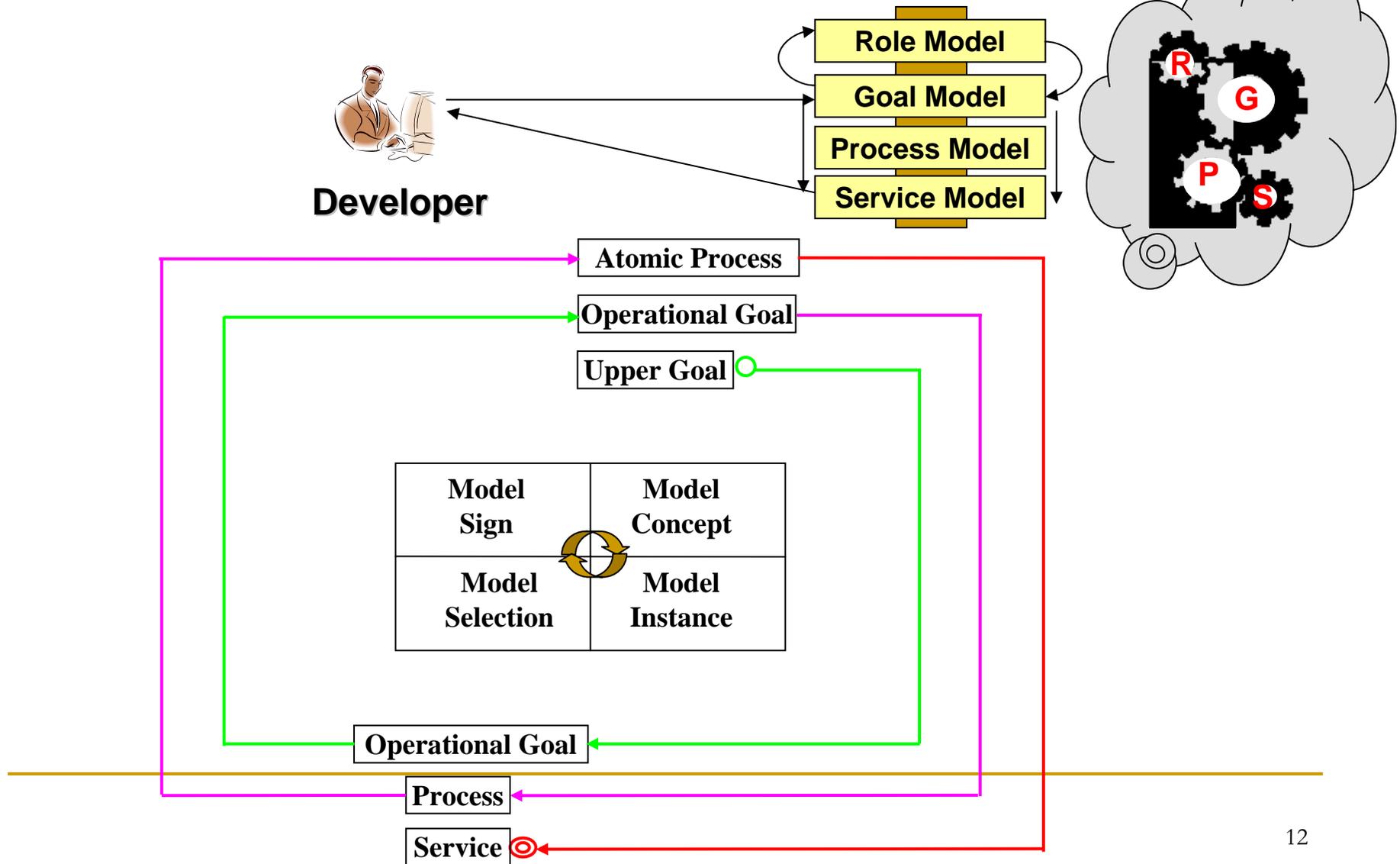
Topic 3: From the Perspective of W5H



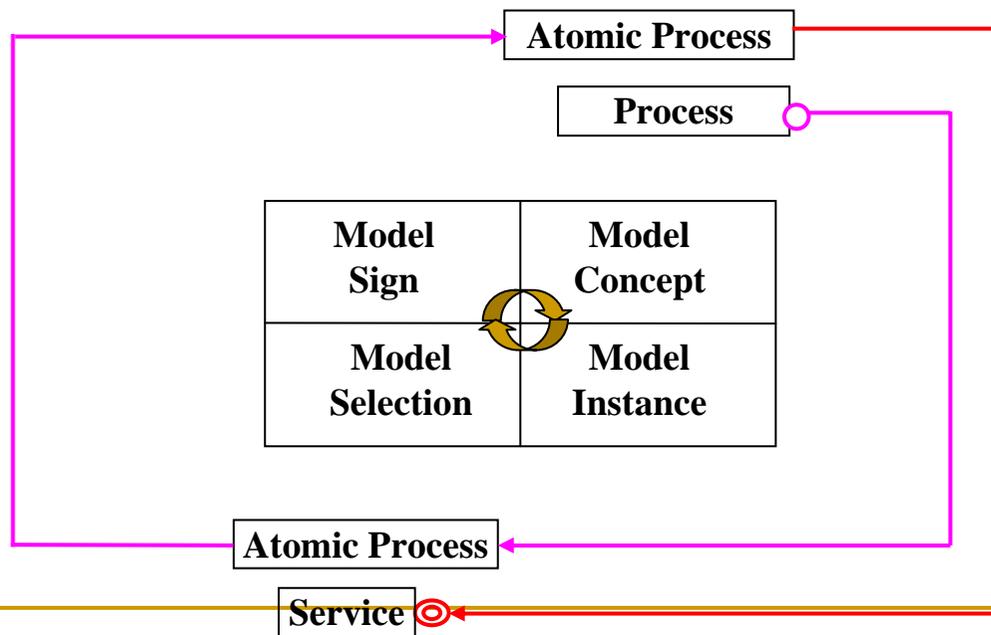
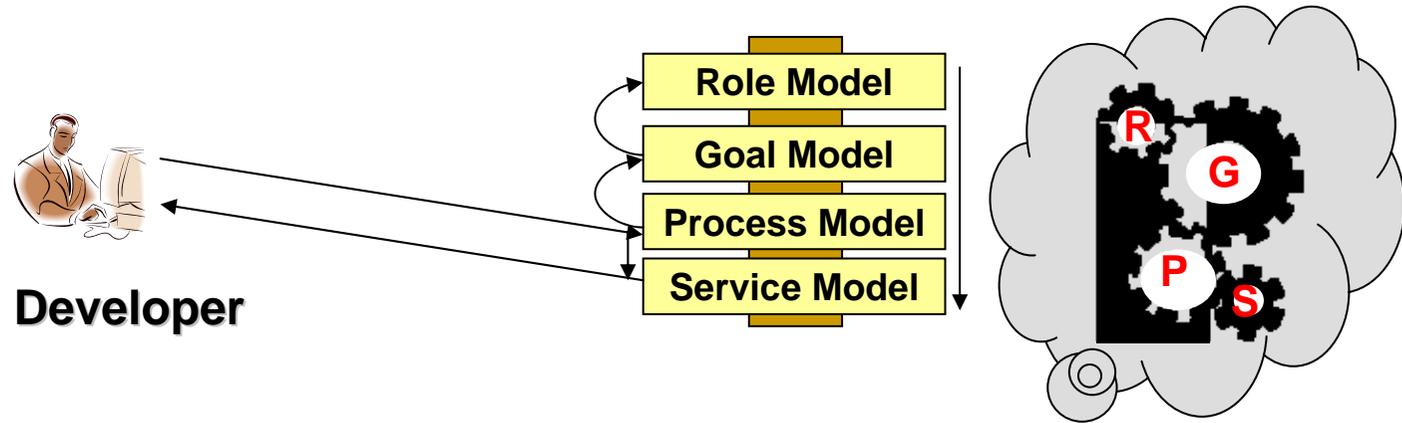
Topic 4: Typical model selection cases

- User's requirement can be expressed by means of **role /goal/process/service**.
- The whole model selection process consists of many steps.
 - Some steps may follow the **decomposition** of Role->Goal -> Process -> Service.
 - When there is no model that satisfies the requirement, the searching agent should access the **upper** levels to find possibly useful models.
 - In these cases, users should make further selection.

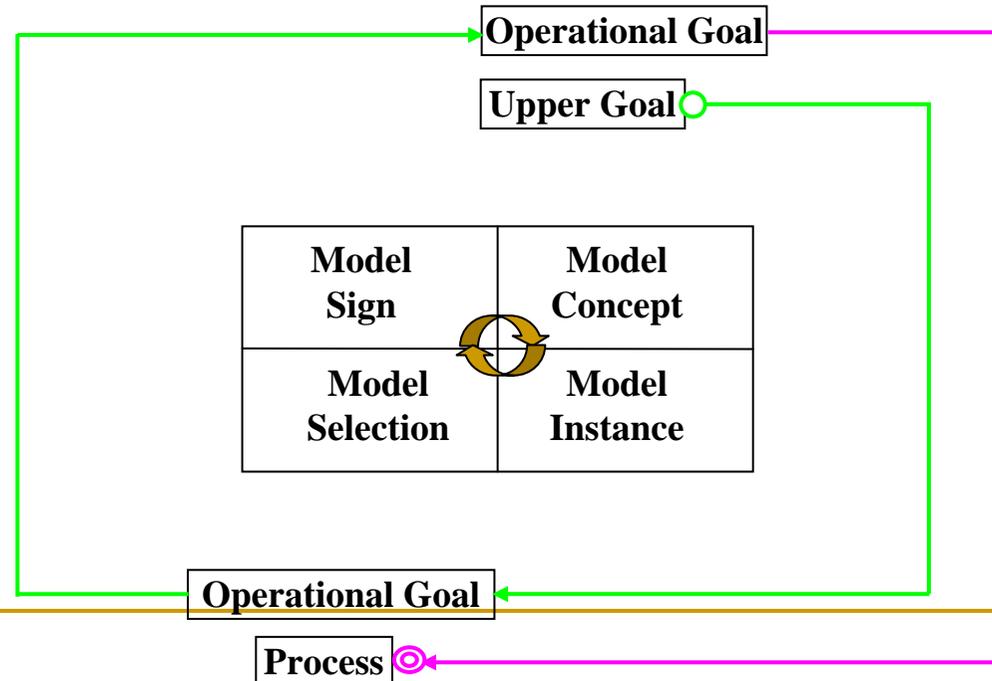
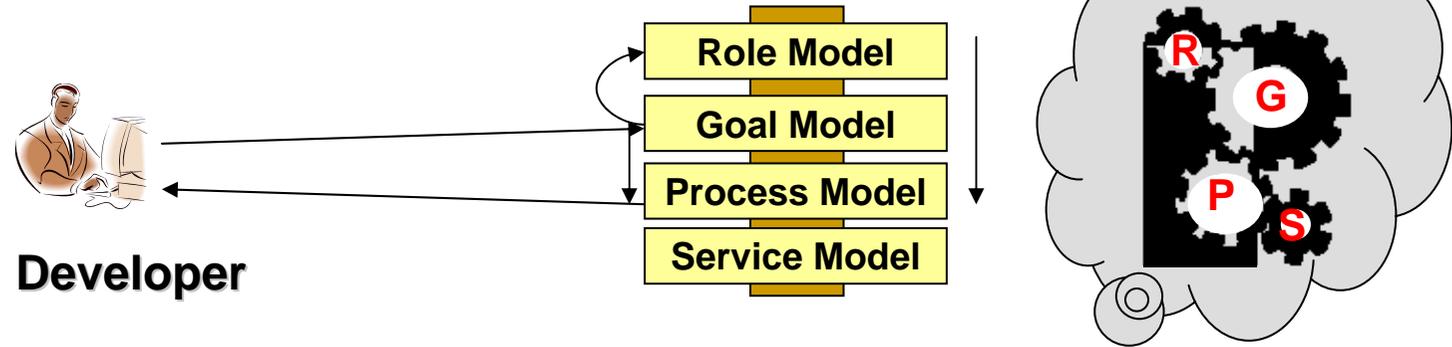
RGPS based model selection process (Case 1)



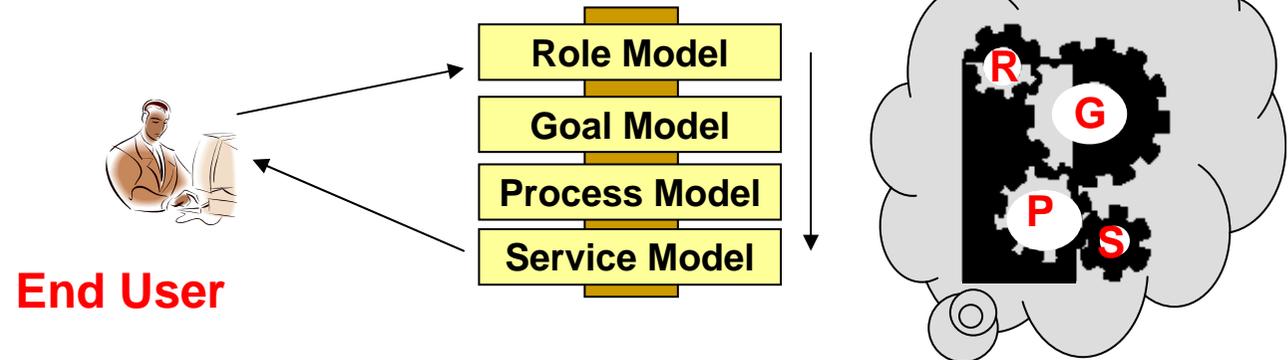
RGPS based model selection process (Case 2)



RGPS based model selection process (Case 3)



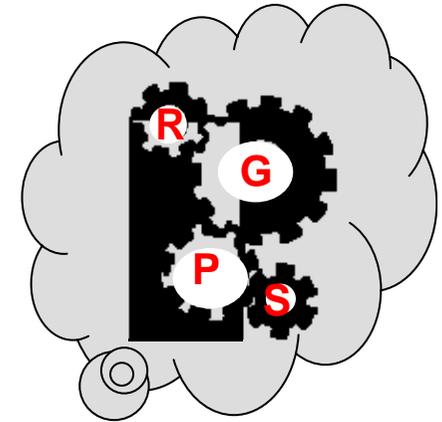
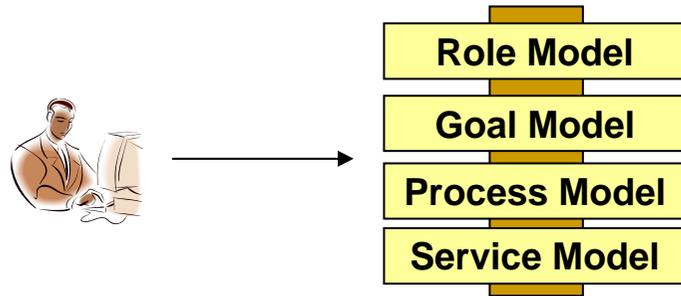
RGPS based model selection process (Case 4)



| | |
|------------------------|-----------------------|
| Model Sign | Model Concept |
| Model Selection | Model Instance |

A circular arrow icon is positioned between the two rows of the table, indicating a cyclical or iterative process.

RGPS based model selection process (Other Cases)

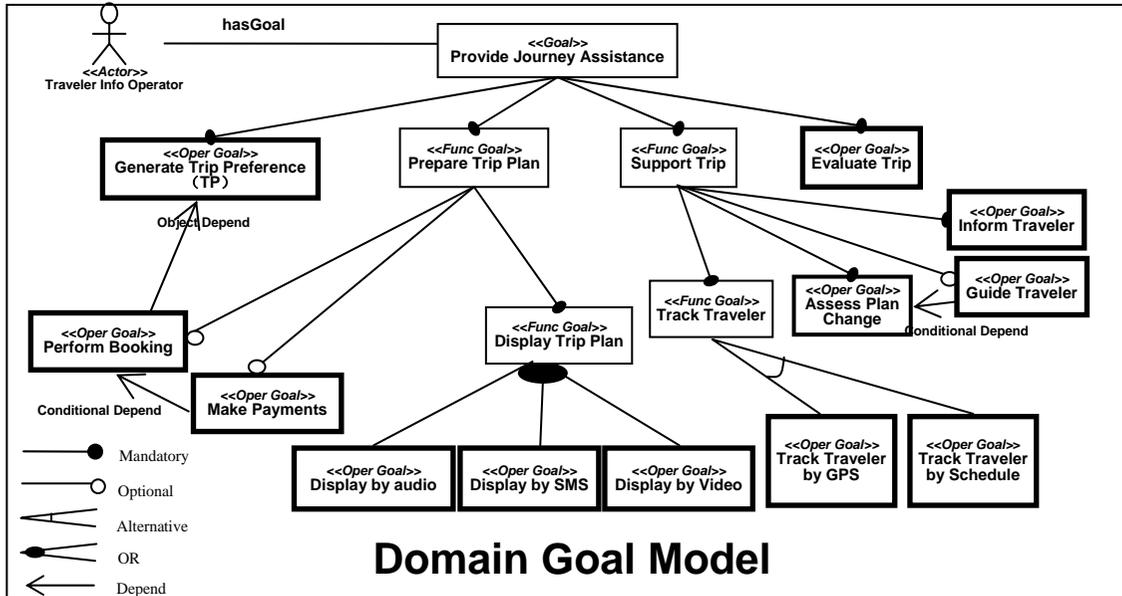


All depend on user's target!

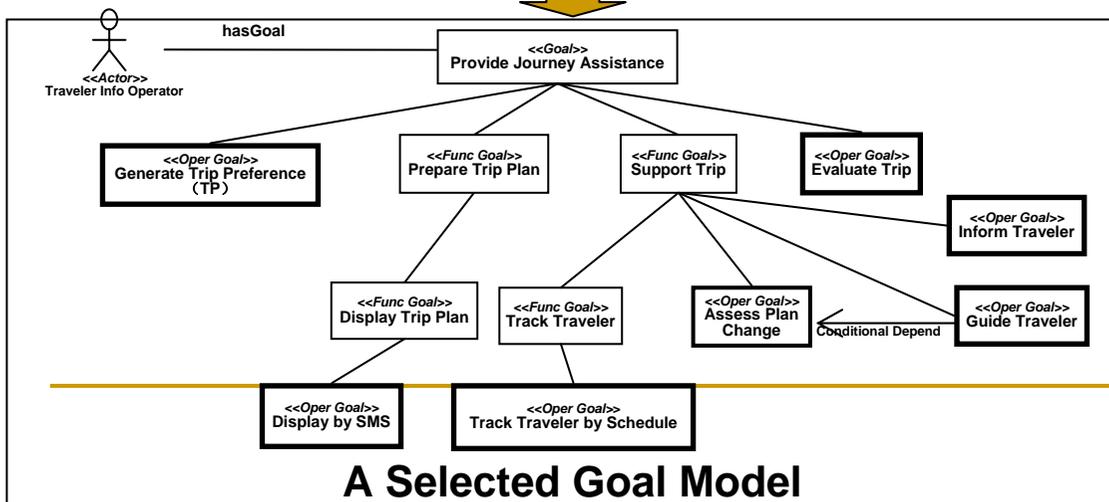
| | |
|------------------------|-----------------------|
| Model Sign | Model Concept |
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A 2x2 table with a circular arrow icon in the center, indicating a cycle or relationship between the four quadrants.

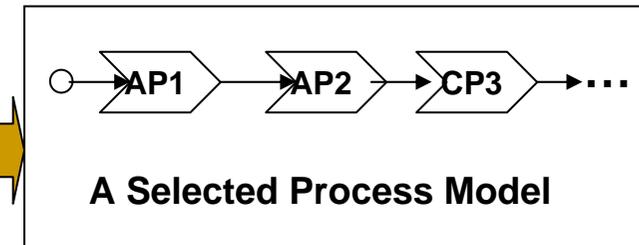
Topic 5: A comprehensive example



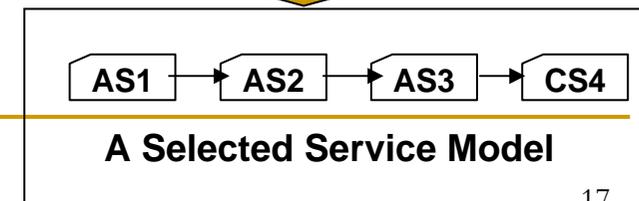
Domain Goal Model



A Selected Goal Model

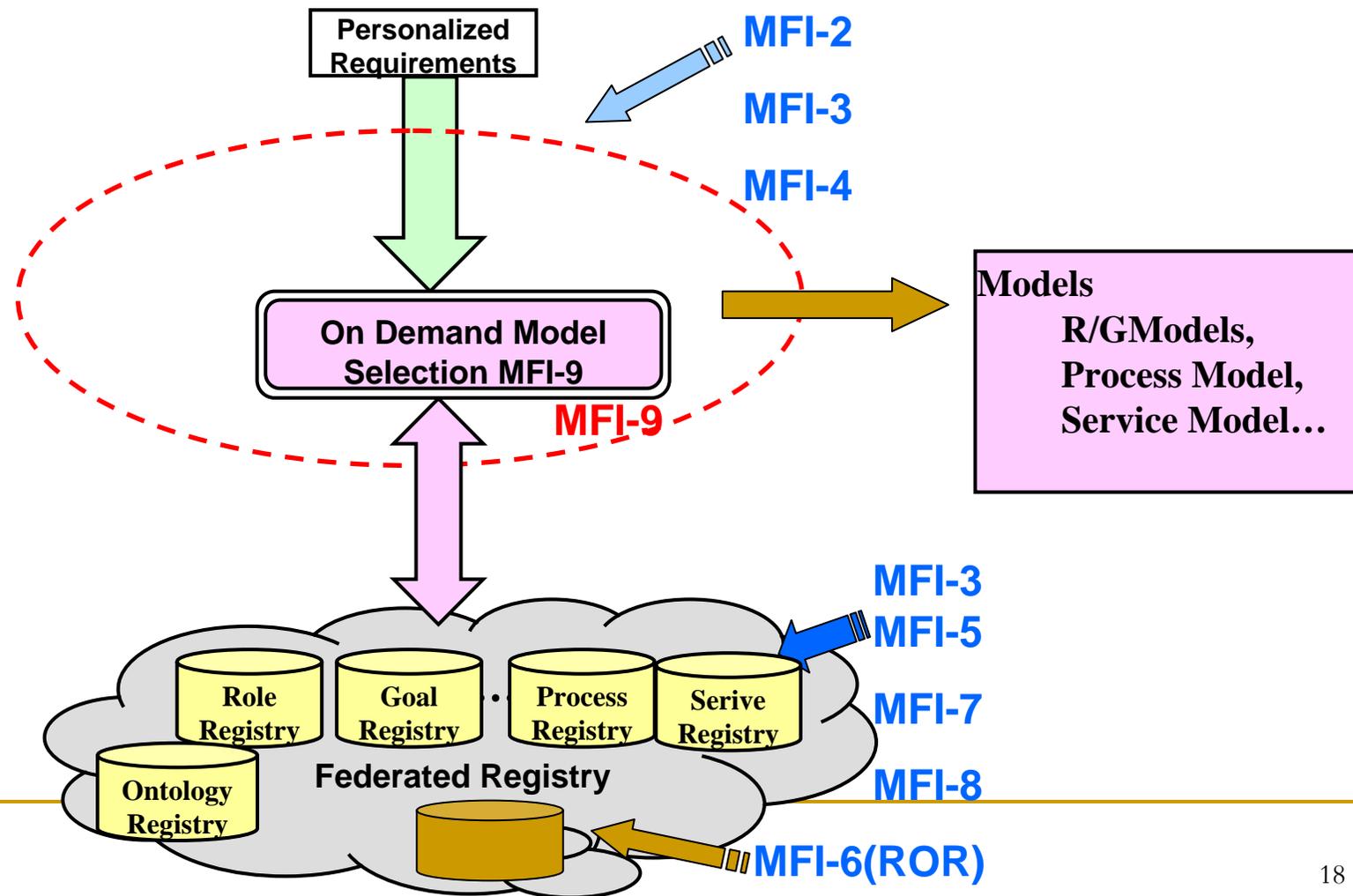


A Selected Process Model

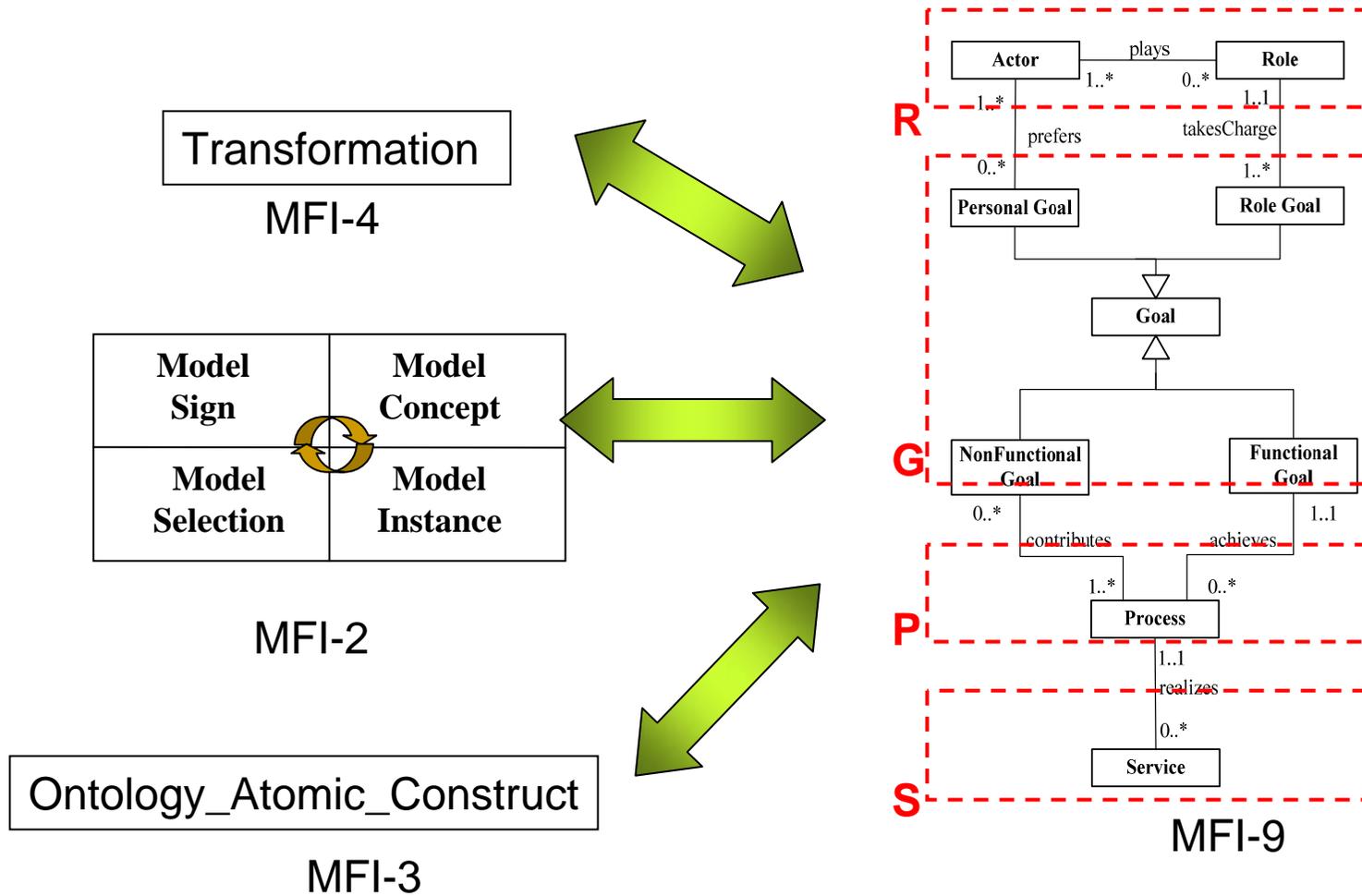


A Selected Service Model

Topic 6: MFI-9 vs. the other parts of MFI



A closer look



Content

- Background
- What will be covered in MFI-9
- **RGPS vs. ODP**
- MFI-9 vs. ROR

What is ODP



ODP system specifications

- The *Reference Model of ODP (ITU-T Rec X.901-904 | ISO/IEC 10746)* defines a framework for system specification, covering all aspects of open distributed systems:

“enterprise” context, functionality, distribution, infrastructure technology

comprises

structure for system specifications in terms of viewpoints

language (concepts and rules) for expressing each viewpoint

specification

set of object-oriented foundation modeling concepts

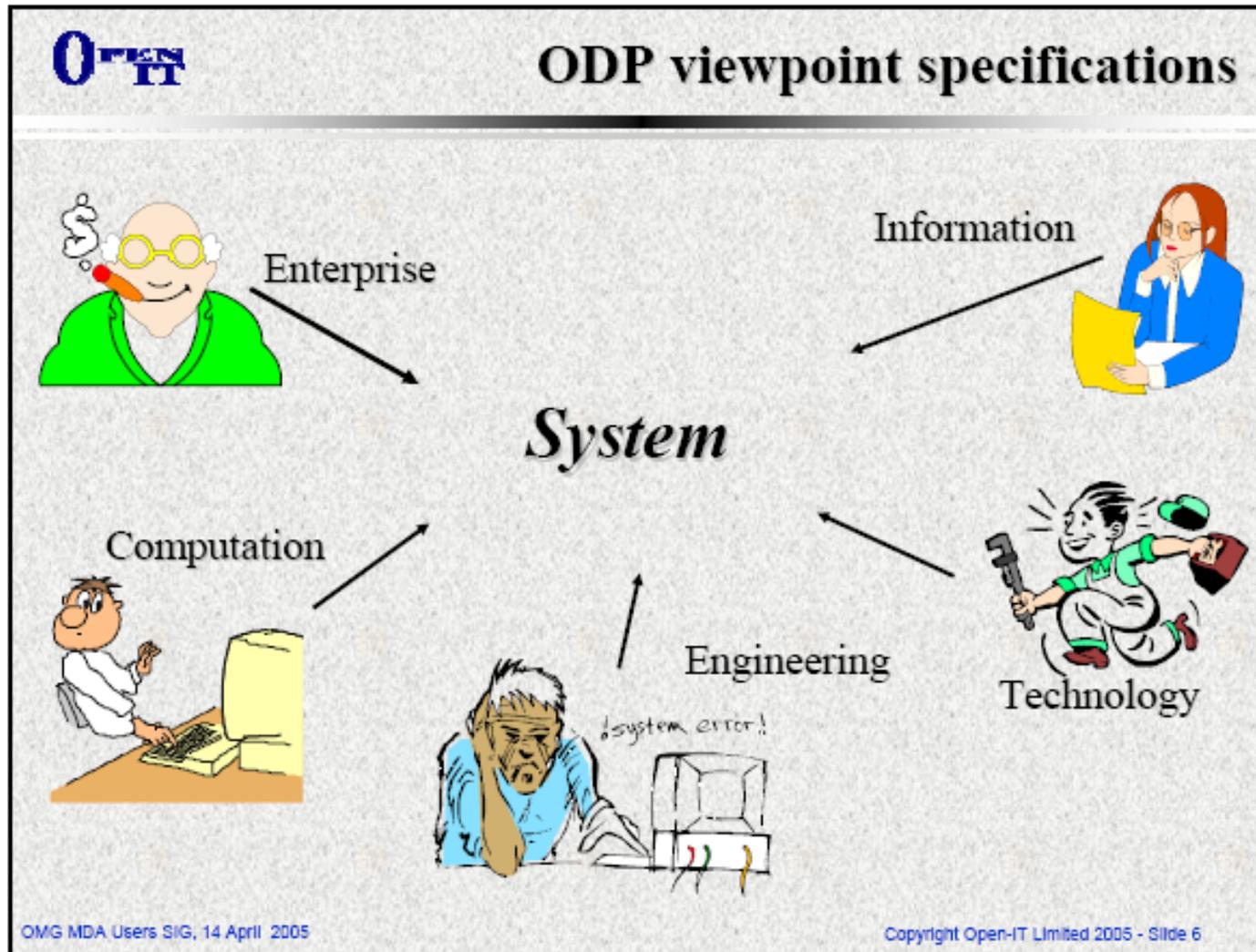
common to all viewpoint languages

RGPS focuses on the registration and management of domain models.

It aims to promote the interoperation between systems.

RGPS will not cover all the aspects of information systems

Content of ODP(1/6)



Content of ODP(2/6)

Open IT **The enterprise specification**

- Specifies the roles played by an IT system in its organisational environment
- An object model of a social/commercial organisation in terms of:
 - *enterprise objects*
 - *communities (of enterprise objects)*
 - objectives
 - *behaviour*
 - roles (fulfilled by *enterprise objects* in a *community*)
 - processes (meeting *objectives*)
 - Policy
 - ...



R
G
P

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Content of ODP(3/6)



The information specification

- Specifies system behaviour to meet its objectives abstracted from implementation
- An object model of the *system* describing the semantics of information and of information processing in the *system* in terms of:
 - *information objects*
 - *invariant schema* - predicates on *information objects* that must always be true
 - *static schema* - state of *information objects* at some *location in time*
 - *dynamic schema* - allowable state changes of *information objects*



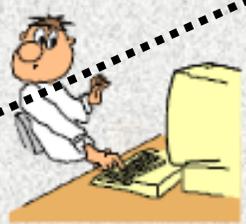
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Content of ODP(4/6)

OPEN IT **The computational specification**

- Specifies computational structure in terms of units of functionality and distribution and their interactions
- An object model of the *system* describing the structure of processing in terms of:
 - *computational objects*
 - interfaces: operations supported
 - *invocations*: operations invoked
 - computational bindings
 - environmental contracts: *QoS* constraints
 - ...



A dashed arrow points from the list of items to a yellow square containing the letter 'S'.

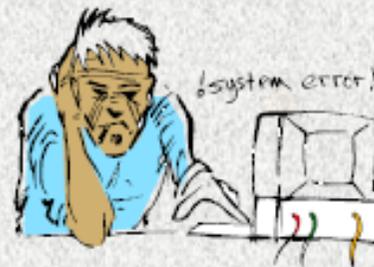
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Content of ODP(5/6)



The engineering specification

- Specifies the mechanisms and services to provide the distribution transparencies and meet QoS constraints required by the system
- An object model of the system describing the infrastructure supporting the computational structure
 - *basic engineering objects*
 - *(infrastructure) engineering objects*
 - *clusters, capsules, nodes*
 - *channels*
 - *functions*



Content of ODP(6/6)



The technology specification

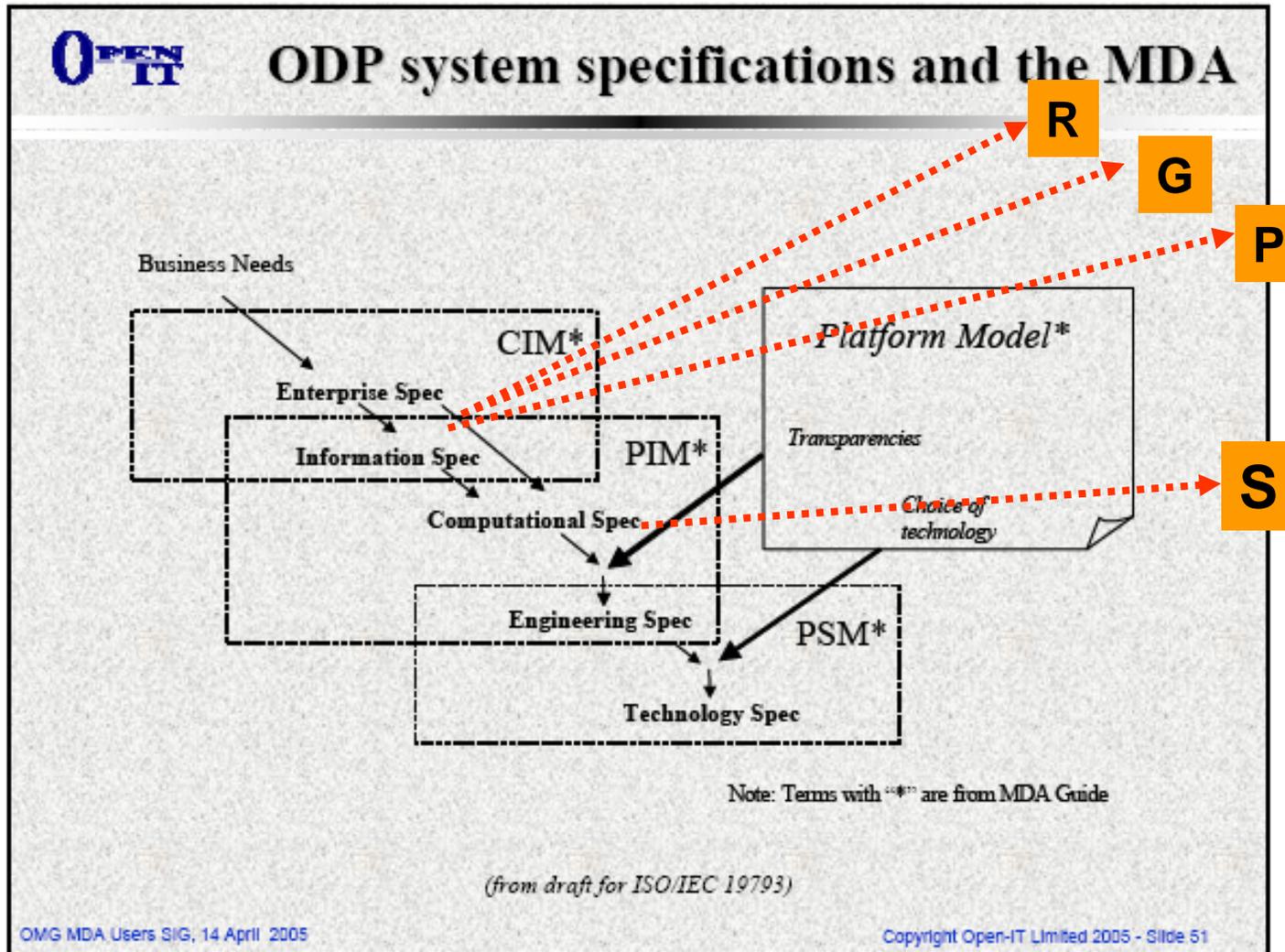
- Specifies the hardware and software pieces from which the system is built.
- An object model of the system
 - defining the configuration of *technology objects* that comprise the ODP system, and the *interfaces* between them
 - identifying conformance points



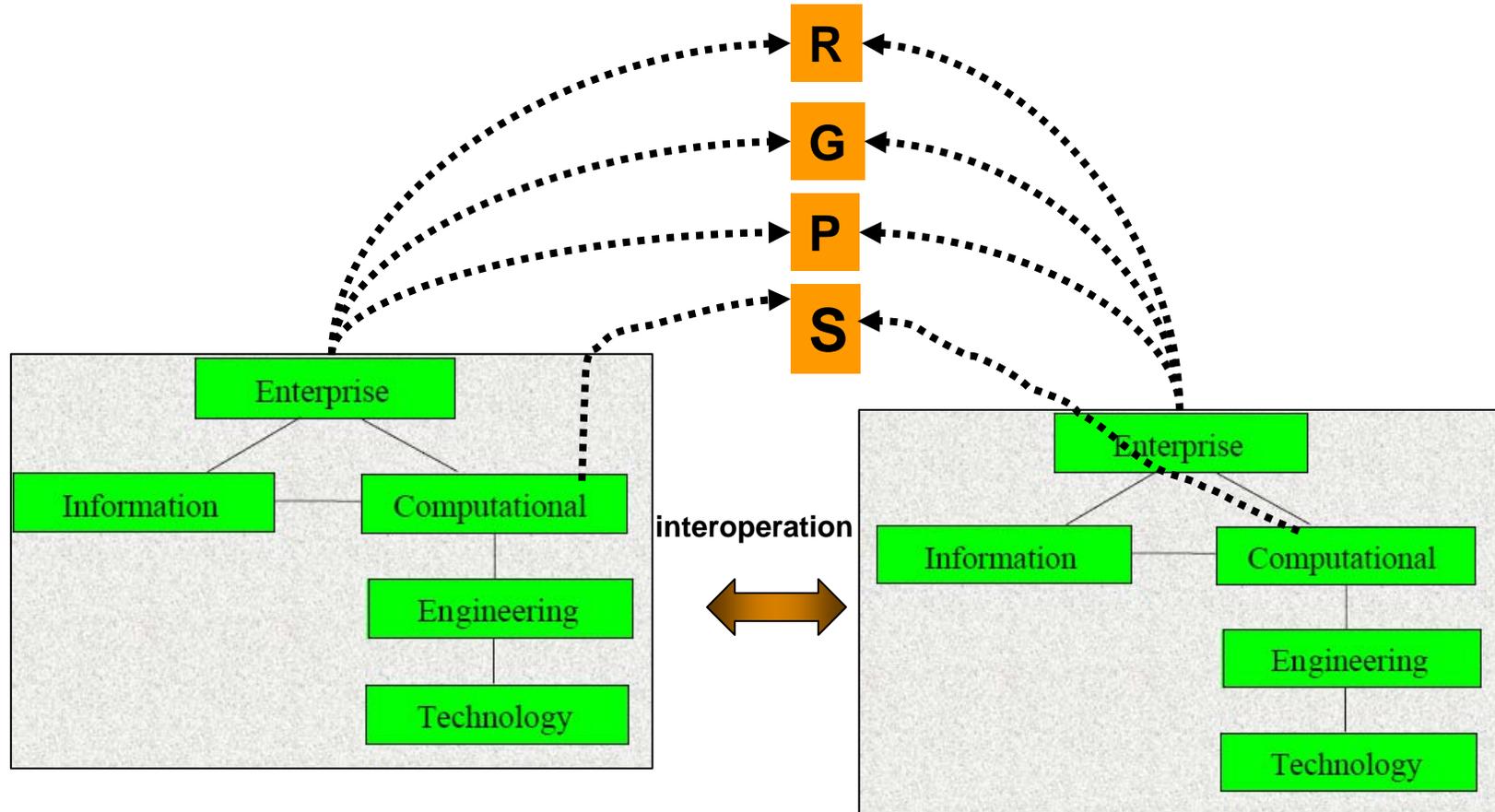
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ISO/IEC 19793:2008 (Update of ODP)



Relationship between ODP and RGPS



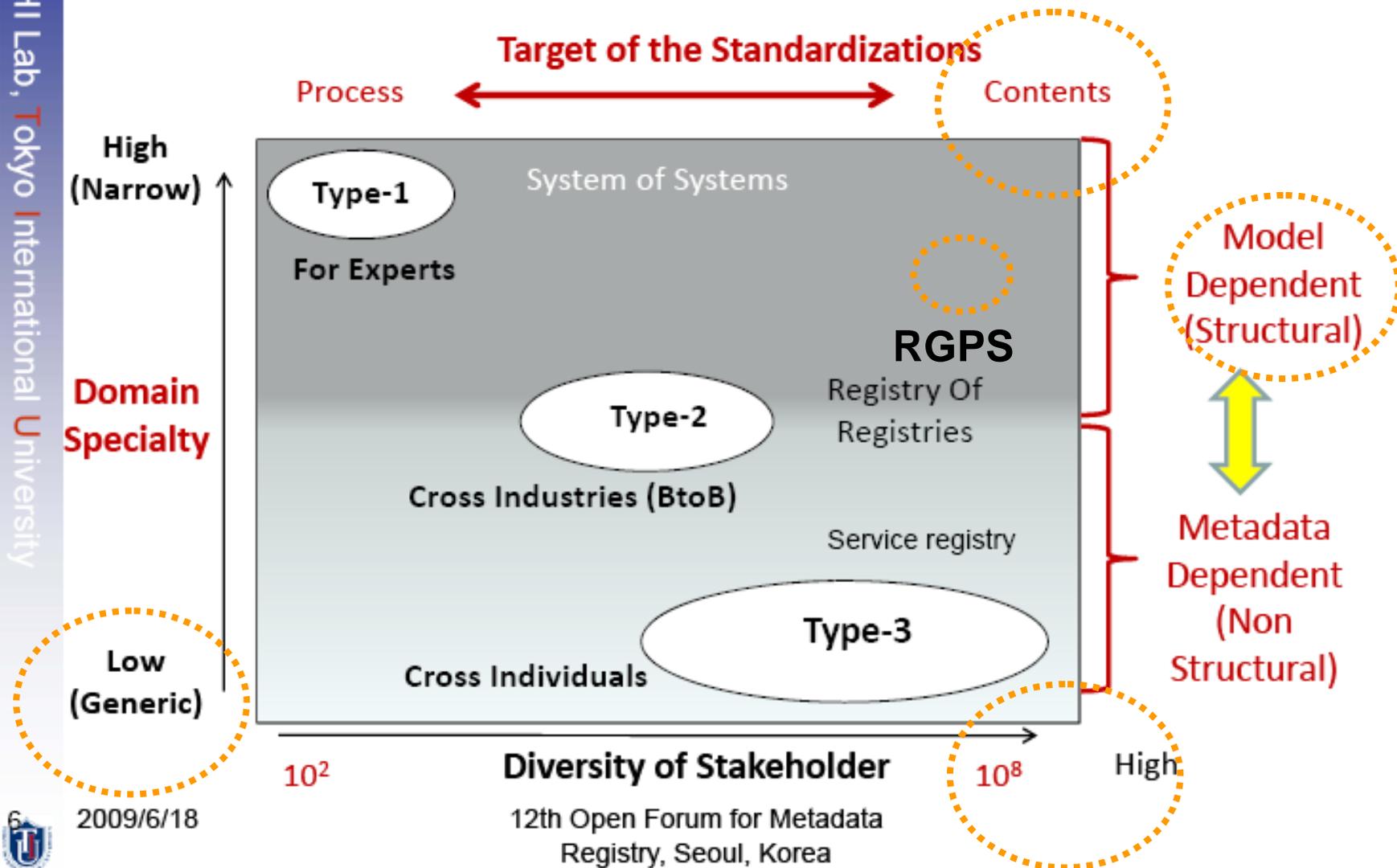
Possible collaboration

- Expanding RGPS modeling platform to support ODP modeling.
- Registering the models during ODP modeling process in RGPS registry
- Reusing the models which have been registered in RPGRS registry in the ODP modeling process

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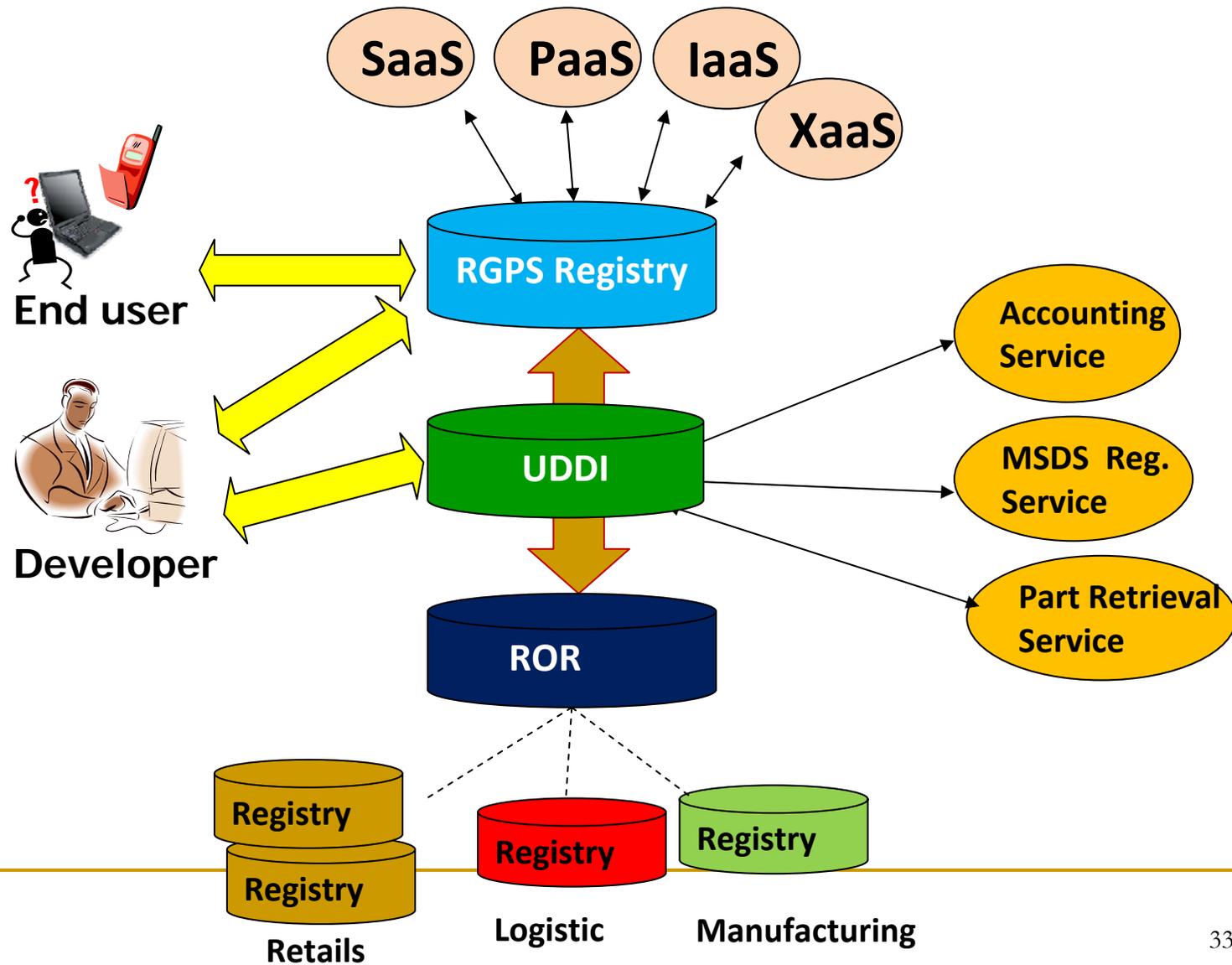
Taxonomy of Registry Types



2009/6/18

12th Open Forum for Metadata Registry, Seoul, Korea

Relationship between RGPS/ROR/UDDI



Thank you !

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