

Seamlessly Integrating Service Discovery into UML Requirements Processes

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SeCSE - secse.eng.it

EU-funded SeCSE IP

- €10m 4-year project on service-centred systems

Mission statement

- *“Create new methods, tools and techniques for systems integrators and service providers that support the cost-effective development and use of dependable services and service-centric applications”*

Four activity areas

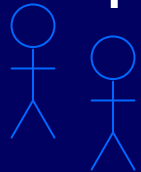
1. **Service engineering**: specification of services
2. **Service discovery**: discovering and retrieving services at development, deployment and run-time
3. **Systems engineering**: service-oriented architectures
4. **Service delivery**: deploying, monitoring and switching services

Industrial evaluation and application

- Fiat, **DaimlerChrysler**, Telecom Italia, **Telefonica**, Computer Associates, **Microsoft**, ATOS, **Engineering**

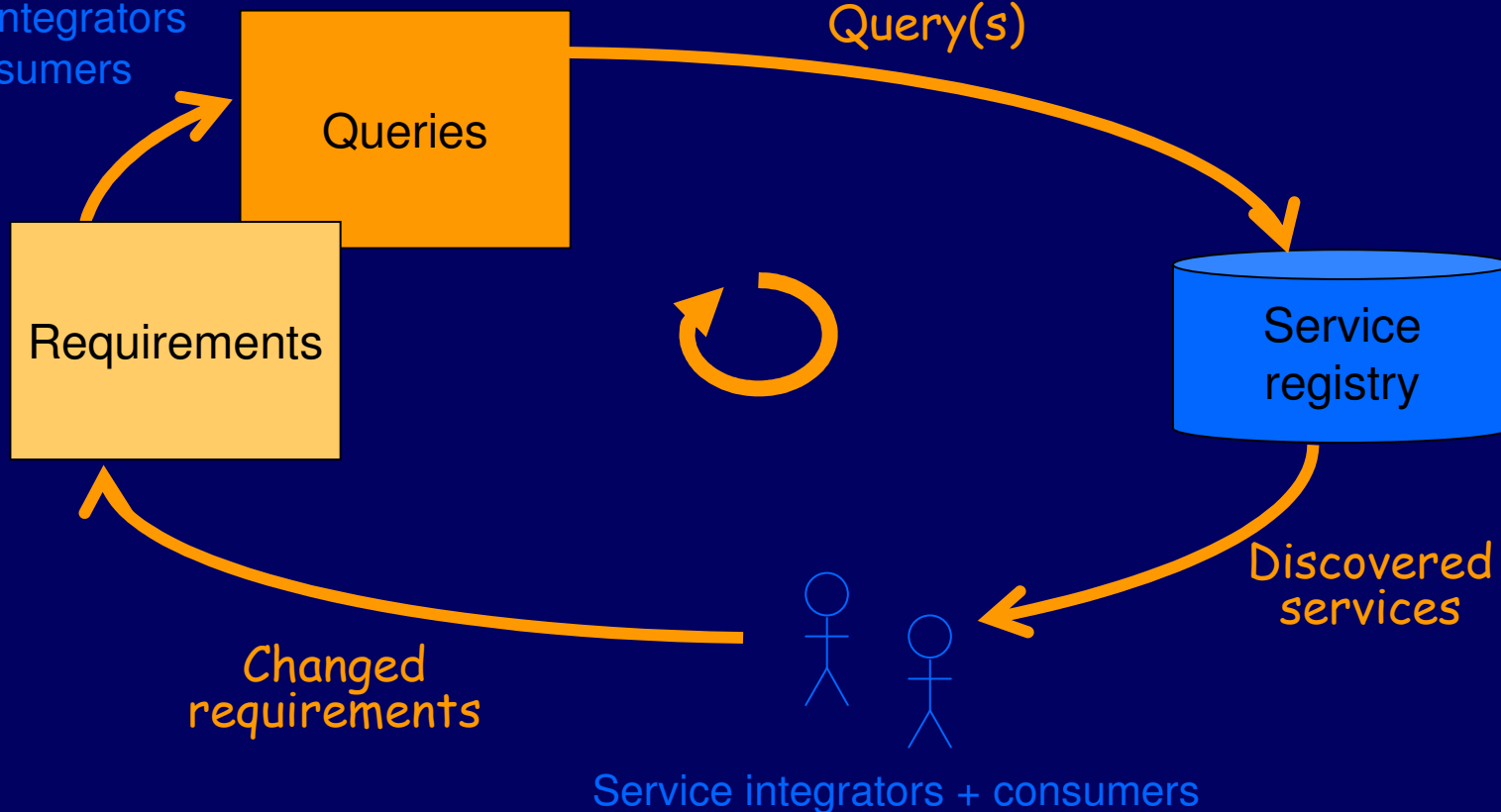
SeCSE Requirements Process

Flexible processes



– Different configurations of processes, techniques and tools

Service integrators
+ consumers



Service integrators + consumers

Problem

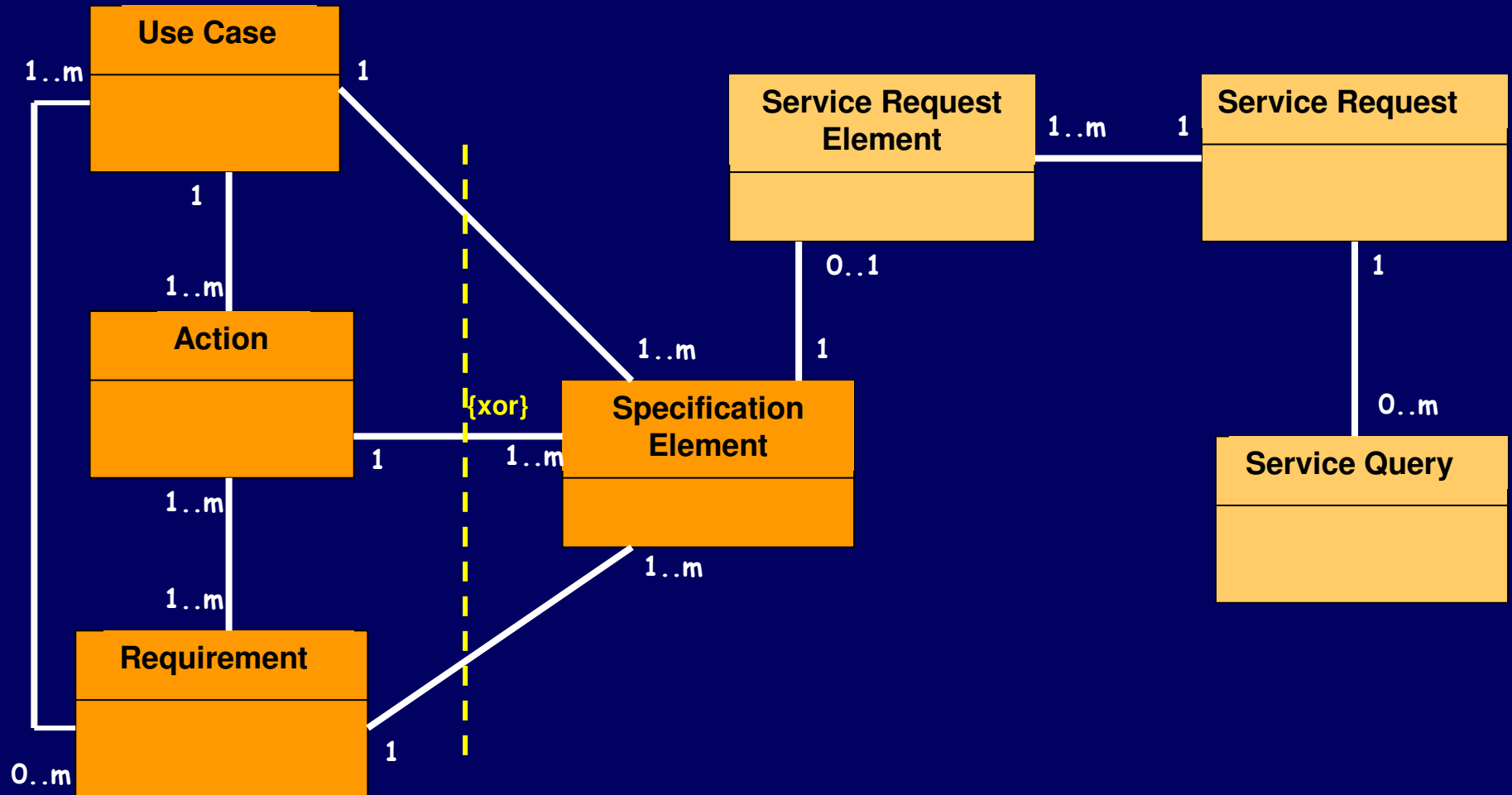
Integration

- service discovery & selection processes into established systems development methods → **extra tasks**

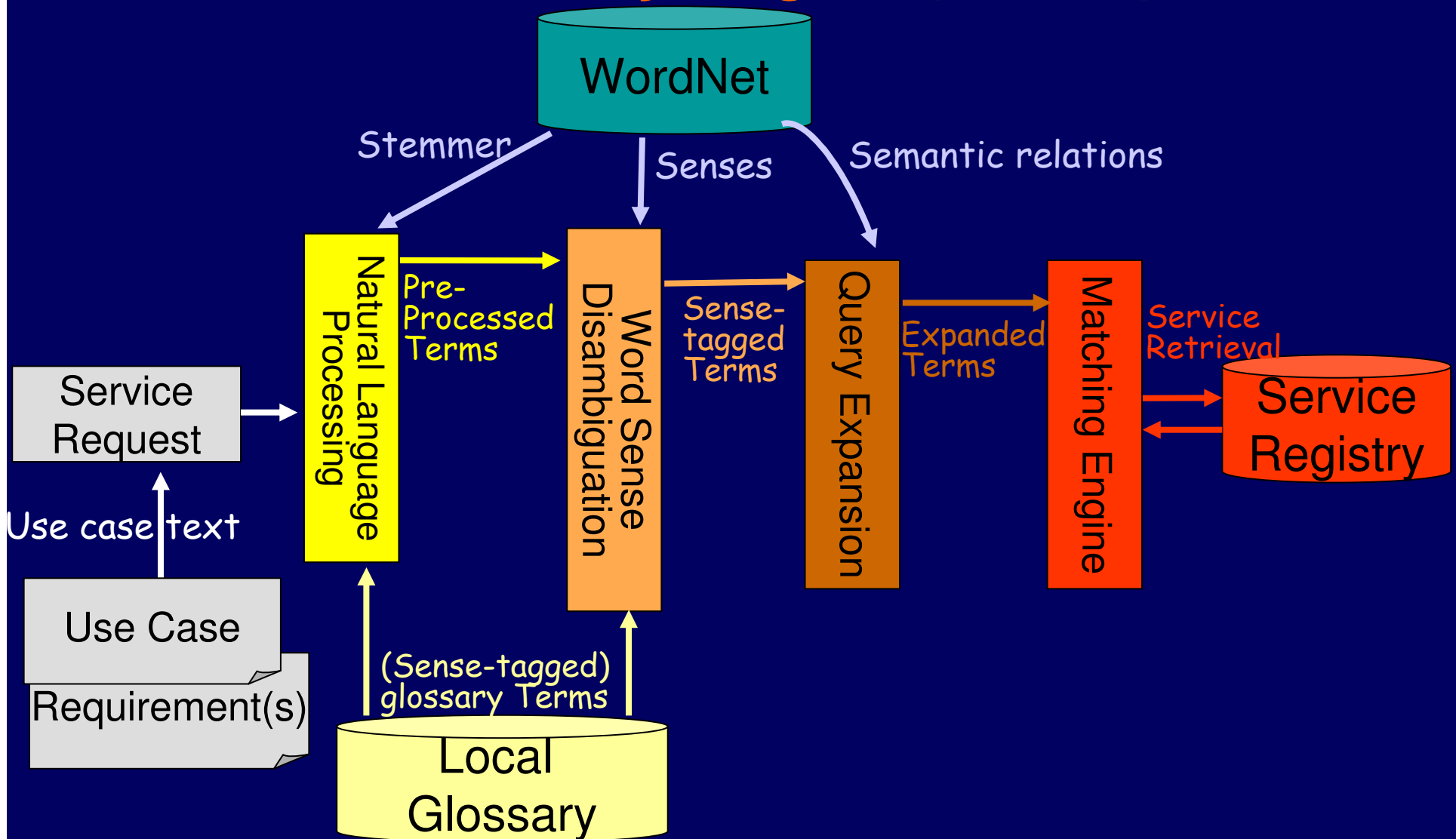
Trade-off

- **too many tasks** can critically reduce the usability and adoption of a method
 - **manual generation** of new artifacts such as service requests from requirements can lead to incomplete and inconsistent queries
- **Seamless** integration of a service discovery method within existing development processes

UCaRE's Conceptual Architecture



SeCSE's Discovery Engine (EDDiE)



DEMO

Management
Basics
Normal Course

Use Case Name:

Precis:

Problem Statement:

Assumptions:

Actors:

- driver.
- garage.
- on-board diagnostic

Functional Requirement(s):

ID	Description	Source
FR8	The remote-maintenance service will provide the driver with directions to the nearest garage.	[Del]
FR9	The remote-maintenance service shall detect faults with the car`s engine.	[Del]
FR10	The remote-maintenance service shall diagnose faults with the car`s engine.	[Del]
FR11	The remote-maintenance service shall locate a garage which can repair	[Del]

add new Requirement...

Non-Functional Requirement(s):

ID	Description	Source
RR1	The remote-maintenance service will provide the driver with reliable directions to the nearest garage	[Del]
RR2	The remote-maintenance service shall correctly diagnose 80% of faults with the car`s engine.	[Del]
PR6	The remote-maintenance service shall diagnose all faults within 5 minutes of their detection	[Del]

add new Requirement...

Future Work

Pattern Catalogue

- Link **classes** of requirement **problem** to service **solutions**
- Discovered patterns used to reformulate requests with terms specific to software services.

Agent-driven Service Discovery

- intelligent search agents automatically form and revise service queries in **background mode** whilst the analyst specifies requirements
- retrieve and present descriptions of services that agents infer are useful during requirements tasks.
 - Granularity of Services

Thank you for your attention!

Questions?