

S|CASE

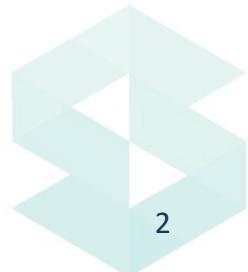
## Introduction

Kyriakos Chatzidimitriou, AUTH



# Before we start

- Please go to : <http://scase.issel.ee.auth.gr/>
- and fill out the Pre-Hackathon Survey
- Thank you



# S-CASE Profile

- **Full Name:** Scaffolding Scalable Software Services
- **Funded Under:** FP7 ICT
- **From:** 2013-11-01
- **To:** 2016-10-31
- 9 partners
- **Websites:** <http://www.scasefp7.eu/> & <http://s-case.github.io/>



# Partners



ΑΠΘ, Ελλάδα



ITI, Ελλάδα



Akquinet, Γερμανία



Engineering, Ιταλία



Flexiant, HB



Ericsson, Κροατία



Πανεπιστήμιο της Insubria,  
Ιταλία  
S-CASE Hackathon



Πανεπιστήμιο του Εδιμβούργου,  
HB  
Thessaloniki, 1-2 July 2016



Delphis, Ελλάδα



# Schedule

- **10:30-11:00** Coffee and setup
- **11:00-11:30** Καλωσόρισμα, Εισαγωγή και Σύντομη Περιγραφή του S-CASE
- **11:30-13:00** Παρουσίαση εργαλείων S-CASE
  - 11:30-12:00 **MDE** (Χριστόφορος Ζολώτας, ΑΠΘ)
  - 12:00-12:15 **Text Requirements** (Θέμης Διαμαντόπουλος, ΑΠΘ)
  - 12:15-12:45 **Web Service Composition** (Μαρία Κουτλή, ΙΤΙ)
  - 12:45-13:00 **Basic S-CASE Workflow** (Θέμης Διαμαντόπουλος, ΑΠΘ)
- **13:00-13:30** Ελαφρύ γεύμα
- **13:30-14:30** Παρουσίαση εφαρμογών ανεπτυγμένων με το S-CASE
  - RESTBoards
  - RESTReviews
- **14:30-18:00** Ελεύθερη δημιουργία εφαρμογών
  - **16:00-16:30** Coffee break

# Hackathon

- Γιατί;
- Θέλουμε τη γνώμη σας...
  - Προγραμματιστές για τους οποίους φτιάχτηκε το εργαλείο
  - Προγραμματιστές που χρησιμοποίησαν το εργαλείο

# Motto



Home Focus Get Started Features Demo Poll Offerings Contact About Web Book Ecosystem & Docs Releases Survey\*

EASILY CREATE RESTFUL APIs FROM REQUIREMENTS

DEVELOPER?

BUSINESS?

Help us understand more about your needs.

TAKE THE SURVEY!

■ AUTOMATE FUNCTIONALITY CREATION

○ QUALITY BACKENDS IN TIME

✓ SATISFACTION GUARANTEED



# What is S-CASE?

- Ημι-αυτόματη δημιουργία, λειτουργικών, RESTful APIs από απαιτήσεις
  - Στο hackathon θα δούμε τη δημιουργία RESTful APIs από απαιτήσεις σε μορφή ελεύθερου κειμένου.
  - Όπως επίσης και τη δημιουργία συνθέσεων web services (web service compositions) σε ενιαίες υπηρεσίες και πως αυτές μπορούν να χρησιμοποιηθούν από το S-CASE



# What can S-CASE do for you?

- RESTful
  - 3<sup>rd</sup> level of Richardson Maturity Model (HATEOAS)
- Code Generation
  - Automated code generation
- Database creation
  - Automatically generate the database schema
- Search
  - Database search functionality
- Deploy-ready
  - Ready to deploy the back-end to a container of your choice
- Authentication
  - Restrict access to selected resources
- Authorization
  - Attribute Based Access Control
    - Devise your API security plan up to the last detail
- External Web Services
  - Connect to 3<sup>rd</sup> party services and use their functionality
- Web Service Composition
  - Compose 3<sup>rd</sup> party web services
- Documentation
  - Javadoc & RAML coming soon



# RESTful

- Δημιουργία RESTful APIs
  - of the 3<sup>rd</sup> level in the Richardson Maturity Model
    1. Resources
    2. HTTP Verbs matter
    3. HATEOAS (hypermedia controls)
  - JSON/XML (hypermedia controls)

## Παράδειγμα

<http://martinfowler.com/articles/richardsonMaturityModel.html>

### Request:

```
GET /doctors/mjones/slots?date=20100104&status=open HTTP/1.1
Host: royalhope.nhs.uk
```

### Response:

```
HTTP/1.1 200 OK
[various headers]
```

```
<openSlotList>
  <slot id = "1234" doctor = "mjones" start = "1400" end = "1450">
    <link rel = "/linkrels/slot/book"
      uri = "/slots/1234"/>
  </slot>
  <slot id = "5678" doctor = "mjones" start = "1600" end = "1650">
    <link rel = "/linkrels/slot/book"
      uri = "/slots/5678"/>
  </slot>
</openSlotList>
```

# Code Generation

- Αυτόματη Παραγωγή Κώδικα
  - Compilable, Deployable, Runnable
- Ότι λειτουργικότητα μπορεί να δημιουργηθεί αυτόματα, δημιουργείται, διαφορετικά
  - Left to the developers (placeholder)
  - Call external web service or do a web service composition

CRUD

“Algorithmic”

Π.χ. /distance?from=Thessaloniki&to=Athens

# Database creation

- Αυτόματη δημιουργία σχήματος βάσης για
  - Postgresql
  - Mysql

# Search

- Out of the box full database keyword search powered by Apache Lucene



# Deploy-ready

- mvn package
- Και μεταφορά στο webapps folder ενός application server (π.χ. Jetty, Tomcat)

# Authentication

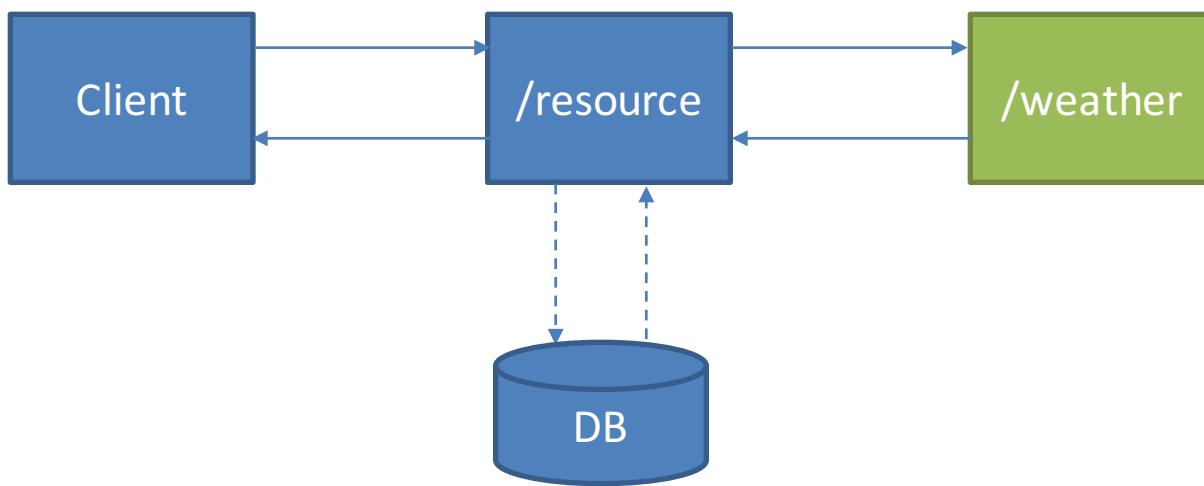
- Restrict access to selected resources
- HTTP Basic Auth at the moment
- Coming Soon:
  - JSON Web Token

# ABAC Authorization

- Attribute-Based Access Control
- Extremely fined-grained security policies
- Π.χ.
  - An authenticated request belonging to user 1, must be able to search by tag bookmarks that owned by user 1 and are marked as private.
- Η δημιουργία security policies με ABAC μπορεί να είναι αρκετά πολύπλοκη.
- Όποιος επιθυμεί να το δοκιμάσει μπορούμε να τον κάνουμε follow up

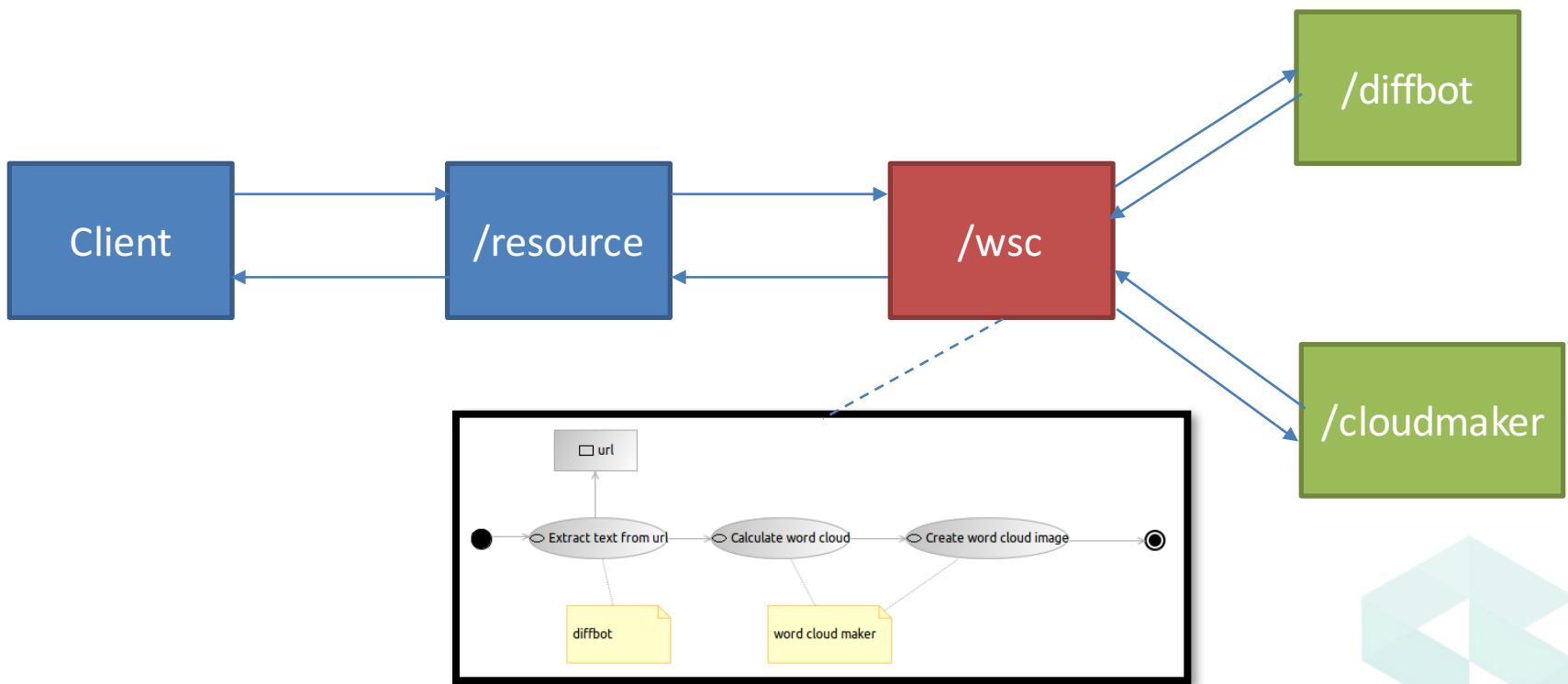
# Requests to External Web Services

- Σύνδεση με εξωτερικές υπηρεσίες web ως reverse proxy:



# Web Service Compositions

- Σύνδεση με εξωτερικές υπηρεσίες web που γίνονται composed ως διάγραμμα ροής:

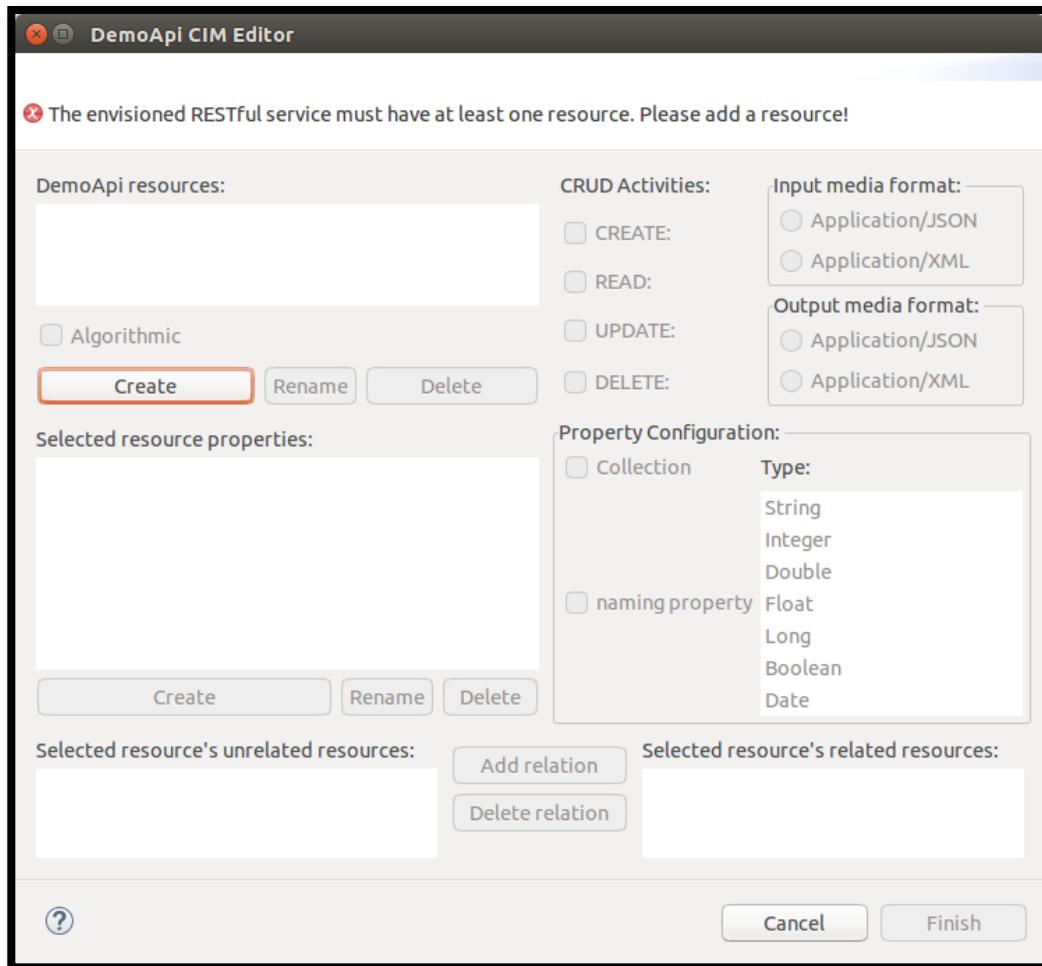


# How can one use S-CASE?

## 3 different levels of granularity

1. Start modelling through the **code generation wizard**

# Code generation

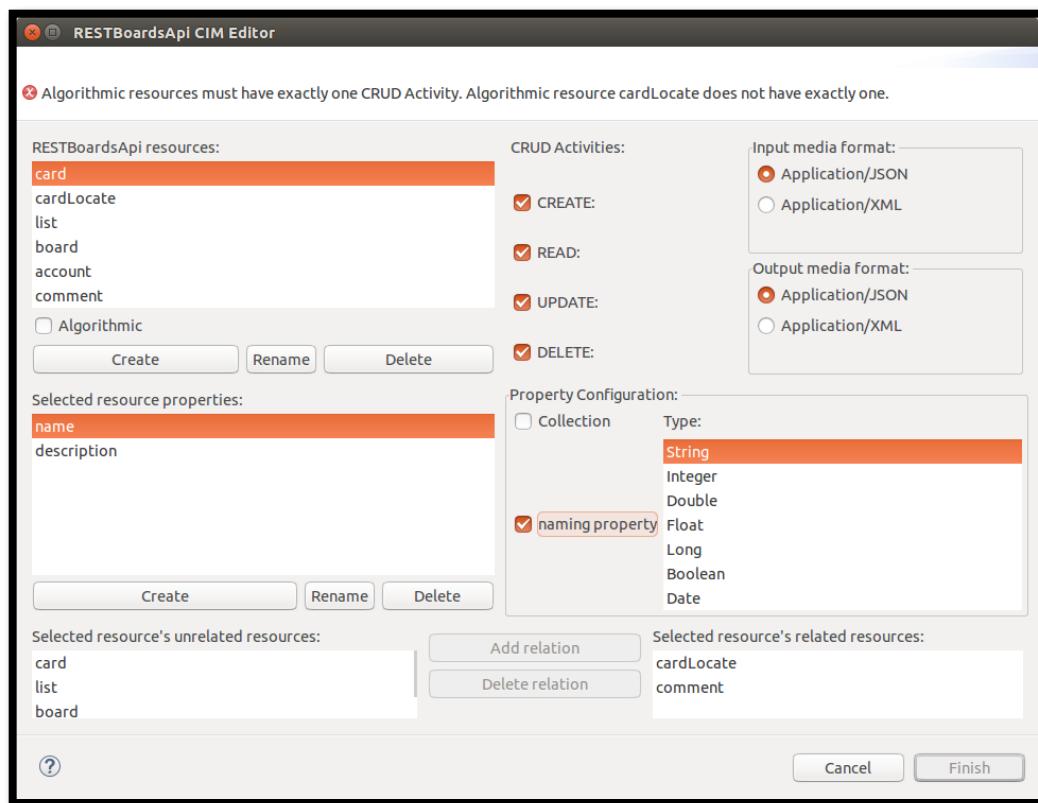
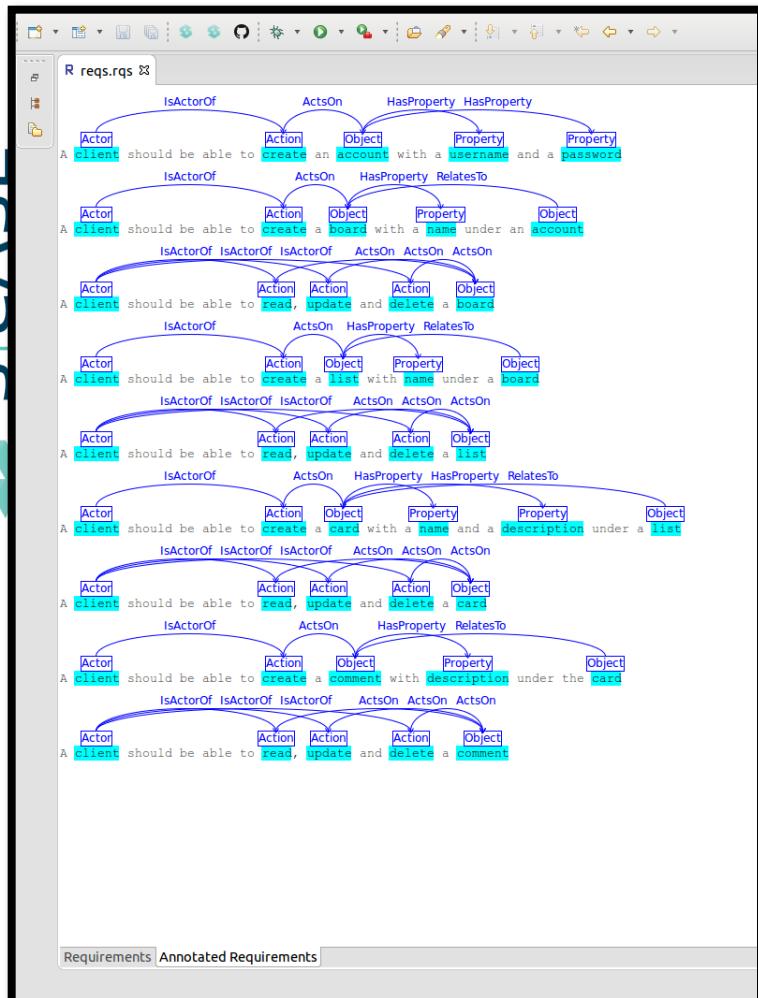


# How can one use S-CASE?

## 3 different levels of granularity

1. Start modelling through the **code generation wizard**
2. Write some **text requirements**, annotate them and get pre-filled the code generation wizard

# Adding some automation

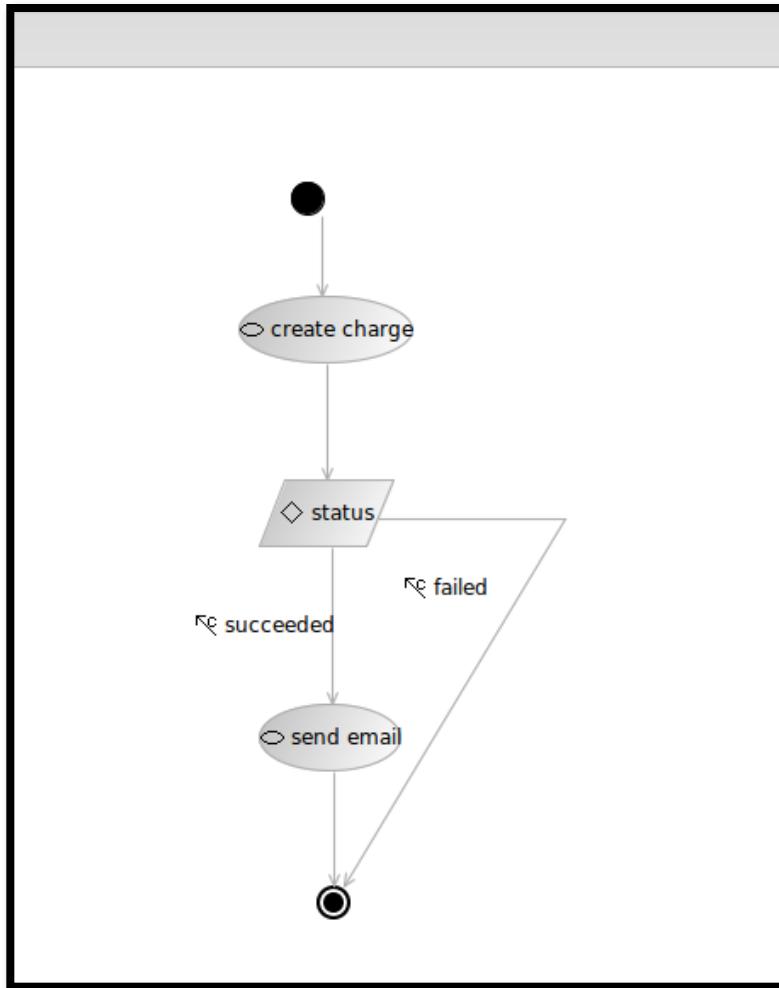


# How can one use S-CASE?

## 3 different levels of granularity

1. Start modelling through the **code generation wizard**
2. Write some **text requirements**, annotate them and get pre-filled the code generation wizard
3. Do the above + add **web service compositions**

# Adding some compositions



# Installation

- Download & start the Eclipse IDE (Mars)
- Select the menu item Install new software...
- Add as a new remote repository the URL:  
[https://eclipse.scasefp7.com/eclipse/scase\\_update\\_site/](https://eclipse.scasefp7.com/eclipse/scase_update_site/)
- Follow the installation instructions

# Who is S-CASE for?

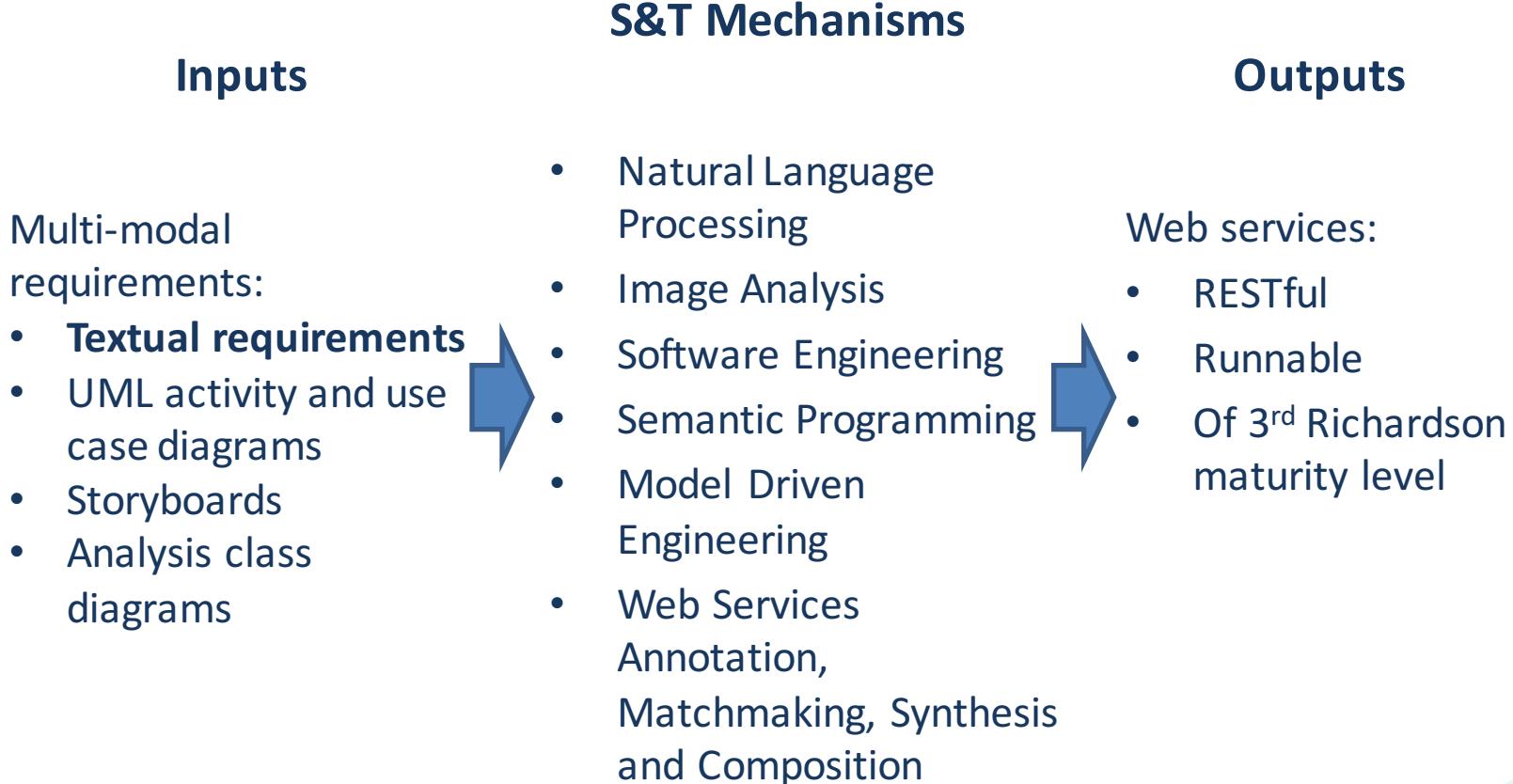
- Fast web service prototyping
  - Easily create web services and then add the rest of the code/maintain

<b>Mobile and web developers</b>	<b>Develop back-end services or mock-up back-end servers to test their front-ends.</b>
<b>Startups</b>	<b>Produce a prototype (MVP) of their idea as quickly as possible. Adapt and rewrite later.</b>
<b>Teams in medium/large companies and R&amp;D departments</b>	<b>Test prototypes of new services quickly. Mock services to use between teams.</b>
<b>Students</b>	<b>Experiment with new ideas in RESTful design &amp; development.</b>

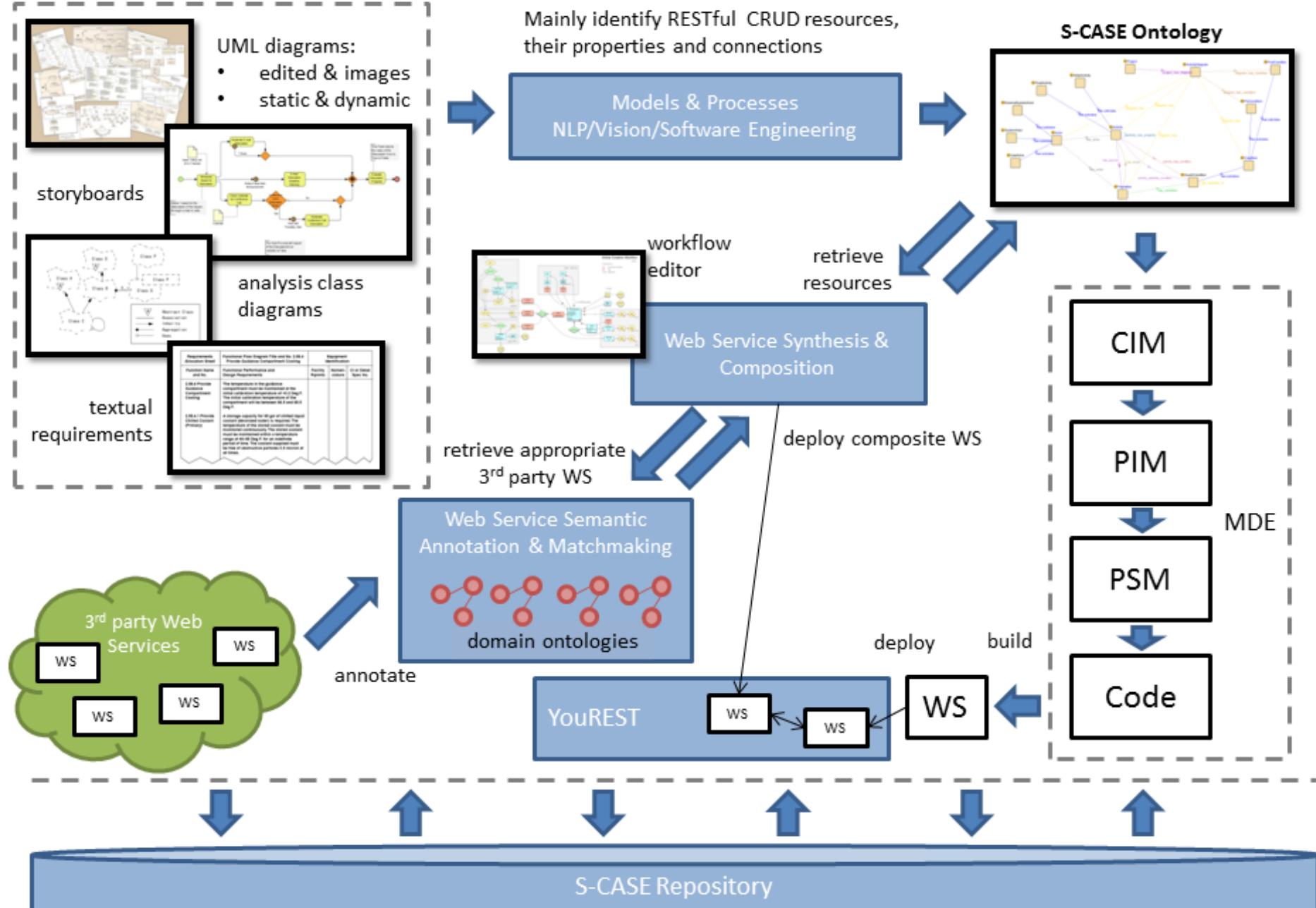
Science & Technology Inner Workings

# S-CASE WORKFLOW

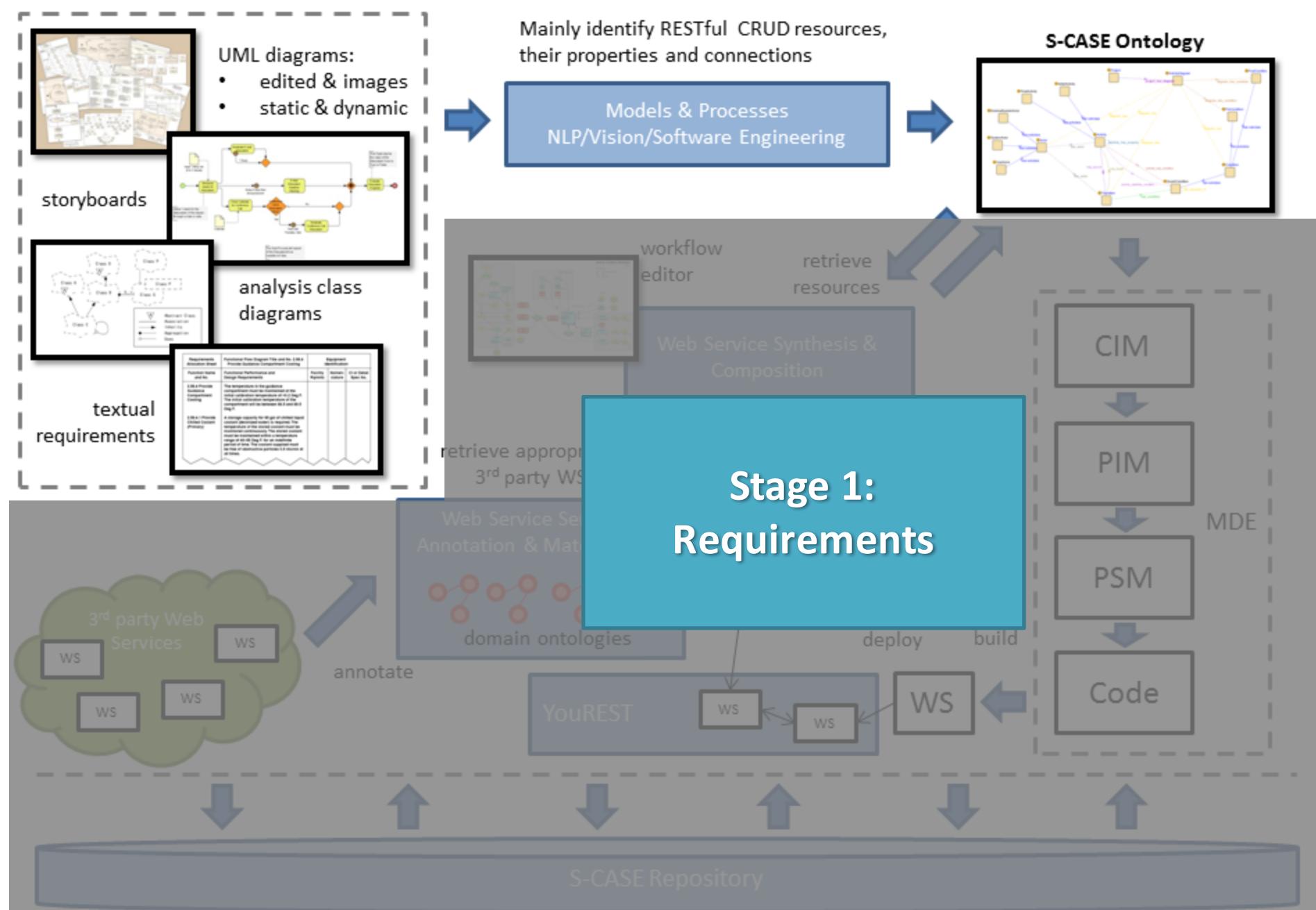
# Secret Sauce



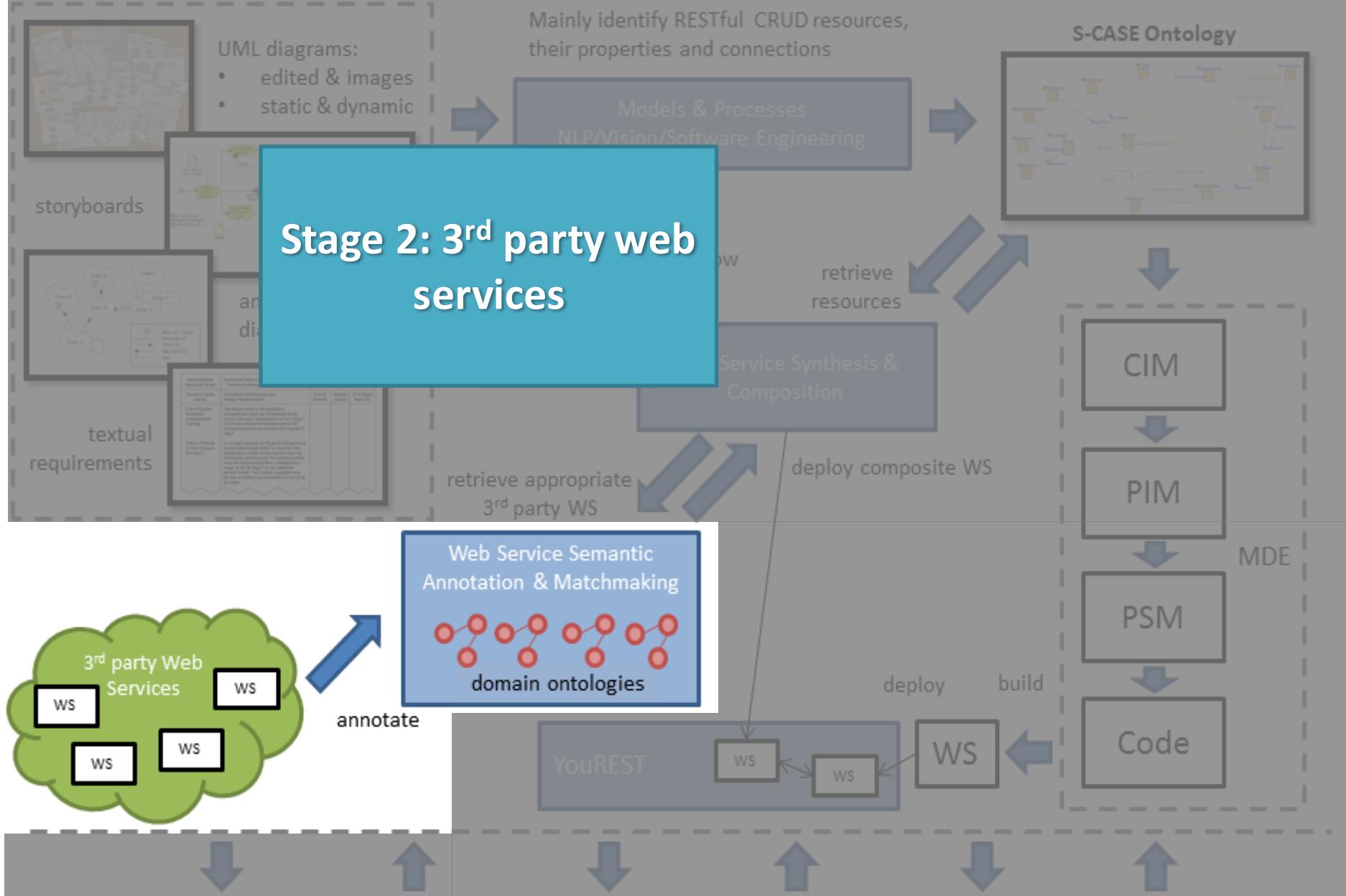
# S-CASE workflow



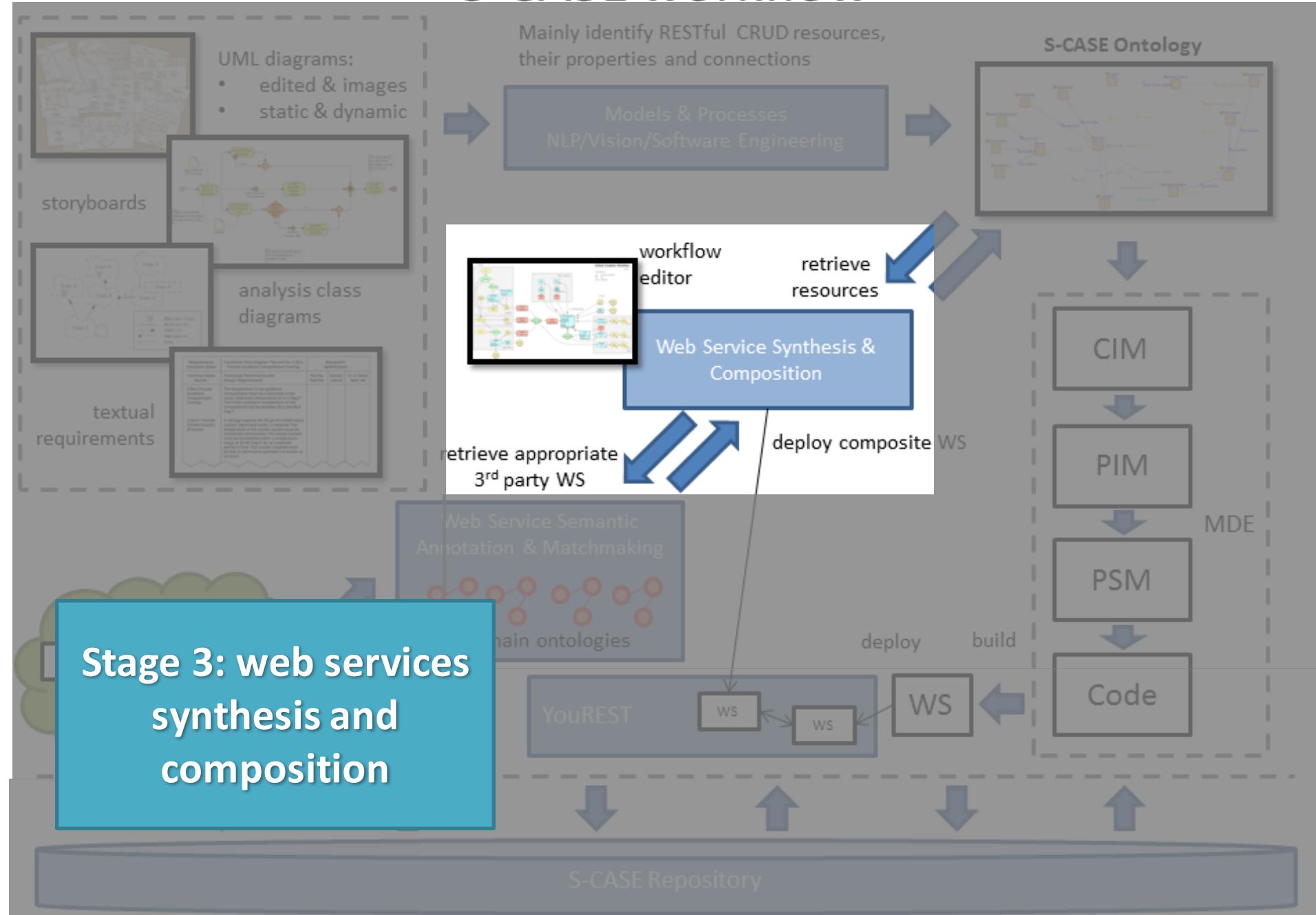
# S-CASE workflow



# S-CASE workflow



# S-CASE workflow



# S-CASE workflow

## Stage 4: model-driven engineering

Mainly identify RESTful CRUD resources, their properties and connections

Models & Processes  
NLP/Vision/Software Engineering

S-CASE Ontology



workflow editor

retrieve resources

Web Service Synthesis & Composition

retrieve appropriate  
3<sup>rd</sup> party WS

deploy composite WS

WS

WS

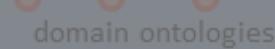
build

PSM

Code

MDE

Web Service Semantic  
Annotation & Matchmaking



domain ontologies

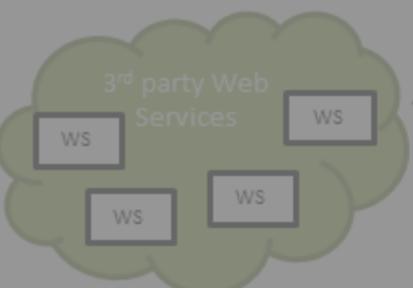
YouREST

WS

WS



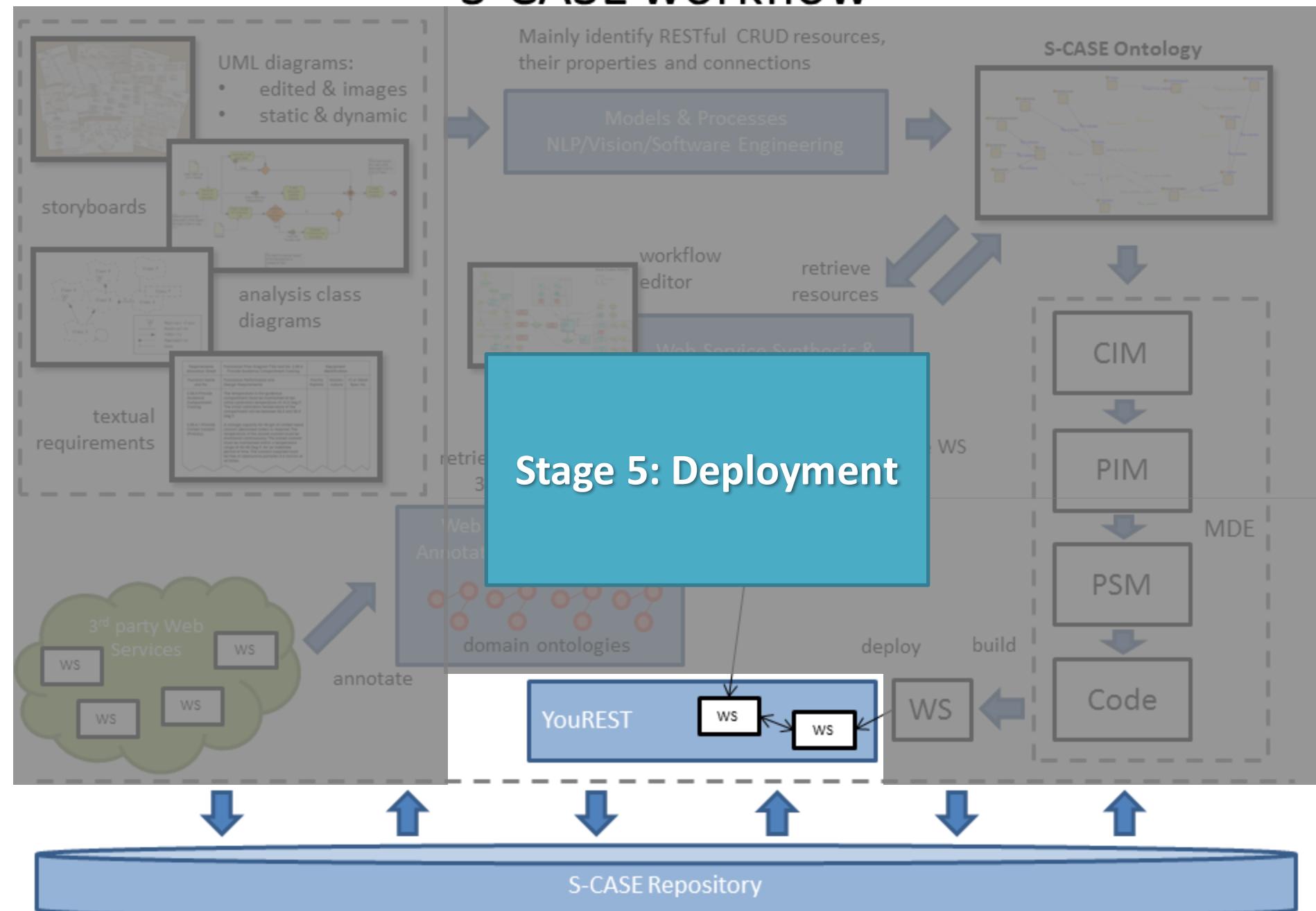
annotate



↑

S-CASE Repository

## S-CASE workflow



# Thank You

- Questions now?
- Questions later: [s-case-support@iti.gr](mailto:s-case-support@iti.gr)