Involving Users in Web Services Composition

Peter Bartalos

bartalos@fiit.stuba.sk
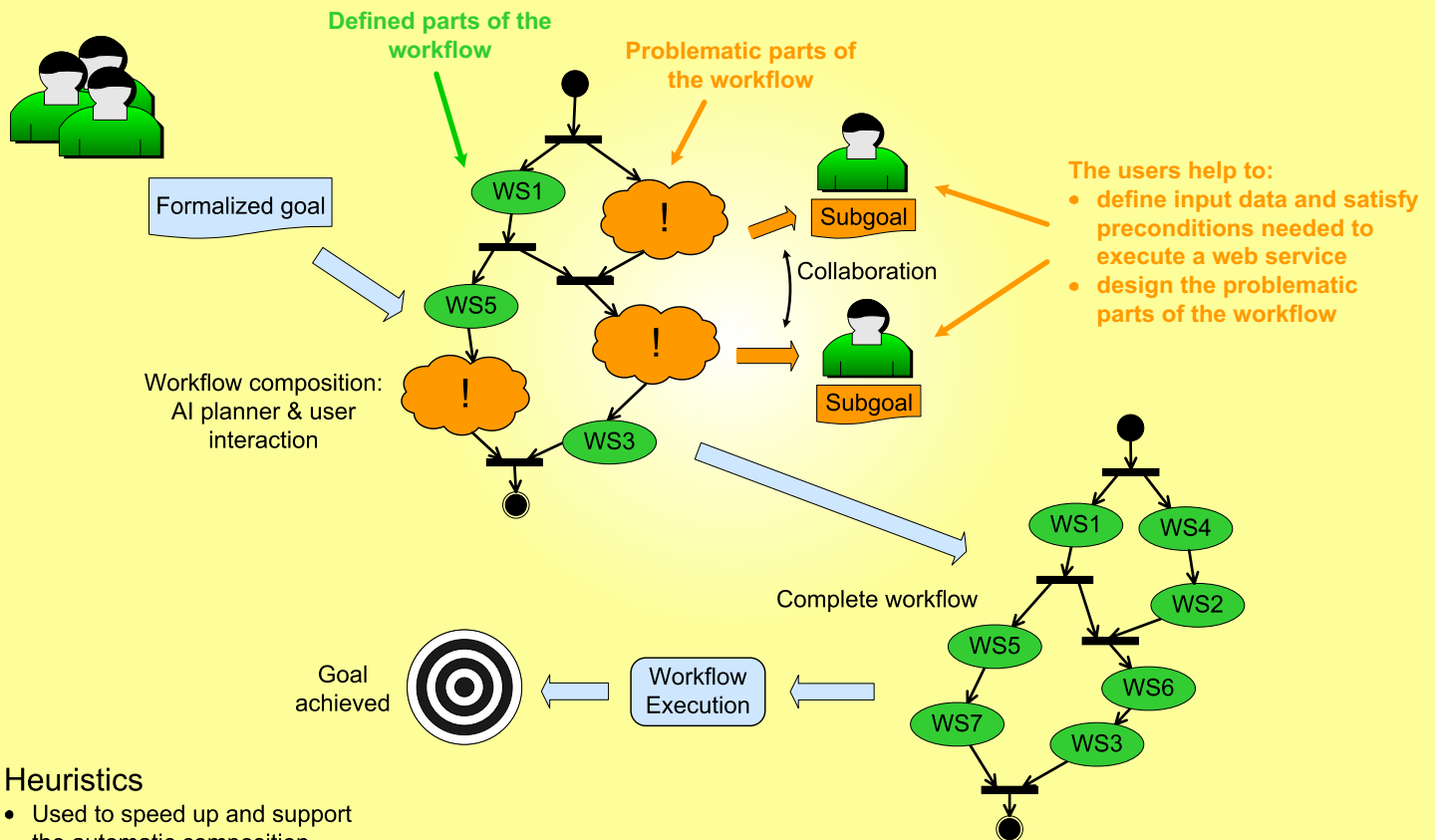Supervisor: Professor Mária Bieliková

Problem
- Level of maturity of automatic web services composition approaches

Goal
- Overcome problems occurring within automatic web services composition based on state space search

Approach
- Suggesting users which should be involved to help solve problems
- Extending the automatic web service composition tools
- Use of heuristics estimating the ability of the users to solve problems

Defined parts of the workflow

Problematic parts of the workflow

Formalized goal

WS1

!

Subgoal

Collaboration

The users help to:
- **define input data and satisfy preconditions needed to execute a web service**
- **design the problematic parts of the workflow**

Workflow composition: AI planner & user interaction

WS5

!

!

Subgoal

WS3

Complete workflow

WS1   WS4

WS2

WS5

WS6

WS7

WS3

Goal achieved

Workflow Execution

Heuristics
- Used to speed up and support the automatic composition
- Approximates the knowledge level of concepts describing input data or preconditions
- Estimates the reachability of a given state

$$know(c,u) = \frac{\sum_{n \in N}\{sem(c,n).know(n,u)\}}{|N|}$$

$$full\_know(c) = \max_{\forall u \in U}\{know(c,u)\}$$

$$reach(S) = \frac{1}{1 + \sum_{\forall r \in \text{Re}q}[1 - full\_know(r)]}$$

S T U
F I I T

Institute of Informatics and Software Engineering
Faculty of Informatics and Information Technologies
Slovak University of Technology in Bratislava, Slovakia

Acknowledgements
This work was partially supported by the Slovak Research and Development Agency under the contract No. APVV-0391-06, "Semantic Composition of Web and Grid Services" and by the Scientific Grant Agency of Slovak Republic, grant No. VG1/3102/06.