

Analyzing and applying i* goal models

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Agent-goal models

- “Forward” analysis - answer “what if?” and “are these goals achievable?”
- “Backward” analysis
- Challenges
 - Encourage and support stakeholder involvement
 - Model improvement
- i* Model



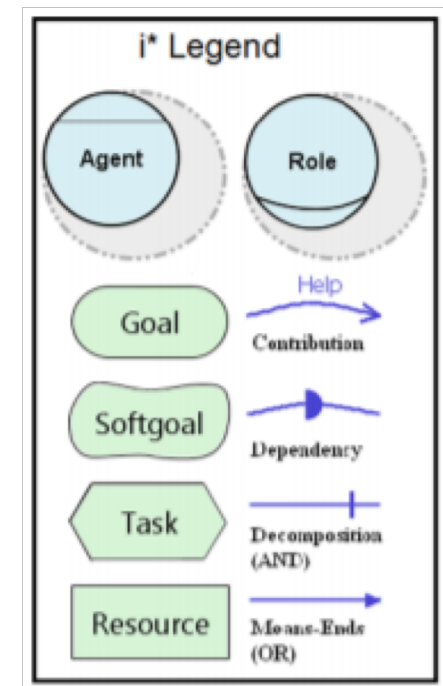
i* Model

- Understanding the domain
 - Organization
 - System users
 - Trade-offs among technical alternatives
- Include systems, stakeholders, goals, contributions, and dependencies



i* Model Components

- Actors - agents and roles
- Goals and Soft goals
- Dependency
 - Depender
 - Dependium - intentions
 - Depender intention
 - Dependee intention
 - Dependee
- Decomposition
- Means-Ends
- Contribution
 - Make/Break
 - Help/Hurt
 - Some+/Some-
- Task
- Resource





Analysis Procedure

1. Initiation
2. Propagation
 - a. Forward
 - b. Backward
3. Softgoal resolution
4. Assessment - issue discovery



Forward Analysis

- Multiple contributions
 - Automatic resolution
 - Human Judgement

Backward Analysis

- Human Judgement
- Understanding Contradictions



Methodology

1. Purpose and elicitation
2. Model creation
3. Analysis
 - a. Alternative effects (forward)
 - b. Achievement possibilities (backward)
 - c. Domain-driven analysis



Regulatory compliance in i*

- Develops policies, regulations and services
- Security requirements as prescriptive policies and regulations
 - How things are to be done
 - Binary way (yes/no) in assessing compliance to specific regulations
- Outcome-based - *what* instead of *how*
- Goal-oriented Requirement Language (GRL) approach
 - Qualitative indicators
 - Appropriate evaluation algorithms
- Supports Operational Performance Framework
- Provide freedom to the regulated parties to achieve compliance



Outcomes of the analysis:

- Improved accuracy
- Greater flexibility in handling real-world values
- Cultural change
- Exceeding expectations

Key challenges:

- Requires new mindset of involved stakeholders
- Provide training and tool support



Modelling Process

1. Build a generic GRL model
2. Extract GRL model scoped to the enterprise
3. Automatic generation of questionnaires
4. Information fed to scoped GRL model indicators
5. Re-inspection
6. Improve processes and ways of doing business
7. Impact on generic GRL model



Applications of i* in industry

- Medical (healthcare)
- Security (Aviation security regulations)
- Finance sector (financial regulations)
- Evaluation of risks and costs in large projects
- Architecting process of hybrid systems
- Supports design and evolution of systems

Thank You

