

DynG: A Multi-protocol Collaborative System

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Outline

- ▶ Motivations
- ▶ Structuring Non-Monolithic Collaboration Processes
- ▶ The DynG Prototype
- ▶ Conclusions

Motivations

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- ▶ **Current trend**
 - ▶ Support of complex processes
 - ▶ Software-focused
- ▶ Objectives
 - ▶ Integration of the Human in complex processes

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Example of a Complex Process

- ▶ Election of the Rector of the Poznań University of Economics
- ▶ Complex process divided into three phases
 - ▶ Campaign
 - ▶ Election of an electoral chamber
 - ▶ Designation of the candidates
 - ▶ Vote for the electoral chamber
 - ▶ Election of the Rector by the electoral chamber

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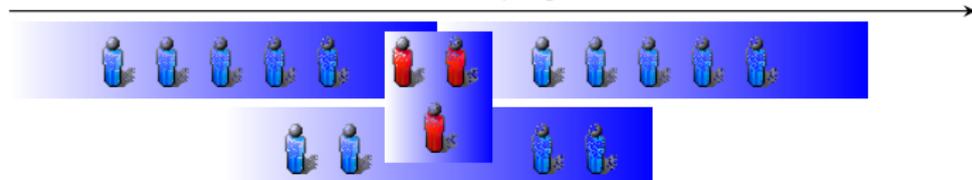
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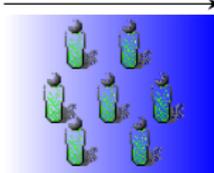
Campaign



Electoral chamber election



Rector election



Candidates



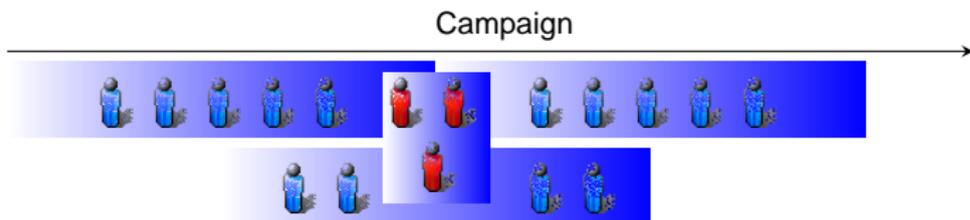
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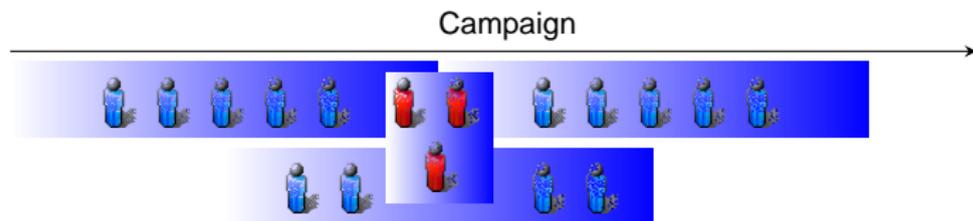
Group Dynamics

- ▶ **Non-monolithic collaboration**
 - ▶ Many groups
 - ▶ Work in parallel
- ▶ Ad-hoc evolution
- ▶ Highly dynamic
- ▶ Need to support group dynamics



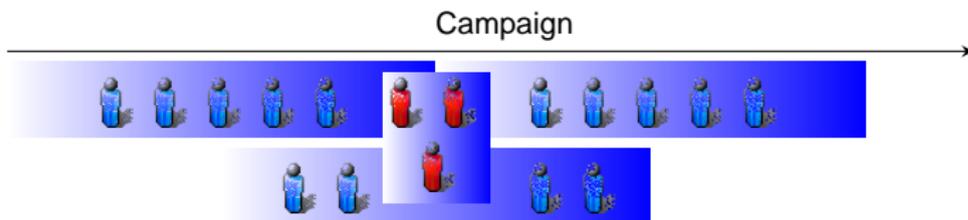
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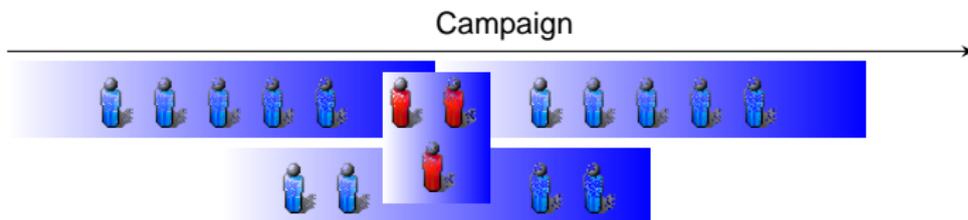
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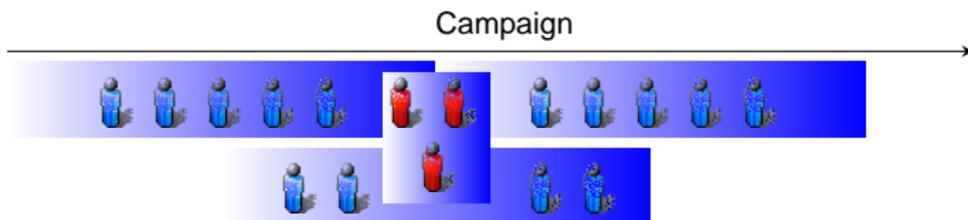
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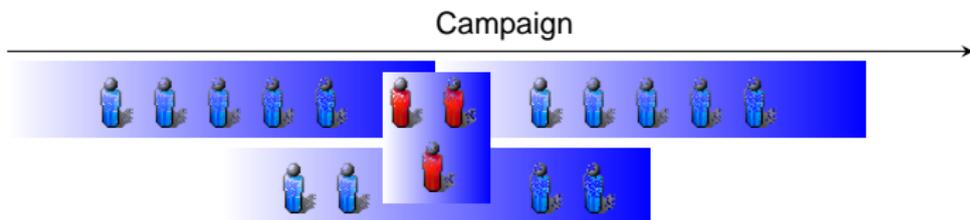
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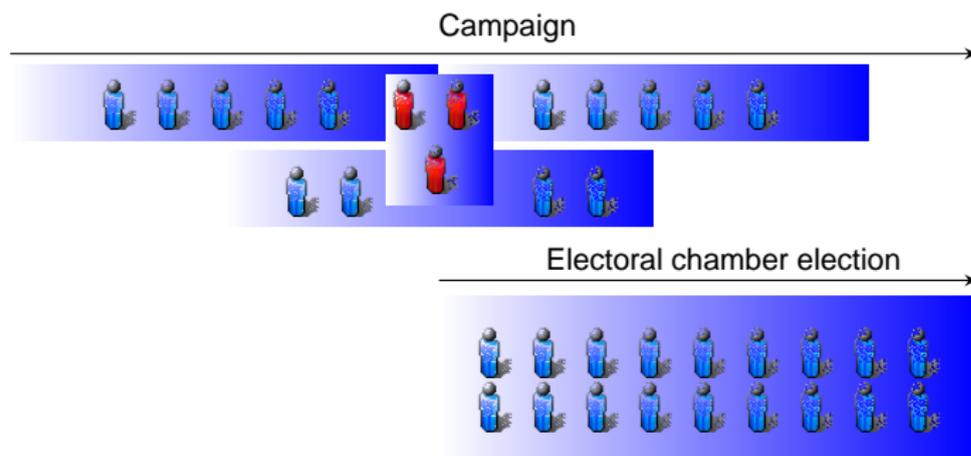
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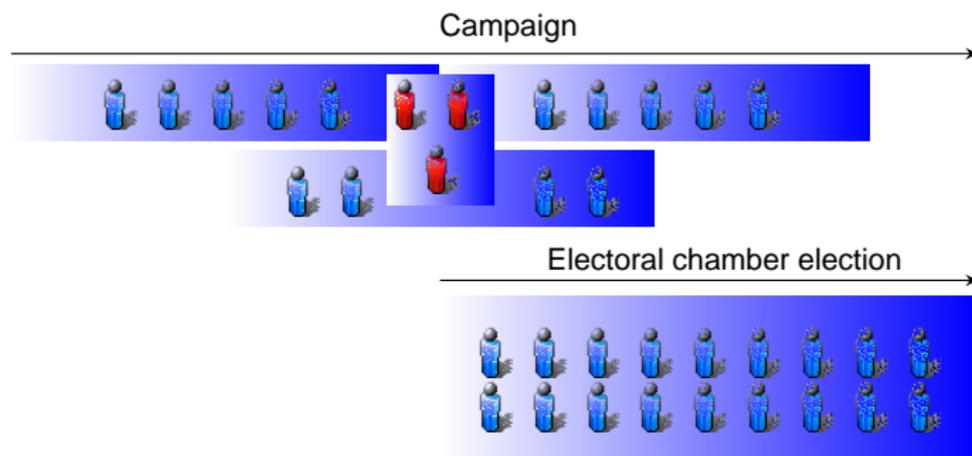
Structuring Collaboration Processes

- ▶ Structure of the collaboration inside a group
- ▶ Different interactions
- ▶ Various roles
 - ▶ Within the same group, users with different roles
 - ▶ In different groups, the same user with different roles



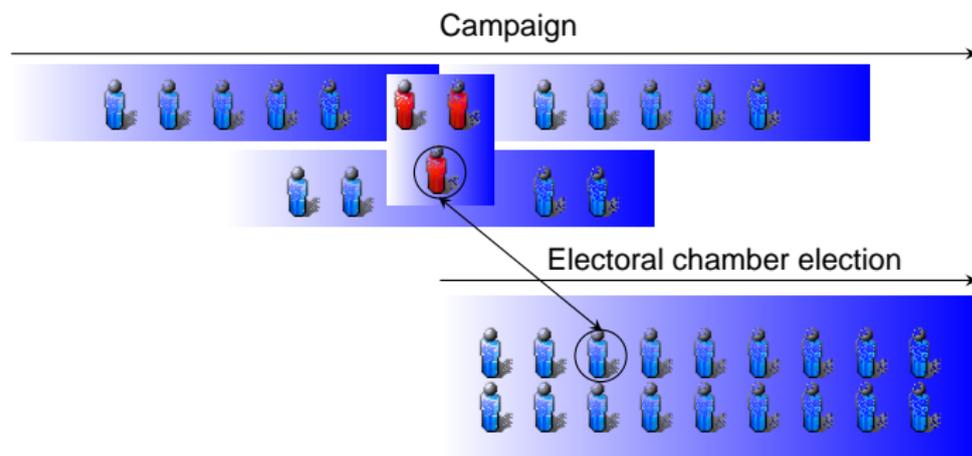
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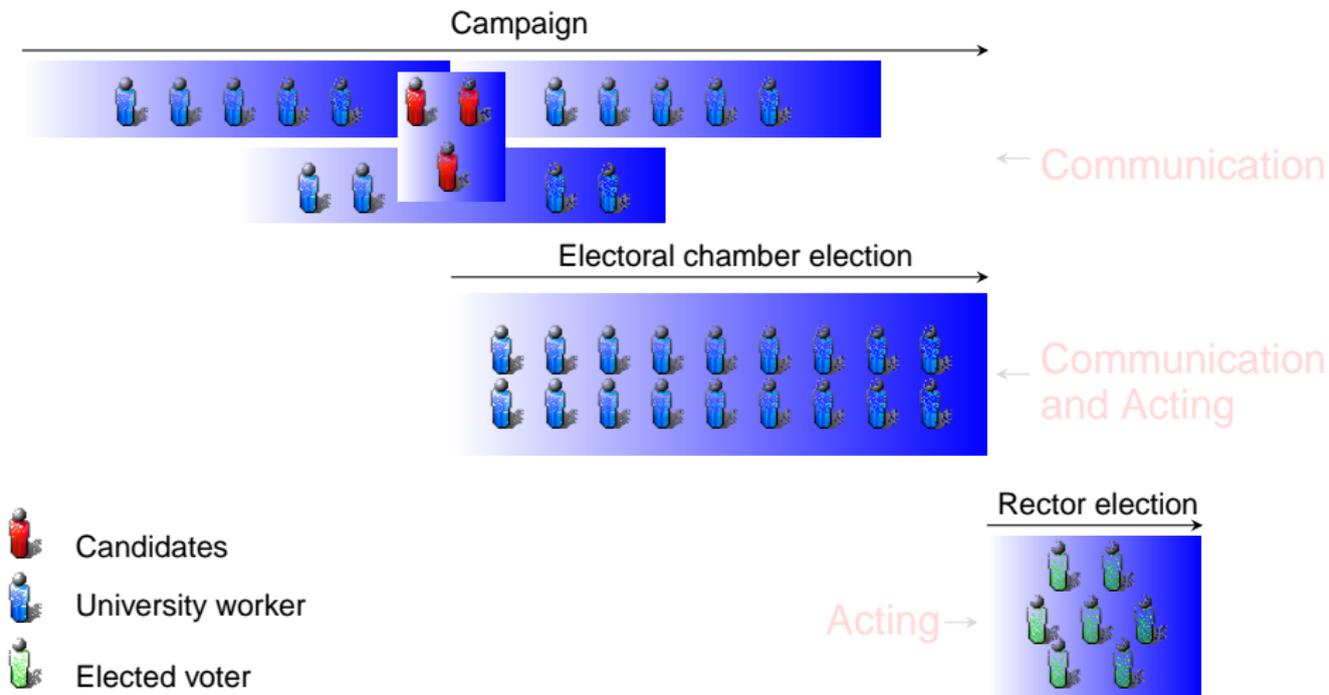


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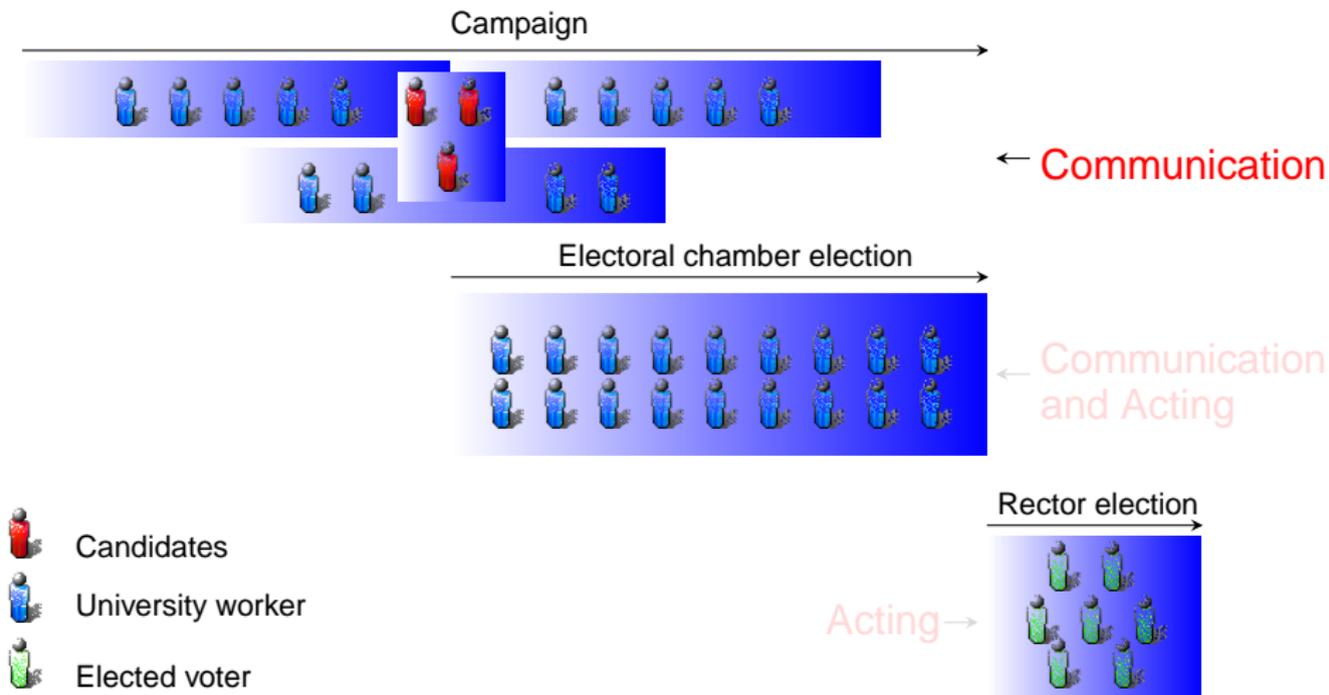
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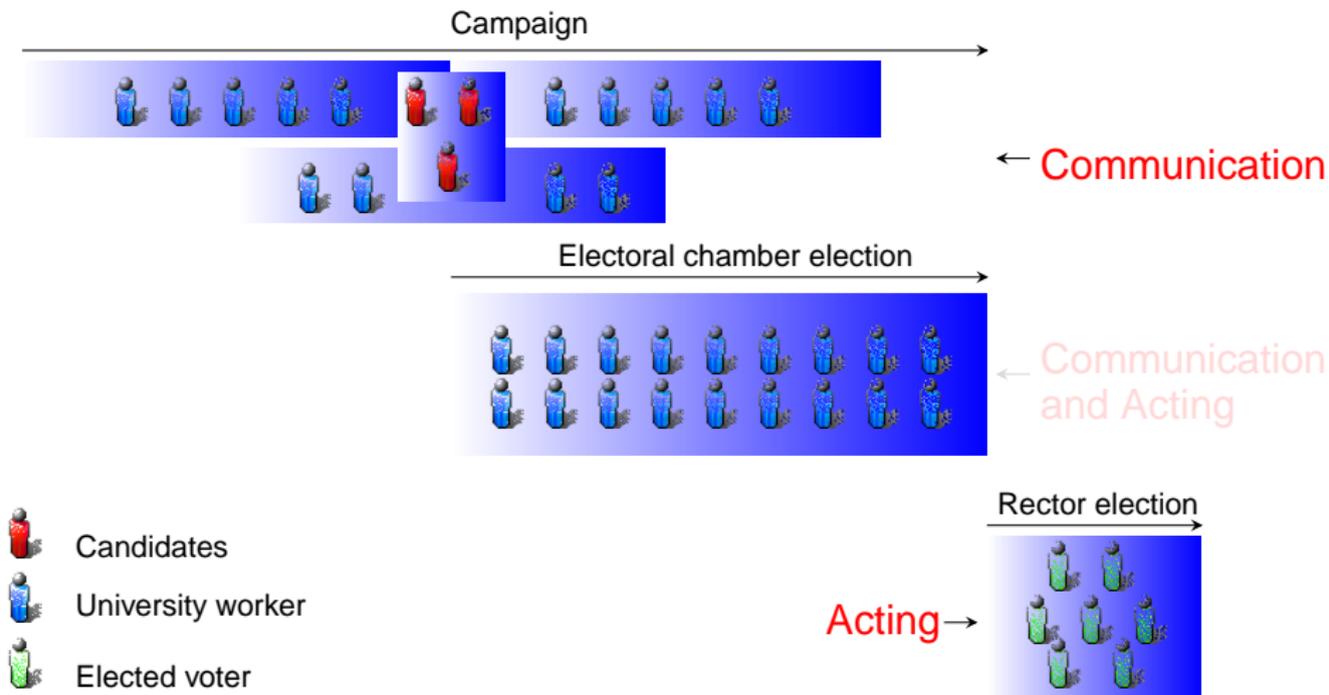
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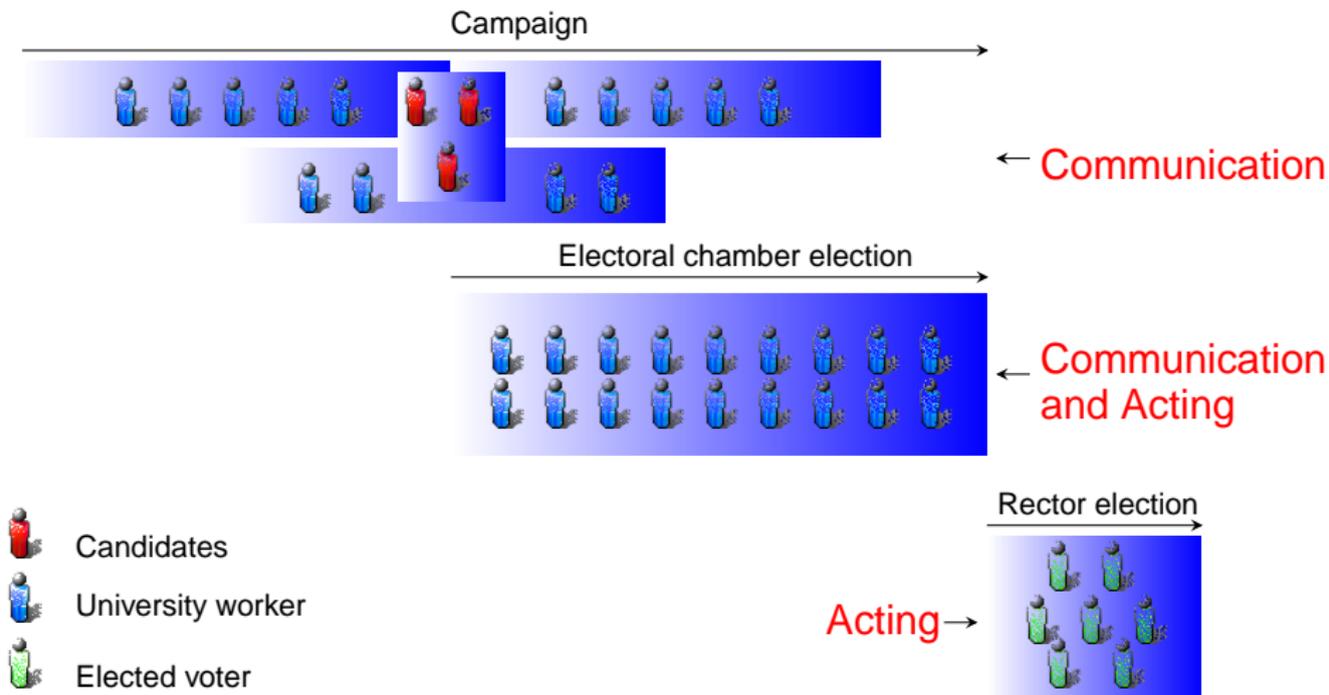
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Research Goals

- ▶ Integration of **communicative** and **acting** aspects
- ▶ Setting up of **structured** collaboration processes
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Structuring Non-Monolithic Collaboration Processes

Structuring Interactions

Interactions

- ▶ occur within a single group
- ▶ imply a set of users
- ▶ integrate communication and/or actions
- ▶ depend on the users' role

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Interactions

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Behavioral unit (BU)

- ▶ Communication: message type
 - ▶ Acting: action
 - ▶ Social aspect: role
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- ▶ Structuring collaboration within a group \implies organizing BUs

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Collaboration protocols

- ▶ Finite states machines

Protocol

- ▶ A starting state
 - ▶ A set of final states
 - ▶ A set of intermediate states
 - ▶ A set of transitions
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- ▶ One transition = one BU, one source state and one destination state

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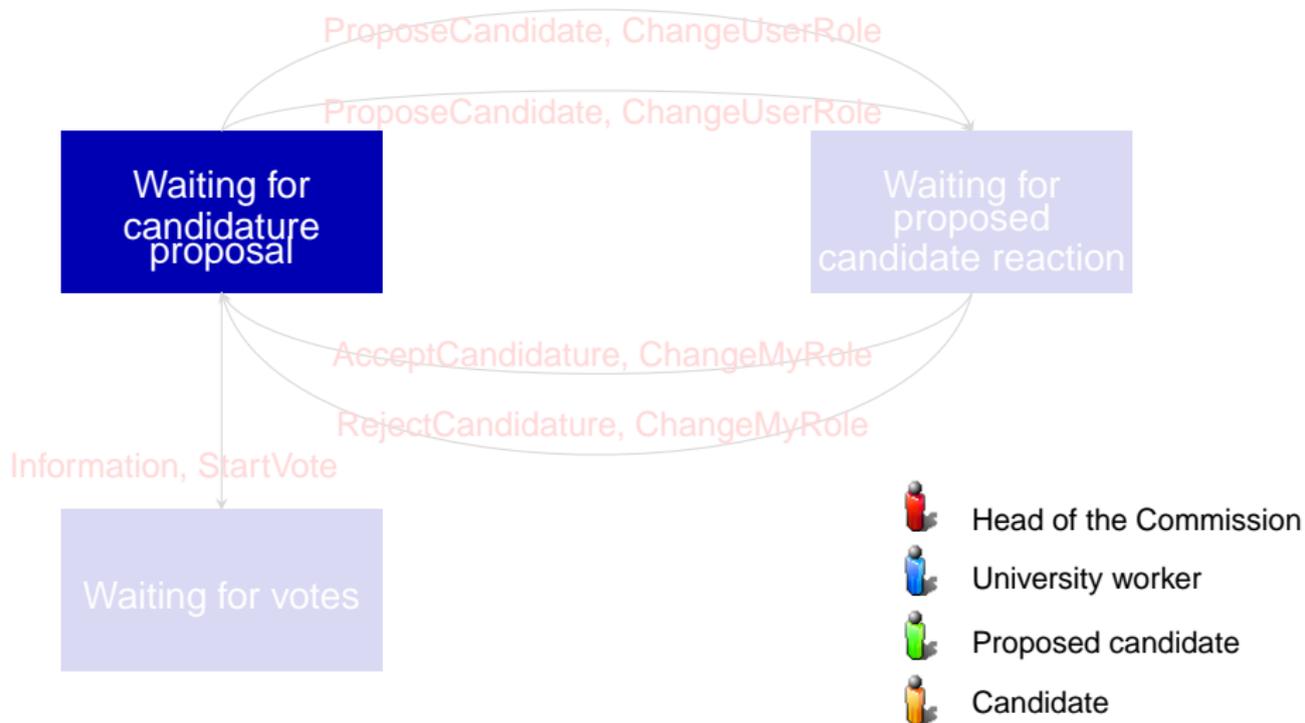
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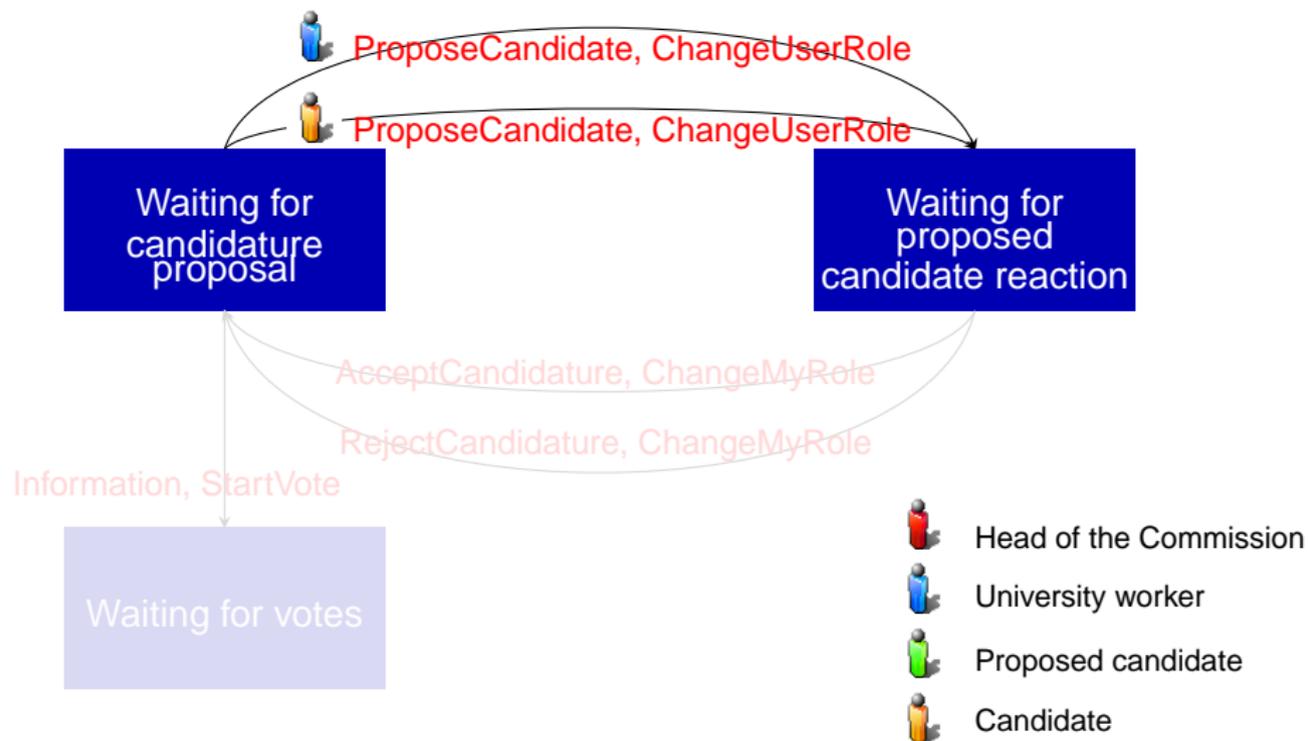
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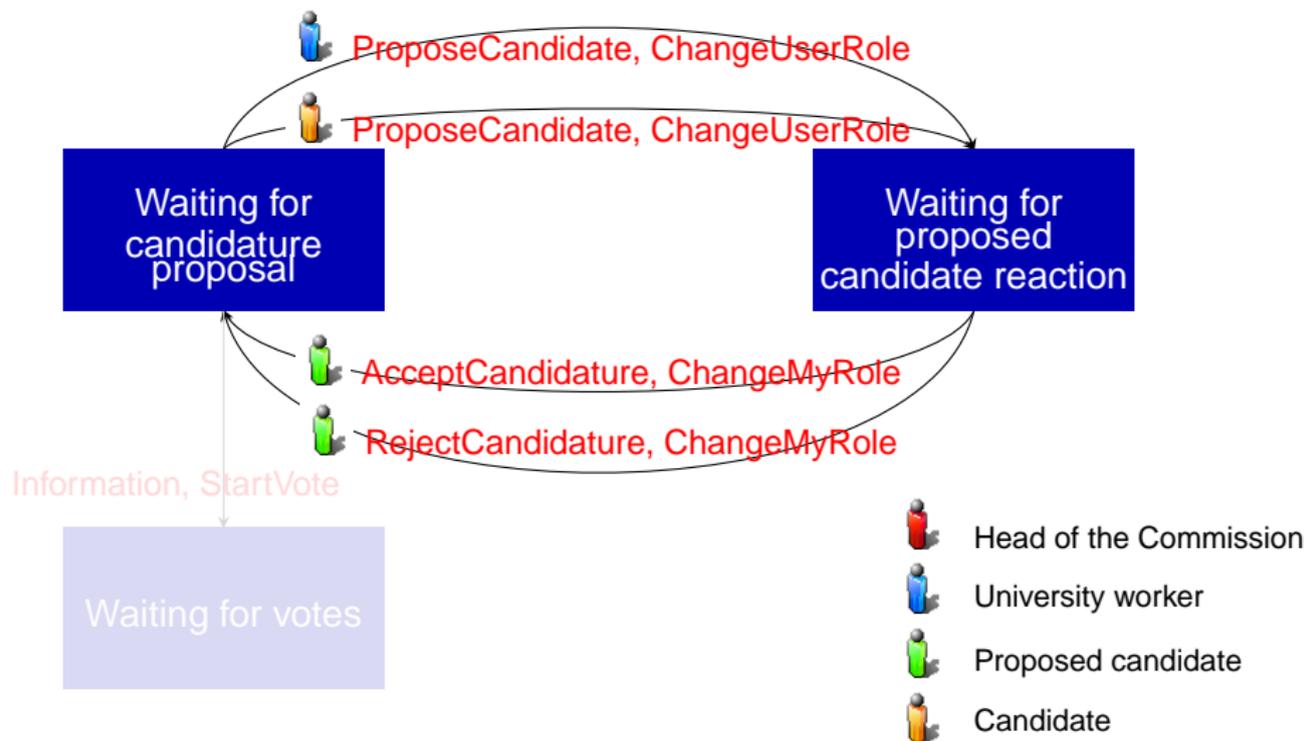
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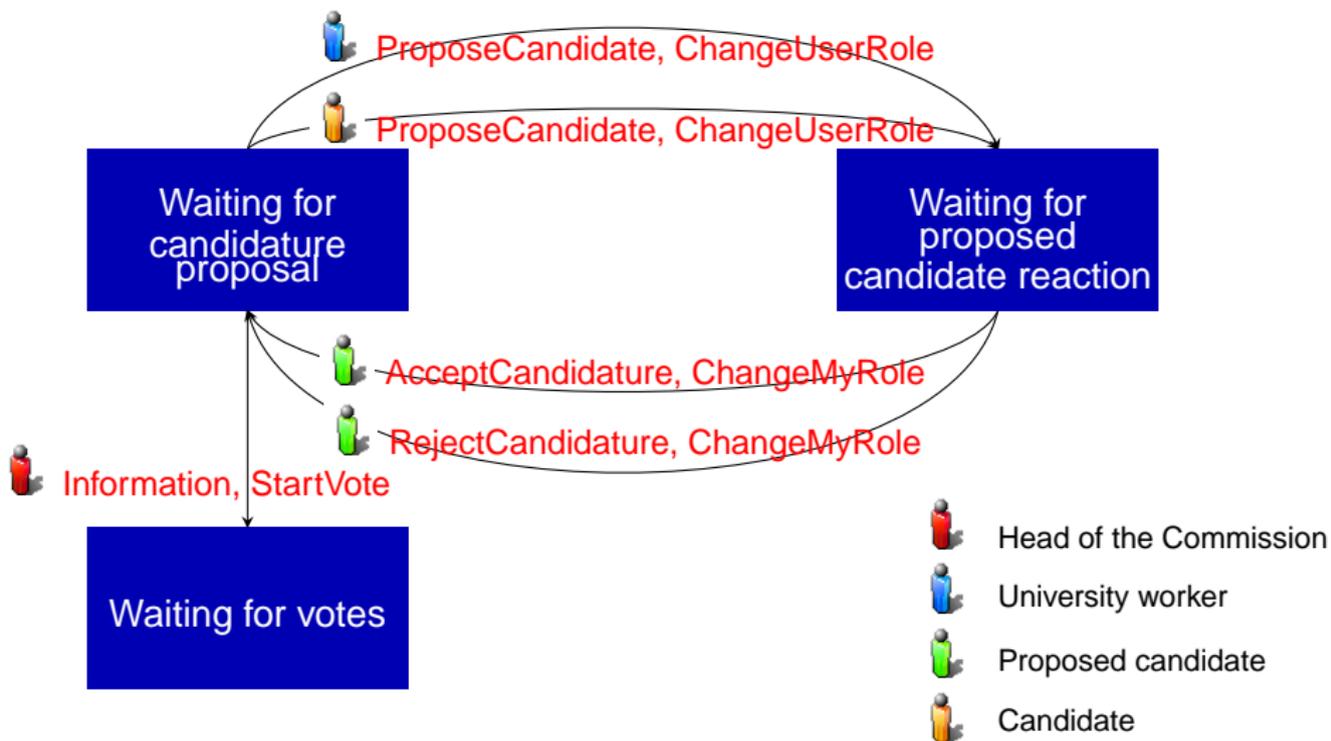
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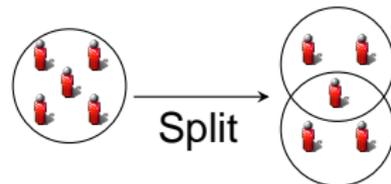
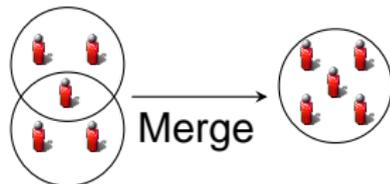
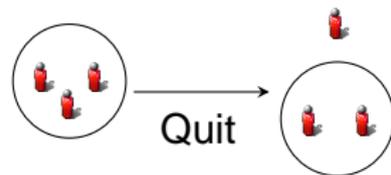
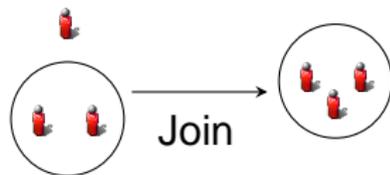
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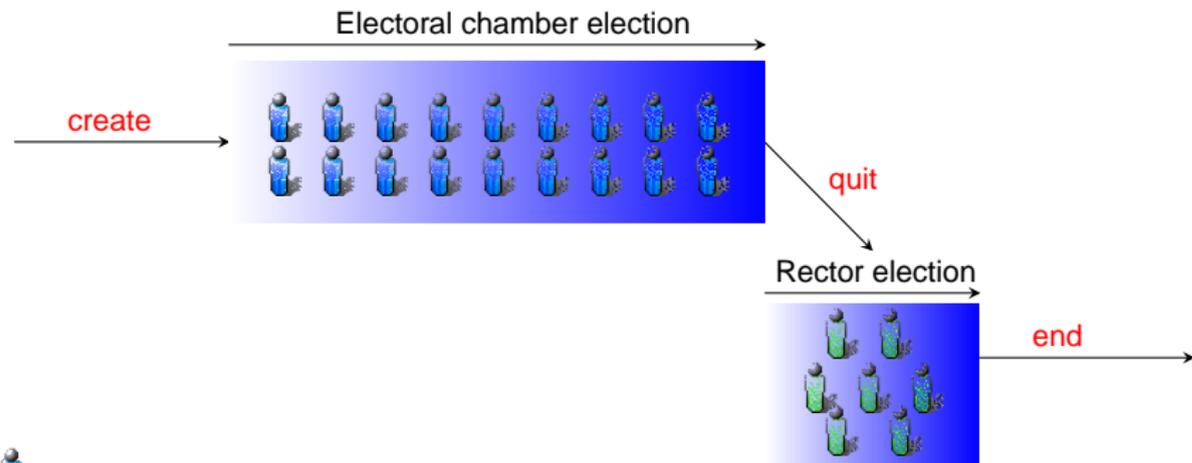
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Group Actions



Example of Group Actions



University worker



Elected voter

The DynG Prototype

Features of the DynG Prototype

- ▶ **Supporting non-monolithic collaboration**
 - ▶ Parallel work of many groups
 - ▶ Users with different roles
- ▶ Protocol-based
 - ▶ Structures the interactions
 - ▶ Integrates the acting and communicative aspects

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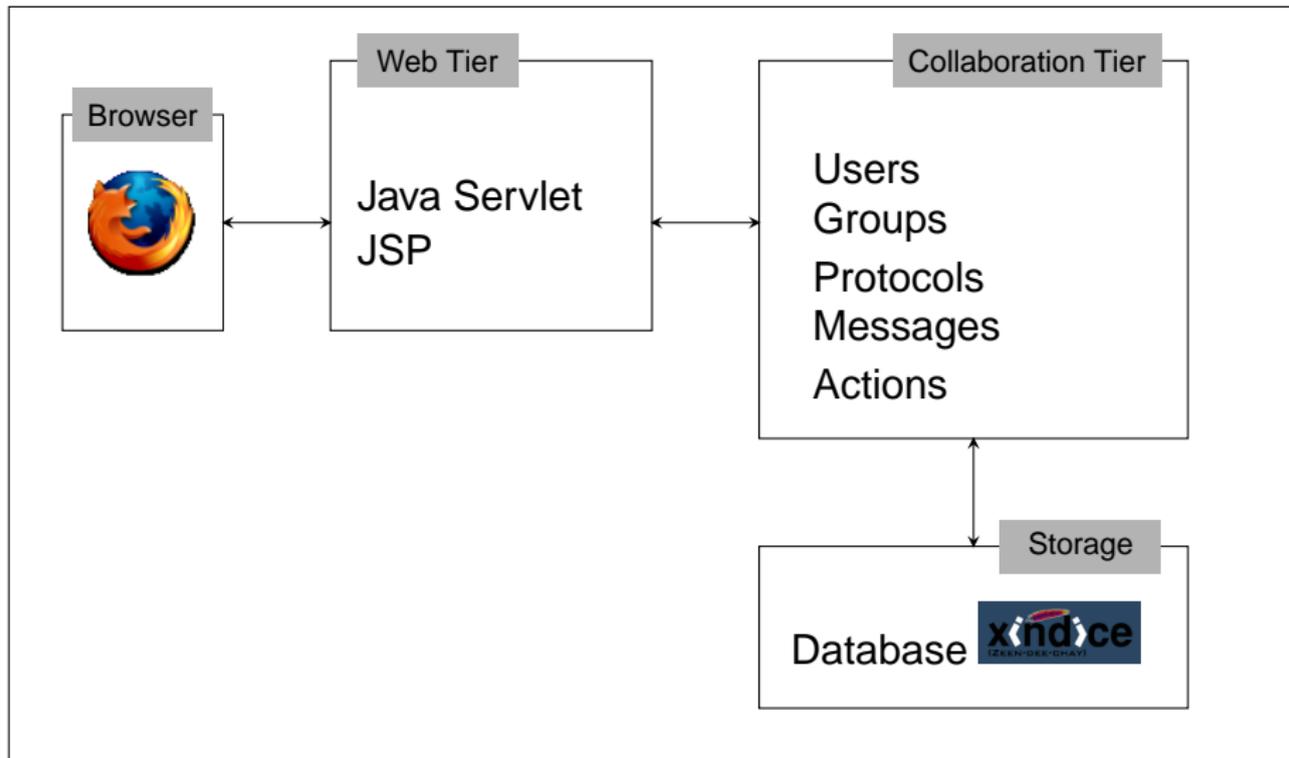
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Overall Architecture



Prototype validation

- ▶ Various implemented protocols
 - ▶ Question-answer
 - ▶ Vote
 - ▶ Free discussion
- ▶ In-site testing only

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- ▶ **Need for computer support for non-monolithic collaborative processes**
- ▶ Our contributions
 - ▶ Integration of the communicative and acting aspects
 - ▶ Structuring interactions
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- ▶ Dyng prototype
 - ▶ Supporting protocol-based solutions
 - ▶ Integrating group actions to support group dynamics
- ▶ Future works
 - ▶ Refinement of the role concept
 - ▶ Process mining
 - ▶ Adaptive protocols based on collaborators' context

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Any questions?

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