A Method For Modeling Business Processes in a Role-based and Decentralized Way

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Business Process Modeling (BPM)

• A way to represent work knowledge.

• Execution, automation, process improvement.

• Traditionally centralized and top-down.
Centralized BPM vs. Decentralized BPM

• Spending larger time for centralized BPM

  Turetken et al., 2011

• Preference of process stakeholders instead of expert modelers

  Antunes et al., 2013
Role-based BPM

• A suitable choice for decentralized BPM

• The smallest unit where the concerns are separated in modeling: Role

• Different role-based BPM approaches based on time for message specification

• Identified aspects: flexibility, conflict prevention, information awareness, overall view and latency

Ertugrul et al., 2015

Oppl, 2013
ROADMap Method

• Process of Method Application
  • Preparation Phase
  • Modeling Phase

• Notation: S-BPM with extension

• Tool Support: Web and cloud-based
ROADMap (Process of Application)

• Preparation Phase

- Determine the process to be modeled
- Hold a meeting with process stakeholders
- Determine the roles in the process
- Assign actors to roles
- Train process stakeholders
- Setup modeling environment
ROADMap (Process of Application)

• Modeling Phase
  • Progressively creation of overall process model
  • Resolution of inconsistencies
• Aspects
  • Free to define and transfer messages (Flexibility)
  • Conflict preventive
  • Small and non-distractive information awareness
  • Informative and nonrestrictive overall view
  • Minimum latency
ROADMap (Notation)

• S-BPM Notation
  • Few modeling elements
  • Strictly formal definition of process models

• Improvement of behavioral perspective of S-BPM Notation
  • Logical operators (AND, OR, XOR)
ROADMap (Tool Support)

• Requirements
  • General Modeling Requirements
    • Modeling behavior diagrams
    • Concurrent and separate modeling
    • Automated semantic verifications
    • Role management
  • Method Specific Requirements
    • Flexibility
    • Conflict prevention
    • Information Awareness
    • Overall View
ROADMap (Tool Support)
ROADMap (Tool Support)

Manager received Bt-request from me.
Bt-request (Local)
ROADMap (Tool Support)
ROADMap (Tool Support)

Business Trip Application

Manager

Approved Bt-request

Approval Info

Rejection Info

Bt-request

Employee

Travel Office Personnel
Case Study (Design)

• Purpose
  • To observe the implications of ROADMap method
  • To validate fulfilment of the requirements

• Selection of the case
  • Neither too simple nor too complex
  • Participants not familiar with process modeling

• Data collection
  • Interviews, questionnaires and field notes
Case Study (Conduct)

• Case
  • IS100 Examination Process
  • Three roles: Administrator, Course Coordinator and Course Assistant
  • Three actors
  • Not familiar with process modeling
Case Study (Results)

• Flexibility
  • All participants agreed on the flexibility of ROADMap.
  • It is a necessity for decentralized process modeling.

• Conflict Prevention
  • All participants shared the idea that they were able to see previously defined messages and inconsistencies.
  • It is a necessity for decentralized process modeling.
Case Study (Results)

• Information Awareness
  • All participants were immediately informed about the changes related to them.
  • Notifications did not distract their focus on modeling.
  • They all preferred seeing details of changes on-demand.
  • It is a necessity for decentralized process modeling.

• Overall View
  • All participants stated ROADMap provided an informative and non-restrictive overall view.
Case Study (Results)

• Latency
  • None of the participants faced a cognitive overload that leads to significant latency to finish modeling.

  • All participants stated that there did not appear an excessive amount of conflicts that leads to significant latency.

  • None of the participants encountered a significant latency to finish modeling overall process due to any restrictions.
Case Study (Results)

• Additional Strengths
  • Simple and easy to use tool support
  • Satisfactory user interface

• Weaknesses
  • Absence of communication platform
  • Absence of some process modeling specific facilities
    • Semantic and syntactic rules for defining messages
    • Filters to search defined messages
    • Annotations
Conclusion

• We developed a role-based and decentralized process modeling method improving the weaknesses and keeping the strengths of current ones.

• Based on the case study results:
  • The aspects flexibility, conflict prevention, information awareness and overall view are crucial and necessary for decentralized modeling.
  • ROADMap fulfills those aspects.
Future Work

• More case studies in different organizations

• An extension for a communication and negotiation platform

• Analysis of effect of the notation extension with logical operators
References


• A. M. Ertugrul and O. Demirors. ‘An exploratory study on role-based collaborative business process modeling approaches.’ In Proceedings of the 7th International Conference on Subject-Oriented Business, 2015
Thank you!