Collaborative usage and development of models and visualizations

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Abstract. The usage of graphical representations of work and business process such as process models can be considered a common practice in modern organizations. As their development can become a complex task it is reasonable to draft them collaboratively. Also they become increasingly useful when used by larger groups throughout an organization. However despite modeling being a popular approach in practice, models are hardly used by non-experts and have little impact on the people actually working in these processes. This raises questions such as why there is so little use of models after their creation, how this usage can be increased and which kind of tools and modes of interaction are suitable for non-modeling experts. Furthermore as collaborative modeling most of the time remains restricted to collocated facilitated workshops. This approach however is not feasible as processes have to be rapidly adjusted to changing conditions inside and outside of an organization. So given the increasing usage of graphical representations in organizations, their collaborative use and creation is of vital interest for the CSCW community and therefore this workshop can be a starting point in forming a community for research in this area.

Introduction

The usage of graphical representations of static parts of an organization (e.g. diagrams depicting hierarchies in the organization structure or a company's competences) and dynamic aspects (e.g. work and business processes) or results of creative problem-solving sessions (e.g. brainstorming results) can be considered a common practice in modern organizations. These graphical representations include process models, conceptual models and mind maps, and are used to support multiple tasks such as software development, design and engineering, process optimization and reengineering as well as marketing and strategic development. Obviously, these models are not artifacts used by single users, who develop and use them for their own personal needs. These graphical representations are rather developed for larger target groups throughout an organization to support them in sense making and creating shared understanding. Consequently, they are both used by many people and developed collaboratively, thus being part of and influencing the work of multiple stakeholders in an organization.

Alongside the increasing usage and popularity of graphical representations, there is growing interest in the usage and development of models in the CSCW community. This not only comprises the usage and development by modeling experts, but explicitly takes non-expert users into account. The emerging importance of this new field of CSCW research is reflected by tracks at international conferences (e.g. "Collaborative Modeling" at HICSS 2009, 2010 and 2011), papers at different CSCW related conferences (e.g. Baacke et al. 2009, Brosch et al. 2009, Herrmann and Nolte 2010, Klebl et al. 2009, Prilla and Nolte 2010) and journal contributions (Rittgen 2010, Renger et. al. 2009, Heer et al. 2010, Yuille and Macdonald 2010). Additionally, there are various parallel approaches in familiar research communities such as Group Decision Support, Business Process Management and Group Support Systems.

However, despite the fact that as modeling is a popular approach in practice and thus, many models exist in organizations, they are hardly used by non-experts. Even if they are created collaboratively by process stakeholders they have little impact on the people that are actually working in these processes (cf. Prilla 2010). The reasons for this are twofold. First, there are few insights on the spreading and sustainment of process documentation usage in organizations. Second, up to now little is known about the interaction of non-expert users with models. By interaction, however, we not only refer to the creation of models, but also their usage in people's daily work for purposes such as discussions, knowledge explication and creating a common understanding. This raises questions such as why there is so little use of models after their creation, how this usage can be increased and which kind of tools and modes of interaction are suitable for people who are not modeling professionals.

Besides the usage of models by non-experts, there is an additional research gap in the collaborative modeling of graphical representations. Usually, the collaborative creation of models by non-experts is restricted to collocated workshops and similar modes of interaction and collaboration, where experts facilitate the work and translate non-expert articulations into model or diagram language. Despite their applicability and feasibility in many situations, these workshops simply do not fit the need to rapidly adjust processes to changing conditions inside and outside an organization. Given the distributed nature of many organizations and therefore available expertise, these workshops also do not consider the need to support dislocated collaborative modeling. Therefore, we need to find ways to enable ordinary and also dislocated users to contribute actively to the creation and maintenance of models. This may include enabling users to use modeling languages and contribute directly to a model as well as finding other means such as textual or graphical annotations to enable indirect contributions.

Given the increasing usage of graphical representations in organizations, their collaborative use and creation is of vital interest for the CSCW community, which has a long tradition of researching the usage of common artifacts, the influence on collaboration by artifacts and their collaborative creation. The workshop proposed therefore can be a starting point in forming a community for research in this area.

Goal of the workshop

The goal of this workshop is to bring together researchers, lecturers and practitioners from different fields, who are interested in the collaborative usage, development and maintenance of structured graphical representations such as process models, conceptual models or mind maps. This includes experiences from empirical case studies, teaching and the introduction of models and modeling into organizations.

During the course of the workshop we are planning to discuss and intertwine current research as well as practical approaches to the field such as descriptions of best practices. Furthermore we want to identify needs and potential solutions for collaborative interaction with models. The workshop therefore will consist of brief input from participants and interactive sessions to discuss current research and future directions.

The overall goal of the workshop is to build a large picture of research on collaborative model usage and development as well as to set up a common research agenda among the participants. This, in turn, bears the chance to build a research community focused on the collaborative aspects of model usage and modeling.

This workshop, however, does not aim at discussing the advantages and disadvantages of modeling or different modeling notations. It rather puts strong emphasis in the collaborative development of and interaction with models by modeling professionals as well as non-expert users in different collaborative settings.

Topics

The workshop welcomes different kind of contributions, including the description of case studies and other empirical work on model usage and development, position papers e.g. describing future research and educational experiences with collaborative models usage and development. Topics of the workshop include but are not restricted to the following:

- Collaborative development of and interaction with models in different settings such as:
  - Collocated workshops
  - Dislocated collaboration on models
  - Continuous usage and development of models by non-expert users during their everyday work
  - Lectures / Teaching
- Processes and approaches of collaborative modeling
  - Studies of collaborative modeling approaches
  - Application domains and scenarios for collaborative modeling
  - Enabling a smooth transition between different collaboration modes
  - Creative interaction with models and processes
  - Roles in collaborative modeling
- Processes and settings of collaborative usage of process models
  - Usage of common visualizations for (collaborative) reflection – reconsideration of processes with models
  - Communicating about shared models and creating a shared understanding
  - Using models for knowledge documentation and transfer
  - Roles in the collaborative usage of models
- Overcoming barriers:
  - Supporting users in translating their thoughts into a modeling language
  - Lowering the distance between normal users and models through facilitation strategies and tools
  - Increasing the acceptance of models
  - Identify and tackle influencing factors on the suitability of models for different target groups and usage contexts

- The influence of users on models (e.g. collaborative modeling participants on models) and the influence of models on users (e.g. users discussing a model and behavior changes)

Contribution

In order to provide suitable means for researchers as well as practitioners we will accept contributions in two different formats:

- Short papers such as reports of best practices or position papers which may not exceed 3 pages.
- Long papers of such as reports of empirical studies or research in progress which may not exceed 6 pages.

All contributions have to be formatted according to the ECSCW formatting instructions and must be submitted in PDF format via eMail to collabviz@iaw.rub.de. Author kits and paper templates are available at the ECSCW 2011 website.

The deadline for the submission of abstracts (100 – 150 words) is **June 1** while the full paper deadline will be **June 15**.

Workshop organizers

- Alexander Nolte, University of Bochum, Germany
- Michael Prilla, University of Bochum, Germany
- Stephan Lukosch, TU Delft, Netherlands
- Gwendolyn Kolfschoten, TU Delft, Netherlands
- Thomas Herrmann, University of Bochum, Germany

Program committee

- Joseph Barjis, TU Delft, Netherlands
- Kawtar Benghazi, University of Granada, Spain
- Manuel Noguera García, University of Granada, Spain
- Carsten Ritterskamp, adesso AG, Germany
- Irina Rychkova, University Paris 1 Pantheon – Sorbonne, France
- Stefan Strecker, University of Duisburg-Essen, Germany

Duration of the workshop

The workshop is planned for one full day.

Number of participants

The number of participants is limited to 30 but maybe exceeded if necessary.

Background of the organizers

Alexander Nolte is a PhD student at the Information and Technology Management group headed by Thomas Herrmann at the University of Bochum. His particular research interest lies in the collaborative development of process models in different collaboration scenarios such as collocated workshops or dislocated asynchronous settings with special respect to web based modeling tools. Additionally he is interested in enabling non-expert modelers to directly contribute to model development. Alexander holds a diploma in computer science with his diploma thesis being titled "Concept and prototype of a usability-oriented web-based editor for semi-structured modeling".

Michael Prilla is a Post-Doc researcher at the Information and Technology Management work group lead by Thomas Herrmann at the University of Bochum. Michael's research is focused on the intertwining of process management and collaboration support, including the transfer of organizational knowledge via process models, the usage of process models by non-expert users and the collaborative creation of models. He holds a diploma in computer science and a PhD in engineering. His doctoral thesis is titled "Knowledge Management Support for the Development and Usage of Process Models as Artefacts for Knowledge Transfer". Michael has (co-) authored more than 20 international conference, book and journal contributions.

Gwendolyn L. Kolfschoten is an Assistant Professor at Delft University of Technology in the Netherlands. She is an experienced facilitator of thinkLets-based Group Support Systems workshop having worked with numerous public and private organizations. Her research focuses on the quality of thinkLet-based collaboration process design for complex tasks. She developed the first example of Computer Supported Collaboration Engineering (CACE) technology – an integrated support suite to assist collaboration engineers in process design. She has organized successful minitracks and tutorials at HICSS for the past four years. Her research has been presented at HICSS, CRIWG, AMCIS, EE and GDN conferences and has been published in the *Journal of Management Information Systems, International Journal of Human-Computer Studies, Journal of the AIS and Group Decision and Negotiation*.

Stephan Lukosch is associate professor at the Delft University of Technology. His current research interests include process and tool support for collaborative design

and engineering, intelligent and context-adaptive collaboration support and design patterns for computer-mediated interaction. From 2003 to 2008, he was assistant professor at the FernUniversität in Hagen where he lead a research group that focused on environments for cooperative working or learning. His articles appeared in various journals including the International Journal of Cooperative Information Systems, International Journal of Human Computer Studies, and Journal of Universal Computer Science. Currently, he is a member of steering committee member of the special interest group on Computer-Supported Cooperative Work (CSCW) of the German computer science society and CRIWG conference on Collaboration and Technology. He further serves on the editorial board of the International Journal of Cooperative Information Systems (IJCIS).

Thomas Herrmann is a professor of Information and Technology-Management at the Institute of Applied Work Science (IAW), University of Bochum, Germany since 2004, and a fellow of the Electrical Engineering Department. Current research interests include design methods for socio-technical systems in the areas of knowledge management, (work-)process management, computer supported collaborative learning, and concepts of social software for the support of creativity. He teaches courses in Groupware, Knowledge Management, Socio-technical systems Design, Information Systems and Privacy, Human-Computer Interaction, Organizational Communication, and Process Management. He was an Associate Professor from 1992-2004 at the Computer Science Department at the University of Dortmund and was in charge of the development of infrastructure and new media for the University of Dortmund as a vice president from 2002-2004. He holds a PhD in Computer Science of the Technical University of Berlin (1986) and a Master of Art in Communication Science of the University of Bonn (1983).

Means of recruiting and selecting participants

The workshop organizers consider several means of recruitment such as a webpage dedicated to the workshop. Furthermore they are planning to address appropriate mailing lists, personally contact researchers in the field and address neighboring research communities.

The selection process will be a double blind review through an international program committee.

Publication of results

All accepted paper will be published electronically at CEUR Workshop Proceedings. Furthermore the workshop organizers are currently in touch with

different Journal publishers and editors to discuss opportunities for a special issue on the workshop.

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