COMPUTER-SUPPORTED COOPERATIVE WORK (CSCW): RELATED WORK

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Agenda

• Review
  ▪ Anwendungen 1
  ▪ Projekt 1

• Motivation

• Definitions

• Related Work
  ▪ CommunityMirrors
  ▪ GENIE

• Conclusion and Future Work
REVIEW
Anwendungen 1

• „Collaborative Programming with Google Wave“ (1)

• Topics:
  - CSCW (1, pp. 7 – 9)
  - Google Wave (1, pp. 10 – 16)

• Basics for Projekt 1:
  - „Developing Google Wave desktop clients based on Java and SWT“
Projekt 1
MOTIVATION
A perspective by Nicholas Christakis (2)

Professor of Sociology
(Federation of American Scientists)

Professor of Medicine
(Harvard Medical School)

Professor of Medical Sociology
(Harvard Medical School)

Source: http://christakis.med.harvard.edu/
Happy people vs. sad people

Connections matter!

Connections matter!

DEFINITIONS
Computer-Supported Cooperative Work (CSCW)

• Bruegge and Houghton (3):

„Computer-Supported Cooperative Work (CSCW) refers to cooperative work carried out by a group of individuals with computer support.“
Awareness

• Dourish and Belotti (4):
  “[...] an understanding of the activities of others, which provides a context for your own activity [...]”

• Gutwin and Greenberg (5, pp. 1):
  “Group awareness is the up-to-the-minute knowledge of other people's activities that is required for an individual to coordinate and complete their part of a group task.”
Groupware

• Ellis et al. (6):

“computer-based systems that support groups of people engaged in a common task (or goal) and that provide an interface to a shared environment.”

• Koch and Mösllein (7):

  ▪ Groupware frequently concentrates on Workspace-Awareness (e.g. Microsoft SharePoint)
    o in this context awareness describes the relation between people and their relationships / contents
CommunityMirrors

• Project by the Cooperation Systems Center Munich (CSCM)
  ▪ Research topics (8):
    o Cooperation Systems
    o Social Software
    o Enterprise 2.0 (see Holsten (9) and Kirstgen (10))
    o CSCW
    o Groupware
    o etc.

• „Head“ of CSCM is Prof. Dr. Michael Koch (11)
  ▪ Professorship for Programming Cooperative Systems, Software Technology Institute, Department of Informatics, Bundeswehr University Munich

• Web: http://www.communitymirrors.net/

Source: http://www.kooperationssysteme.de/
What is a CommunityMirror?

- Public shared large screen user interfaces
- Supports interaction and matchmaking in the community
- Provides informations about a community and its activities
- Increases awareness and appreciation of community information
- Support the innovation management

Source: [http://www.kooperationssysteme.de/proj/communitymirrors/](http://www.kooperationssysteme.de/proj/communitymirrors/)
What is a CommunityMirror?

What is a CommunityMirror?

Different forms

- IdeaMirror
- MeetingMirror
- CommunityMirrors
- LibraryMirror
- AnnouncementMirror
MeetingMirror (12)

- **Is a CommunityMirror at community meetings**
- **Initial point:**
  - Extend the scope of web-based community-platforms in the „real world“ through CommunityMirrors and ubiquitous interface to the community-platforms
- **Idea:**
  - Visualize personal information to the community
  - Communicate an overview of the community (awareness)
  - Manage personal information (identity management)
MeetingMirror – Examples

Source: http://twiki.informatik.unibw-muenchen.de/pub/Main/MeetingMirror/
MeetingMirror – Examples

Source: http://twiki.informatik.unibw-muenchen.de/pub/Main/MeetingMirror/
IdeaMirror (13)

• Is a CommunityMirror at especially crowded places

• Initial point:
  ▪ New results have shown a necessity for aiding one another in a community (e.g. sharing information)
  ▪ Capacity of innovation for companies depends on the creativity and motivation of their employees, customers, partners, etc.

• Idea:
  ▪ Early impact on innovation processes (see GENIE)
  ▪ Including ideas of employees, customers, partners, etc. (appreciation)
  ▪ Make creative ideas visible to companies (awareness)
  ▪ Allow direct communication between people (matchmaking)
IdeaMirror – Examples

IdeaMirror – Examples

IdeaMirror – Examples

IdeaMirror – Examples


More: [http://www.sapiens.info/](http://www.sapiens.info/)
CommunityMirrors – Example architecture

(!) Common goal: Support the awareness of information to employees, customers, partners, communities, etc.
CommunityMirrors – Challenges

IdeaMirror (13)
- Confidentiality of ideas
- Integration of service

MeetingMirror (12)
- Extension of the identity management
- Providing more ubiquitous interfaces
CommunityMirrors – Trade-Off

IdeaMirror

+ improves companies innovation (see GENIE)
+ increases awareness and appreciation
+ many companies and universities involved
- may result in expensive effort for integration

MeetingMirror

+ eases communication effort
+ increases awareness
- static user interface
- not focused
GENIE (Gemeinschaftsgestützte Innovationsentwicklung für Softwareunternehmen)

• Cooperation partners:

Source: http://www.kooperationssysteme.de/

• Aided by i.a.:
  • Federal Ministry of Education and Research (BMBF)
  • European Social Fund (ESF)
• Web: http://projekt-genie.de/

Source: http://projekt-genie.de/index.php?option=com_content&task=view&id=26&Itemid=45

Source: http://projekt-genie.de/index.php?option=com_content&task=view&id=26&Itemid=45
What is GENIE? (16)

• Project for supporting innovation culture and innovation management in companies

• Initial point:
  ▪ Missing integration of customers or partners in the innovation management
    o + Sports industry
    o - Software industry (see Open Source)

• Goals:
  ▪ Creating innovation communities
    o Participants: Customers, employees, researchers, partners, etc.
    o Develop innovative ideas which may generate new products
  ▪ Develop an internet platform for collaboration
GENIE – Internet platform

• Support for brainstorming and idea implementation through online interfaces and (!) IdeaMirrors (real world)

Source: http://projekt-genie.de/index.php?option=com_content&task=view&id=27&Itemid=46
GENIE – Innovation process

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Source: http://projekt-genie.de/index.php?option=com_content&task=view&id=27&Itemid=46
GENIE – Innovation ideas

• Blohm et al. (17, pp. 2):
  „[…] innovations are in general not the result of a single inventor but rather of collaboration processes where many individuals contribute and combine their individual knowledge, experience, and strengths.“

• Blohm et al. (17, pp. 3):
  „Since all innovation begins with creative ideas […] But creativity and idea quality are both complex constructs.“
GENIE – Research context (SAPIens)

- Idea competition in summer 2008 over a period of 14 weeks targeted users of SAP software (17, pp. 4)
- Collaboration by using wiki technology
- Every user was ...
  - ... asked to submit ideas which improves SAP software
  - ... able to edit other users ideas
- Two type of ideas:
  - Ideas from a group of participants
  - Ideas from a single participant
- Evaluation by a group of independent experts (Consensual Assessment Technique (CAT)) and empirical findings
- The 10 best ideas were rewarded with non-monetary / monetary prizes 6,000 EUR in total
GENIE – Research results

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>51%</td>
<td>Novelty</td>
</tr>
<tr>
<td>22%</td>
<td>Relevance</td>
</tr>
<tr>
<td>10%</td>
<td>Elaboration</td>
</tr>
<tr>
<td>7%</td>
<td>Feasibility</td>
</tr>
</tbody>
</table>

(17, pp.6)
GENIE – Research results

Average quality score (%)

- Collaboration group: 53%
- No collaboration group: 47%

(17, pp.7)

(!) 5 of total 7 good ideas from the collaboration group
GENIE – Challenges

Increase sample size

- see SAPiens (127 participants)

More research on:

- Motives on collaborating ideas
- Findings in other examples
- Harvest the wisdom of crowds

Develop valid ranking mechanisms

- e.g. user generated content or other users
Research on different balance points (e.g. 17)
Many companies and universities involved
Aided by official institutions

Outstanding research
May result in expensive effort for integration (see IdeaMirror)
CONCLUSION AND FUTURE WORK
Conclusion

• **CommunityMirrors**
  - New way to visualize information in community meetings or crowded places
  - Increases information awareness and appreciation
  - Eases communication effort

• **GENIE**
  - Is an aided project by i.a. BMBF and ESF
  - Focused on:
    - internet platforms for collaboration
    - innovation communities
  - Uses the IdeaMirror for the „real world“ visualization
  - Young project which involved many partners
Future Work

• Upcoming for Projekt 2:
  ▪ Google Wave:
    o Integrating persistence to my Google Wave enviroment (see Projekt 1)
    o Including „live communication“ into my Google Wave application
    o Maybe: How to develop an Eclipse Plug-in?
  ▪ CommunityMirrorFramework (CMF)
    o Installing the framework
    o Testing a CommunityMirror
    o Web: http://www.communitymirrors.net/framework/
QUESTIONS
THANK YOU FOR YOUR ATTENTION!


References – 2/3


Computer-Supported Cooperative Work (CSCW): Related Work


