Knowledge-based Society: How Far Are We from Access for All?

PANEL ICDS/eKNOW/eLmL
Digital World, Nice, 27 February 2013
Panelists

- Tomomi Kobayashi
- Hazeline Asuncion
- Stephen White
- Michelle Marquard
- Andranik Tangian
- Liette Lapointe
What makes sense?

- The One Laptop Per Child (OLPC) initiative gave tablets to illiterate children in Ethiopia to see if illiterate kids **with no previous exposure to written words** can learn how to read all by themselves, by experimenting with the tablet and its preloaded alphabet-training games, e-books, movies, cartoons, paintings, and other programs.

- Within four minutes, one kid not only opened the box, found the on-off switch, powered it up. Within five days, they were using 47 apps per child, per day. Within two weeks, they were singing ABC songs in the village, and within five months, they had hacked Android (able to change the desktop, even though OLPC installed a software to avoid this).

Does it help the children to learn reading? – or is it just marketing?
Are we mature enough?

DIGITAL REVOLUTION

| Jahr | Bundes- | Länderparlamente
<table>
<thead>
<tr>
<th></th>
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<tbody>
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<td>2008</td>
<td>n.a.</td>
<td>0.2, 0.3, n.a.</td>
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<td>2011</td>
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<td>2012</td>
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<td>2.4</td>
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<tr>
<td>2013</td>
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</table>

Kevin Barth
ok. ich bin also antisemitisch weil ich die israelische kackpolitik und den juden an sich unsympatisch finde weil er einen simbollosen krieg führt

2%
Is this Reality or Illusion?

Knowledge-based Society: How Far Are We from Access for All?

Panel Discussion

2013.2.27
Tomomi Kobayashi
"Knowledge Base" has changed

- What kind of changes have been met about the necessary knowledge in our society?

<table>
<thead>
<tr>
<th>Past</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit</td>
<td>Tacit</td>
</tr>
<tr>
<td>Organizational</td>
<td>Individual</td>
</tr>
<tr>
<td>Technics</td>
<td>Wisdom</td>
</tr>
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</table>

Become obsolete rapidly

Become more important
Changing Knowledge Accesses

• Can we smoothly access such kinds of new knowledge?
Two Questions

I. Where are we now and from now on?  
II. To achieve the 'real' Knowledge-based Society, What do we really need?

- How to access Tacit Knowledge  
- How to utilize real knowledge
An Approach for Utilizing Knowledge

• Create future scenario by utilizing our knowledge and experience with multiple methods.
More chance for participatory democracy in the digital age

Andranik Tangian
Hans-Böckler-Stiftung, Düsseldorf, and Karlsruhe Institute of Technology

andranik-tangian@boeckler.de

Nice, IARIA, 2013
Democratic deficit in the European Union

• Institutions of the European Union lack democratic accountability and legitimacy compared to the national governments of its member states.

• E-democracy technologies together with special devices can help to resolve the problem and to stimulate people’s participation as promoted in Articles 10-11 of the Consolidated Lisbon Treaty.

• Major problem: Autonomy of representatives.

• Ideal: Representatives behave *consistently* and as *well-informed* citizens.
## Source data: 32 Y/N-questions (like in Wahl-o-mat)

<table>
<thead>
<tr>
<th></th>
<th>Opinions of parties and unions</th>
<th>Question weights 1-5</th>
<th>Survey results, %</th>
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<tbody>
<tr>
<td></td>
<td>CDU 33.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SPD 23.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FDP 14.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Linke 11.9</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Grünen 10.7</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>DGB-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal wage</td>
<td>No</td>
<td>5</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>5</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Relax protection</td>
<td>No</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>against dismissals</td>
<td>No</td>
<td>5</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nationalisation</td>
<td>No</td>
<td>5</td>
<td>70</td>
</tr>
<tr>
<td>of railways</td>
<td>Yes</td>
<td>3</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Equity holding</td>
<td>Yes</td>
<td>3</td>
<td>28</td>
</tr>
<tr>
<td>by government</td>
<td>Yes</td>
<td>3</td>
<td>67</td>
</tr>
<tr>
<td>in private banks</td>
<td>No</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>No state control</td>
<td>Yes</td>
<td>4</td>
<td>30</td>
</tr>
<tr>
<td>over salaries of</td>
<td>Yes</td>
<td>4</td>
<td>67</td>
</tr>
<tr>
<td>top managers</td>
<td>No</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Representativeness

Balance of opinions in the society and its representation by party seats in the Bundestag and by the DGB

CDU/CSU, SPD, FDP, Linke, Gruenen, DGB, Opinions in public surveys

Labour market
2. Introduce nation-wide minimal wage
17. Relax protection against dismissals

Economy and taxes
24. Exclusive governmental ownership of railways
10. Equity holding by government in private banks has to be temporary
5. No state control over top-management salaries*
13. Decrease corporate taxes
28. Reintroduce a wealth tax*

Environment
1. Prolong the operation time of nuclear power plants
19. Introduce a general speed limit on Autobahnen (German motorways)
9. Unexceptionally ban experiments on animals
26. Authorize production of genetically modified food*
22. More subsidies for eco-farming

Social policy
36. Increase significantly unemployment benefits (Hartz IV)*
32. If wages decrease, pensions can be reduced*
31. No Praxisgebuehr (quarterly fee for medical visits)
15. Compensation to parents who use no public daycares

Percentage of NO/YES votes
Indices of the parties

CDU/CSU: 33.8%
SPD: 23.0%
FDP: 14.6%
Linke: 11.9%
Grünen: 10.7%
DGB: 69%
Bundestag: 71%
Reform proposal: Third vote for party manifestos (Drittstimme)

Actual trend in job recruitment: anonymized applications and the focus on job-relevant merits rather than on personal information.

Similarly, the third vote in the form of 'sample referenda' with voters‘ Y/N opinions on several important issues from party manifestos. It meets the existing logic of the German two-vote system: the first vote for a person, the second vote for a party, and the third vote for party profiles, so that the considerations are getting to be more conceptual and less personified.
Conclusions

German Bundestag elections 2009 show that voters are little consistent with their own political profiles, disregard party manifestos, and are likely driven by political traditions, even if outdated, or by personal images of politicians. Possible explanation: the spectrum of political landscape has shifted to the right, whereas voters still believe that the parties represent the same values as a few decades ago. Result of ‘voting errors’: the two governing parties are the least representative among the five leading ones, and the governing coalition CDU/CSU/FDP is the least representative among all imaginable coalitions. Effect: discrepancy between the electorate and the government elected (Stuttgart 21, Castor Transport). Election reform proposal: 3rd vote. Information society paves way to new direct democracy.
Sources


Improving the Accessibility of Scientific Data with Data Provenance

Hazeline U. Asuncion
University of Washington, Bothell
hazeline@u.washington.edu
February 27, 2013

eKNOw Panel
Brief Background

• Researchers often use data sets
  – from past experiments or analysis
  – from external sources (published data sets, colleagues, etc.)

• Data Provenance
  – “origin and history of data” [Stevens 2007]
  – “series of transformations applied to an input data” [Cohen 2006]
Benefits of Data Provenance

• Repeatability of experiments or scientific analyses
• Verification of results
• Reusability of data sets
Current Challenges to Provenance

- Experiments/analysis occurred in the past
  - Recording techniques capture current analysis on the data
- Analysis occurs across multiple tools
  - scripts, analysis tools, etc.
- Provenance capture/analysis require overhead
  - Setting up tool (e.g., creating workflow)
  - Analyzing provenance (e.g., learning query language)
Current Provenance Techniques

- Automatically record provenance metadata
  - Record workflow execution, OS events, commands [Altintas2006, Braun2006, Bourilkov2005]

- Capture provenance across different tools
  - Chain multiple workflows [Altintas2010]
  - Centralized repository of workflows (ProvManager) [Marinho2010]
  - Events at different levels (Lasagna) [Muniswamy-Reddy2009]
  - Web services (PreServ) [Branco2006]

- Exchange provenance data among different tools (OPM, W3C Prov)

- Capture provenance within analysis tool
  - Track provenance in R [Runnalls2012]
Addressing Some of the Challenges

• Capture provenance on existing analysis tools
  – Capturing changes in spreadsheet data [Asuncion2011]
  – Capturing sources of spreadsheet data [Asuncion2012]
Addressing Some of the Challenges

• Provenance Recovery
• Lightweight, with minimal setup and training time
  – Experiment Explorer (Lawrence Livermore National Laboratory) [Davis 2013]
Collaborating through Social Media to Create Health Awareness

Liette Lapointe
Jui Ramaprasad
Isabelle Vedel
Web 2.0 and the social computing phenomena are creating a new reality in health care.
- Patients and healthcare professionals are increasingly and jointly using social media (SM) tools.
- SM has the potential to enable collaboration between individuals and healthcare organizations.

Social media tools have been used by individuals as a mechanism for organizing dispersed individuals and groups (grassroots community building)
Findings (1)

- Posts and comments
  - Most posts are initiated by the organizations while comments are posted primarily by individual.
  - Individuals are more “active”.
  - Overall, these posts/comments are associated with a large number of likes and are widely shared.

- SM becomes both an enabler and a tool for collaboration

- SM is seen as particularly useful to reach a wider audience
Findings (2)

- Five key activities
  - Informing and educating
  - Supporting
  - Sharing testimonies
  - Advocating
  - Raising funds
Discussion and conclusion

- SM enables the creation of communities that truly link individuals and organizations around a common center of interest.
- Some activities have a basic role in creating and shaping the community (bubble of comments); other activities add value above and beyond.
- The role of SM communities seems to be to fill a need that is not addressed by other organizations.
- SM contributes to informed decision making and, ultimately, to patient-centered care.
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Michelle Marquard, Ed.D.
Dir., Human Resources LDSG
Cisco System, Inc.
February 2013
Current rate of growth doesn’t close the gap for ~ 2 technology cycles

Countries with Greatest Number of Active iOS & Android Devices (millions)

<table>
<thead>
<tr>
<th>Country</th>
<th>Number</th>
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<tbody>
<tr>
<td>US</td>
<td>222</td>
</tr>
<tr>
<td>China</td>
<td>221</td>
</tr>
<tr>
<td>UK</td>
<td>43</td>
</tr>
<tr>
<td>S. Korea</td>
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<td>Japan</td>
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<td>Germany</td>
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<td>France</td>
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<td>Canada</td>
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<td>Russia</td>
<td>19</td>
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<tr>
<td>India</td>
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<tr>
<td>Brazil</td>
<td>19</td>
</tr>
<tr>
<td>Spain</td>
<td>18</td>
</tr>
</tbody>
</table>

Fastest Growing iOS & Android Markets by Active Devices (%)

<table>
<thead>
<tr>
<th>Country</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colombia</td>
<td>278%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>266%</td>
</tr>
<tr>
<td>Turkey</td>
<td>247%</td>
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<tr>
<td>Ukraine</td>
<td>237%</td>
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<tr>
<td>Egypt</td>
<td>211%</td>
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<tr>
<td>China</td>
<td>209%</td>
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<tr>
<td>Chile</td>
<td>209%</td>
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<tr>
<td>India</td>
<td>189%</td>
</tr>
<tr>
<td>Venezuela</td>
<td>182%</td>
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<tr>
<td>S. Africa</td>
<td>177%</td>
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<tr>
<td>Thailand</td>
<td>176%</td>
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<tr>
<td>Philippines</td>
<td>171%</td>
</tr>
</tbody>
</table>

Source: Flurry Analytics, January 2012 – January 2013, countries with at least 500,000 active devices as of January 2012

Digital divide is perpetuated by dollar divide
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DigitalWorld 2013

eLmL / eKNOW Panel

Stephen White
Massive Open Online Courses (MOOCs)

• MOOCs represent the latest stage in the evolution of open educational resources.

• They represent a new business model that effectively combines instructional quality, lower cost, and increased access through unlimited scalability.
Daphne Koller, (co-founder of Coursera) speaks about the benefits of MOOCs here: http://on.ted.com/Koller

Unsurprisingly she provides a compelling argument that MOOCs are potentially better than traditional courses.

Good MOOCs follow the best practices of great online learning: active learning, authentic learning, peer-to-peer interactions, peer grading...
Really a threat?

- A turning point may well occur when a MOOC-based program of study leads to a degree from an accredited institution.
- We are already partially there: students can now receive transfer credit toward a degree from an accredited institution for learning not obtained at a college or university.
- And feedback from MOOC users has already suggested that having the ‘certificate’ contributed towards their gaining employment...
Stimulus for change!

• Georgia Tech's provost, Rafael L. Bras, was careful to communicate to his campus that in joining Coursera, the institution was "not abandoning our central mission of residential undergraduate instruction."

• He describes its involvement as an opportunity to "define the technological research university of the 21st century by exploring new modes of instruction and operation."

• Other colleges have echoed this description of MOOC's as a space for experimentation that may benefit the on-campus experience.
• MOOCs might just be what we have been waiting for?
• A big enough challenge to traditional teaching, to give it the ‘kick up the behind’ that it needs...