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INTRODUCTION

The year 2012 was an important transitional year for the Network Institute. It marked the transition from the initial seed-funding period to a more sustainable level of funding, and the Network Institute merged with its sister institute CAMeRA.

In first part of our annual report, we report on both of these transitions and their impact on the Network Institute. We also report on other developments: new members joining the Network Institute, the Tech Labs, increased internal and external visibility, and a host of activities undertaken during the year 2012. The final part of the annual report is concerned with the usual quantitative indicators.

MANAGEMENT SUMMARY

The merger between CAMeRA and the Network Institute has been successfully concluded, both organisationally and content-wise.

The success of the new resulting Institute is in large part due to the very lightweight organisational infrastructure, with no administrative or management overhead, with many bottom up initiatives, and with very little top-down direction on content.

There is broad support for the mission of the Network Institute, both among its member scientists and in the management of the participating faculties. There are a substantial number of scientists with an interest in increased alpha/gamma-beta collaboration. There is a close link between the Network Institute and the mission statement of the VU as a whole.

We have successfully transitioned the Network Institute from its seed-funding period to a more sustainable level of structural funding.

The financial situation of the Network Institute is healthy. With 0% overhead, all available funds are spent on facilitating science. Current-level of baseline funding is minimally required for any meaningful existence.

DESCRIPTION OF THE RESEARCH INSTITUTE

The social sciences and humanities are getting more computational, and computing is getting more human and social. This makes it necessary to combine the power of information and communication technology (ICT) with knowledge from the social sciences and humanities. ICT will provide the data, methods and means to boost the social sciences and humanities into a new era, while the social sciences and humanities will provide a better understanding of the opportunities and risks of strongly networked systems.

Information, communication, and networking technologies create innovative ways to connect people, communities, organizations, and economies in the Information Society. New local and global opportunities emerge for people to associate and collaborate in a wide diversity of relationships. Networks offer highly flexible and versatile forms of association and organization across existing boundaries. Driving these networks is a continuous process of creating, exchanging and sharing information and knowledge. These innovations have a fundamental impact on how we work, think, and act.

The construct of a “network” functions as a unifying conceptual, theoretical, methodological and technological theme across the different research areas. Networked structures are emerging as a central concept in all of the disciplines in the Network Institute. Modelling a diverse set of phenomena as networks, exploring their structural properties in a science of networks, and studying their nature, origin, content, structure and evolution leads to useful crossfertilisation and technology transfer between our diverse fields.
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STRUCTURE OF THE RESEARCH INSTITUTE

The mission of the Network Institute focuses on four integrative research areas which together capture the shared interests of our members:

- the digital planet
- the knowledge society
- the dynamic organisation
- the networked individual

With these four research areas, we are able to study the modern network phenomena comprehensively. Our research encompasses very different scales, from global patterns to single individuals, and we study networks of a very different nature: networks of individuals, of organisations, of technical devices, of knowledge or indeed of mixtures of these.

We defer a more detailed description of these research areas to an Appendix, as well as our mission statement, and example societal challenges that are relevant to the Network Institute.

ACTIVITIES DURING 2012

MERGE WITH CAMERA

The merger between the Network Institute and CAMeRA under the joint label of the Network Institute was conducted in the first months of 2012. The merger was effectively completed by early summer, and formal approval (after financial due diligence etc) was obtained after the summer. All obligations that resulted from commitments of the Network Institute and CAMeRA before the merger were assumed by the Network Institute. All of these commitments were covered by sufficient financial reservations.

Care was taken that the merger would not lead to loss of scientific focus, loss of organisational coherence, or a clash of incompatible cultures. The CAMeRA director Johan Hoorn played a crucial role in the successful transition to single, integrated institute. The new organisation has the following organisational structure.

The Institute’s board is meeting twice a year with the Director, and the Director’s Council is meeting 4 times a year.

In order to preserve scientific coherence, a number of opinion leaders among the member of the Institute were asked to define a new set of focus areas that meaningfully combined the expertise and
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interests of the members of both of the original Institutes. The description of these focus areas forms the content of an appendix.

The merger also led to the unification of the technical infrastructure of the two Institutes: the Game Cella’ (CAMeRA), the Media Lab (CAMeRA) and the Intertain Lab (Network Institute). More on this in a later section.

FINANCE

The structural funding of the new Network Institute has been determined in the summer of 2012 on the basis of the joint membership of the two constituting Institutes, after correcting for overlapping membership, and was determined at 300kEU annually for 2012, 2013 and 2014.

The following is a summary of the 2012 expenditure of the Network Institute (apart from the commitments that have been assumed from the Network Institute and CAMeRA before the merger).

<table>
<thead>
<tr>
<th>Item</th>
<th>€</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tech Labs Manager</td>
<td>70</td>
</tr>
<tr>
<td>Academy Assistants programme</td>
<td>80</td>
</tr>
<tr>
<td>Industry Vouchers</td>
<td>50</td>
</tr>
<tr>
<td>PPP Creative Industry</td>
<td>60</td>
</tr>
<tr>
<td>Various sponsoring</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>280</strong></td>
</tr>
</tbody>
</table>

As mentioned above, this shows zero expenditure on administrative or management overhead. This is possible due to the generosity of the Department of Computer Science, who are donating 40% time of the Scientific Director (current Frank van Harmelen), 20% of an assistant Director at UD-level (currently Michel Klein) and 20% of an office manager (currently Elly Lammers).

NEW MEMBERS

An important sign of the visibility and attractiveness of the Network Institute is the fact that a number of other research groups from inside the VU and from elsewhere have expressed interest to join the Network Institute. With approval of the Institute's board, and after consultation with the Rector, the following groups have become members or associate members:

NEW MEMBERS

- internet law, prof. Arno Lodder, VU, (5fte)
- axiom group, prof. Arianna Betti, philosophy VU (6fte)

ASSOCIATE MEMBERS

- e-Humanities group, prof. Sally Wyat, KNAW
- Leibniz center for law, prof. Tom Engers, UvA (15fte)

EXPRESSIONS OF INTEREST

have been received from

Annual report 2012 5
• Network Engineering group, prof. Cees de Laat, UvA (30fte)
• Computational Science, prof. Peter Sloot, UvA (30fte)

The new members participate fully in the Network Institute and its resources. Given the 3-year financial cycle of the Network Institute, they are not charged for contribution until the end of the current cycle (end 2014).

INTEGRATED MANAGEMENT OF THE TECH LABS

As mentioned above, one important consequence of the merger between CAMeRA and the Network Institute was the integration of the research labs of both Institutes.

A working group looked at the desiderata for a joint organisation of the labs. As a consequence of this, the management of the labs was brought under a single responsibility, off-loading this from the respective Departments who had often been struggling with the independent management of the labs.

Starting from the middle of 2012, the three labs have been branded as a single service, the Network Institute Tech Labs, with a single web-portal to display their services, a single sign-on for the reservation system, and a single contact point.

Marco Otte has been appointed as CTO of the Network Institute, and has full responsibility for maintaining the labs, for supporting scientists that use the lab, and for proactively informing scientists about the possibilities offered by the Tech Labs.

The two tables that follow show occupancy rates of our Tech Labs. These are based on data from the reservation system of the labs. The table "in days" marks each day on which there was at least one activity in each of the Tech Labs, the table "in hours" marks the occupancy in hours. Total occupancy can rise above 100% if multiple activities take place in a lab at the same time.

These tables show a substantial increase in the use of the Tech Labs since the transition to integrated management.

A discussion was started with both the board and the Director's Council on the financial support needed for the technical maintenance of the Tech Labs. Departments are keen for this to be taken over by the Network Institute, but funds will have to be supplied for this. Part of this discussion is the longer term aim for a self-financing structure where the costs for the Tech Labs are covered from fees by the scientists who use the labs. This discussion will be concluded and the results implemented in 2013.

A more detailed description of the possibilities of the Tech Labs is given in an Appendix to this report.
## Occupancy Tech Labs based on days

<table>
<thead>
<tr>
<th>Relative</th>
<th>2010</th>
<th></th>
<th>2011</th>
<th></th>
<th>2012</th>
<th></th>
<th>2013</th>
<th></th>
<th>2013 Jan-Apr</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Research</td>
<td></td>
<td></td>
<td>Education</td>
<td></td>
<td></td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intertain Lab</td>
<td>no data</td>
<td></td>
<td>no data</td>
<td></td>
<td>no data</td>
<td></td>
<td>20%</td>
<td>8%</td>
<td>16%</td>
<td>43%</td>
<td>11%</td>
</tr>
<tr>
<td>Game Cell^a</td>
<td>65%</td>
<td>0%</td>
<td>22%</td>
<td>87%</td>
<td>60%</td>
<td>0%</td>
<td>23%</td>
<td>83%</td>
<td>37%</td>
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<td>4%</td>
</tr>
<tr>
<td>Medialab^a</td>
<td>41%</td>
<td>0%</td>
<td>0%</td>
<td>41%</td>
<td>77%</td>
<td>0%</td>
<td>0%</td>
<td>77%</td>
<td>55%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Avg use Tech Labs</td>
<td>64%</td>
<td></td>
<td></td>
<td>68%</td>
<td></td>
<td></td>
<td>48%</td>
<td></td>
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<table>
<thead>
<tr>
<th>Absolute in days</th>
<th>2010</th>
<th></th>
<th>2011</th>
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<th>2012</th>
<th></th>
<th>2013</th>
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<th>2013 Jan-Apr</th>
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<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>Research</td>
<td></td>
<td></td>
<td>Education</td>
<td></td>
<td></td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intertain Lab</td>
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<td></td>
<td>no data</td>
<td></td>
<td>no data</td>
<td></td>
<td>43</td>
<td>17</td>
<td>35</td>
<td>95</td>
<td>25</td>
</tr>
<tr>
<td>Game Cell^a</td>
<td>144</td>
<td>0</td>
<td>48</td>
<td>192</td>
<td>133</td>
<td>0</td>
<td>50</td>
<td>183</td>
<td>82</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Medialab^a</td>
<td>90</td>
<td>0</td>
<td>0</td>
<td>90</td>
<td>169</td>
<td>0</td>
<td>0</td>
<td>169</td>
<td>112</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

*Eye Tracker Medialab uses 20% of the lab space and during use is used approx. 50% of the time
Programming and preparations for experiments are counted (Game Cell)^a
Concurrent research is counted double

## Occupancy Tech Labs based on hours

<table>
<thead>
<tr>
<th>Relative</th>
<th>2010</th>
<th></th>
<th>2011</th>
<th></th>
<th>2012</th>
<th></th>
<th>2013</th>
<th></th>
<th>2013 Jan-Apr</th>
<th></th>
<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>Research</td>
<td></td>
<td></td>
<td>Education</td>
<td></td>
<td></td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intertain Lab</td>
<td>no data</td>
<td></td>
<td>no data</td>
<td></td>
<td>no data</td>
<td></td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>Game Cell^a</td>
<td>8%</td>
<td>0%</td>
<td>1%</td>
<td>9%</td>
<td>8%</td>
<td>0%</td>
<td>1%</td>
<td>8%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Medialab^a</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>5%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>10%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Avg use Tech Labs</td>
<td>7%</td>
<td></td>
<td></td>
<td>7%</td>
<td></td>
<td></td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Absolute in days</th>
<th>2010</th>
<th></th>
<th>2011</th>
<th></th>
<th>2012</th>
<th></th>
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<tr>
<td>Intertain Lab</td>
<td>no data</td>
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<td></td>
<td>no data</td>
<td></td>
<td>24</td>
<td>8</td>
<td>19</td>
<td>51</td>
<td>26</td>
</tr>
<tr>
<td>Game Cell^a</td>
<td>144</td>
<td>0</td>
<td>10</td>
<td>154</td>
<td>133</td>
<td>0</td>
<td>11</td>
<td>144</td>
<td>82</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Medialab^a</td>
<td>90</td>
<td>0</td>
<td>0</td>
<td>90</td>
<td>169</td>
<td>0</td>
<td>0</td>
<td>169</td>
<td>108</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Eye Tracker Medialab uses 20% of the lab space and during use is used approx. 50% of the time
Programming and preparations for experiments are counted (Game Cell)^a
Concurrent research is counted double
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INCREASED INTERNAL AND EXTERNAL VISIBILITY

The following activities all contributed to increased visibility of the Network Institute, or were signs of this increased visibility:

The external visibility of the Network Institute received a significant boost with the construction of a new website. This work was performed in the final quarter of 2012, with the new website launching in January 2013, at [http://www.netwerkinstitute.org](http://www.netwerkinstitute.org).

A brochure presented the new profile and activities of the Network Institute after the merger with CAMeRA. The brochure can be found online, at [http://www.networkinstitute.org/wp-content/uploads/2013/02/NWI_brochure_FINAL.pdf](http://www.networkinstitute.org/wp-content/uploads/2013/02/NWI_brochure_FINAL.pdf)

The Network Institute is playing a key role in the formation of the new Amsterdam Faculty of Science, and its organisational structure is being used to model similar institutes in the new AFS.

Het Network Institute is one of the main points of contact between the University and the Amsterdam Economic Board. Similarly, jointly with the Faculty of Humanities, the Network Institute is the main point of contact between the University and CHAT, the Centre for Humanities And Technology, an initiative of the KNAW in collaboration with IBM International. These Amsterdam-centered contacts are increasingly seen as being of strategic importance to the University.

MAJOR ACQUISITION ACTIVITIES

It would be infeasible to report on all the acquisition activities by members of the Network Institute. Here we report only a few of the major and most visible activities. These can be seen as "signature activities" for the Network Institute.

The Network Institute played a key role in the FutureICT proposal for the EU Flagship programme, with the Network Institute Director as lead of one of the 5 focus areas of FuturICT. The FuturICT proposal managed to get through to the final 4 competitors for major EU funding (out of 26 competitors), but failed to be one of the two winning proposals. Nevertheless, this activity provided substantial international visibility for the Network Institute.

The Network Institute is the hosting organisation for one of the proposals submitted by the VU to NWO's Zwaartekracht programme. This ambitious nationwide bid was under leadership of Peter Nijkamp (FEWEB), with Van Harmelen (FEW) acting as co-principle investigator and Van den Besselaar (FSW) as participant. This bid was selected in the VU-internal pre-competition selection. Outcome of the bid will become known in 2013.

The Network Institute played a coordinating role for the VU participating role in NWO's programme for the Top Sector Creative Industry, with Johan Hoorn playing a key coordinating role. Seven proposals were submitted by members of the Network Institute, and in 2013, two large grants were awarded to the VU under this programme: Organisational Science (Irma Borst, Marcel Veenswijk) got 300kEU for research into crowd funding, and a team from Language and Communication (Irene Costera Meijer) got 800kEU for research into new forms of on-line journalism. This means that 2 of the 3 successful projects from the VU for this major NWO call are from researchers in the Network Institute.

Arianne Betti (member of Network Institute) was appointed to a VU Research Chair in September 2012.

Piek Vossen (LET) and Willem ten Hage (FEW) acquired 2.8mEU from EU for project NewsReader, a collaboration between computational linguistics and computer science.
### ACADEMY ASSISTANTS PROGRAMME

In July 2012 we announced the new round of our Academy Assistants programme. Members of the Network Institute (in pairs of researchers from different faculties) were invited to submit research proposals for funding for two student assistants to work for a year on a joint research project. Twenty such proposals were received. An independent selection committee selected 14 of these for funding. These were distributed across the faculties as follows: 8xFEW+FSW, 1xFEW+LET, 1xFEW+Phil, 1xFEW+LET+FSW, 1xFSW, 1xFEW+FEWEB, 1xFSW+LET. These projects cover a wide range of topics across the disciplines of the Network Institute, and a number of these projects have already lead to publications in international conferences. See [http://www.networkinstitute.org/academy-assistants/new-call-for-network-institute-academy-assistants-projects/](http://www.networkinstitute.org/academy-assistants/new-call-for-network-institute-academy-assistants-projects/) for more details on these projects.

### INDUSTRY SPEED DATING & VOUCHERS EVENT

In October we hosted a "speed dating event" between researchers of the Network Institute and industry (although the term "industry" should be read here as including also local and national government, other public organisations, SME's, charitable organisations, etc). Such extern parties could register for a speed date session with a number of selected set of researchers from the Network Institute, with the aim to explore shared interests. If successful, the combined external party and Network Institute researcher were invited to write a short proposal for a joint activity, in order to compete for a number of "researcher vouchers": such a voucher (worth € 5000 each) would compensate the researcher to work for a month on a joint project with (or: for) the external party. Thirty external parties registered for the event, ranging from the National Library to the Tax Office and from scientific publishers to high-end ICT start-ups. Twenty of these were invited for the event. This resulted in 14 proposals for collaboration, and we funded 10 of these with a research voucher. (3xLET, 4xFEW, 2xFEWEB).

### PUBLIC-PRIVATE PARTNERSHIPS IN THE CREATIVE SECTOR

Jointly with KNAW and the Humanities Faculties of both VU and UvA, the Network Institute funded grants for young researchers to work on 6-9 months long projects that they would execute while "embedded" in an organisation in the creative sector. The Network Institute funded two of these. (In 2013, these projects were evaluated as very successful, and the joint funding scheme was continued).

### OTHER ACTIVITIES DURING THE YEAR

On top of all the above, the following activities also took place during 2012:

- **March 2012**: the first Network Institute lecture
- **April 2012**: co-organisation of VU mini-symposium with the Rector on Open Data, hosting Jos van Engelen (chair of NWO) as panel member, among others.
- **June 2012**: organisation of our annual symposium in the form of a poster market. Over 150 researchers participated, with almost 80 posters on display.
- **June 2012**: during the same annual symposium, we awarded the first award for "most promising young researcher". Each Head of Department was invited to nominate a young researcher as candidate for this award from their department, and an independent committee made the final selection, resulting in Jacopo Urbani from Computer Science in receiving the award.
- **September 2012**: kick-off meeting of the new round of Academy Assistants

The Network Institute actively contributed to writing the "Instellingsplan" of the University, and the "Connected World" of that plan paragraph carries a strong signature of the Network Institute.
July 2012: The Network Institute organised the Web Science Summer School in the Lorentz Centre Leiden in Leiden. Forty PhD students (maximal capacity) from around the world spent a week of intensive lectures and joint project work at the excellent facilities of the Lorentz Centre. The Summer school had an impressive set of international speakers, including Prof. Wendy Hall (Southampton), Prof. Noshir Contractor (Northwestern University, Chicago), prof. Steffen Staab (Koblenz), Dr. Chris Welty (Watson team, IBM), Mr. Dan Brickley (Google).

December 2012: Through Dr. Johan Hoorn (previously director of CAMeRA), the Network Institute co-organised the international workshop on Computational Models of Physical/Virtual Space Interaction at the Lorentz Centre in Leiden.

Throughout the year, the Network Institute has been involved in the design discussions of the new nu.VU building, which will hosts the new Department of Informatics of the new Amsterdam Faculty of Science, as well as possibly other groups that are members of the Network Institute.

Finally, throughout the year, the Network Institute has sponsored a variety of smaller events. These sponsorships (often no more than a few hundred euros) facilitate the organisation of such grassroots events.

PLANS FOR 2013

AFS & CCCT

An important strategic issue in 2013 will be the formation process of the new Amsterdam Faculty of Science. This will involve (among others) determining an appropriate organisational form for interdisciplinary institutes in the AFS structure. We will also need to decide on the best way to harmonise the Network Institute at the VU with the Centre for Creation, Content and Technology (CCCT, http://ccct.uva.nl/) at the UvA. Both institutes are a collaboration between computer science and social science and humanities, and a merger of the two computer science departments will inevitably affect both of these interdisciplinary institutes in which the computer scientists participate.

EXTENDED COLLABORATIONS

Collaborations in 2012 have shown the clear potential of a closer link between the Network Institute and various groups in FEWEB, in particular the group of Peter Nijkamp, and the SPINLAB. We will explore the possibilities of a closer link between these groups and the Network Institute.

EDUCATIONAL ACTIVITIES

Until now, the Network Institute has focussed on collaborations in the research sphere. In 2013 we will investigate the possibilities for using the Network Institute as a vehicle for joint teaching activities between the participating departments. Possible examples are a Web Science minor programme, a Web Science master programme, a research master in Computational Social Science, or a research master in e-Humanities.

DATA MANAGEMENT AND INTEGRITY

Questions around data-management in science have been prominent in the public and scientific debate in the recent past: how should researchers manage their data, how do they ensure integrity and traceability of their data, and how can they best make this data available to other researchers? In collaboration with some of the central services at the VU (UB, UCIT), we will start activities to support our researchers on these questions, both in terms of "soft skills" (training, guidelines, checklists, etc.), as well as technical infrastructure.
JOINT ACQUISITION STRATEGY AND SUPPORT

It’s not entirely clear if an interdisciplinary such as the Network Institute can provide meaningful support for external fund acquisition across its heterogeneous set of researchers that operate in very different fields, with very different parameters for external funding. We will explore this during the coming year.

INTERNATIONAL COLLABORATION

Network Institute staff members participate in many international collaborations as a daily research routine. It does not only involve collaboration with academic peers abroad, but also industrial and societal partners outside academia, for example in the wide range of EU project consortium university-industry collaborations Network Institute staff is involved in. We refrain from exhaustively listing all these collaborations, and instead just list a few noteworthy collaborations.

Internationally, the Network Institute is one of the founding members of WSTNet, the Web Science Trust network of a selective set of labs around the world. Apart from the Network Institute @ VU University Amsterdam, member labs are a.o. the Oxford Internet Institute, Tsinghua University (Shenzhen, China), USC (Annenberg School of Communication), North-Western University (Chicago, SONIC Social Networks Dep.), Southampton University, Rensselaer Polytechnic Institute, KAIST (Korea), PUC Rio de Janeiro, MIT (CSAIL). WSTNet (http://webscience.org) has the global mission to develop the Web Science research agenda and be a platform for associated Web Science curriculum development.

The Network Institute closely collaborates with Tim Berners-Lee’s World Wide Web Foundation and with W3C (www.w3.org), the global Web standards organization.

A substantial international collaboration specifically in 2012 was the participation of the Network Institute in the FutureICT European Flagship proposal, as reported above. This involved collaboration in a network of many dozens of European institutions.

Finally, the Network Institute organized the international Web Science Summer School (WSSS 2012) in the Lorentz Center in Leiden, as reported above. This event hosted PhD students from around the world (of course The Netherlands and Europe, but also the US, Canada, the Middle East and Asia), and speakers from across Europe and the US.
FUNDING AND FTE’S

EXTERNAL FUNDING

NEW ACQUISITIONS IN 2012

Below is a non-exhaustive list of new project acquisitions in 2012.

Henri Bal

- Generic eScience initiative for the Netherlands eScience Center, 488K total, 50% is for the VU (including a 0.5 postdoc for Frank van Harmelen)
- eAstronomy (Beyond the data explosion), 488K total, 129K for the VU
- An eScience approach to determine future Local Sea-level Changes (eSALSA), 488K total, 1 eScience engineer (in kind) for the VU

Peter van den Besselaar

- Synthesys3 - large biodiversity research infrastructure project; European Commission; Euro 8.000.000 (Euro 80.000 VU)

Arianna Betti

- eCloud European Commission’s CIP-Best Practice Network (with Europeana and other 32 partners)
- CLARIN-NL @PhilosTEI/TiCCling Philosophy (with Martin Reynaert)
- KNAW/ASSA (Royal Academy of Arts and Sciences of the Netherlands/Academy of the Social Sciences in Australia) Australia-Netherlands Exchange Program Grant, 2012 ERC (European Research Council)
- Proof of Concept Grant 2012, Mapping Culture (GlamMap): Scalability of insightful metadata visualisation for the GLAM (cultural heritage) sector (€150.000)
- DJA/KNAW (The Young Academy/Royal Academy of Arts and Sciences of the Netherlands), 2012 Two workshops on Bolzano and Tarski (with Iris Loeb & Stefan Roski)

Hein van den Berg

- Winner Hendrik Casimir-Karl Ziegler research stipend of the KNAW (50k), for the project Axiomatics and the Emergence of Biology as a Science. Philosophy of Biology in the 18th century.

Piek Vossen

- NewsReader, 2012-2016, EU-FP7, 2.800k euro;
- BiographyNed (Schreiber, Legene, Vossen), 2012-2016, VU/UvA eScience-project, 489k euro;
- OpeNER (Gaines, Rigau, Vossen), 2012-2014, EU-FP7, 1.930k euro;
- SIERA (Jarrar, Vossen), 2012-2014, EU-FP7, 500k euro;
- Cornetto-LMF-RDF, 2012-2013, Clarin, 120k euro

Lourens de Vries

- ARC Discovery Project (DP130101361): How languages differ and why

  When languages interact, they become similar in certain ways. This project will explore the reasons for this, by examining why there are many languages of diverse structures in certain
regions, focusing on New Guinea, Amazonia and north-east Queensland. The project will assist with understanding how language helps and hinders inter-ethnic communication.

Chief Investigators: Alexandra Aikhenvald, R.M.W. Dixon, Lourens de Vries, Willem F Adelaar; Collaborating Schools/Institutions: School of Arts & Social Sciences; The Cairns Institute; Free University of Amsterdam; University of Leiden

REALIZATION IN 2012

The following table provides an overview of the amount of external funding per year in the Network Institute.

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd geldstroom</td>
<td>€ 981,000</td>
<td>€ 985,935</td>
<td>€ 821,081</td>
<td>€ 1,040,024</td>
<td>€ 2,020,100</td>
</tr>
<tr>
<td>3rd geldstroom</td>
<td>€ 2,116,000</td>
<td>€ 4,534,390</td>
<td>€ 7,030,153</td>
<td>€ 3,226,108</td>
<td>€ 5,933,883</td>
</tr>
</tbody>
</table>

FTE PER TYPE OF FUNDING (FOR RESEARCH)

In total 311 different scientists were working in the Network Institute in 2012. The overview of FTE per funding type can be found in the table below. The last column includes the FTE working in affiliated departments (i.e. the Axiom group (Philipsophy) and the Computer/Law Institute).

<table>
<thead>
<tr>
<th>FTE</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2012+AFF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totaal (incl promovendi)</td>
<td>90.99</td>
<td>112.54</td>
<td>124.25</td>
<td>131.208</td>
<td>131.24</td>
<td>135.96</td>
</tr>
<tr>
<td>fte onderzoek 1e geldstroom</td>
<td>39.57</td>
<td>53.5</td>
<td>67.4</td>
<td>68.2</td>
<td>68.58</td>
<td>72.55</td>
</tr>
<tr>
<td>fte onderzoek 2e geldstroom</td>
<td>18.25</td>
<td>19.39</td>
<td>16.2</td>
<td>17.8</td>
<td>19.35</td>
<td>19.35</td>
</tr>
<tr>
<td>fte onderzoek 3e geldstroom</td>
<td>33.17</td>
<td>39.65</td>
<td>40.7</td>
<td>45.2</td>
<td>43.31</td>
<td>44.06</td>
</tr>
<tr>
<td>Totaal promovendi</td>
<td>40.59</td>
<td>50.92</td>
<td>49.612</td>
<td>59.36</td>
<td>56.61</td>
<td>58.86</td>
</tr>
<tr>
<td>fte promovendi 1e geldstroom</td>
<td>16.63</td>
<td>20.81</td>
<td>21.9</td>
<td>27.2</td>
<td>26.38</td>
<td>27.88</td>
</tr>
<tr>
<td>fte promovendi 2e geldstroom</td>
<td>10.57</td>
<td>13.37</td>
<td>9.3</td>
<td>10.3</td>
<td>9.04</td>
<td>9.04</td>
</tr>
<tr>
<td>fte promovendi 3e geldstroom</td>
<td>13.39</td>
<td>16.74</td>
<td>18.4</td>
<td>21.9</td>
<td>21.19</td>
<td>21.94</td>
</tr>
<tr>
<td>Faculty (excl. PhD students)</td>
<td>50.4</td>
<td>61.62</td>
<td>74.638</td>
<td>71.848</td>
<td>74.63</td>
<td>77.1</td>
</tr>
<tr>
<td>fte onderzoek 1e geldstroom</td>
<td>22.94</td>
<td>32.69</td>
<td>45.478</td>
<td>40.98</td>
<td>42.2</td>
<td>44.67</td>
</tr>
<tr>
<td>fte onderzoek 2e geldstroom</td>
<td>7.68</td>
<td>6.02</td>
<td>6.83</td>
<td>7.562</td>
<td>10.31</td>
<td>10.31</td>
</tr>
<tr>
<td>fte onderzoek 3e geldstroom</td>
<td>19.78</td>
<td>22.91</td>
<td>22.33</td>
<td>23.306</td>
<td>22.12</td>
<td>22.12</td>
</tr>
<tr>
<td>WP1 excl promovendi</td>
<td>22.94</td>
<td>32.69</td>
<td>45.478</td>
<td>40.98</td>
<td>42.2</td>
<td>44.67</td>
</tr>
</tbody>
</table>
Divided by different faculties, the number of FTE's are the following:

<table>
<thead>
<tr>
<th>Faculty</th>
<th>CS</th>
<th>FEWEB</th>
<th>FSW</th>
<th>LET</th>
<th>NI-CORE</th>
<th>CLI</th>
<th>AXIOM</th>
<th>NI+AFF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total (incl promovendi)</strong></td>
<td>80.1</td>
<td>2.2</td>
<td>32.9</td>
<td>16.1</td>
<td>131.2</td>
<td>2.0</td>
<td>2.7</td>
<td>4.7</td>
</tr>
<tr>
<td>FTE onderzoek 1e geldstroom</td>
<td>35.9</td>
<td>2.18</td>
<td>19.98</td>
<td>10.52</td>
<td>68.58</td>
<td>1.27</td>
<td>2.7</td>
<td>3.97</td>
</tr>
<tr>
<td>FTE onderzoek 2e geldstroom</td>
<td>11.51</td>
<td>5.82</td>
<td>2.02</td>
<td>19.35</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>FTE onderzoek 3e geldstroom</td>
<td>32.67</td>
<td>7.06</td>
<td>3.58</td>
<td></td>
<td>43.31</td>
<td>0.75</td>
<td></td>
<td>0.75</td>
</tr>
<tr>
<td><strong>Total promovendi</strong></td>
<td>37.5</td>
<td>0.9</td>
<td>12.8</td>
<td>5.4</td>
<td>56.6</td>
<td>1.4</td>
<td>0.9</td>
<td>2.3</td>
</tr>
<tr>
<td>FTE promovendi 1e geldstroom</td>
<td>17.59</td>
<td>0.93</td>
<td>4.52</td>
<td>3.34</td>
<td>26.38</td>
<td>0.6</td>
<td>0.9</td>
<td>1.5</td>
</tr>
<tr>
<td>FTE promovendi 2e geldstroom</td>
<td>4.68</td>
<td>3.76</td>
<td>0.6</td>
<td>9.04</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>FTE promovendi 3e geldstroom</td>
<td>15.26</td>
<td>4.52</td>
<td>1.41</td>
<td></td>
<td>21.19</td>
<td>0.75</td>
<td></td>
<td>0.75</td>
</tr>
</tbody>
</table>

**SCIENTIFIC ACHIEVEMENTS**

**PUBLICATIONS**

The table below gives an overview of the publications of the Network Institute from 2008 to 2012. Note that due to the introduction of Metis within the department of Computer Science in 2010, the publications that counted as “Congresbijdrage”, in 2008 and 2009 are since 2010 listed under “Wetenschappelijke artikelen, refereed”.

**WARNING:** Due to the manual registration of publication in Metis by individual researchers and the unclear definition of categorizations, the numbers are difficult to interpret. In the table below, the VSNU categorization is used, as this one is most similar to the format requested for the annual report. In this classification the total number of refereed scientific articles (including congres proceedings but without book chapters) is 394. However, based on the same figures, the total number of refereed scientific articles according to the Metis classification is 480 (including book chapters, books, and book editorships). Also note that the list registration of publications in 2011 was probably not complete.

<table>
<thead>
<tr>
<th>PUBLICATIES</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetenschappelijke artikelen, refereed</td>
<td>58</td>
<td>140</td>
<td>393</td>
<td>226</td>
<td>394</td>
</tr>
<tr>
<td>Wetenschappelijke artikelen, non refereed</td>
<td>0</td>
<td>3</td>
<td>32</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Wet. boeken en monografieën</td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Wet. hoofdstukken in boeken</td>
<td>25</td>
<td>74</td>
<td>6</td>
<td>8</td>
<td>58</td>
</tr>
<tr>
<td>Proefschriften</td>
<td>12</td>
<td>13</td>
<td>29</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>Congresbijdrage</td>
<td>177</td>
<td>219</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totaal excl. proefschriften</strong></td>
<td>269</td>
<td>439</td>
<td>431</td>
<td>244</td>
<td>502</td>
</tr>
</tbody>
</table>
Connectivity is changing our world

<table>
<thead>
<tr>
<th>PUBLICATIES / 10WP1 (EXCL. PHD.ST)</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetenschappelijke artikelen, refereed</td>
<td>25.3</td>
<td>42.8</td>
<td>86.4</td>
<td>55.1</td>
<td>93.4</td>
</tr>
<tr>
<td>Wetenschappelijke artikelen, non refereed</td>
<td>0.0</td>
<td>0.9</td>
<td>7.0</td>
<td>2.4</td>
<td>6.9</td>
</tr>
<tr>
<td>Wet. boeken en monografieën</td>
<td>3.9</td>
<td>0.9</td>
<td>0.0</td>
<td>0.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Wet. hoofdstukken in boeken</td>
<td>10.9</td>
<td>22.6</td>
<td>1.3</td>
<td>2.0</td>
<td>13.7</td>
</tr>
<tr>
<td>Proefschriften</td>
<td>5.2</td>
<td>4.0</td>
<td>6.4</td>
<td>2.9</td>
<td>5.2</td>
</tr>
<tr>
<td>Congresbijdrage</td>
<td>77.2</td>
<td>67.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Totaal excl. Proefschriften</strong></td>
<td><strong>117.3</strong></td>
<td><strong>134.3</strong></td>
<td><strong>94.8</strong></td>
<td><strong>59.5</strong></td>
<td><strong>112.4</strong></td>
</tr>
</tbody>
</table>

**SCIENTIFIC QUALITY**

Non-naive use of data from techniques such as science citation analysis presents a number of additional methodological problems concerning interdisciplinary research: (i) *calibration*: different disciplines have different average absolute scores (e.g. average citations per article; they vary over more than one order of magnitude across disciplines); (ii) *coverage*: differing publication practices lead to an uneven or even poor coverage of the actual corpus (e.g. role of conferences, online publications); (iii) *grain size*: the subdivision into fields is oftentimes very crude (especially in social sciences, economics, business administration) so that a map to statements about participating groups and fields in an interdisciplinary institute is somewhere between very difficult and impossible.

With all these necessary caveats (that can be clearly derived from the UvA-VUa CvB benchmark study of 2008), the picture roughly seems to be the following.

The disciplines in the faculties FEWEB and FSW as a whole and on average score around the world average (“crown indicator” around 1.0), but the granularity of the data does not admit any further differentiation. Informatics/computer science (almost all of which participates in the Network Institute) at VUa has a consistently high score of about1.6, i.e. 60% above the world average (see NOWT 2009 study). This is a world-class level figure, significantly higher than the LERU universities score and at the same level as e.g. Oxford and Cambridge.

Another global metric indicating the quality of the institute staff is the high level of external research funding (see Secs. 7.1 and 7.2), and the high leverage factor of external earning capacity versus input direct 1GS funding.

**INDICATORS OF ESTEEM**

All groups involved in the Network Institute have recently produced SEP-protocol based self-assessment studies to which we refer (FEW/Informatics and FEWEB: international 6-year review; FSW: mid-term review). The following gives a non-exhaustive overview.

**Herbert Bos**

- Contributed to the National Cyber Security Research Agenda that resulted in a research programme (first call of 6.5 milion in 2012)

**Christiaan Burgers**

- Shortlisted for the AVT/Anéla Dissertation Award 2012, as top three dissertation on language research defended in the Netherlands in 2010 (February 2012).
Connectivity is changing our world

Peter van den Besselaar

- International invited lectures
  - E-social science as an emerging field. Oxford Internet Institute, e-social science symposium (12/13 March)
  - Internationalization of Research funding. ESF workshop on indicators, Oslo, 7/8 May
  - Research evaluation 2.0. University of Saarbrucken; 4 June
  - What is interdisciplinarity? COST “transforming audiences, transforming societies” conference, Milano, 20-22 September

- Editorships
  - The Information Society (associate editor)
  - AI and Society (editorial board)
  - Journal of Community Informatics (editorial board)
  - Scientometrics (editorial board)

Arianna Betti

- Member of:
  - the Global Young Academy (March 2011-)
  - AcademiaNet, Outstanding Female Scientists and Scholars in Europe Expert Database apr12
  - European Commission’s “Voice of the Researchers” mar12
  - De Jonge Akademie of the Royal Academy of Science of the Netherlands (KNAW) mar10
  - Institut d'Histoire et de Philosophie des Sciences et des Techniques, Paris, France (ass.) nov05


- Board Activities:
  - Steering Committee The Voice of the Researchers – official advisory group for EU
  - Commission research policy in the European Research Area (2012-)
  - Young European Research Area Board – informal advisory group for the EU commissioner for research and European Research Area Board (2010-)
  - Member of the Board of the Dutch Young Academy (responsibility: Interdisciplinarity) (2011-13)
  - Chair of the International Activities Committee of the Dutch Young Academy (2011-13)
  - VU University Humanities committee for ERC Starting Grant proposals (2009/10, 2010/11, 2012/13)

- Research Policy activities:
  - Invited participant to Workshop ‘The Voice of the Researchers’ (European Commission, Brussels, 23 April 2012)
Invited participant to GYAGA-2012, International Conference for Young Scientists & the General Assembly of the Global Young Academy, Pretoria, South Africa (21-24 May 2012)

- Invited Lectures:
  - Workshop on Bolzano and Groundedness ‘Bolzano’s Grounding as a Formal Relation’ (with Stefan Roski), September 21, 2012, Oslo, Faculty of Philosophy (NO)
  - GYA General Assembly 2012, Pretoria, May 20-24 ‘Open Science and Sustainability - Is there a role for young researchers in reinventing academia?’ (SA)
  - Rotterdam Graduate Conference, Rotterdam, 8-9 March 2012 ‘A Question of Method - The Classical Model of Science as an ideengeschichtlich interpretive tool for the history of the deductive sciences’ (keynote address) (NL)

- PhD defense committee
  - PhD defense committee of Emanuel Rutten, Philosophy, VU Amsterdam (20 September 2012, supervisors: René van Woudenberg, Jeroen de Ridder & Tim O’Connor)

Hein van den Berg
- Member of North American Kant Society (NAKS)
- Member of Centre for German Idealism.
- Refereeing Activities for:
  - Algemeen Nederlands Tijdschrift voor Wijsbegeerte
  - Walter de Gruyter Verlag
- Invited Lectures:
  - “Modeling the History of Ideas”, Naturphilosophisches Kolloquium, TU Dortmund, November 14, 2012

Frank van Harmelen
- Keynote talk at the joint PhD school of the German Leibniz Institutes in Köln
- Keynote at ICT Delta event
- Keynote at EFFosT conference
- Invited speaker at the Linked Open Data Pilot kick-off meeting
- Keynote at congres “Web 3.0 for information professionals”
- Member of the CATCH programme committee
Thilo Hartmann
- Does it hurt to hurt a virtual character? Invited presentation held at the ESCON expert meeting about “Perceptions of humanity Moral implications for technology”, June 18 – 21, Canterbury, UK.
- Editorial board member of three top-journals of Communication Science: "Journal of Communication", "Human Communication Research", and “Media Psychology”
- Vice-chair of Media Effects Division ("Rezeptions- und Wirkungsforschung") of the German Communication Association (DGPuK) (2011 - 2013)
- Appointment as professor Organizational Communication and Information Systems, 2012

Bart van der Hooff
- Appointment as professor Organizational Communication and Information Systems, 2012
- Best Paper Nomination, Academy of Management OCIS 2012 (with Roos Erkelens)

Marleen Huysman
- Chair and organizer KIN summerschool 2012 (http://www.abri.vu.nl/en/events/courses-and-workshops/kin/archive/index.asp)

Thilo Kielmann
- PC co-chair, HPDC’12, the 21st ACM International Symposium on High Performance Parallel and Distributed Computing, June, 2012, Delft, The Netherlands
- Associate Editor of the Journal of Parallel and Distributed Computing

Arno Lodder
- redactie Computerrecht
- redactie Tijdschrift voor internetrecht
- redactie Springer Law and Governance book series
- raad van advies E-court
- scientific board Cloud Computing Hill foundation
- Board of Platform independent commentaries
- Expert LDM politie, voorzitter begeleidingcie. WODC opsporing in de cloud

Iris Loeb
- Invited lectures
  - “Bolzano’s traditional answer to problems in the mathematical practice of his time” MPLA Seminar, Athens, July 2012
  - “Tarski, what is the sum of two solids? Mereology, topology, Boolean algebra” Tarski Workshop Amsterdam, June 2012
- Boardmember
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- Vereniging voor Logica & Wijsbegeerte der Exacte Wetenschappen (Dutch Society of Logic and Philosophy of the Exact Sciences), since 2012

- Organizational activities
  - Organiser of Tarski Workshop, Amsterdam, the Netherlands, 5–6 Jun 2012.

- Refereeing for:
  - Zentralblatt Math (3 articles in 2012)


Stefan Roski

- Invited lectures
  - (with Arianna Betti) “Impeccable Explanation(s), Bolzano and Groundedness”, Oslo (N), September 21, 2012
  - (with Antje Rumberg) “Bolzano on the Hierarchy of truths”, Logical Realism, Leiden (NL), August 21, 2012
  - (with Antje Rumberg) “Bolzano on the Hierarchy of truths”, Workshop on History and Philosophy of Logic and Metaphysics, March 9, 2012

Friederike Schultz

- Social Media Strategies for Networks, invited keynote for the annual meeting of academic associations in the field of management and economics (EIABS), September 2012.
- Keynote & Moderation at the Panel “Neues Fernsehen: Smart, Mobile, Social, Internationale Funkausstellung Berlin ("IFA"), 4th of September, 2012
- Keynote about “New TV Developments” at DOK Leipzig (International Filmfestival Leipzig)
- Secretary of the PR Division of the International Communication Association (since May 2012).
- Member of the Editorial Board “Corporate Communications: An international journal” and “Journal of Applied Communication” Organizer Metaphor Lab Winter School / Summer School: Metaphor Identification and Analysis

Gerard Steen

- Organizer Metaphor Lab Winter School / Summer School: Metaphor Identification and Analysis
- Organizer one-day symposium at Stockholm Metaphor Festival
- Series of 10 talks of 2,5 hour at Borys Grinchenko Kyiv University (Kiev, Oekraine) about book: Metaphor, Consciousness, and Time:

- Plenary speaker Tradurrre Figure congres (Bologna): ‘Metaphor and translation’

Ivar Vermeulen


Piek Vossen

- Invited keynotespeaker/guest lectures at the departement of Humanidades Digitais of the Federal University of Pernambuco, Recife, Brazil, November 2012
- Invited keynote speaker at Nederlandse Vrouwenclub Amsterdam/Internationale Lyceumclub, Industrielee Groote Club, Amsterdam, October 16, 2013
- Invited keynote speaker on NewsReader at ‘Informatie aan Zee’, a 2-day conference by the Flemish Association for Library, Archive and Documentation (VVBAD), Oostende, September 13, 2013.
- Invited keynote speaker at Soeterbeeck eHumanities Workshop, Radboud Universiteit (Centre for Language Studies en Institute for Historical, Literary and Cultural Studies) and the KNAW eHumanities Group, Nijmegen, the Netherlands, June 13-14, 2013.
- Invited keynote speaker at tge seminar of the Center for Creation, Content and Technology (CCCT) of the University of Amsterdam, Amsterdam, the Netherlands, May 24, 2013
- Invited at the workshop "Computational Humanities, reference cultures and identity formation", Netherlands Institute for Advanced Study (NIAS), Wassenaar, the Netherlands, April 24-26, 2013.
- Invited keynote speaker on NewsReader" at the Dijksterhuislezing 2013, Stichting Academisch Erfgoed (SAE), VU University Amsterdam, the Netherlands, April 19, 2013.
- Vossen became an invited member of the Koninklijke Hollandsche Maatschappij der Wetenschappen, invited member, ongoing from 2012.
- Vossen was invited in 2012 as one of the 11 Topwetenschappers @VU: Campustentoonstelling VU Amsterdam, September 2012-2013. (see video and read interview).
- Cybulska A.: visiting researcher at Information Sciences Institute of the University of Southern California (USC), October 2011-April 2012.

Jolanda Veldhuis

- Elected Secretary Information Systems Division, International Communication Association.

Hans van Vliet

- Editor in Chief van het Journal of Systems and Software, en gasthoogleraar bij het Key State Lab of Software Engineering van Wuhan University, Wuhan, China.

Lourens de Vries

SOCIAL-CULTURAL RELEVANCE

Demonstrating real societal relevance and external validation of academic research can be decomposed into answering a number of different questions:

Content/Substance. Is the research strategy and agenda in terms of its subject matter provably relevant beyond a limited academic community? Are chosen research topics societally relevant and if so, is there a clear idea how expected substantive results from the research will enable what kind of societal impact?

Approach/Process. Is the research approach such that it leads to extensive interaction with and feedback from the relevant stakeholders in society? Stakeholders may include all kinds of private and public organizations (nationally, internationally, worldwide), but may also involve the public at large.

Outcome/Results. Are there outcomes and results of the research that point to or empirically demonstrate that the research provably influenced and impacted developments in society, i.e., that the research has had a causal influence on changing the actual behaviour of relevant societal actors?

The SEP Protocol 2009-2015 distinguishes as criteria for the evaluation of the societal relevance of research: societal quality, societal impact and valorization, while the KNAW ERiC guide (2010) suggests the use of the broad evaluation categories/criteria of: dissemination of knowledge, interest of stakeholders, and impact and use of research results.

DISSEMINATION & MEDIA PUBLICITY AND VISIBILITY

The above lists indicate that the Network Institute and its members undertake significant efforts to disseminate its research to the public also in new digital media forms. It evidences that the Network Institute research agenda attracts significant external attention and visibility. It also demonstrates that where research does attract external attention, it almost invariably has an interdisciplinary character.

Herbert Bos

- 24/11/2012. Opinion article on our minister's proposal to fight cyber crime by 'hacking back' in NRC (Dutch national newspaper). Published as: 'Het Virusdilemma'.
- 18/10/2012. Some quotes in an article in the Dutch newspaper NRC.NEXT (Dutch) about the way the public broadcasting organisations in the Netherlands handle cookies.
- 15/09/2012. Televison interview on VARA KASSA (Dutch) about financial malware.
- 08/06/2012. Article (with quotes) in de NRC (Dutch).
- 15/02/2012. Interview (Dutch) in de Automatisering Gids. Also available here.
- 29/01/2012. Televison interview on Channel 4 News -- mostly about Anonymous.

Peter van den Besselaar

- Times Higher Education 23-8-2012 (about my research on academic careers)
- Times Higher Education 22-11-2012 (about my research on research groups)
Frank van Harmelen

- Broadcast of half hour science programme on Dutch television in VPRO's Labyrint series: [http://www.uitzendinggemist.nl/afleveringen/1310715](http://www.uitzendinggemist.nl/afleveringen/1310715)

Arno Lodder

- [www.virtualpolicy.net](http://www.virtualpolicy.net) 11-02-2012: The Dutch RuneScape trial
- NRC Next 19-11-2012: De burger blaft; De burgemeester blaft terug
- BNR Nieuwsradio 29-10-2012: Wie wordt de baas van het internet?
- BNR Nieuwsradio 26-10-2012: Internetdreigingen
- De Stentor 14-06-2012: TWITTERACCOUNT - Hoogleraar: 'Roddeltweets zijn strafbaar'
- Nederlands Dagblad 08-06-2012: Ideeel hacken in opmars
- Het Financieele Dagblad 19-04-2012: Soevereiniteit op web bestaat niet
- RD.nl 29-03-2012: Eerste Nederlandse hoogleraar internetrecht wil recht en techniek samenbrengen
- [webwereld.nl](http://webwereld.nl) 25-02-2012: Juristen fileren Pirate Bay-blokkaderactie Computerrecht

Chris Verhoef

- Bij ING kent niemand het hele systeem, Sterre Lindhout, de Volkskrant, 6 april 2013.
- Bij de banken is geen toezicht op systemen, Peet Vogels, Algemeen Dagblad, 6 april 2013.
- Cybervaanval op banken -- groot ongemak, maar veiligheid niet in gedag, Jarco de Swart, De Telegraaf, 6 april 2012.
- Banken moeten communiceren, Ertan Baseki, De Telegraaf, 4 april 2013

Piek Vossen

- Vossen invited keynote speaker in Casa Luna, Dutch radio interview on new EU-project NewsReader, Mediapark, Hilversum, October 8, 2012
  - [announcement video](http://www.youtube.com/watch?v=announcement_video) on Youtube by Casa Luna;
  - @ Radio 1, NCRV Casa Luna, part 1 (on NewsReader), Hilversum, October 8, 2012;
  - @ Radio 1, NCRV Casa Luna, part 2 (live interaction with listeners), Hilversum, October 8, 2012.
    - Blog from Marco Leeuwerink on the interview at Casa Luna on Extend Limits.
- Vossen: invited keynote speaker in Dutch radio interview on new EU-project NewsReader, in Radio Station FunX, Amsterdam, May 10, 2012.

Annemarie Walter

- CU mist stem van oudere, lagere opgeleide man, Nederlands Dagblad, 19 December 2012
- NOS op drie, 30 August 2012
- Nos Radio 1 Journaal, 31 August 2012
- Radio interview FunX, 3 September 2012
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- Radio interview, Mittagsjournal, 6 September 2012, ORF Austrian Broadcasting Corporation / Radio and Television
- Wie zegt dat de tafel vierkant is?, Annemarie Walter en Philip van Praag, de Groene Amsterdammer, 22 August 2012
- Vroeger waren de campagnes veel grover, Co Welgrave, Trouw, 7 September 2012, p. 2 De Verdieping
- Snufje MTV doet wonderen, Saskia Naafs, 1 September 2012, Het Parool, p. 11
- Huib Pellikaan, Verdeeldheid op links helpt VVD, Reformatorisch Dagblad, 6 September 2012
- Negatieve campagne kan werken, 12 September 2012, Spits
- Philip van Praag en Annemarie Walter, Campagne was zeker niet hardder dan vroeger, 12 September 2012, Volkskrant, p 29
- Piet de Jong, 31 August 2012, Het Nederlands Dagblad
- Verkiezingsposters plakken blijft populair, Nederlands Dagblad, 11 September
- BNR Nieuwsradio, May 2012
- Hoe? Zoi!, Wetenschap 24, Radio 5, 8 May 2012
- Hoe vies zijn verkiezingscampagnes, Amsterdam FM, 8 May 2012
- Eenvandaag, 4 June 2012, Nederlandse verkiezingscampagnes worden ze ‘dirty?’
- Geen toename negatieve campagnevoering in Nederland, Gijs van der Sanden, Folia, 4 May 2012
- Campagnes niet Negatiever geworden, Frits Bloemendaal, Dagblad van het Noorden, 8 May 2012, p. 4
- Toon harder maar wel beleefd, Frits Bloemendaal, BN/De Stem/ De Stentor/Tubantia, 5 May 2012
- Verkiezingscampagnes blijven braaf, Leeuwarder Courant, 5 mei 2012
- Verkiezingscampagnes worden niet negatiever, Nederlands Dagblad 8 mei 2012
- Negatieve toon campagnes bij verkiezingen valt mee, Nederlands Dagblad, 5 mei 2012
- U.S. Election Night, Groninger Forum, 6 november 2012
- UVA en Rode Hoed Uitslagenavond, De Rode Hoed, 12 september 2012
- Nu volgt een programma in de Zendtijd voor politieke partijen, De Balie 9 september 2012
- Politieke Junkies, De Balie, 31 augustus 2012
- Rotterdam Social Sciences Student Association Cedo Nulli, 5 september 2012Vossen invited keynote speaker in Casa Luna, Dutch radio interview on new EU-project NewsReader, Mediapark, Hilversum, October 8, 2012

Others

- Klein, M.C.A. (04-12-2012), ICT4depression project, Radio Salto.
- Meulen, N.S. van der (02-14-2012). Heel veel excuses om verkeerde reden. Volkskrant
- Meulen, N.S. van der (07-23-2012). Lang genoeg gelerantfant. NRC Next

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- Meulen, N.S. van der (09-28-2012). Pasjes tonen aan balie is schijnveilig. *NRC Handelsblad*
- Moser, C. (02-13-2012). Bedrijfsleven zit niet op wetenschap te wachten. *NRC Next*
- Moser, C. (02-10-2012). Het bedrijfsleven zit niet op wetenschap te wachten. *NRC Handelsblad*

**INTEREST OF STAKEHOLDERS: DIRECT COLLABORATIONS AND INTERACTIONS**

Apart from the above (much of which already provides evidence of the interest of external stakeholders), a key mechanism for achieving societal and economic impact of academic research work is direct collaboration with industrial and societal partners in projects.


Most of these direct interactions with societal and industrial stakeholders are through collaborative and multi-party consortium projects (such as the EU projects). Also some of the PhD projects involve direct collaboration with external stakeholders.

Another strong sign of interest of external stakeholders is the Network Institute’s very active and visible role in the *Economic Development Board for the Metropole Region Amsterdam* (EDBA). An important achievement is the wide support from industry/business, government bodies and knowledge institutions (the “triple helix”) for Open Data and its smart city applications as a central innovative part of the *Knowledge and Innovation Agenda MR Amsterdam* (KIA). The Network Institute has played an agenda-setting role here.

**SOCIETAL SERVICES BY INDIVIDUAL INSTITUTE MEMBERS**

Again, we are listing here a non-exhaustive list of example performance indicators.

**Herbert Bos**
- Contributed to the National Cyber Security Research Agenda that resulted in a research programme (first call of 6.5 million in 2012)

**Christiaan Burgers**
- Member of expert informant panel for Nederlandse Taalunie for research on language in use (taalgebruiksonderzoek).

**Arno Lodder**
- Talk *academie voor overheidsjuristen*, April 18, 2012
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- Talk OPTA, October 18, 2012
- Diner speech ECP 15/11 (see also http://www.youtube.com/watch?v=uXK9jy8I7Rk) audience, among others: Wientjes, Bussemaker, Zalm, Zijlstra, Netelenbos

Piek Vossen

Hans Akkermans
- Member EDBA Kernergroep ICT (Economic Development Board Amsterdam, 2010-present)
- Advisory Board EU Integrated Project EU-DEEP (30 M€, 40 partners; Energy, sustainability, and ICT, 2006-2009)
- Advisory Board EU-IP IKS (15 M€; 20 partners; semantics-based Web knowledge management, 2009-present)
- Evaluator Swedish Strategic Research Fund (2010-2011)

Frank van Harmelen
- Representative on the Advisory Council of the World Wide Web Consortium W3C (since 2002)
- Member of the advisory board of the MobiGuide project (8 MEUR, 2011-2014)
- Member Board of Governors of the DEN Foundation for Dutch Digital Cultural Heritage.
- Member of the Advisory council of the Computer Science Department of Huddersfield University, UK.
- Member of the grant selection committee for the Austrian Science Foundation

Friederike Schultz
- Social Media Benchmarks, kick-off presentation at the Ministry for Algemene Zaken, October, Den Haag
- Crisis Communication and Social Media, presentation at the Ministry for Algemene Zaken, January, Den Haag (with Utz, S.)

Guus Schreiber
- Member EU Advisory Group for interoperability in cultural heritage;
- Member Advisory board, IST Integrated Project X-Media

Hans van Vliet
- External advisor Het Expertise Centrum (foundation providing consultancy for major governmental IT projects, since 2001)

Jan Top
- Chair Frugicom (standards for information exchange in agro food chain)
- Steering committee member of several public-private partnerships
- Advisory board VMT (food technology automation);
- Program manager A Safe, Healthy, and Transparent Food Production Process NL Ministry research program (MEUR 1.8 per annum)
Peter van den Besselaar

As part of his Science System Assessment activities, he has been involved as a key player, on behalf of KNAW and Rathenau Institute, in the development of the ERiC criteria and guide for the evaluation of the societal relevance of scientific research (www.eric-project.nl) that also underly the present MidTerm Review Self-Report of the Network Institute (see Sec 4.6). The ERiC publications function as an extension of the SEP Protocol 2009-2015 as regards the criterion of societal relevance of research.

**TECHNICAL OR ECONOMIC IMPACT**

An important aspect of valorization of the Network Institute research is through the *World Wide Web standardization* work, with the groups of Guus Schreiber (chair of several W3C committees) and of Frank van Harmelen in an internationally leading role. The Semantic Web research has led to the W3C Recommendation called OWL (Web Ontology Language) and the Simple Knowledge Organisation Scheme (SKOS). The establishment of these worldwide standards is now seen to have a quickly increasing influence on both private and public organizations in the world in how they annotate and make accessible their products over the World Wide Web, with widespread uptake of OWL in both industry, research and the public sector, and with SKOS gaining rapid acceptance in the public sector. See further [www.w3.org](http://www.w3.org).

Regarding the latter, currently a high-impact area of our research relates to cultural heritage and online media, where hundreds of musea and other cultural institutions in Europe work with researchers in a highly interdisciplinary fashion (cf. for example [Europeana](http://www.europeana.eu)).

The e3 value ontology, methodology and tools for the assessment of networked e-business models that have been developed by the Business & Web group (Jaap Gordijn and Hans Akkermans), has been extensively taken up by a wide range of different industries, consultancies, and many multi-million European industry-university projects, for example by major players in the European energy industry, in order to assess the feasibility of innovative ICT-enabled business models (see for example [www.e3value.com](http://www.e3value.com)). Commercializations of tools and technologies stemming from this research are also underway by several external industrial partners.

The Minix work by the group of Andy Tanenbaum formed a direct source of inspiration for the development of Linux, which subsequently went on to become a major worldwide industry innovation in ICT. The more recent work on Minix continues to be impactful, as it has been downloaded hundreds of thousands of times and is used by a large number of universities and schools in the world for education on operating systems. The work of Andy Tanenbaum’s group on the Argos intrusion detection software also has societal relevance, as computer worms and viruses have become a major threat and there are hardly any systems that are able to recognize new (unknown) viruses for which no signatures exist yet. Argos is capable of detecting unknown attacks and automatically generating signatures that can be used to filter such attacks. Argos is deployed in a production system by SURFnet (the Dutch research network), and several other commercial and academic organizations.

Policy advisory work for the European Commission in the area of *ICT and sustainable energy* (Hans Akkermans) has led to a strategic recognition by the European power industry of the key importance of ICT (witness the strategic research agenda of the ETP SmartGrids platform [www.smartgrids.eu](http://www.smartgrids.eu)); notably, the Internet is now seen as the model for the future decentralized European electricity network), and it instigated a joint FP7 call for proposals on ICT and Energy by the INFSO and Research DGs, the first of its kind in the EU FP history.
Complete list of 311 researchers in 2012 per group (296 researchers in the core Network Institute groups and 15 members in the affiliated groups):

<table>
<thead>
<tr>
<th>Fac. of Social Sciences</th>
<th>F.H. Kamsteeg</th>
<th>M.A. Tanis</th>
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<tr>
<td>A. Nerghes</td>
<td>F.K. Boersma</td>
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<td>A. van Os</td>
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<td>A.M. Kok</td>
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<td>B. van Grinsven</td>
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<td>N. Zborowska</td>
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<td>B.J. Bushman</td>
<td>J. Bartels</td>
<td>N.G. Dimitrova</td>
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<td>B.W. Rosendaal</td>
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<td>P. Groenewegen</td>
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<td>C. van Dyck</td>
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<td>C.H. Roessingh</td>
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<td>C.J. Beukeboom</td>
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<td>D. Deichmann</td>
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<td>D. Duin</td>
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<td>D. Oegema</td>
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<td>E. Das</td>
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<td>S. Merkus</td>
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<td>J.M. de Heer</td>
<td>S. So</td>
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<td>J.W. Ouwerkerk</td>
<td>S. Tea</td>
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<td>F. Brandt</td>
<td>K. Welbers</td>
<td>S. Utz</td>
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<td>F. David</td>
<td>K.C.M. Smits</td>
<td>S.B. Ybema</td>
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<td>F. den Hond</td>
<td>L.A. Berghman</td>
<td>S.F. Kingma</td>
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<td>F. Schultz</td>
<td>L.M. Glimmerveen</td>
<td>T. Hartmann</td>
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<td>F.G.A. de Bakker</td>
<td>M. van Wieringen</td>
<td>T.C. de Gilder</td>
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V.L.N. Scholmerich
W.A.M. Borst
W.H. van Atteveldt
W.L. Li
X.S. Plaisier
Y.T.A. Taminiau

Computer Science
A. Bacs
A. Chmielowiec
A. Gaba
A. Loizou
A. Margara
A. Nottamkandath
A. Oikonomopoulos
A. Sclocco
A. Uta
A. van Wissen
A. Wibisono
A.A. Anjewierden
A.C.M. ten Teije
A.E. Eiben
A.H. Brandenburgh
A.L. Varbanescu
A.M. Oprescu
A.P.W. Eliens
A.S. Tanenbaum
A.T. van Halteren
A.Th. Schreiber
B. Crispo
B.J. Gras
B.J.C. van Werkhoven
B.P.M. Weel
C. Giufrida
C. Manteli
C. Martella
C. Rossow

C. Stratan
C. van Reeuwijk
C. Verhoef
C.D.M. Gueret
C.J. Ockeloen
C.J. van Aart
C.L.M. Kop
C.N. van der Wal
C.R. Dijkshoorn
D. Ceolin
D. Vogt
D.A. Andriesse
D.A. Brickley
D.A. Tamburri
D.C. van Moolenbroek
D.C.A. Bulterman
D.M. Williams
E. van der Kouwe
E.D. Gebler
E.J.C. Bosman
E.J.P.C. Moeskops
E.L. Krepska
E.W. Haasdijk
F. Both
F. van Raamsdonk
F.A.H. van Harmelen
F.J. Seinstra
G. Karafotias
G. Modena
G.E.O. Pierre
H.E. Bal
H.J. Bos
H.J. Fernandez
H.P. Hijma
I. Haller
I.M.A.M.M. Elhelw

I.S. Razo Zapata
J. de Man
J. Endrullis
J. Gordijn
J. Maassen
J. Treur
J. Urbani
J. Wielemaker
J.C. van Vliet
J.D. Gerbrandy
J.E. Hoeksema
J.F.M. Burg
J.L. Top
J.M. Akkermans
J.M. Slowinska
J.R. van Ossenbruggen
J.S. Mollee
K. Dentler
K. Milian
K. Razavi
K.A. de Graaf
K.J. Sobczak
K.S. Schlobach
L. Hollink
L. van der Meij
L.J. Rietveld
L.M. Aroyo
M. Conti
M. Hildebrand
M. Hoogendoorn
M. Razavian
M.A.J. van Meersbergen
M.C. Dobson
M.C. Schut
M.C.A. Klein
M.G. de Vos
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M.G.J. van Erp
M.R. van Steen
N. de Carvalho Ferreira
N. Drost
N.M. Mogles
N.O. Palmer
O. Sharpanskykh
P. Lago
P. Liang
P.A. Boncz
P.G.M. de Leenheer
P.T. Groth
Q. Gu
R. Appuswamy
R. Gligorov
R. Kemp
R. Vermeulen
R.C. de Vrijer
R.D.A. Hendriks
R.G.M. Stegers
R.H. Segers
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R.J. Hoekstra
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R.V. van Nieuwpoort
S. Chen
S. Fundatureanu
S. Klarman
S. Magliacane
S. Ortolani
S. Vougaris
S.J.J. Vijzelaar
S.K. Smit
T. Bosse
T. Hruby
T. Kielmann
T.P. van Kessel
V. de Boer
V. Maccarozzo
W.F.J. van der Ham
W.G.J. Beek
W.H. van Willigen
W.J. Fokkink
W.R. van Hage
W.R.J. van Breda
X. Chen
Z. Huang
Z. Szlavik
Letteren
A. Gorog
A. Hammer
A.J. Cienki
A.K. Cybulska
A.R. Kaal
C.M.J. van Hooijdonk
E. Maks
E. Sorm
F. van der Houwen
G. Mulder
G.J. Steen
H.D. van der Vliet
H.H.G. Weltens
I.C. Costera - Meijer
I.P.H. Dubbeldam
J.H.A.L. de Jong
J.L. Mackenzie
J.M.W.J. Lamerichs
J.W.G.J.F. Wittink
K. Vis
K.Y. Sliedrecht
L. Lagerwerf
L.M. Rupp
M. Borger
M. Hannay
M.J. Sinding
M.J. van den Haak
M.J.A. Lamers
M.L.M.J. Vliegen
O. Steenhoek - Kolbasina
P.T.J.M. Vossen
R.L. Present-Thomas
S.M.K. van Vliet
S.R.A. Oswald
T. Krennmayr
T.C. van Charlordorp
W.G. Reijnierse
W.J.P. Stommel
W.P.M.S. Spooren
FEWEB
B.J. van den Hooff
C. Moser
C.A.A.M. Withagen
M.H. Huysman
V.A.N.M. van der Goes

Affiliated groups
Axiom group
A. Betti
H. van den Berg
I. Loeb
S.P. Roski

Computer/Law Institute
A.P. Engelfriet
A.P. Meijboom
A.R. Lodder
B.P. Aalberts
C.M.M. Zwinkels
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D.F. Groenevelt  L.J.M. Boer  S.J.H. Gijrath
H.H. de Vries  N.S. van der Meulen  T.H.A. Wisman
Complete list of publications in 2012:

**DOCTORAL THESES**

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**JOURNAL ARTICLES**

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• Bushman, B.J., Giancola, P.R., Parrott, D.J. & Roth, R.M. (2012). Failure to consider future consequences increases the effects of alcohol on aggression. Journal of Experimental Social Psychology, 48(2), 591-595.


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• Meulen, N.S. van der (2012). DigiNotar: Simpele Cybercrime?! *Tijdschrift voor Internetrecht*.


• Nije Bijvank, M., Konijn, E.A. & Bushman, B.J. (2012). ‘We don’t need no education’: video game preferences, video game motivations, and aggressiveness among adolescent boys of different educational ability levels. *Journal of Adolescence, 35*(1), 153-162.


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Conference Proceedings


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• Li, Zhao, Li, Zhen, Guo, X., Liang, P., He, K. & Huang, B. (2012). A transformation approach from informal descriptions of SWRL to built-in elements of protégé4.1. In The 4th International Conference on Modelling, Identification and Control (ICMIC) (pp. 322-327).


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Books


- David, R., Teije, A.C.M. ten & Miksch, S (2012). Knowledge Representation for Health-Care; (LNAI, 6924). Berlin: Springer.


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Book Chapters


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Connectivity is changing our world


**Book Editorships**


**MISSION STATEMENT**

The Network Institute

*Connectivity is changing our world*

Networks offer highly flexible and versatile forms of association and organization across boundaries. Driving these networks is a continuous process of creating and changing connections, of exchanging and sharing information and knowledge. The shape of these networks displays patterns of collaboration as well as conflict; of community formation as well as separation and isolation.

Notions of networks have a fundamental impact on how we work, think and act. This makes the study of these networks and their properties an urgent scientific and societal challenge.

The Network Institute studies the technological, economic, social and communicative aspects of networks. It brings together a unique combination of scientists from informatics, social sciences and humanities.

There is new science to explore, in order to understand and deal with our increasingly connected world.

The social sciences and humanities are getting more computational, and computing is getting more human and social. This makes it necessary to combine the power of information and communication technology (ICT) with knowledge from the social sciences and humanities. ICT will provide the data, methods and means to boost the social sciences and humanities into new era, while the social sciences and humanities will provide better understanding of the opportunities and risks of strongly networked systems.

The mission of the Network Institute focuses on four integrative research areas which together capture the shared interests of our members:

- **The digital planet**
- **The knowledge society**
- **The dynamic organisation**
- **The networked individual**

With these four research areas, we are able to study the modern network phenomena comprehensively. Our research encompasses very different scales, from global patterns to single individuals, and we study networks of a very different nature: networks of individuals, of organizations, of technical devices, of knowledge or indeed of mixtures of these.

The concept of a “network” functions as a unifying conceptual, theoretical, methodological and technological theme across the different research areas. Networked structures are emerging as a central concept in all of the disciplines in the Network Institute. Medalia diverse set of phenomena as networks, exposing their structural properties in a science of networks, and studying their nature, origin, content, structure and evolution leads to useful cross-fertilization and technology transfer between our three fields.

As modern networks are deeply influencing our social world, our research programme is not only scientifically but also highly relevant. Relevant external stakeholders for the Network Institute include enterprises in the converging sectors of ICT, media and the creative industries, as well as organizations in healthcare and education, including the relevant agencies of local, regional and national governments. This directly links to activities of the Amsterdam Economic Board, the Dutch “top” sectors, and the National Digital Agenda. Institutions for professional education, such as the HVA and the Rietveld Academie, are important stakeholders in the creative sector. Some current exemplars of societal challenges are:

- helping with the information and knowledge overload
- ensuring security, privacy and trust
- accelerating science through e-Science;
- improving health & well-being through e-health;
- worked world;
- improving access to our cultural heritage.

While we expect our basic research themes – the digital planet, the knowledge society, the dynamic organisation, the networked individual – to be relatively stable over a long period of time, we also expect that the societal challenges and applied aspects of our research are more fluid and may change more rapidly - in line with current social dynamics itself. On the next pages, the research areas and societal challenges are described in more detail.
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Example questions:
- How is the creative industry facilitated by the increasing digitization of our world?
- And how does this increasing digitisation influence our experience of the past, our relation with our culture and heritage and our identity as an individual and as a group?
- What information technologies are the next steps in the further developments of the digital society?
- Security and privacy: sharing of information and knowledge with maximal transparency while at the same time ensuring security and privacy?
- How can we maximally share information and knowledge with maximal transparency while at the same time ensuring security and privacy?
- How does the creative industry facilitate the growing digitization of information and knowledge in increasingly interconnected, self-organizing and dynamic systems?
- Opportunities and risks in terms of the value, availability, correctness, reliability, subjectivity, changeability, monitoring and authorization of knowledge?

Appendix: Research themes

THE KNOWLEDGE SOCIETY

Knowledge is increasingly becoming a crucial resource for both individuals determining their value in the labor market or as independent workers and organizations (where competitive edge increasingly depends on the knowledge they create and use to innovate). Creating, sharing and retaining knowledge are key issues in an increasingly globalized economy where innovation is a central value.

Example questions:
- What methods, tools and technologies can be developed to support organizations and individuals in retaining their most strategic and innovative knowledge, as well as in the development and acquisition of relevant, up-to-date knowledge? How can we support? (organizational) learning?
- How can technologies such as e-learning, social gaming and the use of smart devices contribute to new forms of education or the knowledge economy?
- What will the knowledge systems of the future look like? To what extent will ICT-based systems be able to represent the richness and complexity of tacit, practice-based knowledge, and what is the possible role of such systems in responding to the main challenges of the knowledge economy?
- How can the creative industry support in facing its main challenges in the knowledge economy, such as questions about the effects of new media, the development of new technologies and how to manage creative processes?

THE DYNAMIC ORGANIZATION

Our society is becoming increasingly networked, not only through ubiquitous digital connectivity, but also through economic globalization, through increased mobility of people, and through the modern mass media.

Example questions:
- How do modern digital networks change knowledge acquisition and knowledge-sharing between individuals (e.g., via transactional knowledge) and by organizations (e.g., using knowledge-sharing platforms, maintaining the social media)?
- How do the new networks facilitate the spreading of information and how does this influence our arms and existence, and communication?
- How does the new ICT-based connectivity affect our personal environment? How does it affect the lifestyle of individuals and families?
- How can ecological or behavioral modes of “ecological behavior” explain how our cities rely on the pervasive amount of available information, with theories about the “distributive attention” or the “effective spending of resources like time and effort in knowledge acquisition”?
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**SOCIETAL CHALLENGES**

**HELPING WITH THE INFORMATION AND KNOWLEDGE OVERLOAD**

The availability of information and knowledge has increased to unprecedented scale due to the rise of various new Internet-based ICT applications. Moreover, the virtualization and globalization of our society and the increasing speed of changes have tremendously increased the dynamic, fluid, volatile character of information and knowledge resources. Thus, the value and validity of information and knowledge is subject to rapidly changing perceptions, making a concept like “well-informed decision” almost obsolete. Through the ubiquitous availability of these resources, the increased rate of participation by various actors (consumers, organizations, individudal stakeholders, policy makers) in creating them, the quantity and diversity of information and knowledge has become innumerable impossible to manage. There is a rapidly growing need for mechanisms that help us cope with these dynamics – from methods to facilitate the creation, sharing, and retention of knowledge to intelligent systems that help us sift through the wealth of information.

**ENSURING SECURITY, PRIVACY AND TRUST**

Trust is a crucial sine qua non for all transactions and inter-human communication. In a society that increasingly interconnected, the trustworthiness of socio-technical systems depends on a myriad of components linked in ways that are frequently obscure and explicit. Moreover, these systems (whether they be enterprises, governments, or even society as a whole) are highly dynamic and adapt constantly to new circumstances. Trust is largely by security, control of privacy sensitive data, access to information we can rely on, and, in general, systems that work. Trust is increased by the endless list of failures that we have seen in recent years, in a world where we are heavily dependent on ICT services. Thus, the failure of major ICT projects (passports, electronic medical records, and public transport cards) undermine the public faith in these systems. As we clearly cannot afford the trust in our digital world to be eroded by such incidents, the question is: how can we prevent it?

**ACCELERATING SCIENCE THROUGH E-SCIENCE**

The alpha- and gamma sciences (the humanities and the social sciences) are becoming increasingly digital. There are increasingly using very large and heterogeneous data sets, and automated tools and algorithms to analyze such data. The development of e-Science, which is now widely accepted in the natural and life sciences, is now also taking place in the alpha- and gamma sciences (e-Humanities, e-Social Science). This makes it possible to perform quantitative analyses on very large social structures. Also, cultural artifacts from the past and the recent past are rapidly becoming available in digital form. Such new analysis and observational methods turn gives rise to new algorithms for large scale data analysis, -integration and -visualisation.

**IMPROVING HEALTH & WELL-BEING THROUGH E-HEALTH**

Our health care system faces numerous challenges regarding its coverage, cost, and quality. e-Health aims to contribute sustainable solutions to these challenges. e-Health is concerned with the use of digital technologies and new media for the delivery of health services across the total care spectrum, from well-being, prevention and treatment to chronic care, and for all age groups, including the elderly, as well as for improvement of health care delivery. e-Health research in the Network Institute has productive collaborations with related work done in the EMGO and Talma Insitutes, both of its own character and strength, building on the specific expertise of teams in the Network Institute in Social Science, Computer Science and Language and Communication.

**UNDERSTANDING CULTURAL IDENTITY IN AN NETWORKED WORLD**

Communicative acts acquire their meaning inside cultural groups, and vice versa, cultural groups are formed by shared communicative acts. Globalization is putting increasing pressure on our cultural identity, and by consequence also on our individual identities. This raises an opposite question: the need to preserve or re-invent traditional identities from our cultural heritage. The digital world offers new possibilities to fulfill this need. Cultural heritage in digital form is now more widely accessible.
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APPENDIX: TECH LABS

OUR TECH LABS

With its Tech Labs, the Network Institute hosts three state-of-the-art experimental facilities that cover a wide range of technologies. The labs described below are at three different locations, but share a single point of contact. The labs come with full support for idea creation, through implementation to publication. And if the labs don’t quite provide what you need, we can build custom solutions, in both hardware and software. If you want to run an experiment, or if you just want to play, contact Marco Otte (techlabs@uni)

GAME CELL

This 100s flexible, high-tech laboratory with an ever-growing resource bank is ideal for complex and experimental kind of new media experiment. The large space offers endless possibilities to create environments specifically suited for your research. The broad range of equipment makes it possible to create, develop and deploy all kinds of software you think of.

INVENTARY LAB

This high-tech, multi-purpose space offers a natural environment with many user-centered experimental possibilities. The lab’s integrated systems can track users, study their behavior, monitor physiological parameters and act as a showcase for state-of-the-art technology. You can combine different connected audio-visual technologies and study their effects on the users. The lab space also offers possibilities for special meetings, workshops, lectures, presentations or anything you can think of.

MEDIA LAB

The Media Lab can be used to perform reading time and reaction time experiments as well as behavioral observations of people who are confronted with media products. In the Media Lab, you can record conversations, simple facial expressions with Webcams, telephone surveys and code language and visual material. The Media Lab has sound proof sides for experimentation, an experiment room, and a large meeting room for group observations equipped with 10 PCs, telephone connecters, microphones, cameras, and an LCD projector.

FACILITIES

- State-of-the-art workstations for creation and processing of any type of data
- Game consoles (PS3, Wii, Xbox)
- Physiological sensors
- Two large 13-midi projection screens with surround sound
- Video and audio recording and editing equipment
- Several physical robots (including a Hasbro Reckless, summer 2011)
- Programmable-screen avatars
- Affective and ethical (summer 2011) modules to add avatars
- Real-time object location, allow users en mobile, Web and in physical worlds
- Multi-Truth table
- Programmable Virtual Reality home trainer bicycles
- Virtual Reality tools to develop virtual environments
- Virtual Reality hardware for immersive virtual experiences
- Video conferencing
- Eye tracking