Conference Programme
7-9 September 2015, Copenhagen, Denmark

Building the knowledge base for environmental action and sustainability
# PROGRAM AT A GLANCE

## Sunday 6\(^{th}\) September

- **09.00 – 17.00**: All-day workshops (not including lunch)

## Monday 7\(^{th}\) September

- **08.30**: Registration opens
- **09.30**: Keynote session – The emerging environmental context
- **09.30**: Keynote session – The growing impact of the digital revolution
- **10.50**: Coffee break
- **11.20**: ConverStation I
- **13.00**: Lunch
- **14.15**: ConverStation II
- **16.00**: Coffee break
- **16.30**: Keynote session – Priorities for ICT4S: What we can do for a future of descent
- **17.30**: Poster presentations
- **18.00**: Welcome Reception and Poster mingle

## Tuesday 8\(^{th}\) September

- **09.00**: Keynote session – Challenges of improving the knowledge base
- **10.30**: Coffee break
- **11.00**: ConverStation III
- **12.40**: Lunch
- **14.00**: Workshops
- **15.30**: Coffee break
- **16.00**: Keynote session – State of the Environment
- **19.00**: Conference dinner

## Wednesday 9\(^{th}\) September

- **09.00**: Keynote session – Social and environmental sustainability
- **09.00**: Panel discussion – From Research to Impact
- **10.30**: Coffee break
- **11.00**: Best Paper presentations
- **12.15**: Awards and Closing of the conference

## Wednesday 9\(^{th}\) September – Afternoon Session

- **14.00 – 17.30**: Half-day workshops (not including lunch)
Welcome!

It is with great pleasure that we welcome you Copenhagen, and to the joint EnviroInfo & ICT4S 2015 conference. The aim of the joint conference is to build the knowledge base for environmental action and sustainability. We aim to build bridges and share what we, in each community can provide as strength. This year the conference will feature both research and applied papers. Research papers provide up to date information on topics such as, data, software and information systems, modelling, life cycle assessments, energy, public participation and green tools, whilst the applied papers feature implemented knowledge or thoughts on such topics.

It is our hope that the conference will contribute to an enhanced understanding of the challenges in building such an extended knowledge base in order for research to have a stronger impact, and vice versa.

Vivian Kvist Johannsen  
*University of Copenhagen Denmark*

Stefan Jensen  
*European Environment Agency*

Organisation

**Organising Committee**

*EnviroInfo Chair*
*Stefan Jensen*, European Environment Agency

*EnviroInfo Co-chairs*
*Vivian Kvist Johannsen*, University of Copenhagen  
*Volker Wohlgemuth*, University of Applied Science Berlin

*ICT4S Chair*
*Chris Preist*, University of Bristol

*ICT4S Co-chairs*
*Elina Eriksson*, Royal Institute of Technology Stockholm  
*Lorenz Hilty*, University of Zürich

*Conference Coordinator*
*Tania Nielsen*, University of Copenhagen

*Submissions Coordinator*
*Daniel Vare*, Royal Institute of Technology Stockholm

*Publications Coordinator*
*Sanja Novakovikj*, European Environment Agency

**Advisory Committee**

*Katherine Richardson*, University of Copenhagen  
*Katja Rosenbohm*, European Environment Agency

*Mattias Höjer*, CESC Centre for Sustainable Communications, Royal Institute of Technology Stockholm  
*Jiri Hrebicek*, Masaryk University, Czech Republic - EEA Scientific Committee

*Werner Pillmann*, Expert Committee for Environmental Informatics, EnviroInfo

**Facilitator**
*Peter Woodward*, Quest Associates
Key notes

Katherine Richardson, Professor at University of Copenhagen, Denmark

The emerging environmental context

Mattias Höjer, Professor at KTH Royal Institute of Technology

What is national ICT-politics for Sustainable development?
During the last decades, ICT has had an enormous influence on societies all around the world. What can be said about the environmental consequences of this, and what are the relations between governments' ICT-policies and environmental policies?

Hans Bruyninckx, Director of the European Environment Agency since 1st of June, 2013

Expanding our environmental knowledge base for transitions
In 1996 Dr Bruyninckx completed a PhD in international environmental politics at Colorado State University. From 2010 until his appointment at the EEA, he was head of the HIVA Research Institute in Leuven, Belgium, a policy-oriented research institute associated with the Katholieke Universiteit Leuven, where he was also head of the Political Science department from 2007 to 2010. Over the last 20 years, he has conducted research in more than a dozen countries, in areas including environmental politics, climate change, and sustainable development. He has taught on global environmental politics and global environmental governance in relation to the European Union (EU), publishing extensively on EU environmental policies and its role as an actor in global environmental governance. Throughout his career Dr Bruyninckx has worked with governmental agencies, civil society and businesses, often in an advisory role.
Dr Kirstie McIntyre, Director Social & Environmental responsibility, Hewlett-Packard Organisation

Kirstie McIntyre is WW director for Hewlett-Packard’s environmental operations. Her remit covers all product and service-related environmental laws and market access agreements on energy efficiency, chemical/material restrictions and end-of-life considerations. Her teams supports HP sales teams and customers across the region on environmental topics. She liaises with Government, industry partners and peers, supply chain members as well as business customers and consumers on environmental regulations, recycling and other environmental aspects of HP’s products. Kirstie is a passionate advocate of the circular economy and has worked for a number of years in the strategic development of end-of-life programmes for various companies in the electronics sector. She has an engineering doctorate in environmental technology and has published widely on sustainability and supply chain issues. Please see www.hp.com/environment for more information.

Katja Rosenbohm, European Environment Agency

State of the Environment

Bonnie Nardi, Professor in the School of Information and Computer Sciences at the University of California, Irvine

Priorities for ICT4S: What We Can Do for a Future of Descent
We live on a finite planet. ICT4S, and more broadly, our economy, must adapt to this reality if human culture is to continue. The planet will be around for a long time — will we? We are at a stage of cultural evolution in which we have powerful tools at hand: science, technology, and a sense of history. If we deploy these tools intelligently, we can adjust the errors of our unsustainable ways and continue life as the only species (at least on Earth) that enjoys self-awareness, art, spirituality, and the capacity to imagine. Unlike traditional siloed disciplines, the talents of the nascent ICT4S community include a robust base of engineering, social science, and information science. This diverse expertise can be brought to bear to anticipate a future in which the limits of finiteness are recognized, managed, and even celebrated.
Venues

University of Copenhagen Ceremonial Hall
With its more than 530 years, the University of Copenhagen is one of the oldest universities in Northern Europe.

The Ceremonial Hall will host the morning sessions of the three conference days. For lunch, we will take the short 5 minute stroll ‘down the road’ to the modern conference facilities of Kosmopol.

Kosmopol conference facilities
Kosmopol offers a historical setting with modern conference facilities in the Old Merchant School in the heart of Copenhagen.

Lunch and the afternoon sessions will take place at Kosmopol which offers smaller, more intimate group settings.

Restaurant SULT
Aptly named after Henning Carlsen’s famous classic, ‘Hunger’ from 1966, Restaurant SULT features locally grown, organic food. We’re certain the restaurant will live up to feeding the hunger we’re certain to have built up during the course of an eventful day!

The restaurant lies in the heart of Copenhagen city and features wooden floors and high ceilings – the perfect setting for great conversations.
PROGRAM

Sunday 6th September

Workshops (not including lunch) all at University of Copenhagen, Rolighedsvej 23, Frederiksberg C.

09.00 – 17.00 The role of ICT in transforming society through engaged communities
09.00 – 17.00 Software engineering for social sustainability
13.00 – 17.00 ICT enabling potential for GHG reductions at a company- or sector-level: Methodological considerations

Monday 7th September

08.30 Registration opens
09.30 Conference welcome, aims, process
Stefan Jensen, Conference Chair EnviroInfo, European Environment Agency
Chris Preist, Conference Chair ICT4S, University of Bristol
Peter Woodward, Conference moderator, Quest Associates

Framing the challenge -
Keynote: The emerging environmental context
Katherine Richardson, Professor at University of Copenhagen

Keynote: What is national ICT-politcs for Sustainable development?
Mattias Höjer, Professor, KTH

10.50 Coffee break

11.20 – 12.50 ConverStation I
Format key:
R = research paper
A = applied paper
Ext. ab. = extended abstract

*marks presenting author

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<td>1.1</td>
<td>A framework for sustainability assessment of ICT futures. Scenarios and sustainability impacts of future ICT- societies</td>
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<tr>
<td></td>
<td>Yevgeniya Arushanyan, Elisabeth Ekener-Petersen, Åsa Moberg, Vlad C. Coroama</td>
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<td>1.2</td>
<td>Assessing the Uses of NLP-based Surrogate Models for Solving Expensive Multi-Objective Optimization Problems: Application to Potable Water Chains</td>
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<td>Florin Capitanescu, Antonino Marvuglia, Enrico Benetto, Aras Ahmadi, Ligia Tiruta-Barna</td>
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<td>1.3</td>
<td>Data reconciliation under fuzzy constraints applied to wood flows in Austria</td>
<td>EnviroInfo</td>
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<td>Nada Dzubur and David Laner</td>
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1.4 Definition of social sustainability criteria for the simulation of OHS in manufacturing entities
Andi H. Widok and Volker Wohlgemuth

1.5 Dredged Sediments, Web-GIS and Analysis Tools – The CEAMaS case study
David Roig Cervera, Gerry Sutton, Andy Wheeler, Eric Masson & Dounia Lahlou

1.6 Eco innovations in European countries
Pawel Bartosczuk

1.7 Environmental monitoring of continuous phenomena by sensor data streams: A system approach based on Kriging
Peter Lorkowski and Thomas Brinkhoff

1.8 Exploring the effect of ICT solutions on GHG emissions in 2030
Jens Malmolin and Pernilla Bergmark

1.9 GIS-based Life Cycle Assessment of urban building stocks retrofitting- a bottom-up framework applied to Luxembourg
Alessio Mastrucci, Emil Popovici, Antonino Marvuglia, Luís de Sousa, Enrico Benetto, Ulrich Leopold

1.10 I am more than the sum of my parts: an e-waste design fiction
Vanessa Thomas, Manu J Brueggemann, David Feldman

1.11 Indirect rebound and reverse rebound effects in the ICT-sector and emissions of CO2
Cecilia Håkansson and Göran Finnveden

1.12 INSPIRE or INSPIRED eReporting?
Christian Ansorge, Stefan Jensen, Darja Lihteneger

1.13 Labelling sustainable software products and websites: Ideas, Approaches, and Challenges
Eva Kern, Markus Dick, Stefan Naumann, Andreas Filler

1.14 Marine sediment re-use in the ports of North Western Europe. Toward a spatial decision support system for “Civil Engineering Application for Marine Sediments” (CEAMaS project)
Eric Masson, Dounia Lahlou, Olivier Blanpain and Guillaume Chevalier, Tristan Debuigne, David Roig and Gerry Sutton

1.15 Methods and Tools for More Efficient Working With OGC Web Processing Services
Andreas Abecker, Roman Wössner, Dorian Alcacer-Labrador, Felix Bensmann, Rainer Roosmann

1.16 Midpoint vs single score in multi-criteria optimization under life cycle assessment constraints: the case of potable water treatment chains
Florin Capitanescu, Elorri Igos, Antonino Marvuglia, Enrico Benetto
1.17 Open Data Model for (Precision) Agriculture Applications and Agricultural Pollution Monitoring
Tomáš Řezník, Karel Charvat, Vojtěch Lukas, Karel Charvat Jr., Šárka Horakova, Michal Kepka

1.18 Perceptions and behaviour towards climate change and energy savings: the role of social media
Lara S. G. Piccolo and Harith Alani

1.19 Pre-installation challenges: classifying barriers to the introduction of smart home technology
Luis Carlos Rubino de Oliveira, Andrew May, Val Mitchell, Mike Coleman, Tom Kane, Steven Firth

1.20 Simplifying an application for LCIA by conducting a usability study
Mieke Klein, Felix Hemke, Volker Wohlgemuth

1.21 Social Electricity: The evolution of a Large-Scale, Green ICT Social Application through two Case Studies in Cyprus and Singapore
Andreas Kamilaris*, Andreas Pitsillides, Christos Fidas, Sekhar Kondepudi

1.22 The Citizen Field Engineer: Crowdsourced Maintenance of Connected Water Infrastructure. Scenarios for smart and sustainable water futures in Nairobi, Kenya
Fanny von Heland, Anna Bondesson, Marcus Nyberg, Pontus Westerberg

1.23 The Environmental Footprints Explorer - a database for global sustainable accounting
Konstantin Stadler, Radek Lonka, Daniel Moran, Georgios Pallas, Richard Wood

1.24 The Green Practitioner: A decision-making tool for green ICT
Karl Lundfall, Paola Grosso, Patricia Lago and Giuseppe Procaccianti

1.25 Work hubs - location considerations and opportunities for reduced travel
Anna Kramers, Marcus Nyberg, Mattias Höjer, Malin Söderholm

13.00 Lunch

14.15 – 16.00 ConverStation II

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<td>A process model for preparation and analysis of cetacean sighting data off the coast of La Gomera</td>
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<td>Jochen Wittmann, Aljoscha Marcel Everding, Fabian Ritter</td>
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<td>2.2G</td>
<td>A systematic review of environmentally conscious product design</td>
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<td>Zhongkai Li, Jorge Marx Gómez, Alexandra Pehlken</td>
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<td>2.3G</td>
<td>Attribute-based data quality evaluation in regional Material Flow Analysis</td>
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<td>Oliver Schwab, David Laner and Helmut Rechberger</td>
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<td>Katharina Schleidt*, Barbara Magagna, Gerhard Dünnebeil, Wolfgang Spangl</td>
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<th>Educating for ICT4S: Unpacking sustainability and ethics of ICT student intakes</th>
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<td>Bente Knoll, Georg Spreitzer, Teresa Schwaninger, Petra Busswald, Roswitha Hofmann, Christoph Link</td>
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<td>Jan Studzinski*</td>
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<td>Heino Rudolf*</td>
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<td>Onno M. Knol, Arjen van Hinsberg, Marjon Hendriks</td>
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<td>Akkharawoot Takhom, Mitsuru Ikeday, Boontawee Suntisriraraporn, and Thepchai Supnithiz</td>
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2.15G Using the OGC SOS Interface for Reporting Ambient Air Quality Data
Simon Jirka, Carsten Hollmann, Matthes Rieke, Hans Berkhout, Håkan Blomgren, Tony Bush, Michel Grothe, Olav Peeters, Matthew Ross-Jones

2.16M Big Data for Big Problems—Climate Change, Water Availability, and Food Safety
Walter Armbruster and Margaret MacDonell

2.17M Development of a Real-time Smart Meter for Non-Intrusive Load Monitoring and Appliance Disaggregation
Roman Jonetzko, Matthias Detzler, Klaus-Uwe Gollmer, Achim Guldner, Marcel Huber, Rainer Michels, Stefan Naumann and Martin Ney

2.18M Distanciation: a key challenge for 21st Century conservation
Leticia Margarita Ochoa-Ochoa, Sandra Nogué, Rafa Devillamagallón, Richard J. Ladle

2.19M Energy implications of residential energy monitoring systems
Michael Preisel, Adriana Díaz, Florian Krautzer, and Wolfgang Wimmer

2.20M Energy saving at work - and when not working! Insights from a comparative study
Timo Jakobi and Gunnar Stevens

2.21M Environmental information systems and services
Arne.J. Berre and Sven Schade

2.22M Information technology continuance research – A case study on changes in the usage of information systems for direct selling of bioenergy in agricultural businesses
Philipp Grundmann

2.23M Interoperability and Sharing of Biodiversity Data on a National Network in Italy
Corrado Iannucci and Valter Sambucini

2.24M Interoperability of Environmental Data with a European Information Platform for Chemical Monitoring (IPChem). Data management across the disciplines
Gerlinde Knetsch and Maria Rüther

2.25M Reducing energy demand within large organisations through IT-enabled behaviour change – 3 case studies from the UK
Andrew F.G. Smith

2.26M SySPE Solution and IT-for-Green Communication through Web Services
Frank Medel-González, Lourdes García-Ávila, Jorge Marx-Gómez

2.27M Tablets - Suitable Problem Solvers for Business Cases?
Matthias Mokosch, Torsten Urban, Hans-Knud Arndt
2.28M Towards an air pollution health study data management system - A case study from a smoky Swiss railway
Evangelia Papoutsoglou, Argyrios Samourkasidis, Ming-Yi Tsai, Mark Davey, Alex Ineichen, Marloes Eeftens and Ioannis N. Athanasiadis

2.29M Understanding climate change tweets: an open source toolkit for social media analysis
Diana Maynard and Kalina Bontcheva

2.30M Web Environmental Information System for Corporate Performance Evaluation and Reporting
Oldřich Faldík, Oldřich Trenz, Jiří Hřebíček, Edward Kasem

16.00 Coffee break

16.30 Priorities for ICT4S: What we can do for a future of descent
Keynote by Professor Bonnie Nardi

17.30 Poster Session
Speed-talk poster presentations

18.00 – 19.30 Welcome Reception + Poster Mingle
Poster authors are available by their posters whilst drinks and light refreshments are served

Tuesday 8th September

09.00 Expanding our environmental knowledge base for transitions
Key note by Hans Bruyninckx, Director of the European Environment Agency
Introduction to afternoon workshops

10.30 Coffee break

11.15 – 12.40 ConverStation III

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<td>A survey on application of maturity models for smart grid: Review of the state-of -the-art</td>
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<td>A Taxonomy of Motivational Affordances for Meaningful Gamified and Persuasive Technologies</td>
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<td>Analysing engagement towards the 2014 Earth Hour Campaign in Twitter</td>
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3.5 **Breaking Barriers on Reuse of Digital Devices Ensuring Final Recycling**
David Franquesa, Leandro Navarro, David López, Xavier Bustamante, Santiago Lamora

3.6 **Digital Taxonomy for Sustainability**
Jack H Townsend

3.7 **Energy Atlas Schleswig-Holstein**
Friedhelm Hosenfeld and Malte Albrecht

3.8 **Environmental labelling of electronic products: mobile phones, laptop and tablet**
Damien Prunel, Axel Roy, Rachel Arnould

3.9 **Exploring (un)sustainable growth of digital technologies in the home**
Oliver Bates, Carolynne Lord, Bran Knowles, Adrian Friday, Adrian Clear, Mike Hazas

3.10 **GSBLapp: Tailored Chemical Substance Information for Arbitrary On-Site Usage on Mobile Devices**
Stefan Barthel, Tristan Pfofe, Christian Roßler, Marius Bozem

3.11 **ICT practices in smart sustainable cities - In the intersection of technological solutions and practices of everyday life**
Miriam Börjesson Rivera, Elina Eriksson & Josefin Wangel

3.12 **Investigation into the slow adoption of retrofitting - What are the barriers and drivers to retrofitting, and how can ICT help?**
Christopher Weeks, Charles Delalonde, Chris Preist

3.13 **Latest Developments of the eENVplus Framework for Using Interlinked Environmental Thesauri**
Andreas Abecker, Roman Wössner, Karsten Schnititer, Riccardo Albertoni, Monica de Martino, Paola Podestà

3.14 **Model based leakage isolation in water distribution system: a neural classifier approach**
Marcin Stachura Jan Studzinski Bartomiej Fajdek

3.15 **On fairness & sustainability: Motivating change in the networked society**
Somya Joshi and Teresa Cerratto Pargman

3.16 **Potentials of energy consumption measurements in office environments**
Timo Jakobi and Gunnar Stevens

3.17 **Self-organizing demand response with comfort-constrained heat pumps**
Christian Hinrichs, Michael Sonnenschein, Adam Gray, Curran Crawford
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<td>Sustainability Begins in the Street: A Story of Transition Town Totnes</td>
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<td>Xinning Gui and Bonnie Nardi</td>
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<td>3.20</td>
<td>Sustainable Asset Lifecycle Management (SALM) - How SAP is managing IT assets by embedding sustainability aspects into entire business processes</td>
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<td>Matthias Göttler, Sebastian Faul, Tanja Meier-Ettlin</td>
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<td>Tailor-made energy consulting for private households - The approach of the Austrian R&amp;D project “EnBe2.0”</td>
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<td>Bente Knoll and Georg Spreitzer</td>
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<td>The affordances and use of green citizen engagement web tools</td>
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<td>Christian Elling Scheele and Jens Hoff</td>
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<td>Towards an occupancy profiling approach for an energy efficiency environment</td>
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<td>Konstantinos Tsatsakis and Christos Malavazos</td>
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<td>Using system dynamics model to assess aluminium price volatility and propose solutions to save energy</td>
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<td>Nguyen Thi Minh Hanh, Dinh Duy Chinh, Vu Van Manh</td>
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<td>Vu Gia Thu Bon RBIS - An information system for environmental data in central Vietnam</td>
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<td>Franziska Zander, Sven Kralisch</td>
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<td>A Strategy for research on governing the Anthropocene</td>
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<td>Rolfe A. Leary and Vivian Kvist Johannsen*</td>
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12.40 Lunch

14.00 Workshops
- IPCHeM: a single access point to chemical occurrence data in Europe
- ICT-enabled Amateur Weather Networks; motivations and barriers for citizen participation
- Adaptation knowledge platform - approaches for presenting complex information to a European audience

15.30 Coffee break

16.00 – 17.15 The state of the Environment
Presentation by Katja Rosenbohm and discussion lead by Peter Woodward, on the European Environment Agency’s State of Environment Report 2015

19.00 Conference dinner
Restaurant SULT, Vognmagergade 8B, Copenhagen City Centre
**Wednesday 9\(^{th}\) September**

09.00  
Set piece debate:  
**Keynote on Social and environmental sustainability**  
Dr Kirstie McIntyre, Director of Social and Environmental responsibility, Hewlett-Packard organisation  
*From Research to Impact – panel discussion*  
Katherine Richardson, Kirstie McIntyre, Mattias Höjer, Stefan Jensen, Volker Wohlgemuth, Chris Preist

10.30  
**Coffee break**

11.00  
**The Best of the Best!**  
A show case of the 12 best papers presented as Impact 20x15  
ICT4S  
Pre-installation challenges: classifying barriers to the introduction of smart home technology  
Luis Carlos Rubino de Oliveira, Andrew May, Val Mitchell, Mike Coleman, Tom Kane, Steven Firth

ICT4S  
The Citizen Field Engineer: Crowdsourced Maintenance of Connected Water Infrastructure. Scenarios for smart and sustainable water futures in Nairobi, Kenya  
Fanny von Heland, Anna Bondesson, Marcus Nyberg, Pontus Westerberg

ICT4S  
On fairness & sustainability: Motivating change in the networked society  
Somya Joshi and Teresa Cerratto Pargman

ICT4S  
Potentials of energy consumption measurements in office environments  
Timo Jakobi and Gunnar Stevens

ICT4S  
Self-organizing demand response with comfort-constrained heat pumps  
Christian Hinrichs, Michael Sonnenschein, Adam Gray, Curran Crawford

ICT4S  
A Taxonomy of Motivational Affordances for Meaningful Gamified and Persuasive Technologies  
Paul Weiser, Dominik Bucher, Francesca Cellina, Vanessa De Luca

EnviroInfo  
GIS-based Life Cycle Assessment of urban building stocks retrofitting- a bottom-up framework applied to Luxembourg  
Alessio Mastrucci, Emil Popovici, Antonino Marvuglia, Luís de Sousa, Enrico Benetto, Ulrich Leopold

EnviroInfo  
Breaking Barriers on Reuse of Digital Devices Ensuring Final Recycling  
David Franquesa, Leandro Navarro, David L’opez, Xavier Bustamante, Santiago Lamora

EnviroInfo  
Midpoint vs single score in multi-criteria optimization under life cycle assessment constraints: the case of potable water treatment chains  
Florin Capitanescu, Elorri Igos, Antonino Marvugliaa, Enrico Benetto

EnviroInfo  
Big Data for Big Problems–Climate Change, Water Availability, and Food Safety  
Walter Armbruster and Margaret MacDonell

EnviroInfo  
Energy Atlas Schleswig-Holstein  
Friedhelm Hosenfeld and Malte Albrecht
Environmental monitoring of continuous phenomena by sensor data streams: A system approach based on Kriging
Peter Lorkowski and Thomas Brinkhoff

12.15 – 12.30 Award Presentation and Conference Close
Best Paper, Best Poster, and Student Prize awarded

Afternoon Session

14.00 – 17.30 Half-day workshops (not including lunch) at EEA

- Still heating the environment or already saving costs? - Workshop on data centre cooling infrastructure challenges and solutions
- KPI4DC: New Key Performance Indicators for evaluating DC energy sustainability
- A social practice perspective of the smart grid – Lessons learnt and yet to be discovered
- Data centres, Energy & Sustainability
- ENVIP’2015 - Environmental Information Systems and Services - Infrastructures and Platforms 2015 - for Environmental Big Data and Crowd Sensing