ICT4s
ICT for Sustainability

Invitation Program
First International Conference on Information and Communication Technologies for Sustainability
ETH Zurich, February 14-16, 2013

University of Zurich UZH

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

EMPA
Materials Science & Technology

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Welcome!

Welcome to the First International Conference on ICT for Sustainability, ICT4S 2013, in Zurich, Switzerland. The contributions announced in this program share one vision: the idea of an information society that is able to make sustainable use of limited natural resources.

Information and Communication Technologies (ICTs) are connected to issues of sustainability in many ways. First, although creating virtual worlds, these technologies are dependent on the supply of energy and scarce materials. Second, ICTs are enabling technologies with the potential to increase the energy and material efficiency of key processes of production and consumption. Depending on the socio-economic framework, they could support the decoupling of value creation from resource use instead of accelerating resource depletion. Third, the computational models we can design and implement with ICT contribute to our understanding of complex systems and support the thoughtful assessment of potential solutions to urgent problems, among them climate change. Many ICT applications create awareness for the challenges we have to face on the way to sustainable development: sustainable use of energy and materials and, at the same time, quality of life for all.

The contributions to ICT4S 2013 are clustered around three groups of questions **(the color coding is used throughout this booklet)**:

1. Sustainability in ICT:

How can we provide ICT services with a minimum amount of energy and material input? How can production and recycling of ICT hardware become sustainable material flow systems? What is sustainable ICT design and operation? These questions are addressed in side-events, paper sessions, and workshops:

- Side-Event: Launch of the SECO-Empa Programme on Sustainable Recycling Industries (Wednesday)
- Side-Event: Green IT Crash Course (Wednesday)
- Session A1: ICT Hardware – Energy (Thursday)
- Session A2: ICT Hardware – Materials (Thursday)
- Session A4: ICT Software – Energy (Friday)

2. Sustainability through/by ICT:

How can we create and apply ICT products and services that contribute to the sustainability of production and consumption processes and structures? This question is addressed in the following side-events and paper sessions:

- Side-Event: Green Hackathon (Tuesday)
- Side-Event: WRF/ITU/GeSI/HP Workshop on ICT Solutions for Sustainable Lifestyles (Wednesday)
- Session B1: Smart Resource Management (Thursday)
- Session B2: Smart Buildings and Cities (Thursday)
- Session A3: Smart Energy Solutions (Friday)
- Session B4: Smart Decisions (Friday)

3. Societal aspects, economic and political dimensions:

What political and economic framework is necessary to transform the potential of ICTs into sustainable development? How do technological artifacts and social structures and processes interact? How can we model and assess the sustainability of ICT projects and products? These questions are addressed in the following side-events, paper sessions, and workshops:

- Session B3: Societal Aspects (Friday)
- Workshop B: IFIP Working Groups 9.2 Social Accountability and 9.9 ICT and Sustainable Development (Saturday)
- Workshop D: Swiss Workshop (in German, Saturday)

Overaching aspects will be addressed by invited plenary speakers who will share their ideas and perspectives on ICT for Sustainability with you – views from research and industry, insights from the past and visions of the future.

The PhD Workshop will provide PhD students with the unique opportunity to extend their network and to get feedback from senior researchers.

This conference has been organized on the initiative of Dr. Bernard Aebischer, who recently retired from ETH Zurich. It is his pioneering work on ICT and energy that paved the ground for this event. I also want to thank our numerous partners and sponsors (see next page) who made it possible to realize ICT4S.

I am whishing you a successful ICT4S conference, inspiring discussions and a pleasant stay in Zurich!

Prof. Dr. Lorenz M. Hilty, General Chair ICT4S

University of Zurich UZH

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sii

World Resources Forum

hp

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PRE-CONFERENCE ACTIVITIES | TUESDAY FEBRUARY 12

08:00-22:00	**Green Hackathon** One Day of Hacking for Sustainability

PRE-CONFERENCE ACTIVITIES | WEDNESDAY FEBRUARY 13

11:00-13:00	**Launch of the SECO-Empa Programme on Sustainable Recycling Industries**	
13:00-14:00		
14:00-16:00	**Green IT Crash Course (Tutorial by SI)**	**ICT Solutions for Sustainable Lifestyles (Workshop by WRF, ITU, GeSI and HP)**
16:00-18:00		
18:00-20:00	Welcome Reception & Registration	

MAIN CONFERENCE | THURSDAY FEBRUARY 14

08:00-09:00	Registration open	
09:00-10:10	**P1: Opening Session**	
10:10-10:40	Coffee Break	
10:40-12:40	**P2: Background**	
12:40-14:00	Lunch and Poster Session	
14:00-16:00	**A1: ICT Hardware – Energy**	**B1: Smart Resource Management**
16:00-16:30	Coffee Break	
16:30-18:30	**A2: ICT Hardware – Materials**	**B2: Smart Buildings and Cities**
18:45	Conference Dinner at "Dozentenfoyer" ETH	

MAIN CONFERENCE	FRIDAY FEBRUARY 15	
09:00-10:30	**P3: New Horizons**	
10:30-11:00	Coffee Break	
11:00-13:00	**A3: Smart Energy Solutions**	**B3: Societal Aspects**
13:00-14:00	Lunch	
14:00-16:00	**A4: ICT Software – Energy**	**B4: Smart Decisions**
16:00-16:30	Coffee Break	
16:30-18:00	**P4: Panel Discussion**	
18:00	Conference Soirée	

MAIN CONFERENCE	SATURDAY FEBRUARY 16		
	Workshop A: Sustainability, Social Accountability and Computing (by IFIP TC9)	**Workshop B: PhD Students' Workshop (by UZH-ISR)**	**Workshop C: Swiss Workshop (by OFCOM and ARE)**
09:00-10:00	A	B	C
10:00-10:30	Coffee Break		
10:30-12:30	A	B	C
12:30-14:00	Lunch		
14:00-16:00	A	B	C
16:00-16:30	Coffee Break and Farewell		
16:30-18:00	A		

The durations and break times of the Saturday workshops are subject to change.

SIDE-EVENT	TUESDAY FEBRUARY 12
08:00-22:00	Green Hackathon (at UZH-IFI)

Zürich Greenhackathon

One day of hacking for sustainability as part of the ICT4S conference in Zürich.

Part of the Green Hackathon series of events, with previous hackathons organized in Stockholm, London and Helsinki.

Location: Universität Zürich-Nord, Institut für Informatik (IFI), Binzmühlestr. 14, 8050 Zürich-Oerlikon

Organized in collaboration with the Center for Sustainable Communications (CESC) of KTH, Stockholm, and co-sponsored by Google.

http://greenhackathon.com

University of Zurich UZH
Department of Informatics

KTH VETENSKAP OCH KONST
ROYAL INSTITUTE OF TECHNOLOGY
CESC

Google

SIDE-EVENTS	WEDNESDAY FEBRUARY 13	
11:00-13:00	**Launch of the SECO-Empa Programme on Sustainable Recycling Industries** Room: D 7.1	
13:00-14:00		
14:00-16:00	**Green IT Crash Course (Tutorial by SI)** Room: F 33.1	**ICT Solutions for Sustainable Lifestyles (Workshop by WRF, ITU, GeSI and HP)** Room: GEP Pavillon
16:00-18:00	*End at 17:30*	
18:00-20:00	**Welcome Reception & Registration** Foyer E-Süd	

11:00-13:00, Room D 7.1

Launch of the SECO-Empa Programme on Sustainable Recycling Industries
State Secretariat of Economic Affairs (SECO) and the Swiss Federal Laboratories for Material Sciences and Technology (Empa)

Switzerland has been supporting knowledge partnerships in e-waste recycling with developing countries since 2003. As a follow-up to these pioneering efforts, the SECO together with Empa are now launching the new programme "Sustainable Recycling Industries", with the aim to support the sustainable integration and participation of small and medium enterprises from developing countries in the global recycling of secondary non-renewable resources.

This side-event is open to the general public. Representatives of the media are particularly welcome.

14:00-17:30, Room F 33.1

Green IT Crash Course (Tutorial)
Provided by the Special Interest Group Green IT of the Swiss Informatics Society (SI)

13:30 Introduction Green IT
Niklaus Meyer, President SIG Green IT, Swiss Informatics Society

14:00 Planning a Green Datacenter
Dr Dominique Singy, Senior Consultant Energy, Swisscom AG

14:30 Greening a 15'000m² Datacenter
Marcel Ledergerber, Head Data Center Facility Management, Credit Suisse

15:00 Break

15:30 Green IT Workplace
Dr Beat Koch, Software Engineer, greenITplus and Res Witsch, Senior Poject Leader Corporate Responsibility, Swisscom AG

16:00 Green IT Health check
Dr Doris Slezak, Environmental Education and Consulting, greenITplus

16:30 Green IT plan
Alex Kündig, Manager ICT infrastructure, Zurich Insurance Group

17:00 Green IT experience exchange and discussion, End at 17:30

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More information:
www.hslu.ch/green-it

14:00-18:00, GEP Pavillon

ICT Solutions for Sustainable Lifestyles

Workshop organized by the World Resources Forum (WRF) Association, the International Telecommunication Union (ITU), the Global e-Sustainability Initiative (GeSI), and Hewlett Packard (HP)

Waking up in the morning for your digital alarm clock, listening to radio while driving to work, sending e-mails, performing a surgery with the help of electronic tools, watching movies together with your family, using your GPS or smartphone to find a proper restaurant for tonight. Information and Communication Technologies (ICT) are all around us. This is why it matters how we use it. It can play a significant role to move to a more intelligent use of energy and resources.

Some examples of these Green ICT solutions include the use of "smart technologies", such as smart grids, smart buildings or intelligent transport systems, which can dramatically reduce energy consumption globally, as well as cut down greenhouse gas (GHG) emissions. Overall it is estimated that by 2020 the use of these ICT-enabled applications have the potential of achieving a reduction of 7.8 Gt of GHG emissions. This represents 15% of global emissions, and about 87% of the reductions needed to meet the commitments made in the framework of the United Nations Framework Convention on Climate Change (UNFCCC).

The challenge today is to move from theory to practice, and put in place the right measures to scale up successful Green ICT solutions. Findings from both the World Resources Forum 2011, held in Davos, as the World Resources Forum 2012, held in Beijing, indicate that, apart from progress on technical level (product and service design), sustainable resource management requires more attention to the use phase (consumer side). Raising awareness and providing information need to go hand in hand with providing adequate products, infrastructure and facilities.

18:00-20:00, Foyer E-Süd

Welcome Reception & Registration

Participants of the WRF/ITU/GeSI/HP workshop and participants of the Main Conference arriving on Wednesday are invited to this sponsored Reception. The Registration desk for the Main Conference will be open during the Reception.

MAIN CONFERENCE | THURSDAY FEBRUARY 14	
8:00-9.00	Registration open
9:00-10:10	**P1: Opening Session (Room E 7)** Conference Welcome: - Peter Woodward, Conference Facilitator - Gian-Luca Bona - Göran Andersson Introduction to the Conference: Lorenz Hilty Keynote Lecture: Pierre-Alain Graf
10:10-10:40	Coffee Break
10:40-12:40	**P2: Background (Room E 7)** Plenary Lectures: - Skip Laitner - Daniel Spreng Reports from Pre-conference Activities Introduction to the Conference Recommendations
12:40-14:00	Lunch and Poster Session

14:00-16:00	**A1: ICT Hardware – Energy** Room: E 7 Chaired by Alain Anglade and Vlad Coroama	**B1: Smart Resource Management** Room: D 7.1 Chaired by Jorge Marx Gómez and Uta Wehn de Montalvo
16:00-16:30	Coffee Break	
16:30-18:30	**A2: ICT Hardware – Materials** Room: E 7 Chaired by Daniel Schien	**B2: Smart Buildings and Cities** Room: D 7.1 Chaired by Stefan Naumann Andrea-Emilio Rizzoli
18:45	**Conference Dinner** at "Dozentenfoyer" ETH	

09:00-10:10   P1: Opening Session

Plenary Session 1 | Room E 7

09:00-09:30

Conference Welcome

Peter Woodward, Conference Facilitator, Quest Associates, Coventry, United Kingdom

Gian-Luca Bona, Director General, Empa – Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland

Göran Andersson, Energy Science Center, ETH Zurich, Switzerland

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09:30-9:40

Introduction to the Conference

Lorenz Hilty, Conference Chair, University of Zurich and Empa, Switzerland

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09:40-10:10

Electricity Networks and ICT – the Chain to Sustainability

Pierre-Alain Graf, CEO Swissgrid, Frick, Switzerland

The electricity system is undergoing fundamental changes: the (political) focus on reduction of carbon emissions leads to increased demands on energy efficiency, substitution of fossil fuels with electricity and replacement of traditional electricity production with renewables. As a result demand for electricity and thus for power transportation capacities is expected to increase. These developments make the electricity transmission and distribution infrastructure a critical element in the transition towards sustainability. Creating a regulatory environment with suitable economic incentives for making efficient use of the existing infrastructure and building new capacities is a major issue which needs to be resolved. Information technologies and the availability of data will play an increasingly important role, both in managing the electricity system as well as the consumption of electricity. This is especially true in determining the optimal allocation of capacities and resources and in defining the trade-off between better usage of the infrastructure in place versus the creation of new capacities. Thus the combination of electricity networks and ICT is an important link in the chain to sustainability.

10:40-12:40   P2: Background

Plenary Session 2 | Room E 7
Chaired by Peter Woodward

10:40-11:10

The Economic Imperative of ICT

John "Skip" Laitner, Economic and Social Analysis Program Director,
American Council for an Energy-Efficient Economy

Abstract

The productivity of global economy is lagging. Big time. A major reason is the huge constraint imposed by the inefficient use of energy. In the U.S. we waste 86 percent of all the energy consumed within the economic process. That magnitude of waste imposes a very large cost on all economic activity. If we are to regain momentum, and if we are to building long-term sustainability, then we must tackle the very large problem of our energy (in)efficiency. In effect, we need to look for ways that triple or quadruple our current level of 14 percent efficiency. The next generation of efficiency improvements will move away from device efficiency to system and infrastructure optimization. ICT will be the key to unlocking those future opportunities – especially as we look to develop a sustainable economy.

11:10-11:40

Interactions between Energy, Information and Growth

Daniel Spreng, Prof. em., ETH Zurich

Abstract

ICT has huge potential to contribute to sustainable development. Doing things in a more controlled and intelligent manner can be an essential ingredient for a long-term viable future. Often energy consumption is used as a proxy for sustainability. The theme of this conference is then the effect of ICT on energy consumption. However, the discussion of the direct relationship between ICT and energy consumption is incomplete. Time, interacting both strongly with ICT and energy, has to be added to the equation.

In the 1970's I made the observation that to save energy one needed either more information and/or more time. This observation led me to the hypothesis that energy, time and information can be seen as the main production factors for tasks, processes, services and products and that they are partially substitutable for each other.

Experience and my own research shows that ICT can be used to save energy or to save time and that, given the choice, we almost always choose time. ICT can speed-up production and consumption. It can also make processes and practices more

sustainable. However, by choosing time we choose the less sustainable path. The talk will present examples and will suggest ways of directing choices towards more sustainability, i.e. towards qualitative rather than quantitative growth.

11:40-12:10
Reports from Pre-Conference Activities

12:10-12:40
Introduction to the Draft Conference Recommendations and Discussion
Peter Woodward and Lorenz Hilty

12:40-14:00   Lunch and Poster Presentations

Room: Foyer E-Süd
The poster authors will be available at their posters 13:00-14:00

14:00-16:00   A1: ICT Hardware – Energy

Parallel Session A1 | Room E 7
Chaired by Alain Anglade and Vlad Coroama

14:00-14:20
The development of ICT Sector Guidance: rationale, development and outcomes
Andie Stephens and Mark Didden

14:20-14:40
The Future Carbon Footprint of the ICT and E&M Sectors
Jens Malmodin, Pernilla Bergmark and Dag Lundén

14:40-15:00
The Greenhouse Gas Abatement Potential of Enterprise Cloud Computing
Daniel R. Williams, Peter Thomond and Ian Mackenzie

15:00-15:20
Capabilities and Limitations of Direct Free Cooling in Data Centers
Peter Gysel, Rolf Morf, Cyrill Grüter and Matthias Krebs

15:20-15:40
Energy Consumption of Smart Meters
Michael Preisel, Adriana Diaz and Wolfgang Wimmer

14:00-16:00   B1: Smart Resource Management

Parallel Session B1 | Room D 7.1
Chaired by Jorge Marx Gómez and Uta Wehn de Montalvo

14:00-14:30
Keynote: Date-Driven Resource Management
Marko Turpeinen (The Royal Institute of Technology, Sweden)

14:30-14:50
Smart Metering Infrastructure for Residential Water Efficiency: Results of a Trial in a
Behavioural Change Program in Perth, Western Australia
Martin Anda, Fabian Le Gay Brereton and Elise Paskett

14:50-15:10
IT System for Computer Aided Management of Communal Water Networks by
Means of GIS, SCADA, Mathematical Models and Optimization Algorithms
Jan Studziński

15:10-15:30

Using ICT for Climate Adaptation and Mitigation through Agro-Ecology in the Developing World
Helena Grunfeld and John Houghton

15:30-15:50

EcoLogTex: a Software Tool Supporting the Design of Sustainable Supply Chains for Textiles
Andrea-Emilio Rizzoli, Heinz Zeller, Mireille Faist, Roberto Montemanni, Michela Gioacchini and Nicola Nembrini

15:50-16:10

Incentives for Inter-Organizational Environmental Information Systems
Hans Thies and Katarina Stanoevska-Slabeva

16:30-18:30   A2: ICT Hardware - Materials

Parallel Session A2 | Room E 7
Chaired by Daniel Schien

16:30-17:00

Keynote: Scarce Metals as Raw Materials for ICTs: Do We Care Enough?
Patrick Wäger and Rolf Widmer

17:00-17:20

Social Life Cycle Inventory and Impact Assessment of Informal Recycling of Electronic ICT Waste in Pakistan
Shakila Umair, Anna Björklund and Elisabth Ekener Petersen

17:20-17:40

Insights from a Decade of Development Cooperation in E-Waste Management
Mathias Schluep, Esther Müller, Lorenz M. Hilty, Daniel Ott, Rolf Widmer and Heinz Böni

17:40-18:00

Acceptance of Mobile Phone Return Programs: A Case Study Based Analysis
Britta Bookhagen, Julia Nordmann, Inger Dyrnes, Oliver Stengel and Nils-Holger Schmidt

18.00-18:20

Towards Zero Waste in Industrial Networks: A Case Study of the D4R Laptop
Peter Beigl, Stewart Hickey, Gudrun Obersteiner, Colin Fitzpatrick, Karsten Schischke, Paul Maher and Jose Ospina

16:30-18:30   B2: Smart Buildings and Cities

Parallel Session B2 | Room D 7.1
Chaired by Stefan Naumann and Andrea-Emilio Rizzoli

16:30-16:50
Building Sustainable Smart Homes
Marco Blumendorf

16:50-17:10
BubbleSense: Wireless Sensor Network Based Intelligent Building Monitoring
Cheng Li, Forrest Meggers, Mo Li, Jithendrian Sundaravaradan, Fei Xue, Hock Beng Lim and Arno Schlueter

17:10-17:30
Urban Social Sustainability through the Web: Using ICTs to Build a Community for Prospective Neighbors
Eun Ji Cho and Liat Rogel

17:30-17:50
Evaluating Sustainability of Using ICT Solutions in Smart Cities – Methodology Requirements
Nina Lövehagen and Anna Bondesson

17:50-18:10
ICT for Sustainable Cities: How Can ICT Support Environmentally Sustainable Development in Cities?
Anna Kramers, Mattias Höjer, Nina Lövehagen and Josefin Wangel

18:10-18:30
Energy Efficiency in Hammarby Sjöstad, Stockholm through ICT and Smarter Infrastructure – Survey and Potentials
Örjan Svane

MAIN CONFERENCE | FRIDAY FEBRUARY 15

9:00-10:30	**P3: New Horizons (Room E 7)** Introduction to Day 2: Peter Woodward Plenary Lectures: - Robert Laubacher - Jennifer Mankoff Update on Recommendations Formulation Chaired by Peter Woodward	
10:30-11:00	Coffee Break	
11:00-13:00	**A3: Smart Energy Solutions** Room: E 7 Chaired by Göran Andersson and Jean-Marc Pierson	**B3: Societal Aspects** Room: D 7.1 Chaired by Michael Decker
13:00-14:00	Lunch	
14:00-16:00	**A4: ICT Software – Energy** Room: E 7 Chaired by Patricia Lago and Wolfgang Lohmann	**B4: Smart Decisions** Room: D 7.1 Chaired by Elaine M. Huang
16:00-16:30	Coffee Break	
16:30-18:00	**P4: Panel Discussion (Room E 7)** **Wicked Issues and Recommendations** Expert Panel and audience discuss key Conference insights, issues and recommendations Chaired by Peter Woodward	
18:00 	Conference Soirée *(open to all participants)* - Drinks and Snacks at ETH Foyer E-Süd - Dance Show *Angina Electrica (19:30)* and Dinner Party at "Kaufleuten", Pelikanplatz, Zürich	
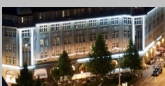
9:00-10:30   P3: New Horizons

Plenary Session 3 | Room E 7
Chaired by Peter Woodward

9:00-9:30

Harnessing Collective Intelligence to Address Climate Change: The Climate CoLab

Robert Laubacher, Research Scientist, Center for Collective Intelligence, MIT Sloan School of Management, USA

Abstract. The Climate CoLab, a project of the MIT Center for Collective Intelligence, seeks to apply the crowdsourcing app-roach used in systems like open source software and Wikipedia to develop, and gain support for, creative new ideas to address climate change. Anyone in the world can participate. The Climate CoLab community now includes more than 4000 students and concerned citizens, along with nearly 100 experts who guide its activities. For 2012-13, the CoLab has broken down the large, complex problem of climate change into a series of more manageable sub-problems. Participants will be invited to submit their ideas in contests that focus on topics like building efficiency, decarbonization of energy supply, and adaptation. A combination of expert judges and wisdom of the crowd will select the best ideas, and contest winners will then present their work to leaders in government, business, and civil society. In a subsequent round of activity, the Climate CoLab will invite integrated proposals that combine the best ideas from the various sub-domains. If it achieves its loftiest ambitions, the Climate CoLab will engage scientists, policy makers, executives, and citizens and lead to adoption of more effective strategies to address climate change than would have emerged otherwise.

9:30-10:00

Defining an Agenda for Computational Sustainability

Jennifer Mankoff, Prof., Carnegie Mellon University, Pittsburgh, PA, USA

Abstract. I will discuss approaches to energy feedback and some of the empirical work we have done as part of the Stepgreen.org project to guide the design of feedback displays. Our work, began in 2006 with social feedback, sensing and self reporting around green actions. I explore the question of what sort of impact work of this sort should have and demonstrate through a discussion recent work with landlords and tenants in low-income communities, residents of bangalore, India, and automated techniques how a broader perspective may influence where and how we choose to apply IT. I conclude by suggesting that we develop a

new set of metrics for judging IT for sustainability, and a new set of perspectives on what role IT may need to play going forward.

10:00-10:30

Discussion, Update on Conference Recommendations Formulation
Peter Woodward, Conference Facilitator

11:00-13:00   A3: Smart Energy Solutions

Parallel Session A3 | Room E 7
Chaired by Göran Andersson and Jean-Marc Pierson

11:00-11:30

Keynote: Bridging Consumer Interests with Secure Energy Supply Goals by ICT
Rainer Bacher, Bacher Energy Ltd.

11:30-11:50

Makahiki+WattDepot: An Open Source Software Stack for Next Generation Energy Research and Education
Philip M. Johnson, Yongwen Xu, Robert S. Brewer, Carleton A. Moore, George E. Lee and Andrea Connell

11:50-12:10

When Looking out of the Window is not Enough: Informing the Design of In-Home Technologies for Domestic Energy Microgeneration
Blaine Price, Janet Van Der Linden, Jacky Bourgeois and Gerd Kortuem

12:10-12:30

Developing a Strategy for the Implementation of ICT in Energy Efficient Neighbourhoods
Max Blöchle, Branislav Iglar, Daniele Basciotti and Jessen Page

11:00-13:00   B3: Societal Aspects

Parallel Session B3 | Room D 7.1
Chaired by Michael Decker

11:00-11:20

ICT as Motor for Transition: Towards a Low Energy, Low Carbon Society
Josefin Wangel, Kristian Løbner and Marie Sølgaard Bang

11:20-11:40
Practicing the Smart Grid
Cecilia Katzeff and Josefin Wangel

11:20-12:00
From Fixed, Mobile to Complex – The Social Shaping of ICT for Sustainable Travel
Carlos Cano Viktorsson

12:00-12:20
Towards a Holistic Assessment of Environmental Impacts from ICT: the Case of E-Commerce
Miriam Börjesson Rivera, Cecilia Håkansson, Åsa Svenfelt and Göran Finnveden

12:20-12:40
National Collaboration on Green ICT in the Dutch Higher Education: Lessons Learned
Albert Hankel

12:40-13:00
Translating Green IT: The Case of the Swedish Green IT Audit
Per Fors and Thomas Taro Lennerfors

14:00-16:00   A4: ICT Software – Energy

Parallel Session A4 | Room E 7
Chaired by Patricia Lago and Wolfgang Lohmann

14:00-14:30
Keynote: Energy Consumption from a Software Perspective
Jean-Marc Pierson (Institut de Recherche en Informatique de Toulouse, France)

14:30-14:50
Green Software and Green Software Engineering – Definitions, Measurements, and Quality Aspects
Eva Kern, Markus Dick, Stefan Naumann, Achim Guldner and Timo Johann

14:50-15:10
The Impact of Improving Software Functionality on Environmental Sustainability
Sedef Akınlı Koçak, Andriy Miranskyy, Gülfem Işıklar Alptekin, Ayşe Başar Bener and Enzo Cialini

15:10-15:30
Identification of Application-Level Energy-Optimizations
Kay Grosskop and Joost Visser

15:30-15:50
Pilot Result Monitoring Energy Usage by Software
Frank Van Bokhoven and Jarno Bloem

14:00-16:00   B4: Smart Decisions

Parallel Session B4 | Room D 7.1
Chaired by Elaine M. Huang

14:00-14:20
Data Mining in the Closed-Loop CRM-Approach for Improving Sustainable
Intermodal Mobility
Thees Gieselmann, Marcel Severith, Benjamin Wagner vom Berg and Jorge Marx Gómez

14:20-14:40
An Awareness Based Approach to Avoid Rebound Effects in ICT
Giovanna Sissa

14:40-15:00
mat – an ICT Application to Support a More Sustainable Use of Print Products and
ICT Devices
Roland Hischier, Michael Keller, Rudolf Lisibach and Lorenz M. Hilty

15:00-15:20
Climate Change Impact of Electronic Media Solutions: Case Study of the Tablet
Edition of a Magazine
Mohammad Ahmadi Achachlouei, Åsa Moberg and Elisabeth Hochschorner

15:20-15:40
Small Community Media for Sustainable Consumption
Gergely Lukács

15:40-16:00
Biometrics for Sustainability
Jigisha Pardeshi and Dinesh Singh Pardeshi

16:30-18:00   P4: Panel Discussion
Plenary Session 4 | Room E 7
Chaired by Peter Woodward

Wicked Issues and Recommendations: Expert panel and audience discuss key
conference insights, issues and recommendations.

18:00   Conference Soirée

ETH Foyer E-Süd, and "Kaufleuten", Pelikanplatz, Zurich
This Soirée is open to all participants of the main conference.

From 18:00
Drinks & Snacks at ETH Foyer E-Süd

19:30
Angina Electrica Dance Performance
Kaufleuten, Pelikanplatz, Zurich

Securing the trace of an encounter of kinetic and electric energy

In this tongue-in-cheek performance, two dancers being dressed for the worst case situation present an emergency scenario against threatening energy shortages in the murk periods of time.

Therefore, dancers and the audience will together produce the energy required to lighten the piece and to provide the acoustic surrounding. Electra, a specially designed electric power generator, will be used to transform in an archaic manner the physical energy into electric energy; environmental sustainability is guaranteed.

Noémie Wyss and Nina Willimann do not only examine the relations between the different forms of physical energy, but also the tension between two individuals and the energy that is released due to their friction.

After the Show: Dinner Party at "Kaufleuten"

MAIN CONFERENCE	SATURDAY FEBRUARY 16		
	Workshop A: Sustainability, Social Accountability and Computing (by IFIP TC9)	**Workshop B:** PhD Students' Workshop (by UZH-ISR)	**Workshop C:** Swiss Workshop (by OFCOM and ARE)
09:00-10:00	A	B	C
10:00-10:30	Coffee Break		
10:30-12:30	A	B	C
12:30-14:00	Lunch		
14:00-16:00	A	B	C
16:00-16:30	Coffee Break and Farewell		
16:30-18:00	A		

The durations and break times of the Saturday workshops are subject to change.

9:00-18:00　　Workshop A

Room 33.1 or D 7.1
Sustainability, Social Accountability and Computing
Chaired by Diane Whitehouse, IFIP WG 9.2 Chair
IFIP, International Federation for Information Processing, Technical Committee 9: ICT and Society

Joint Workshop of the IFIP TC9 Working Groups

- 9.2: Social Accountability and Computing
- 9.9: ICT and Sustainable Development

9:00-16:00 Workshop B

Room 33.5

PhD Students' Workshop

Chaired by Martina Huber

Informatics and Sustainability Research Group, Department of Informatics, University of Zurich

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09:00-10:25 Session 1: Opening Session

9:00-9:10

Welcome Address

Martina Huber, PhD Student, University of Zurich, Switzerland

General Aspects

09:10-09:35

The Potential for Environmental Savings – Restrictions, Internal Standards and Approaches

Christina Herzog, University of Toulouse, France

09:35-10:00

Developing a Comprehensive Approach to Incorporate Uncertain Knowledge into a Material Flow Model

Nikolaus Bornhöft, Technology and Socety Lab at Empa – Swiss Federal Laboratories for Materials Science and Technology, St.Gallen, Switzerland

10:00-10:25

Designing a Serious Game Framework for Sustainability

Yongwen Xu, University of Hawaii at Manoa, USA

10:25-10:45

Coffee Break

10:45-12:25 Session 2: Be Prepared for Behavioral Change

10:45-11:10

Sustainability Assessment Model to Mitigate Electronic Waste Threat from Low Cost Computers for Schools in Developing Countries

Simon Karume, Masinde Muliro University of Science and Technology, Kenya

11:10-11:35

Do You Fear Telework? Understanding the "Petrify Effect" in the Experience of Torino Municipality

Claudio Marciano, Università La Sapienza – Roma, Italy

11:35-12:00
Towards Automated Non-Intrusive Load Monitoring Evaluation
Lucas Pereira, Madeira-ITI, Portugal

12:00-12:25
Socio-Technical Systems to Motivate and Support Sustainable Behaviors (*Tentative)*
Holger Dick, University of Colorado, USA

12:25 – 13:30 Lunch

13:30-14:45 Session 3: Sustainable Energy Consumption through ICT

13:30-13:55
Continuous Scheduling for Grid-Stabilizing Coalitions in Decentralized Energy
Systems
Astrid Nieße, OFFIS, Germany

13:55-14:20
Towards a Unified Energy Efficiency Evaluation Toolset: An Approach and its
Implementation at Leibniz Supercomputing Centre (LRZ)
Hayk Shoukourian, Technische Universität München; Torsten Wilde, Leibniz Supercomputing
Centre (LRZ) of the Bavarian Academy of Sciences and Humanities; Axel Auweter, Leibniz
Supercomputing Centre (LRZ) of the Bavarian Academy of Sciences and Humanities; Arndt Bode,
Technische Universität München, Leibniz Supercomputing Centre (LRZ) of the Bavarian Academy
of Sciences and Humanities; Petra Piochacz, Technische Universität München, Germany

14:20-14:45
Can Proxies Be Used to Save Power?
Karl O'Dwyer, Hamilton Institute; David Malone, Hamilton Institute; Eoin Creedon, IBM
Research; Mark Purcell, IBM Research, Ireland

14:45-15:05 Coffee Break

15:05-16:00 Session 4: Sustainable Energy Consumption through ICT

15:05-15:30
Web Servers' Energy Efficiency, VIrtuaLization and Performance (WEEVIL)
Khaled Chait, Research Center on Scientific and Technical Information, Algeria

15:30-15:55
Resources Provisioning in the Cloud
Kleopatra Chatziprimou, Kevin Lano, Steffen Zschaler, King's College London, UK

9:00-16:00   Workshop C: Swiss Workshop 🇨🇭

Room 33.1 or D 7.2

Nachhaltige Entwicklung und Informationsgesellschaft (in German)
BAKOM (Bundesamt für Kommunikation) und ARE (Bundesamt für Raumentwicklung)

09:30-16:00

Der Schweizer Bundesrat verfolgt eine Strategie Nachhaltige Entwicklung und eine Strategie Informationsgesellschaft. Wie können sich die strategischen Ziele aus beiden Bereichen gegenseitig unterstützen? Wie lässt sich der Wandel in Richtung einer Informationsgesellschaft für die nachhaltige Entwicklung nutzen? Wie fördern Herausforderungen aus dem Bereich der Nachhaltigkeit die Innovation auf dem Gebiet der Informations- und Kommunikationstechnologien?

Hauptziel des Workshops ist es, eine Plattform für die Zusammenarbeit zu schaffen für alle, die zwischen Informationsgesellschaft und Nachhaltigkeit Brücken schlagen: In Politik, Forschung und Praxis.

Der Swiss Workshop soll Brücken schlagen und Synergien aufzeigen zwischen den Megatrends Informationsgesellschaft und der Nachhaltigen Entwicklung. Er soll als Startveranstaltung eine längerfristige Dynamik in Gang setzen, damit die relevanten Akteure in der Schweiz die Zusammenhänge zwischen der Informationsgesellschaft und der Nachhaltigen Entwicklung vertiefen, weiterverfolgen und in ihre alltägliche Arbeit in diesem Bereich einfliessen lassen. Zudem erhoffen sich die Bundesämter ARE und BAKOM wertvolle Erkenntnisse und Rückmeldungen aus der Praxis für die weitere Umsetzung der Strategie Nachhaltige Entwicklung bzw. die Strategie Informationsgesellschaft des Bundes.

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