# Internet Economics 11 (IntEco 11)

**Prof. Dr. Burkhard Stiller,**
**Dr. Thomas Bocek, Lisa Kristiana, Andri Lareida,**
**Patrick Poullie, Bruno Rodrigues, Dr. Corinna Schmitt**
*Department of Informatics IFI, University of Zürich*
*Binzmühlestrasse 14, CH-8050 Zürich, Switzerland*
*[stiller¦bocek¦kristiana¦lareida¦poullie¦rodrigues¦schmitt@ifi.uzh.ch*

Universität Zürich[UZH]

Technical Introduction

Organizational Issues

CSG Communication Systems Group

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# Why “Internet Economics”?

based on [McKnight, Stiller 1998]

- Electronic Commerce ...
- Internet Commerce ...
- eCommerce ...
- eBusiness ...
- Internet Economics ...
- Net Economics …
- Netnomics ...
- Webonomics ...

*How to make money on the Net, the Internet☺*

*How to determine a market and to establish viable business models!*

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# The “Pure“ Economic View

- “Research on Internet Economics attempts to improve our understanding of the Internet as an economic system.“ [McKnight/Bailey 1995]
- “Efficiency of markets as resource allocation mechanisms“ [Varian 1996]
- “Paying for QoS“ [Fulp et al. 1998]

- **Main challenge**:
  Development of economic mechanisms without losing the benefits of interoperability and positive externalities gained through resource sharing in the Internet.

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# The “Pure“ Internet View

- Complexity of network
- Scalability
- Mobility
- Resiliance
- Security and Trust
- Efficiency of real-time data delivery
- Rich media
- High bandwidth
- Services

} *Future Internet Initiatives!*

http://www.technologyreview.com/news/405318/the-internet-is-broken/
http://www.tropicalcoder.com/CleanSlateWhitepaperV2.pdf

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# Sample IntEco Issues under Consideration

- Ensuring healthy ecosystem for **network service providers**
- Financing **edge infrastructure** build-out
- Ensuring **competition and innovation** at the service level/at the edge
- Using **public investment** incentives
- Adapting **public policy** to network convergence
- Dealing with **traffic exchange** between networks
- Empowering and protecting **consumers**
- Being able to **measure/assess** the network's performance
- Considering **social norms, ethical values, existing laws**
- Improve efficiency of internetworking, **scalability of routing**
- **...**

http://www.oecd.org/internet/interneteconomy/37966708.pdf

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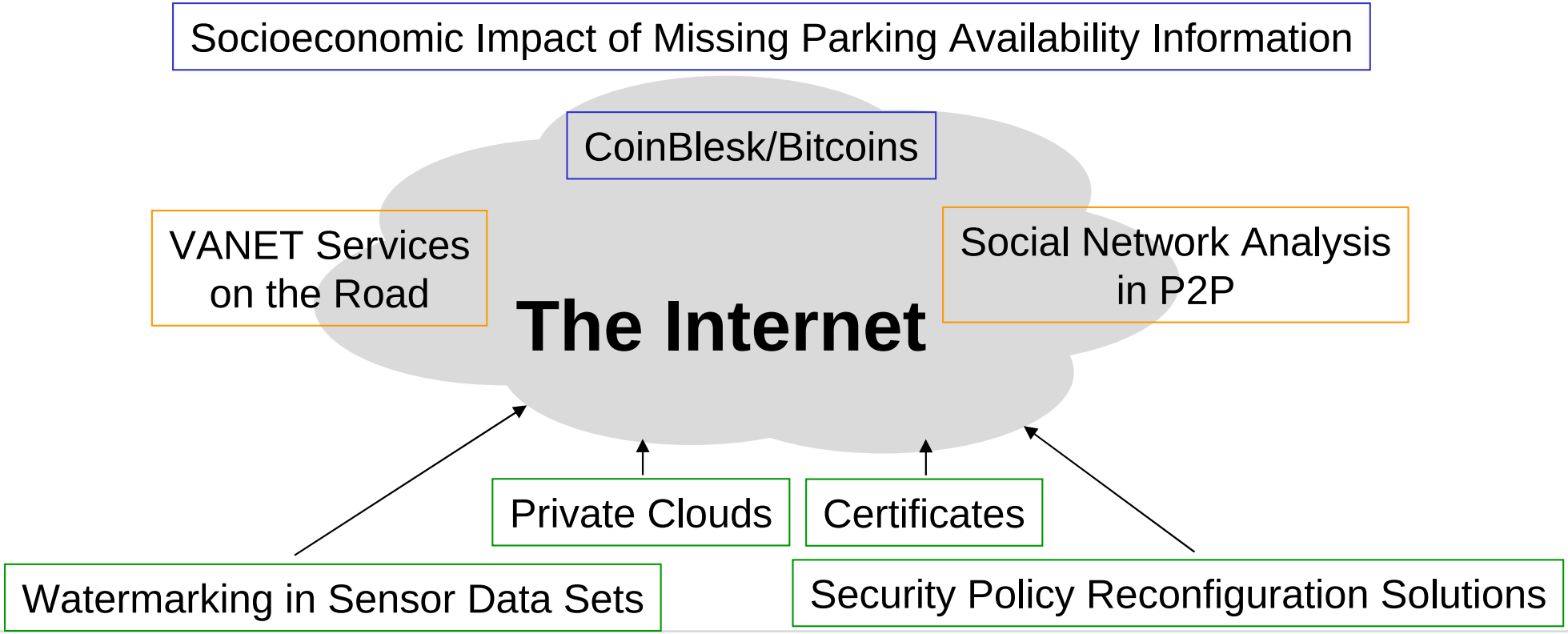
# Selected IntEco Perspectives

- Socio-economics
- Network technologies
- Services and analysis

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# Seminar Organization

News and possible updates available at:

http://www.csg.uzh.ch/teaching/hs16/inteco/

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# Organization of Student Work

- Target for a single student (or team of two):
  - Self-performed, but supervised reading/material investigation
- Process: http://www.csg.uzh.ch/teaching/hs15/inteco/
  - Read, search, think, and classify
  - Write: min. about 10-12 pages (18-20 pages for a team of two) (LaTeX template to be used)
  - Identification of open issues and hand-in of pre-version and, optional hand-in of presentation to identified supervisor
  - Integration of changes and corrections
  - Preparation of a talk: 30-45 minutes
  - Reply to questions and open issues
  - Preparation/moderation of a discussion (statements): 45 min

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# Written Report Content

- Write a self-contained abstract (don‘t summarize), assume that it is an executive abstract
- Set-up an introduction into the area ***and*** problem.
- Optionally define basic terms and key issues
- Structure the main chapters according to a top-down ***or*** bottom-up approach, don‘t mix and match ☺
- Use figures and tables in a balanced manner and always talk about those in the text!
- Always include a summary at the final end and, optionally, cover conclusions

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# Written Report Structure – Example

Title and Author

Abstract

Table of Content

1. Introduction and Problem Statement
2. Related Work
3. Approach(es)
4. Solutions
5. Evaluations and Discussion
6. Summary and Conclusions

References

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# Written Report Template

- Written reports have to follow a common style
  - LaTeX determines the *only* seminar's choice
  - Figures in .jpg and .eps
  - Title, Author, Abstract on page one and only on page one
  - Table of content on page two
  - First section and further sections starting from page three
  - Bibliographic references and (optional) list of abbreviations as well as glossary at the final end
- Due date for ***all*** written draft reports (ToC and bullets) is Thursday October 6, 2016!
  - All relevant information and details are available at the URL: http://www.csg.uzh.ch/teaching/hs16/inteco/

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# Written Report Hints (1)

- Avoid the following mistakes:
  - Include figures with a relative path and without suffix
  - Always reference in your text „as shown in Figure X …“
  - Adapt the size of figures to the maximum template margins
  - Figures show a caption (below the figure)
  - Tables show a title (on top of the table)
  - All paragraphs need to separated by an empty line, do not use „\\“ or „\newline“, since a sentence is normally not a new paragraph!
  - Do not use „\newpage“ by any means
  - Check all labels and references, do not use them twice

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# Written Report Hints (2)

- Avoid the following mistakes:
  - Check LaTeX warnings
  - Do not change the use of bibliographic references, use styles as provided
  - Do not write references in separate lines, they form a single paragraph
  - Include all references into the bibliographic reference list!
  - Write your abstract and make it fit onto the first page, do not have longer texts here, do not change the abstract's style
  - Do not change margins at all
  - Do not change formatting and layouting by any means

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# Seminar Rating Guidelines

- Initial draft and ToC preparation
- Write final report as specified above (structure)
- Initial and final presentation slides
- 30-45 min presentation
- Moderation of 45 min discussion incl. min 3 statements
- Showing significant effort to achieve seminar‘s goals
- Active participation in all discussions!
- Compliance with all deadlines
- Presence at all minus 1 seminar date
  - In case of failures in any of these items a reduction of the seminar’s mark between 0.25 and 0.75 points is possible.

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# Important Dates – Mandatory

- One week before each talk (latest):
  - Slides, bullets for content, figures, …
- October 6, 2016:
  - Draft written report (for supervisor feedback) as a draft ToC
- November 17, 2016:
  - Final written report (for final feedback)
- December 15, 2016:
  - Completely finalized versions of written report (with LaTeX source files) and of presentation slides (PPT) submitted
- The 3 pages handout information are mandatory and key for complying with all formal seminar requirements!

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# Distribution of Topics

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# IntEco Topical Domains

- Investigation of *two views* of economic and technology effects within the Internet Economy, relevant for tomorrows Internet operations:
  - Point of view: more economics-driven
    - Automated Vehicle Systems, Radio Towers
    - Pricing Models for Clouds, Breaching Cloud SLAs
    - New Swiss Law on Observation of Post and Telecommunications
    - SDN/NFV
    - IoT Business Models, Bartering and Trading
  - Point of view: more technology-driven
    - Network Energy Efficiency
    - Blockchains, Microtransactions
    - 5G

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# Overview of Talk Titles and Dates

- Talk 1: **“Economic Benefits of Automated Vehicle System”**
  - Oct [illegible] 2016 Name: NN Supervisor: Lisa Kristiana
- Talk 2: **“[illegible] of Radio Towers”**
  - Oc[illegible]: NN Supervisor: Andri Lareida
- Talk 3: **“Tec[illegible]es for Improving Network Energy Efficiency”**
  - Oct 27, 2016 Supervisor: Bruno Rodrigues
- Talk 4: **“Comparing Blocke[illegible]**
  - Nov 3, 2016 Name: NN [illegible]visor: Thomas Bocek
- Talk 5: **“Emerging Pricing Models for Clo[illegible]**
  - Nov 10, 2016 Name: NN [illegible]oullie
- Talk 6: **“Social and Economical Impact of New Swiss La[illegible] Post and Telecommunication Traffic”**
  - Nov 17, 2016 Name: NN Supervisor: Andri La[illegible]
- Talk 7: **“The Breaching of Cloud SLAs: Why it Happens and How to Prove it**
  - Nov 24, 2016 Name: NN Supervisor: Patrick Poullie
- Talk 8: **“Microtransactions with the Lightning Network”**
  - Dec 1, 2016 Name: NN Supervisor: Thomas Bocek
- Talk 9: **“Economical Impacts of SDN and NFV for Telecom Operators”**
  - Dec 8, 2016 Name: NN Supervisor: Bruno Rodrigues
- Talk 10: **“Challenges in 5G: Social, Technology, and Economic Perspectives”**
  - Dec 15, 2016 Name: NN Supervisor: Lisa Kristiana
- Talk 11: **“Comparison of IoT Business Models OR Bartering and Trading”**
  - Dec 22, 2016 Name: NN Supervisor: Corinna Schmitt

**See for final talk dates and teams the current HS 2016 IntEco Web page (http://www.csg.uzh.ch/csg/en/teaching/hs16/inteco.html)**

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# Todos – Today

- Each student (or group leader) shall do TODAY
  - Contact the talk‘s supervisor by e-mail
    - To establish a first meeting with him
  - Submit the following data to him (or include it onto the paper sheet distributed):
    - Name, First Name of all group members
    - E-mail addresses of all members
    - “Studiengang” information for each member
    - Legi number for each member
- Don‘t forget to register yourself with the “Buchungstool“ to ensure that your participation in the IntEco seminar will be fixed!

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Have fun and success in the new fall term!

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