



**UNIVERSITY  
OF OULU**



# **The Oulu way of strengthening social impact of SSH sciences: From linear models of impact to productive interactions and beyond**

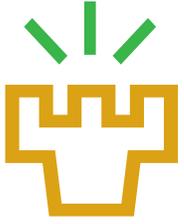
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# Introduction

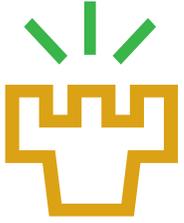
- **Context: University of Oulu, Finland, supporting research in SSH**
  - Eudaimonia institute
  - Tellus Innovation Arena
  - Oulu Think Tank of Science and Society
  - University strategy
- **BCDC (Bright Clouds–Dark Clouds) Energy as a case example**
  - Cloud computing as an enabler of distributed energy solutions (e.g., to detect and react to local changes in electricity production and usage)
  - A multi-organizational and multidisciplinary consortium to enable interaction between science and society
- **SSH researchers' interaction with stakeholders to produce societal impact**
- **Learning from the experience: institutionalization of good practices**



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# Theoretical Background

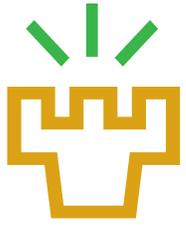
- **Traditional view of science**
  - Science as an autonomous system in society – impact mainly within the system of science
  - Linear view: 1) formal technology transfer, 2) public understanding of science – societal impact seen as materializing without any attempt by researchers to achieve it
- **Change in science, technology and innovation policy**
  - Broad-based understanding of innovation: from technical to social innovations
  - National innovation system: from linear to interactive view on impact
  - Increasing social responsibility and accountability pressures
- **Current understanding of science-society relations**
  - Intermingling of science and society: expansive area of research with many theories
  - Emphasis on interactive view on science-society relationship
- **Science seen as situated and negotiated phenomenon in local societal contexts**
- **Societal actors increasingly important in achieving science's impact**



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# Productive Interactions

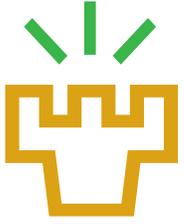
- **Interactive processes by means of which impacts are achieved**
  - Mutual learning, knowledge creation and application at science-society interface
  - Spaapen & van Drooge: “exchanges between researchers and stakeholders in which knowledge is produced and valued that is both scientifically robust and socially relevant”
  - Precondition for achieving impact: interaction leads to effects
- **Framework for differentiating various kinds of interactions**
  - Epistemological dimension
  - Artefactual dimension
  - Interactional-institutional dimension
- **Illustration with reference to BCDC Energy Consortium**



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# Productive Interactions in BCDC Energy

- **Epistemological dimension**
  - Problem in energy system caused by irregular availability of renewable energy sources for conversion
  - Solution: use of hydro power (supply side), real-time pricing of energy (demand side)
  - Comments on electricity transmission system operator's ideas/papers
  - Introduction of novel concepts: "clean energy research", "energy weather forecast"
- **Artefactual dimension**
  - Effort to make energy related weather forecasts more practical
  - Internet-based application: hourly forecasts for wind and solar power for 200 measurement points in Finland (scaled for 2.5 kW solar panels and wind mills used in detached houses)
  - Wide societal use: over 12 000 visits
- **Interactional-institutional dimension**
  - Interactive co-creation of new service platforms with key players of the energy markets
  - Fruitful, reciprocal collaboration with communication specialists of different research institutes



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# Pathways to Institutionalize Good Practices

- **Theoretical contribution**
  - Elaboration of productive interactions to differentiate specific dimensions in it
  - The dimensions provide a more detailed lens to be used in understanding the diversity of mechanisms involved in producing impact
- **University' of Oulu's organizational structures provide a solid base for institutionalizing the good practices**
  - Within SSH: distribution of the good practices within the Oulu SSH community
  - Across disciplines: building bridges between SSH and natural/technical sciences with the help of Eudaimonia and Oulu Think Tank as well as other institutes of the university
  - Within the university: the good practices facilitate the university's profiling effort, GenZ project, with new service structure for enhancing social impact (specialist services, interactive practices for co-creation, new topics in doctoral education)
  - Within society: the good practices will provide models on the basis of which similar activities and solutions can be designed in collaboration with stakeholders

**Thank you!**  
**Questions and comments welcome.**