

# Concept of the Lecture

## *Modelling Sustainable Systems and Semantic Web*

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### General

Until the summer semester 2022, the lecture was an integral part of the courses offered by the working group *Systematic Innovation Methodologies*<sup>1</sup> at the InfAI Leipzig for several years, but was recently attended only irregularly and is therefore no longer offered in our regular schedule.

Since the lecture brings together essential concepts on the topics technology, digital transformation, semantic web and on concept formation processes in cooperative action, which have emerged over the years in our interdisciplinary work, the lecture slides are collected here to have a uniform basis for their further development.

The lecture consists of three parts.

In the first part the concept of a *technical system* is explored and the main concepts of TRIZ as an important systematic innovation methodology are introduced. In contrast to other creativity and innovation methodologies, TRIZ focuses on the systematisation of engineering experiences.

In the second part, aspects of the creation of conceptual networks for data models are studied more closely on the basis of the *Resource Description Frameworks* (RDF), the *Linked Open Data Cloud*, the emerging *Giant Global Graph* and the importance of these developments for the organisation of contexts of cooperative action and hence management of sustainable systems is discussed.

Finally, in the third part, the role of data and information and the generation of new language tools for the development of technical systems in the context of a civil society are explored and, in particular, the importance of concept formation processes in cooperative action are considered in more detail.

A detailed plan of the lecture concept and a list of references can be found in the `README.md` file in this repository. Most of the material is easily found on the internet.

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<sup>1</sup><https://infai.org/systematische-innovationsmethodiken/>

## Topics of the Lecture

- Introduction. Concept of technology
- Systems and their Development
- Systems and Sustainability
- Systemic Structures and Spaces of Action
- Digital Spaces of Action
- Internet Basics
- RDF Basics
- Modelling Conceptual Worlds
- The Giant Global Graph
- Data and Information
- Storytelling, Conceptualisation, Information and Language
- Knowledge and Action
- On a Theory of Cooperative Action
- Economic Network Structures and “Platform Capitalism”
- The History of the .NET Project
- Formation of an Open Culture