

NAVIGATING in the SEA of INFORMATION



Valedictory Function

prof.dr. Henk G.Sol

NAVIGATING in the SEA of INFORMATION

The background of the slide is a weather map. It features a grid of latitude and longitude lines. Overlaid on this grid are several curved lines representing isobars (lines of equal atmospheric pressure) and wind speed contours. The wind speed contours are labeled with numerical values: 4, 6, 8, 10, 12, 16, 20, 25, 80, 90, 100, and 110. A label 'TRUE WIND SPEED' is visible on the right side of the map. A small arrow points to the 12 contour line.

Prof.dr. Jan Riezebos,
professor of Educational Innovation, RUG FEB

Prof.dr. Hans de Bruijn,
professor of Policy Analysis and Management, DUT TPM

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Setting Course in the Information Rich Society

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Big Data Fallacy

Decision Enhancement

Collaboration

Simulation Inquiry

TRUE WIND SPEED

4

6

8

10

12

16

20

25

4

6

8

80

9

100

110

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Prof.dr. Jaap Uijlenbroek, ⁴
bijzonder hoogleraar Arbeidsverhoudingen, RUL
directeur-generaal Belastingdienst

Prof.dr.ir. Gert-Jan de Vreede,
professor of Information Systems and Decision Sciences, USF

Prof.dr.ir. Marijn Janssen,
⁴ professor of ICT and Governance, DUT TPM

Prof.dr.ir. Alexander Verbraeck,
professor of Systems and Simulation, DUT TPM



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Setting Course in the Information Rich Society

Creating Shared Value in the Fifth Wave

Comments at Henk Sol's Valedictory



Gert-Jan de Vreede, PhD
Professor, Muma College of Business
University of South Florida
gdevreede@usf.edu

The Changing Face of Collaboration

80

From small, fixed teams



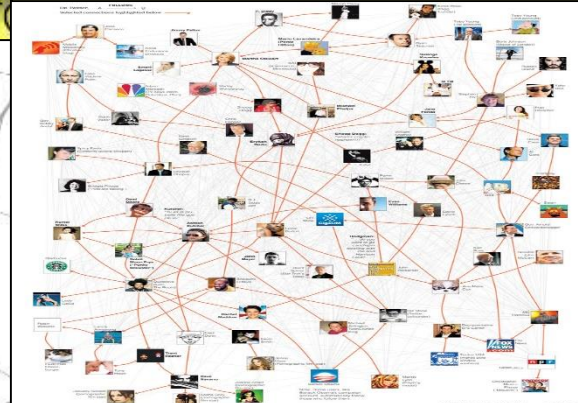
To dynamic crowds



From time-boxed efforts



To endless engagement



From predefined deliverables



To living artifacts



6

8

Great Waves of Change in Human History

- First wave:
 - Agricultural Age (circa 10,000 BC)
 - Human & Animal Engine
- Second wave:
 - Industrial Age (circa 1750 AD)
 - Steam & Electric Engine
- Third wave:
 - Information Age (circa 1950 AD)
 - Computer Engine
- Fourth wave:
 - Connectivity Age (circa 1990 AD)



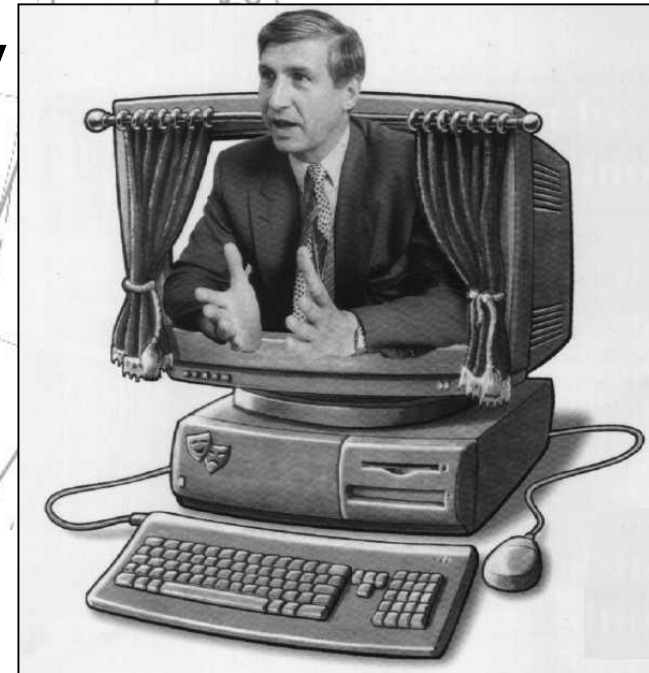
New Realities in the Fifth Wave

- We are at the dawn of the Age of Digital Symbiosis
 - Blending of human, machine, AI, and data



New Realities in the Fifth Wave

- We are at the dawn of the Age of Digital Symbiosis
 - Blending of human, machine, AI, and data
- Organizations & Society will face new realities:
 - Reality 1: Blended intelligence
 - Reality 2: Omnipresent access to resources
 - Reality 3: Creativity is the only
 - Reality 4: Quantified self

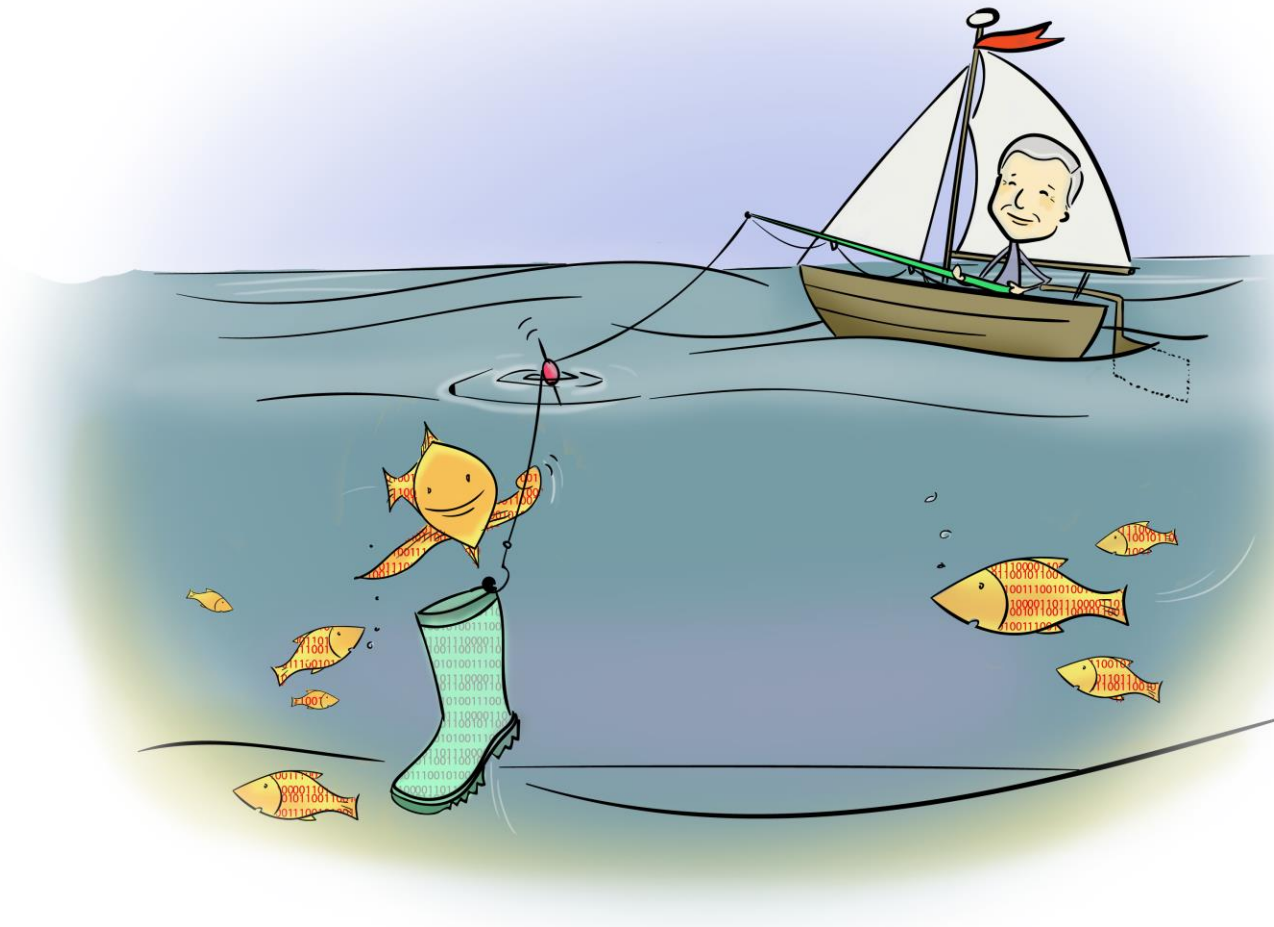


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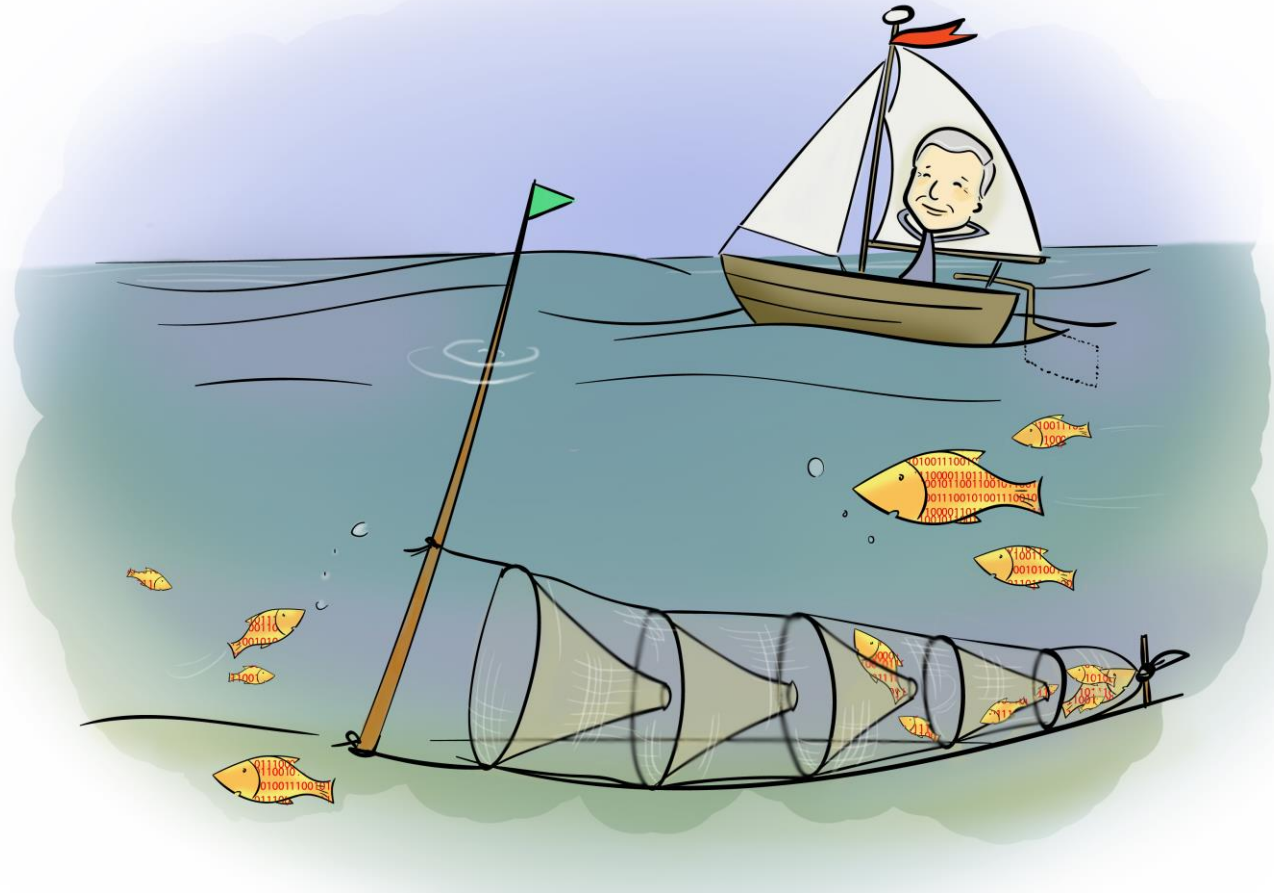
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How NOT to navigate in a sea of information- false negatives



Illustrations by Annemarie van der Linde

How to navigate in a sea of information - intelligent fishing



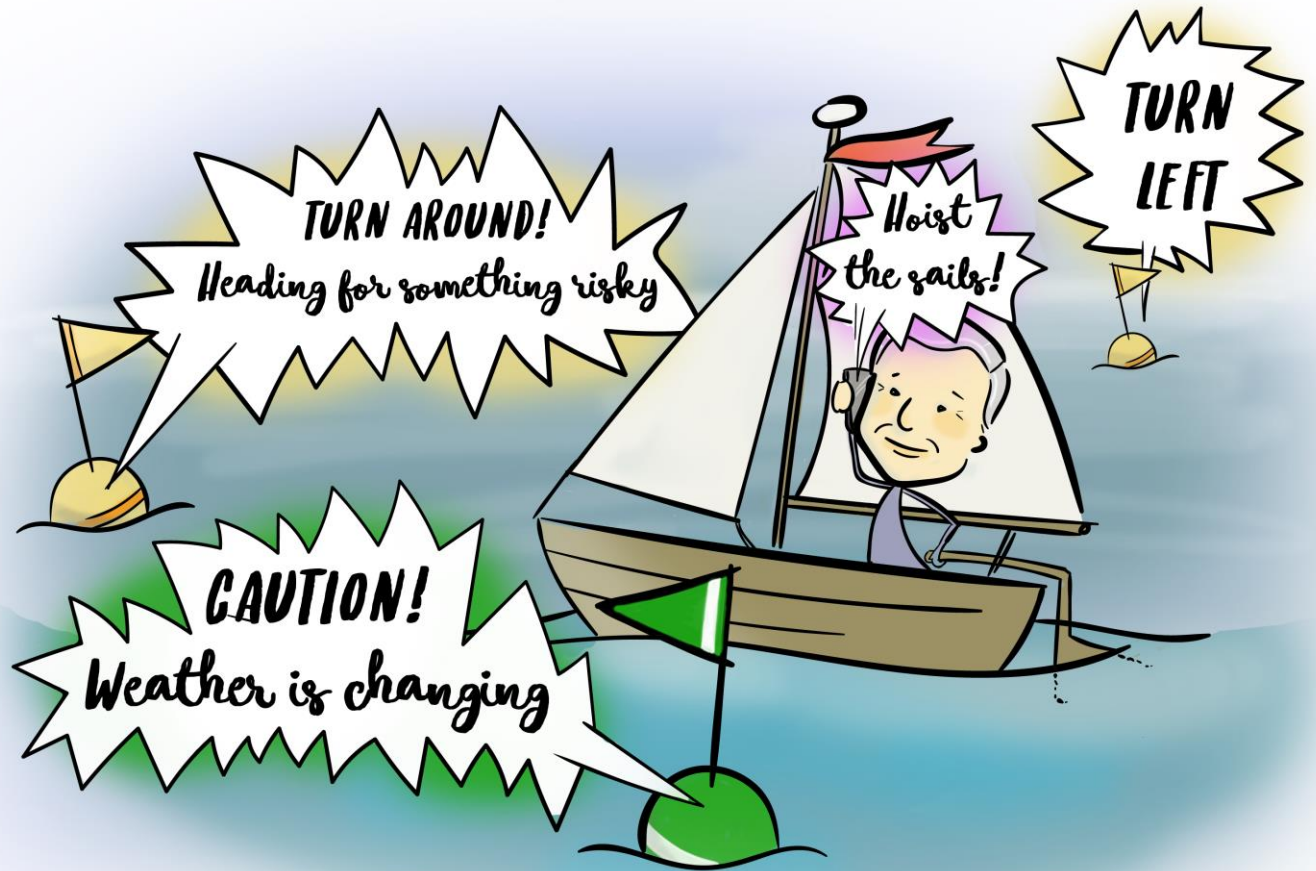
eGov, eThings, eEverything or eNough

eGovernment



Illustrations by Annemarie van der Linde

eThings invading Henks' life (2010)



eEverything becomes real life (2020)



Illustrations by Annemarie van der Linde

eNough for Henk (7 April 2017)



Illustrations by Annemarie van der Linde

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Navigating in the Sea of Information Data-Driven Simulation to Solve Wicked Problems

Prof.dr.ir Alexander Verbraeck, Delft University of Technology

7 April 2017

Research Tradition: Problems, Simulation, Solutions

"Wicked Problems" asking for Innovative Solutions

- Way of Modeling: Simulation
- Way of Thinking: Object Orientation

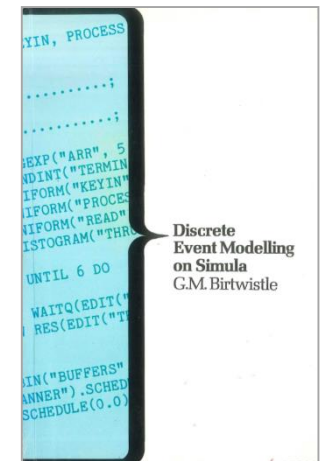
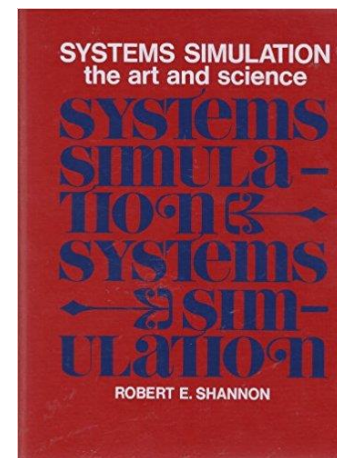
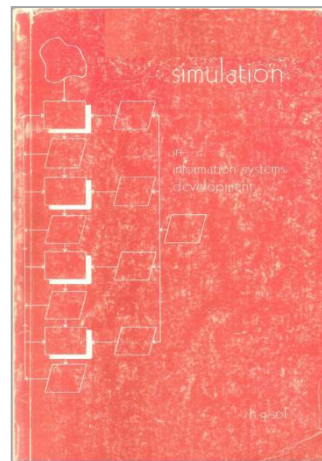
Research Tradition: Problems, Simulation, Solutions

"Wicked Problems" asking for Innovative Solutions

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- Way of Thinking: Object Orientation

Simulation as a
Research Method

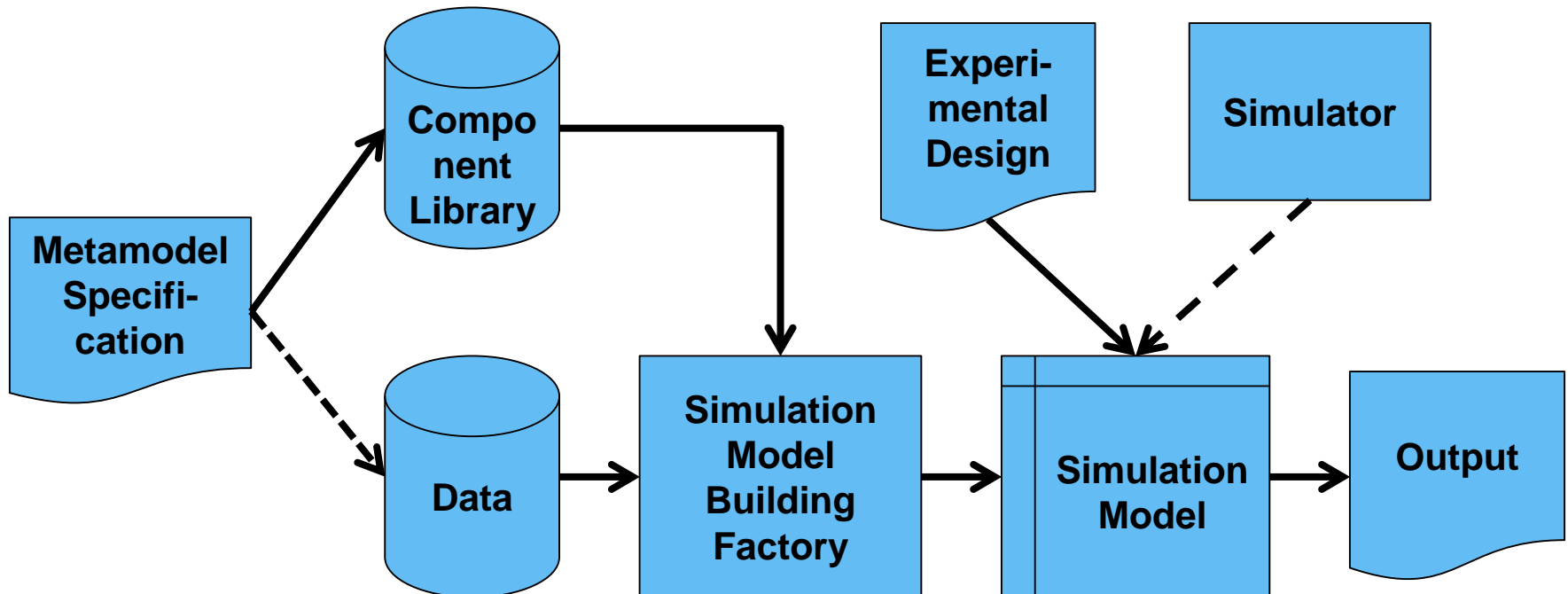
Using **Object Oriented**
Simulation as a basis



With **Simula** as the first object-oriented computer language that allowed for elegant simulation-based solution design

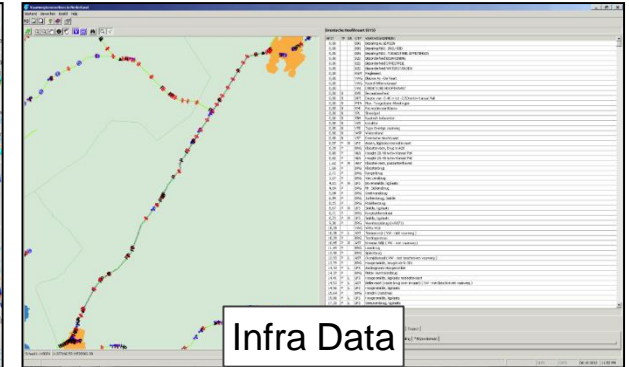
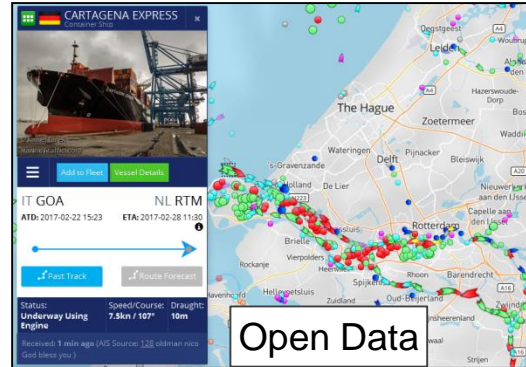
The Sea of Information: Data-driven simulation

Data-driven simulation: the only way to create and work with large-scale (agent-based, distributed) simulations for wicked problems

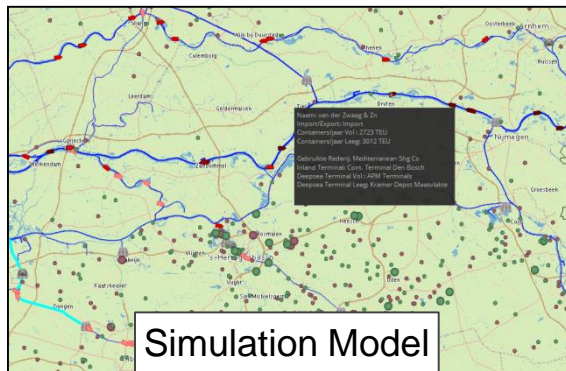


Example project 1: barge transportation policies in NL/BE/DE for the next 20 years

Lots of available data; policy evaluation for period of 20 years



Over 20 data sources used to generate a micro-simulation model that has been used in 12 game sessions with 90 stakeholders in the waterway system



Example project 2: Beijing disease model – Micro-simulation of 20 million inhabitants

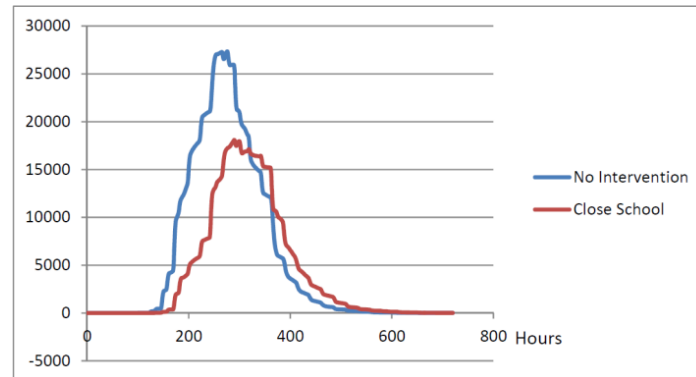
Model of **artificial society** of Beijing

- Daily activities: home, work, school, shopping, free time, ...
- Transport activities: walk, car, metro, bus, ...
- Social activities: family, friends, neighbors, ...

Model **disease spread** with a disease vector

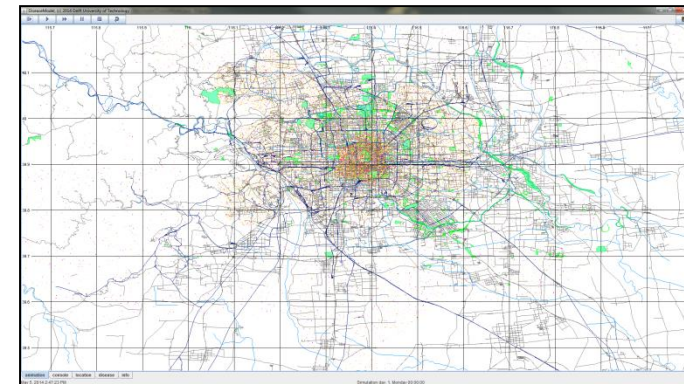
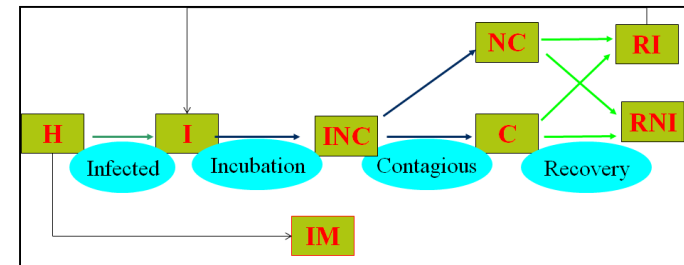
- Different states of persons with the disease
- Different transmission rates and disease characteristics based on disease vector and person

Model effect of **policy measures**

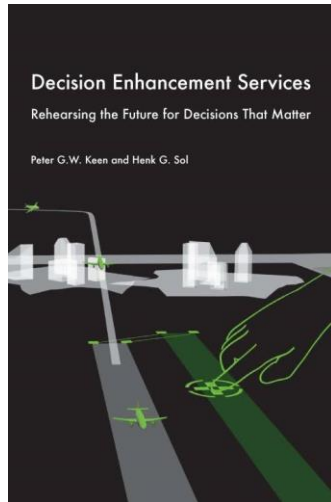


H1N1 disease spread model:
Effect of school closure on disease intensity

No.	Activity Name	Activity Type
1	sleep	StochasticDurationActivity
2	transport to school	PublicTransportActivity
3	study	UntilFixedTimeActivity
4	lunch and rest	FixedDurationActivity
5	study	FixedDurationActivity
6	transport to home	PublicTransportActivity
7	family Dinner	FamilySynchronizedActivity
8	housework	StochasticDurationActivity
9	sleep till midnight	UntilFixedTimeActivity



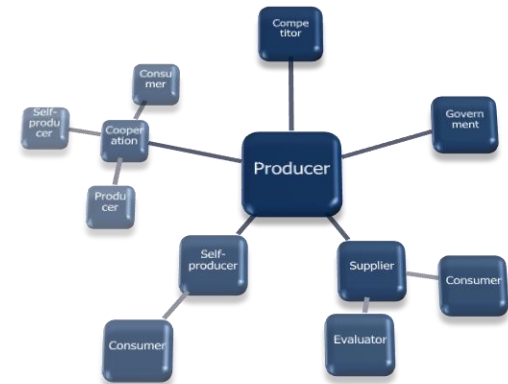
Object-Oriented Simulation as the basis for innovative problem solving



- **Relevance** through model-based decision making
- **Richness** through scenario thinking
- **Realism** through real-world data-based simulations
- **Engagement** through interactive sessions
- **Participation** through joint and open development
- **Networked** to replicate our interconnected society

We do this with:

- **distributed and open simulation**
- **participatory development**
- **integration into day-to-day world**



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The background features a weather chart with concentric isobars and a grid. The isobars are labeled with values 4, 6, 8, 10, 12, 16, 20, 25, and 100. A label 'TRUE WIND SPEED' is positioned on the right side of the chart. A small arrow points towards the center of the chart.

Balancing Rigour and Relevance

Engaged Scholarship

Design Science

Corporate Interaction

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Prof.dr. Iris Vis,
dean Industry Relations and
professor of Industrial Engineering, RUG FEB

Dr.ir. Rafael Gonzalez,
ass.professor of Systems Engineering, Javeriana, Bogota

Dr. Jim Yonazi,
managing editor Tanzania Standard (Newspapers) Limited
Tanzania Communication Regulatory Authority, Dar es Salaam

Prof.dr. Jude Lubega
deputy vice chancellor Uganda Technology and Management
University and professor of ICT, Kampala

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Cooperation University of Groningen and Industry

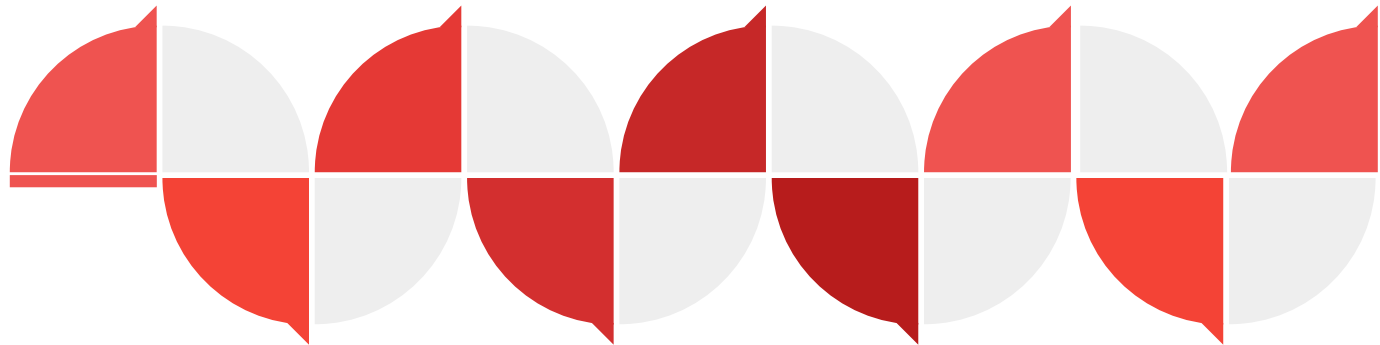
Sharing newest
knowledge and
innovations.

Fundamental
“question
driven” research

Sustainabl
e relations

In-house
training

Access to knowledge on
subsidy trajectories and
Key sectors.



Transforming academic
knowledge into a new
product or service

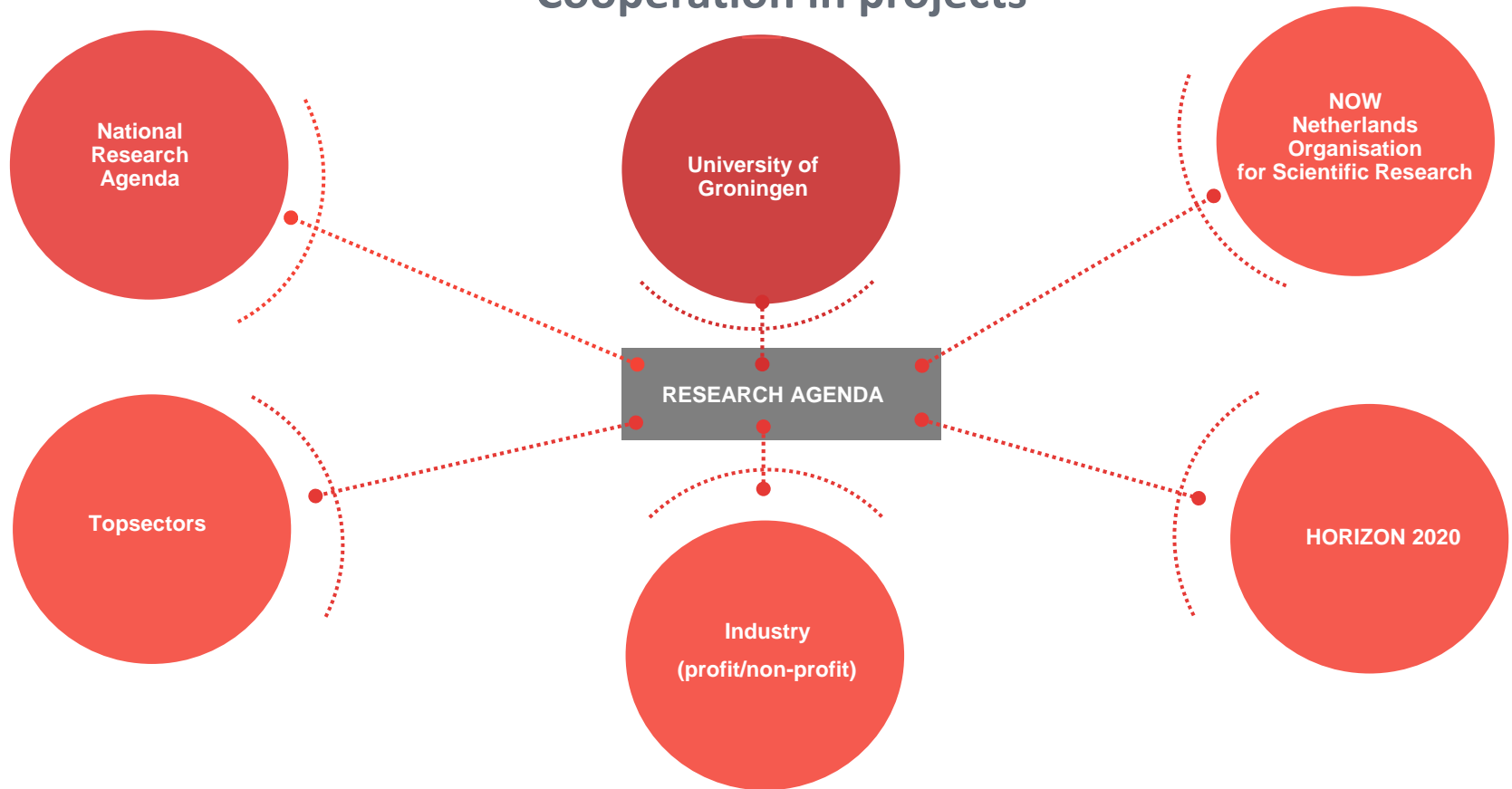
Multi-
disciplinary focus
in research
projects

Student involvement
in research projects
and courses.

New
networks



Cooperation in projects





SMART INDUSTRY ROADMAP

An example of a fundamental
“question driven” research agenda.

Smart Industry roadmap - RoSF

University of Groningen and companies working on the smart industries of the future

Integration of newest developments in

- Business and Economics
- Engineering
- Natural Sciences



Focus

Production, distribution and service industries



Overall Research and Education

- Technological developments and organisational embedding of technological innovations
- Fundamental question driven research in cooperation with industry



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HOW TO OVERCOME HURDLES FOR DESIGN SCIENCE

Ing. Rafael A. Gonzalez, PhD

Navigating the Sea of Information

Valedictory function prof.dr. Henk G.Sol

Groningen, April 2017

The Science vs Design Hurdle



Science and design
just co-occur



Science is design /
problem-solving



All life is
problem-
solving

The Onto-epistemological Hurdle



Positivist



Interpretive



Critical
realist /
pragmatist

Contribution–Validation Hurdle



Experimental



Proof of concept
(e.g. TAM)



Just the
artifact

Methodological Hurdle



Stick to Simon



Stick to Hevner



Go for
Peppers

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