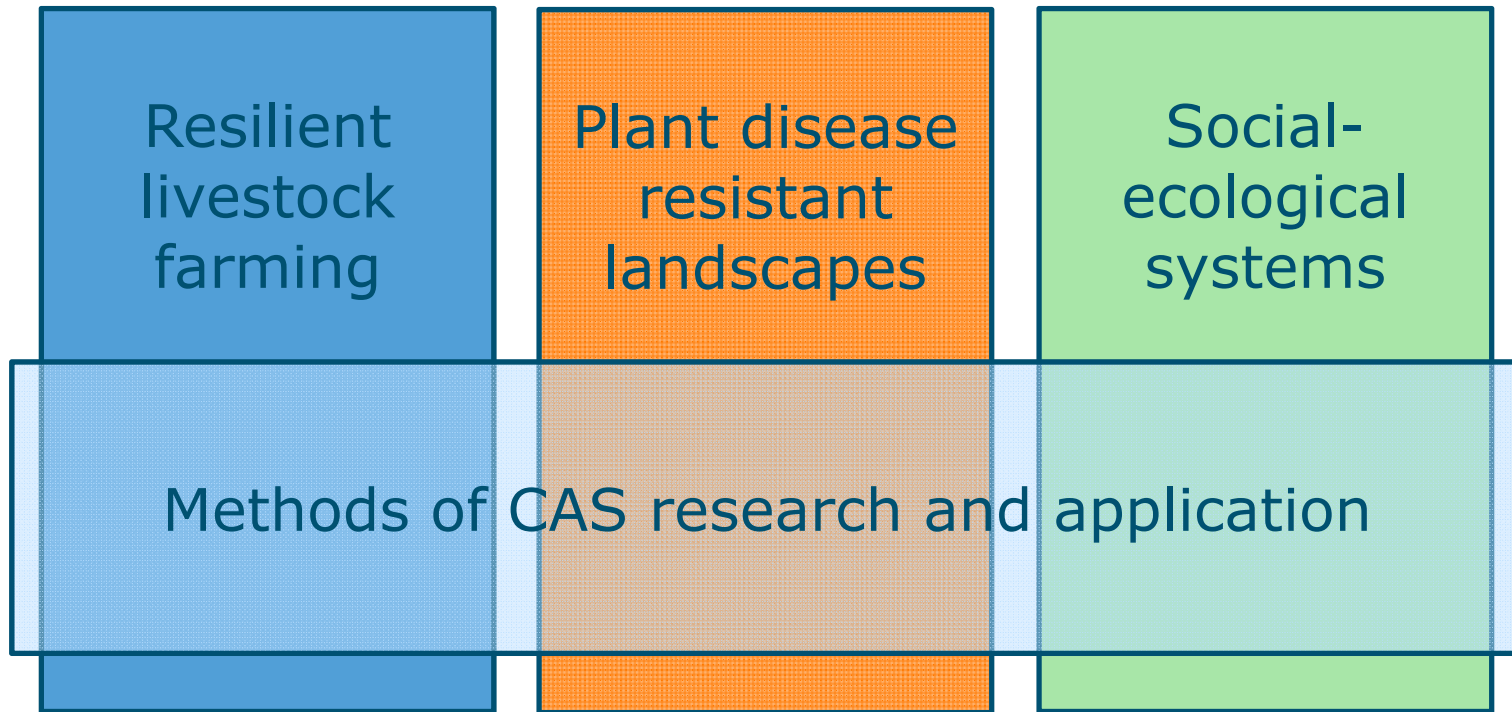

Strategies for our changing and complex world: concepts, methods and applications

CAS symposium, Wageningen, 8 december 2015

Chair: Prof. Dr. Ir. Bas Kemp



Complex Adaptive Systems (CAS): Interdisciplinary research in Wageningen



Program

10.00 Framing complexity (Prof. Dr. Ir. Arnold Bregt)

10.30 Complex Adaptive Systems and Agent-based Models
(Dr. Ir. Arend Ligtenberg)

11.00 *Coffee break*

11.30 Shrimp farming in the Mekong (Dr. Olivier Joffre)

12.00 Supply chain simulations (Dr. Eva van den Broek)

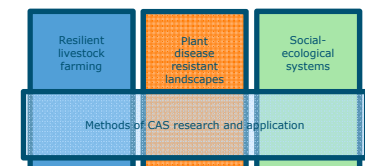
12.30 *Lunch (ground floor)*

13.30 Short presentations (pitches) introducing the
knowledge market (chair: Prof. Dr. Ir. Bas Kemp)

14.00 Knowledge market: ask your questions, get answers

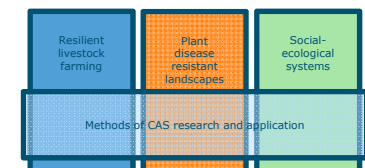
16.00 Closing session (Dr. Ir. Gert Jan Hofstede)

16.45 *Drinks*



Pitches introducing the knowledge market

1. Geert Kessel Late blight (*Phytophthora*) in potatoes
2. Anouk Cormont Sustainable regional arable farming
3. Wim de Winter Where should the tomato go?
4. Erika Speelman Companion modelling
5. Egil Fischer Antibiotics in animal husbandry
6. Iris Boumans Simulating pig behaviour
7. Floor Ambrosius Pig farmers' innovation behaviour
8. Sjoukje Osinga Supply chain innovation
9. George van Voorn Understanding fisheries complexity
10. Martha Bakker Identifying resilience



Towards durable potato cultivation

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Kees.Booij@wur.nl
Jose.Vogelezang@wur.nl

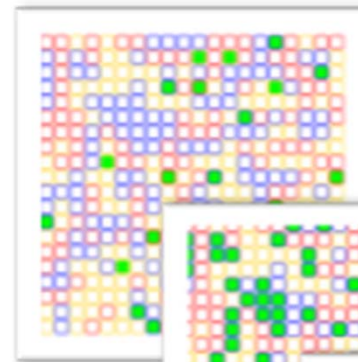
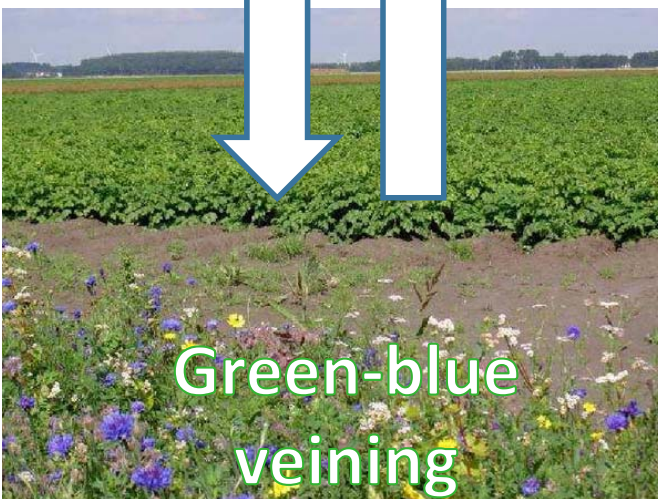


Towards sustainable regional arable farming systems

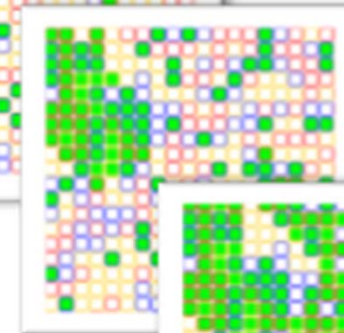
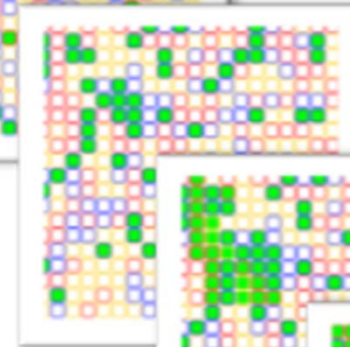
Individual farmers



Spatial collaboration



Every grid cell represents a farmer and his farm



Explaining transitions including social (collective) learning



WAGENINGEN **UR**
For quality of life

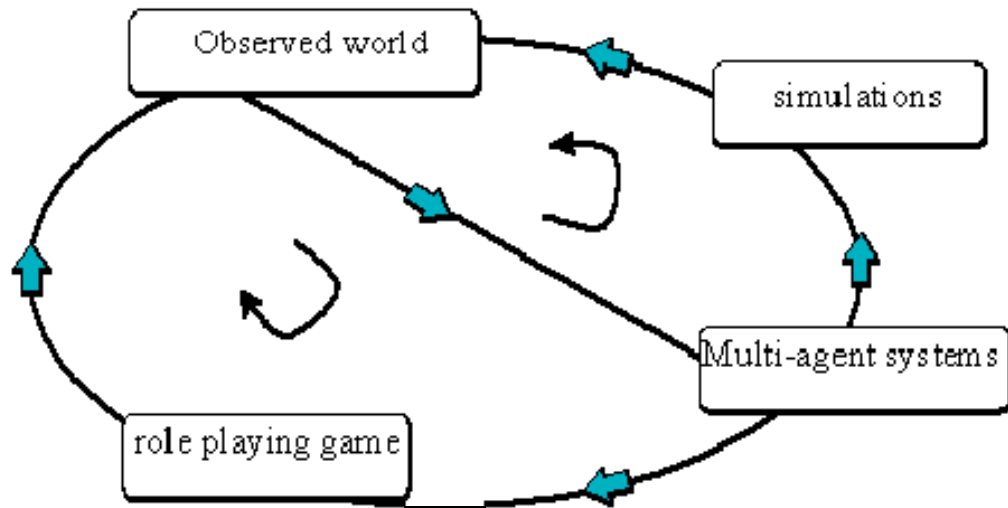
nico.polman@wur.nl | anouk.cormont@wur.nl

Where should the tomato go?



Wim.deWinter@wur.nl

Companion Modelling



Erika.Speelman@wur.nl

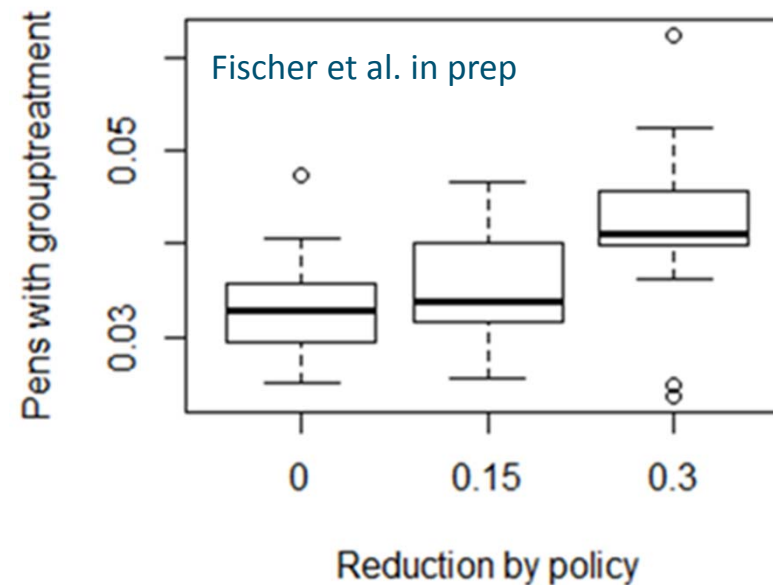
Reducing antibiotic usage in fattening pigs

Egil Fischer, Natalia Valeeva, Thomas Hagenaars, Tim

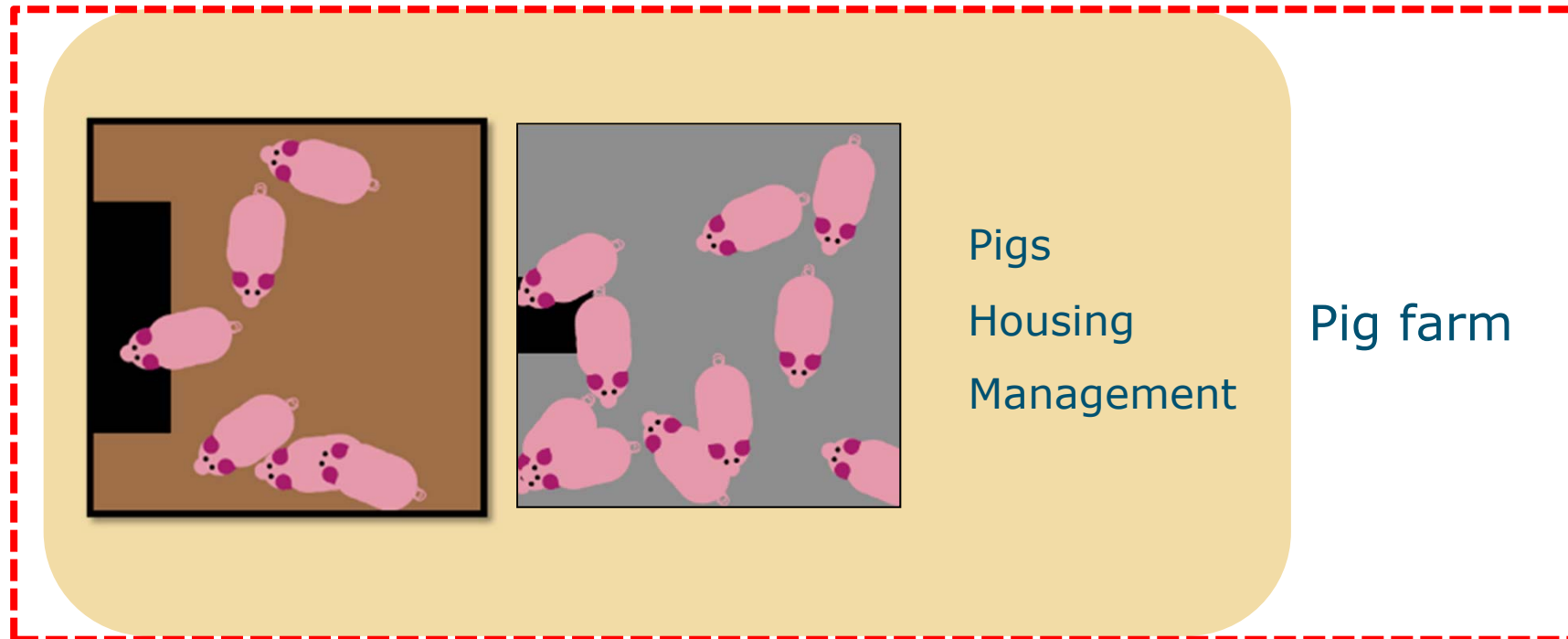
Verwaart



For quality of life

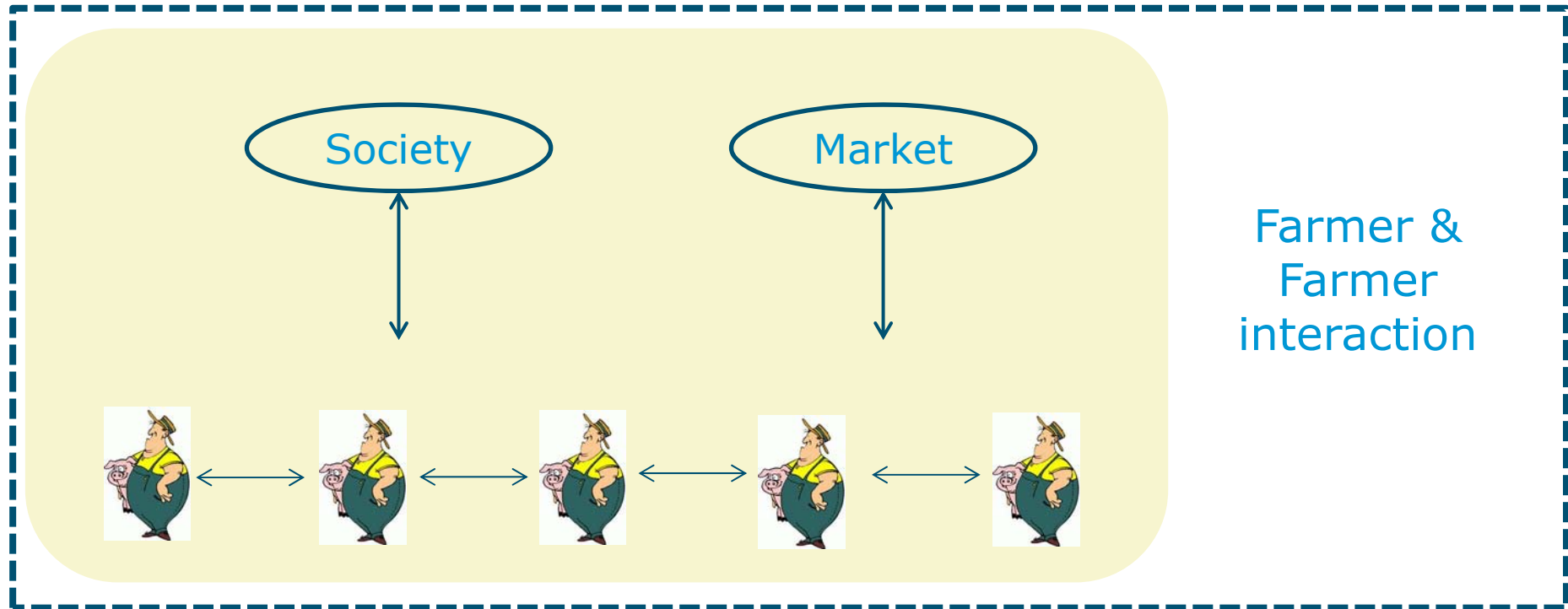


Simulating pig behaviour



To understand essential mechanisms underlying behaviour
& the effect of housing and management practices

Pig farmer innovation behaviour

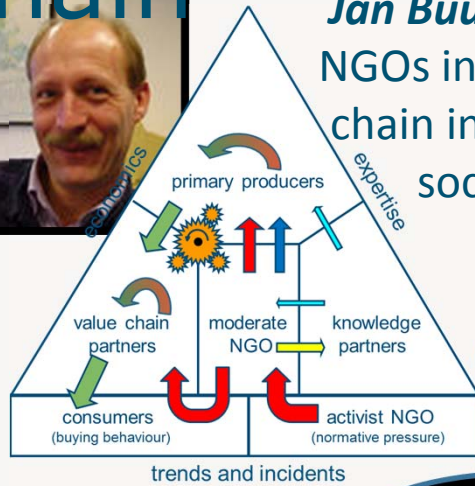


How do pig farmers adapt to societal criticism and shape the sustainability of the pork sector?

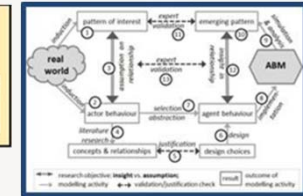
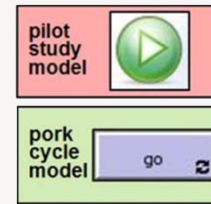
Social dynamics in the food supply chain



Januurma: role of NGOs in food supply chain innovations & societal change



Sjoukje Osinga: agent-based simulations of food supply chain (policy interventions)



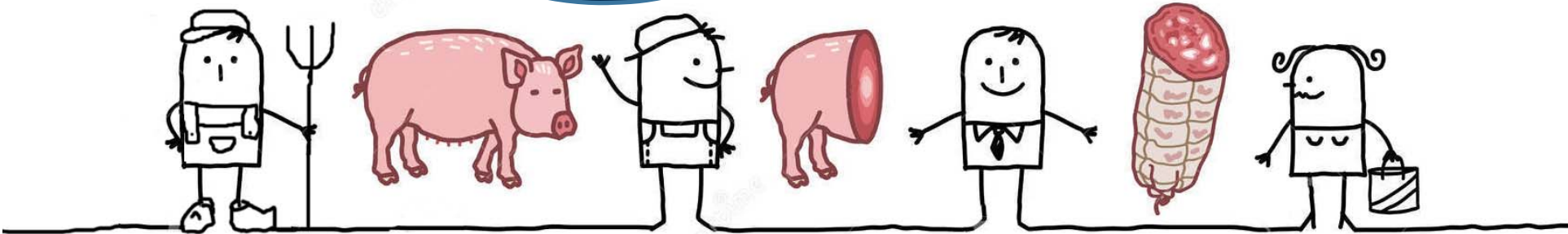
Economic problems & societal pressure

Innovative ideas for the food supply chain

Alternative policy options

Simulation of uncertainties & social dynamics

Insight in risk & opportunities



Understanding fisheries complexity to improve management

Current models:

Agents have:

- Perfect insight
- Perfect foresight



Fisheries as CAS:

Agents have:

- Imperfect information
- Imperfect foresight
- Emotions
- Social behaviour

Resilience

- A system's ability to continue performing certain key functions

How to translate
this to real-world,
complex systems?

(resilience = veerkracht)

Resilience in complex adaptive systems

- Buffer capacity in individual agents
- Variability among agents
- Flexible ties between agents
- Stabilizing feedbacks
- Redundancy

•



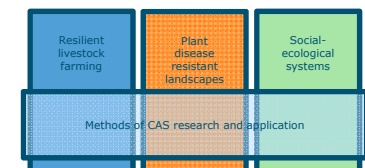
Diagnostic toolset

- Capture systems in Agent-Based Models
- Make constituents of resilience explicit and quantifiable
- ... If this interests you: do come to discuss further in the Resilience session!

Martha.Bakker@wur.nl

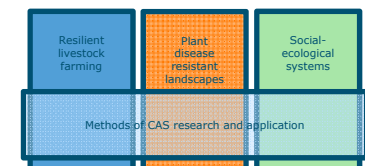
Knowledge market

- Join one of the discussion groups or just walk around
- Discussion topics are indicated on posters by the tables
- Researchers are available to discuss your questions
- After 30-45 minutes, the referee will
 - call for the discussion chairs to wind up
 - encourage you to change tables
- Coffee and tea are available on the knowledge market
- There will be two or three rounds of discussion



Knowledge market topics

- Phytophthora resistance in potato landscapes as a social-ecological system
- Complex aspects of livestock farming: animal welfare, farmers' networks, antibiotic resistance
- Interactive complex systems modelling with stakeholders
- Complex systems in the countryside: multifunctional and greenhouse farming
- Social-ecological complexity of fisheries and fish farming
- Social dynamics and supply chain innovations
- Identifying resilience: results from CAS and future resilience research



Closing session

Dr. Ir. Gert Jan Hofstede

