

# Information Sharing in Agri-Food Supply Chain Networks

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Dr.Ir. Sjaak Wolfert – LEI Wageningen UR  
The Netherlands



# Sjaak Wolfert – who am I?

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- MSc/PhD at **Wageningen University**
- 2001 – now: senior scientific researcher at Agriculture Economics Research Institute (**LEI-WUR**)
  - team leader of ‘**Management & ICT in Agri-Food Supply Chain Networks**’
- 2006 – now: President of the Dutch Society for ICT in Agriculture, Food and the Environment (**VIAS**)
- 2007 – 2009: President of the European Federation for Information Technology in Agriculture, Food and the Environment (**EFITA**)

# Research Group – Management & ICT in AFSCN

- Dr. Sjaak Wolfert
- Prof. Adrie Beulens
- Dr. Wil Hennen
- Drs. Cor Verdouw
- Dr. Marco Verloop
- Ing. Henri Prins
- Drs. Tim Verwaart
- Ir. Ruud van Uffelen



# Key note

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**Business (process) is leading!**

# Presentation outline

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## Information Sharing in AFSCN

- Context and problem description
- Conceptual framework
- Some results from research
- Vision for the future
- Some experiences from the Dutch 'KodA' project
- Main challenges
- On-going developments: agriXchange, EFITA2009

# Driving factors in agri-food business

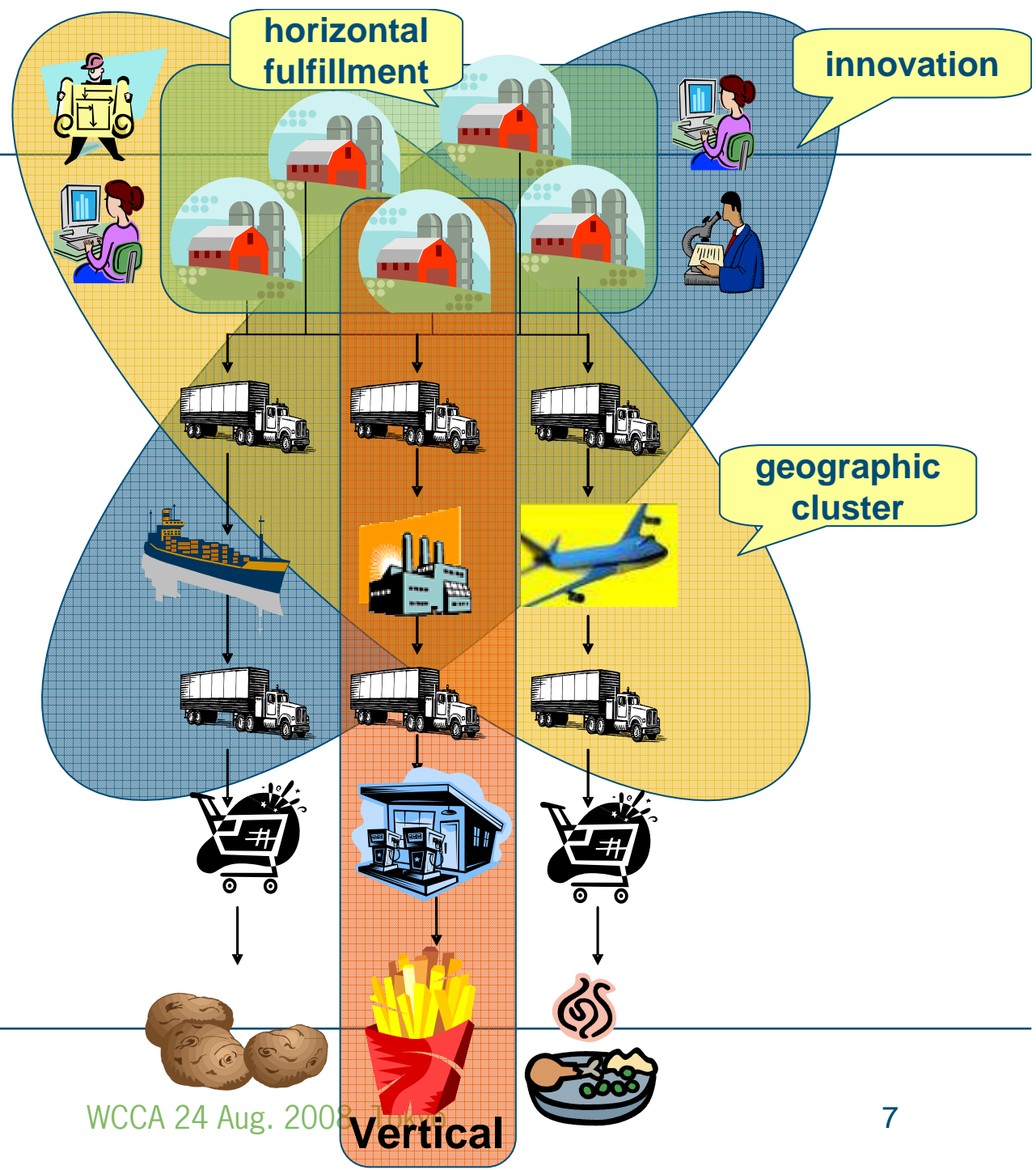
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- Sector-specific characteristics include:
  - Fresh products
  - Seasonable production
  - Many SMEs, particularly at farm level
- Main challenges
  - 'license to produce'
    - consumers & society
    - food safety and transparency
  - Global competition (EU, WTO)
  - Demand-driven
  - Innovation: knowledge-based production
- Operate in multi-dimensional, dynamic networks



# multi-dimensional Agri-Food Supply Chain Networks (AFSCN)

- information sharing for process control and communication
- ICT plays a crucial role



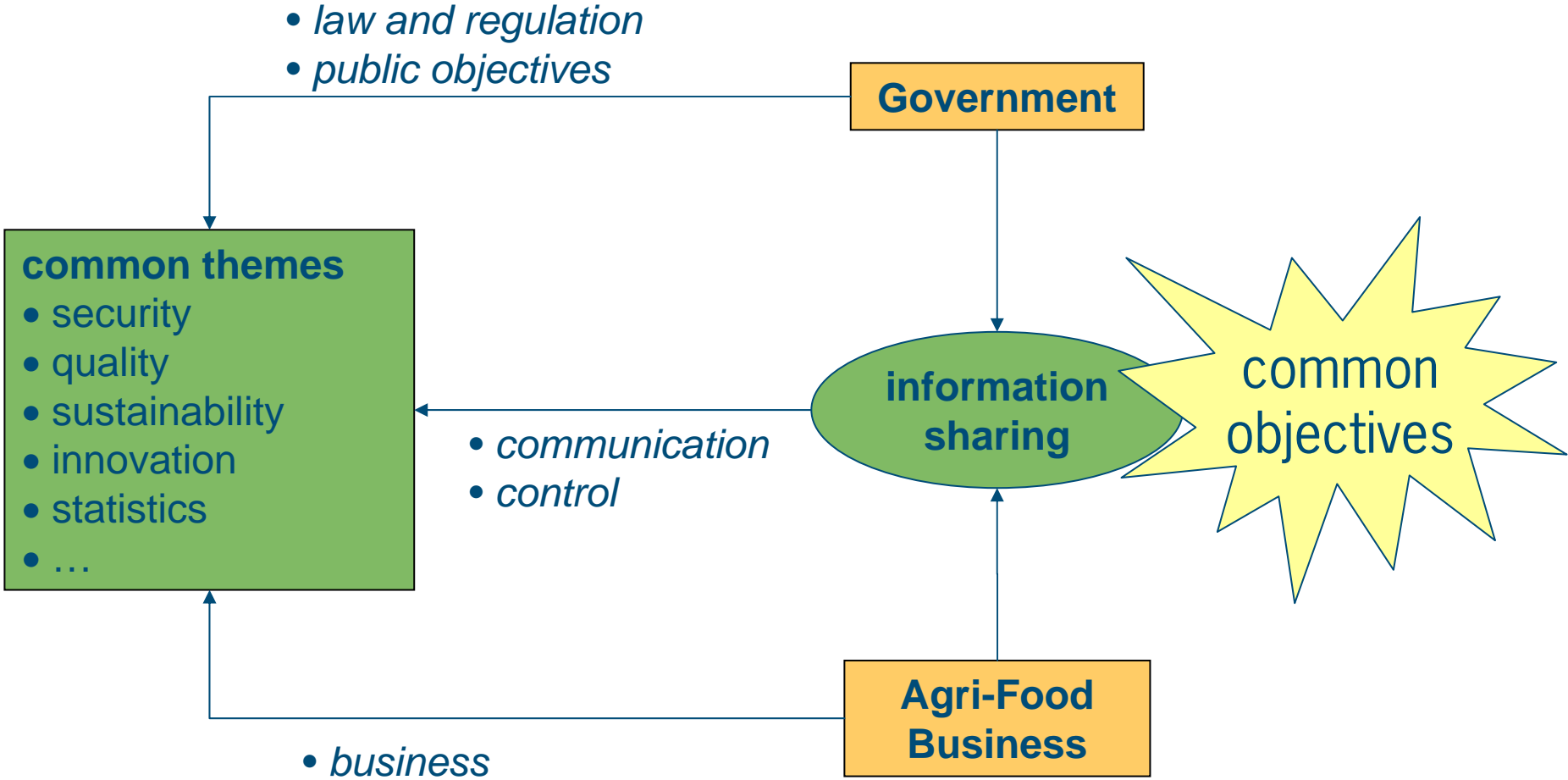
# Trends for information sharing

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- Information increasingly becomes a competitive factor
- Less focus on the product but more on the service
- Open networks in which users are more directly involved (see open innovation and living labs)
- Governments also part of open networks and stimulate re-use of public information



# Relationship Agri-Food Business and Government



# Problem definition by example for pesticide application

## government/society

- environmental impact

- • *reduce environmental impact*

## food processor → consumer

- residues

- • *reduce [product]*
- *residues [d]*

pesticide information

## farm

- pe

- *reduce pests*
- *reduce costs*
- *apply site-specific*

▪ [costs/ha]

▪ [app/10m<sup>2</sup>]

***business processes are driving!***



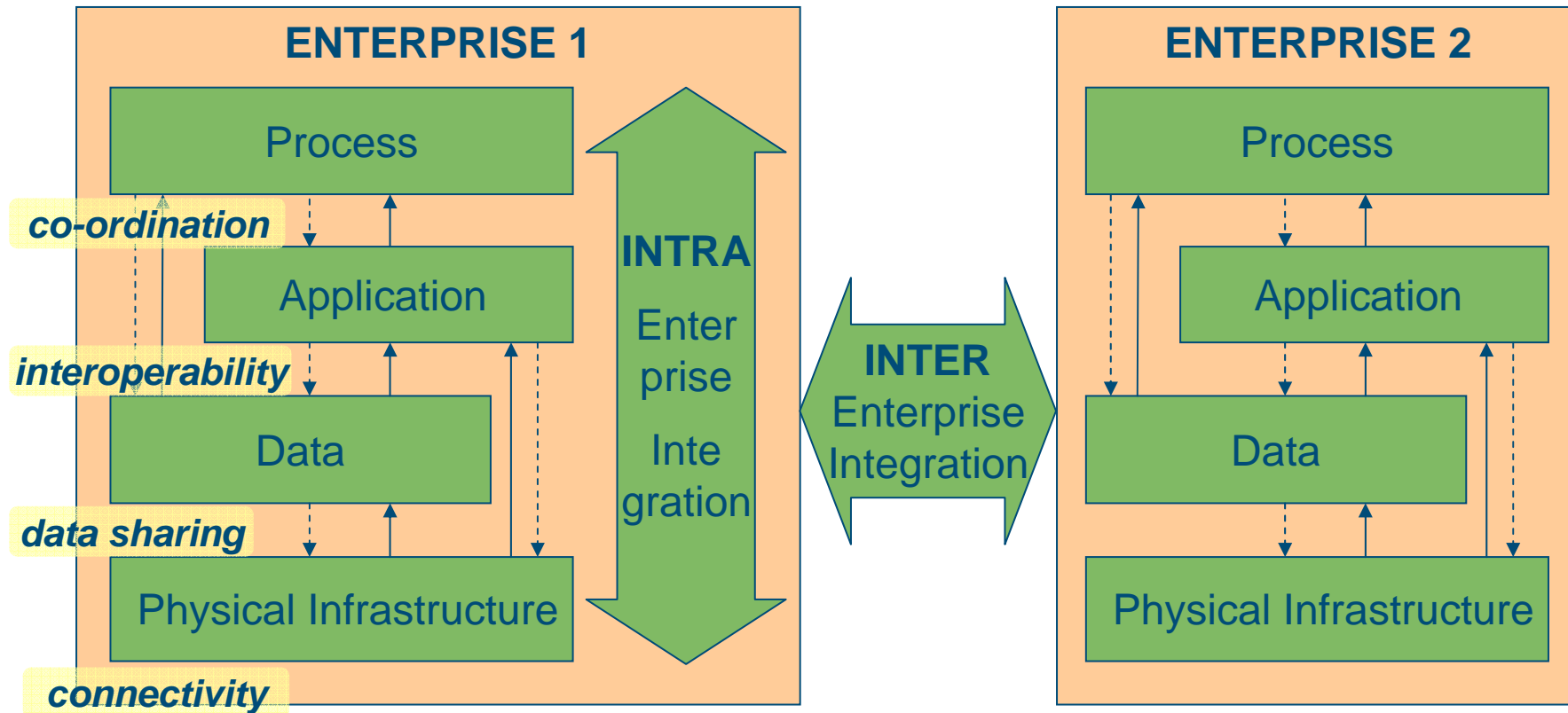
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# Information Integration Framework



*Adapted from Giachetti 2004*

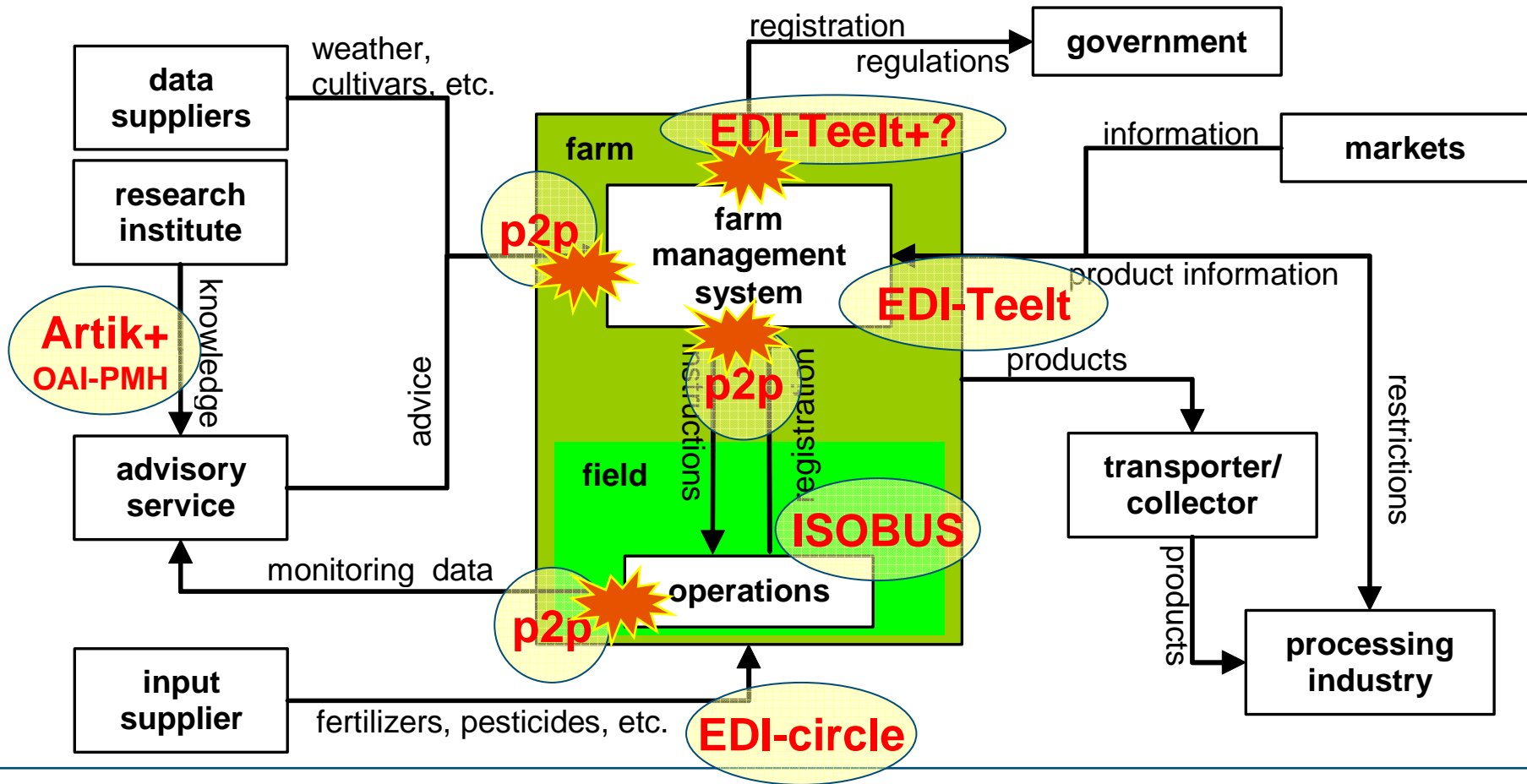
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# Current situation arable NL: many point-to-points



# Problems

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- Effort for collecting, converting and exchanging necessary data is large, while the possibility for making errors is high;
- Decision-support is sub-optimal and as a consequence also decision-making;
- Transparency and accountability requirements often lead to administrative burdens.



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# Vision for the future – design spec's

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- **Business processes** must be leading
  - Rapid re-configuration approach using dynamic modelling and component repositories
  - Based on Business Process Management (BPM) and Service Oriented Architecture (SOA)
  - Alignment of and interdependency between all integration types and levels
- **Business** in the lead and responsible!
  - Human and organizational change
  - Commitment and vision at both 'CEO-level' and 'workers level'
  - Co-operation and co-ordination in all dimensions of AFSCNs (as much as possible)
- Sector-specific, **open models and standards**
  - Based on cross-industry models/standards (e.g. OpenGIS, ebXML, XBRL)
  - Standards organizations

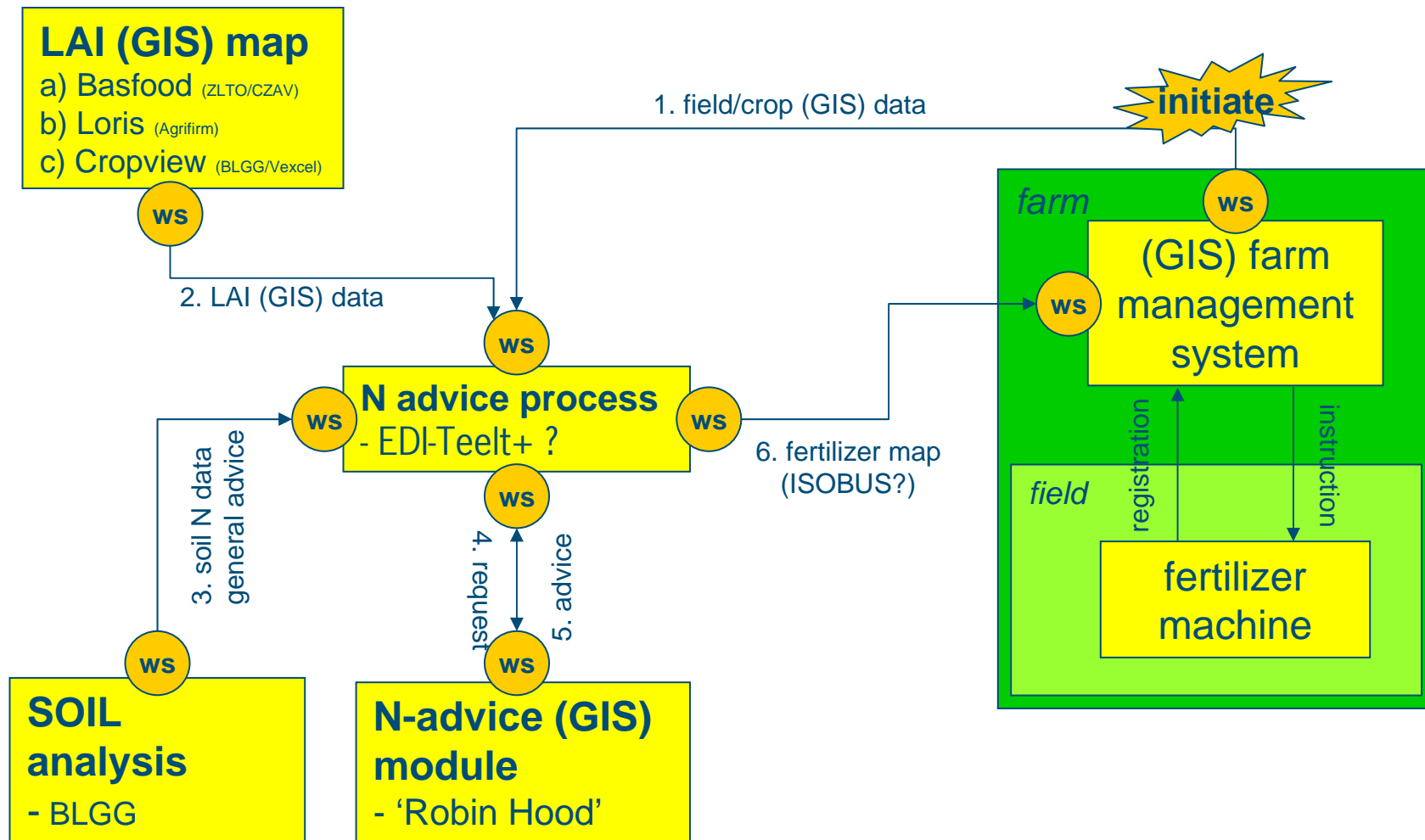
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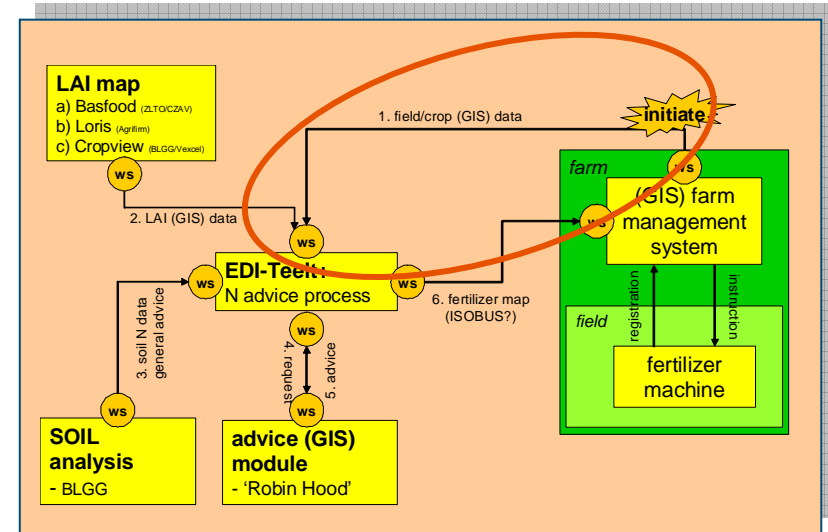
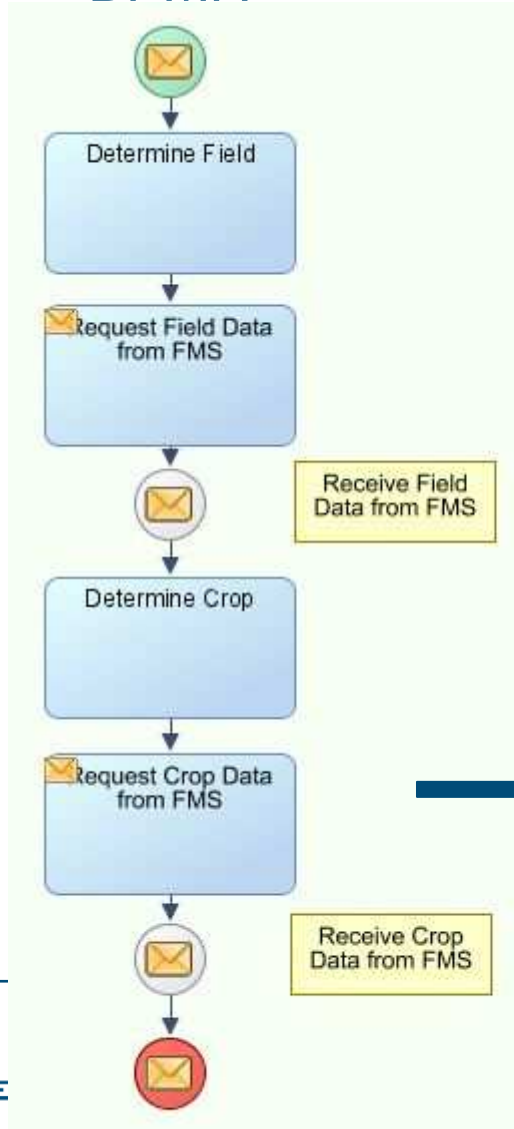
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# KodA I&S: geo-fertilizer advice



# Obtain field and crop data: BPMN to webservice

## BPMN



➔ BPEL code ➔ web service

# Keys for development

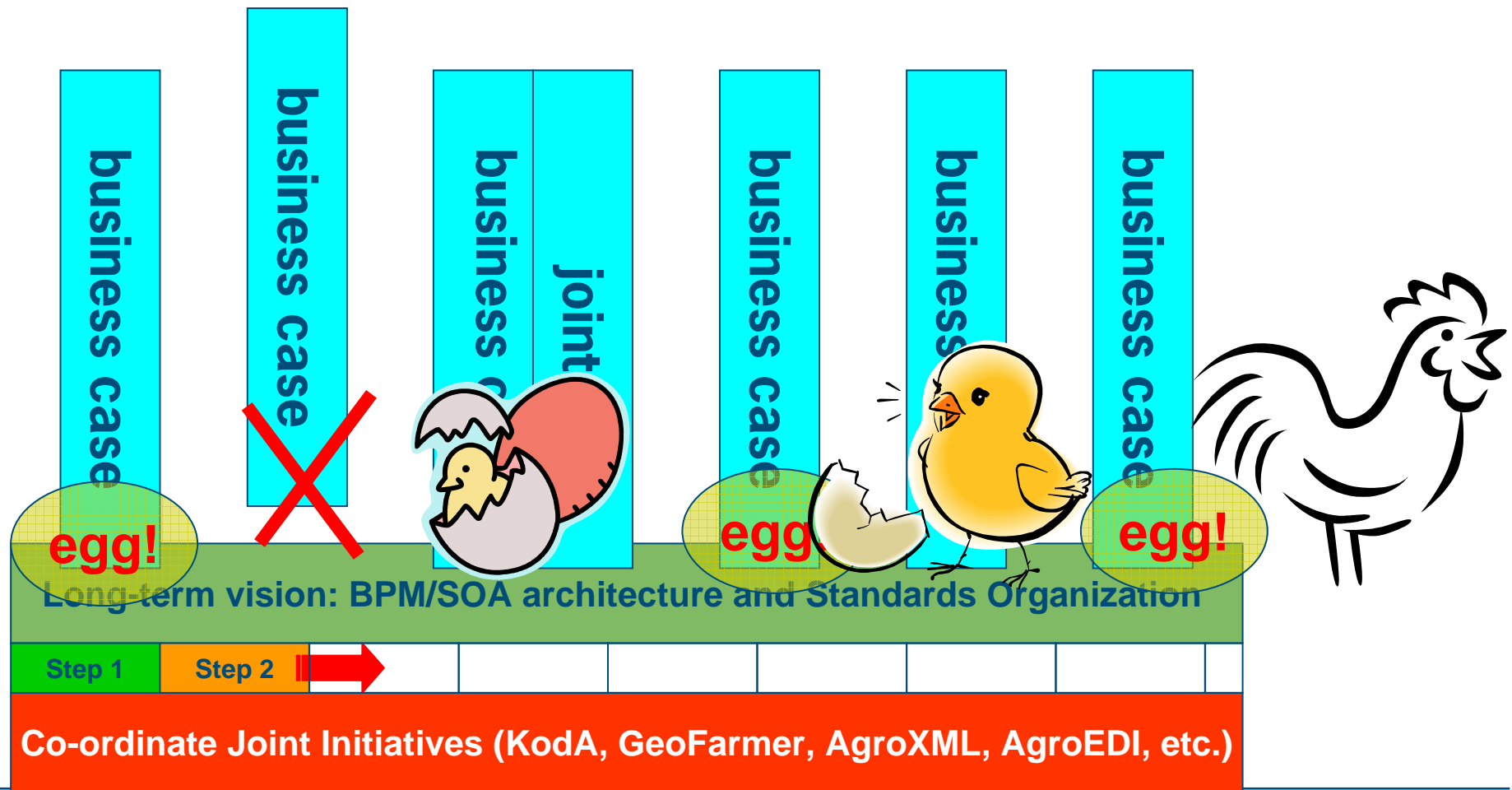
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keys:

- business processes are leading
- involves several actors → platform independent approach
- many processes/web services
  - need for architecture/reference information models
  - need for central co-ordination on:
    - standards
    - ownership
    - quality, availability, etc.
- Software as a Service (SaaS)

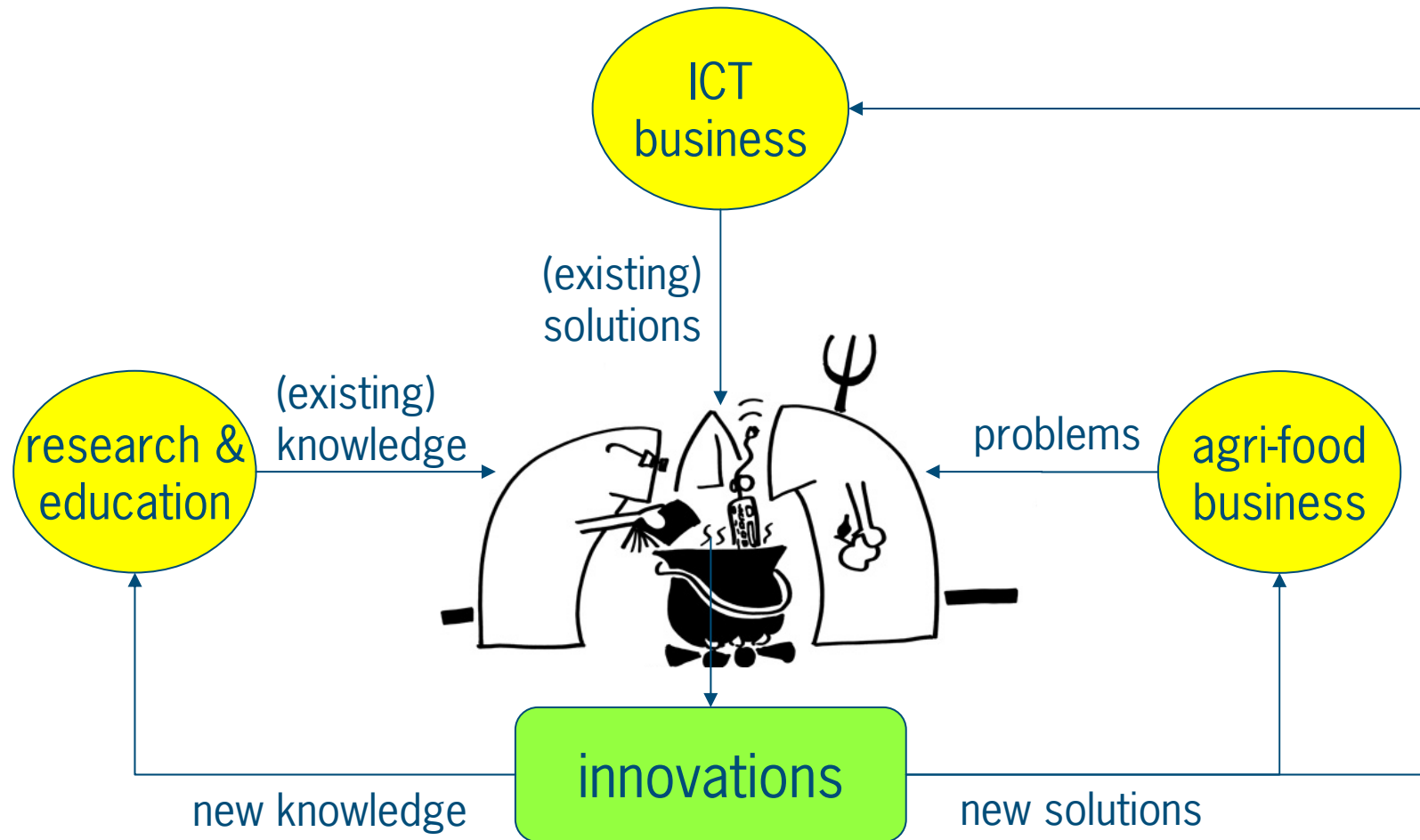


# Solving chicken-egg dilemma: a golden egg approach





# Living Lab Information Management in Agri-Food



# Presentation outline

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# Main challenges

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- How to construct **sector-specific SOA-architectures based on reference information models**, adopting existing, worldwide cross-industry standards?
  - How to use **business process management (BPM)** concepts, including 'best practice' models, to allow flexible configuration of specific processes integrations?
  - How to organize **broad commitment** (including the end of the chain!), to embed developments in sustainable institutional arrangements, and to **let it grow organically**? (Living Labs!)
- **Concerted Action** is needed for coordination and knowledge exchange in different sectors and in different countries at the international level

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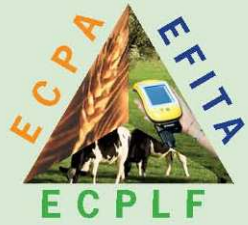
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# agriXchange

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- Group of people, working on harmonization of agricultural data exchange at a European and global level
  - animal focus group
  - arable group with temporarily a special focus on spatial data → SDIC for the INSPIRE directive
- Founded in Hamburg, November 2007; meeting in Praha, 13 May 2008
- Supported by EFITA and CENAgro
- Aiming at setting up a EU concerted action project (or SCP)

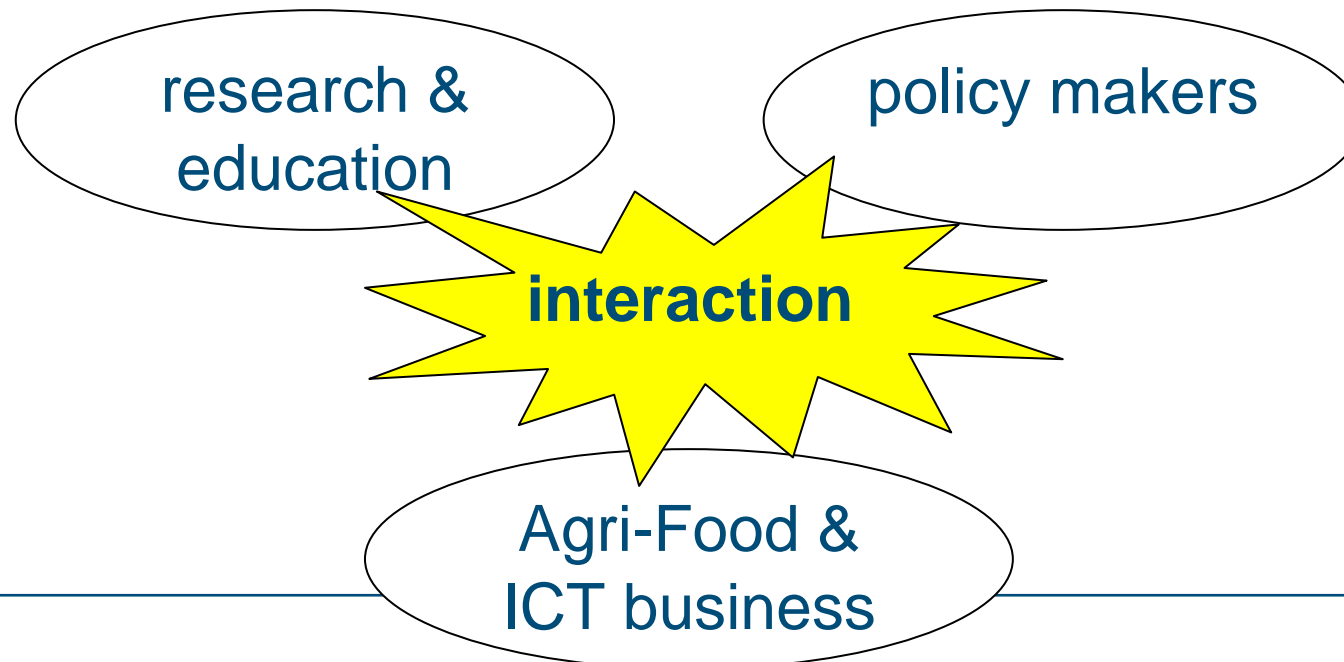


# Joint International Agricultural Conference

6, 7 and 8 July 2009, Wageningen



- Call for abstracts open till 15<sup>th</sup> of September
- Look at [www.jiac2009.nl](http://www.jiac2009.nl)



# Thank you for your attention!

## Business (process) is leading!

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