From advising at farm level to consumer: main issues for the information system chain

EU-IAS conference, 9-10 December 2008, Krakow, Poland
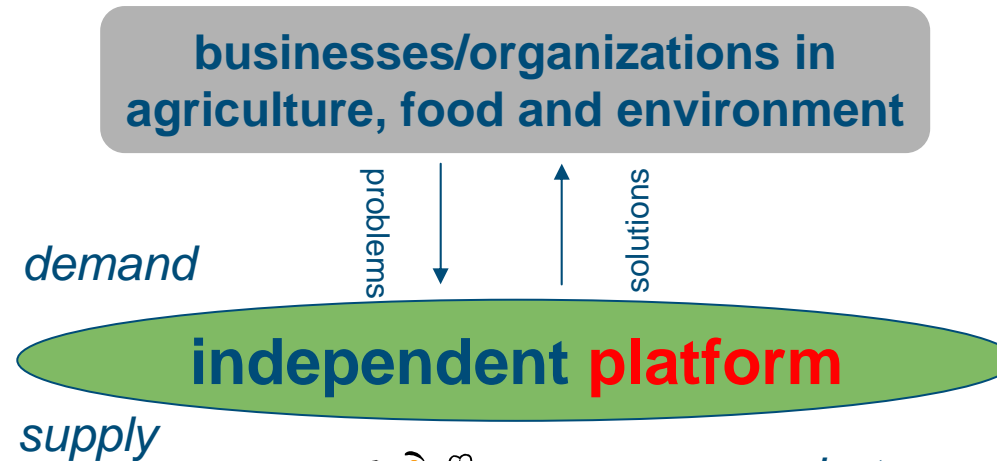
Dr. Sjaak Wolfert – The Netherlands
LEI Wageningen UR / President EFITA

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Sjaak Wolfert – who am I?

- 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'
  - program leader of KodA: large RTD program for applying knowledge & ICT in the arable farming sector

- 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)

Role of EFITA

businesses/organizations in agriculture, food and environment

problems → ← solutions

demand

independent platform

supply

what we are:

- network of agri-ICT-professionals
  - science-based
  - practice-oriented
  - interdisciplinary
- NMO's in 14 EU countries

what we can (help to) provide:

- state-of-the art RTD
- workshops, seminars
- living labs
- contact persons
- (EU)-funding
- dissemination of knowledge/information
- …

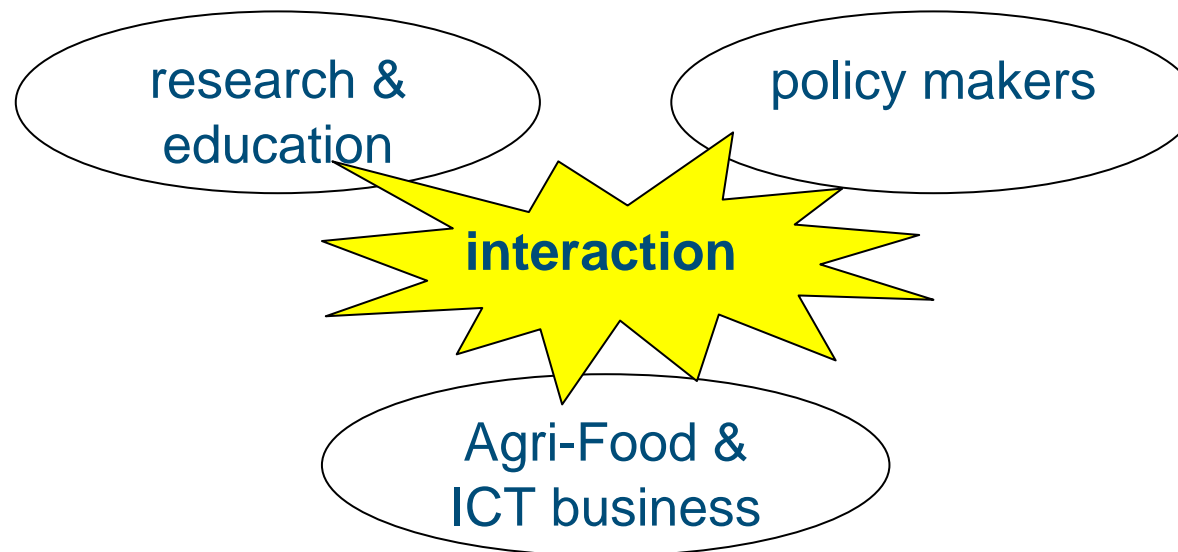WAGENINGEN **UR**
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Joint International Agricultural Conference
6, 7 and 8 July 2009, Wageningen

- Joint conference of EFITA, ECPA and ECPLF
- > 570 abstracts submitted!
- Look at www.jiac2009.nl

research & education

policy makers

interaction

Agri-Food & ICT business

Key note

Business (process) is leading!

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Presentation outline
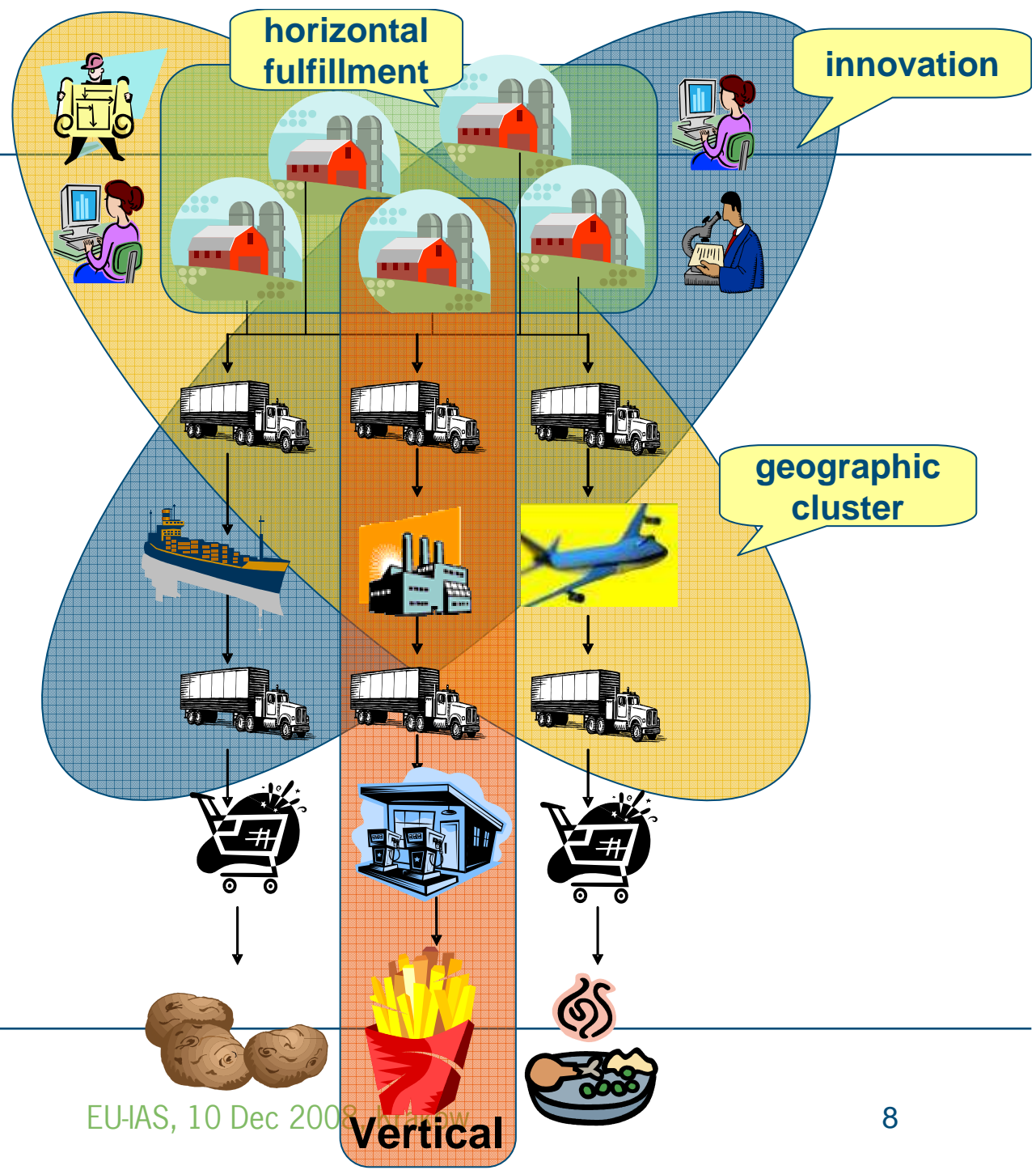
Information Sharing in AFSCN

- 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

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Driving factors in agri-food business

- **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**

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

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

horizontal fulfillment

innovation

geographic cluster

Vertical

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Trends for information sharing

- 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

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Relationship Agri-Food Business and Government

- *law and regulation*
- *public objectives*

Government

common themes
- security
- quality
- sustainability
- innovation
- statistics
- …

- *communication*
- *control*

information sharing

common objectives

- *business*
- *license to produce*

Agri-Food Business

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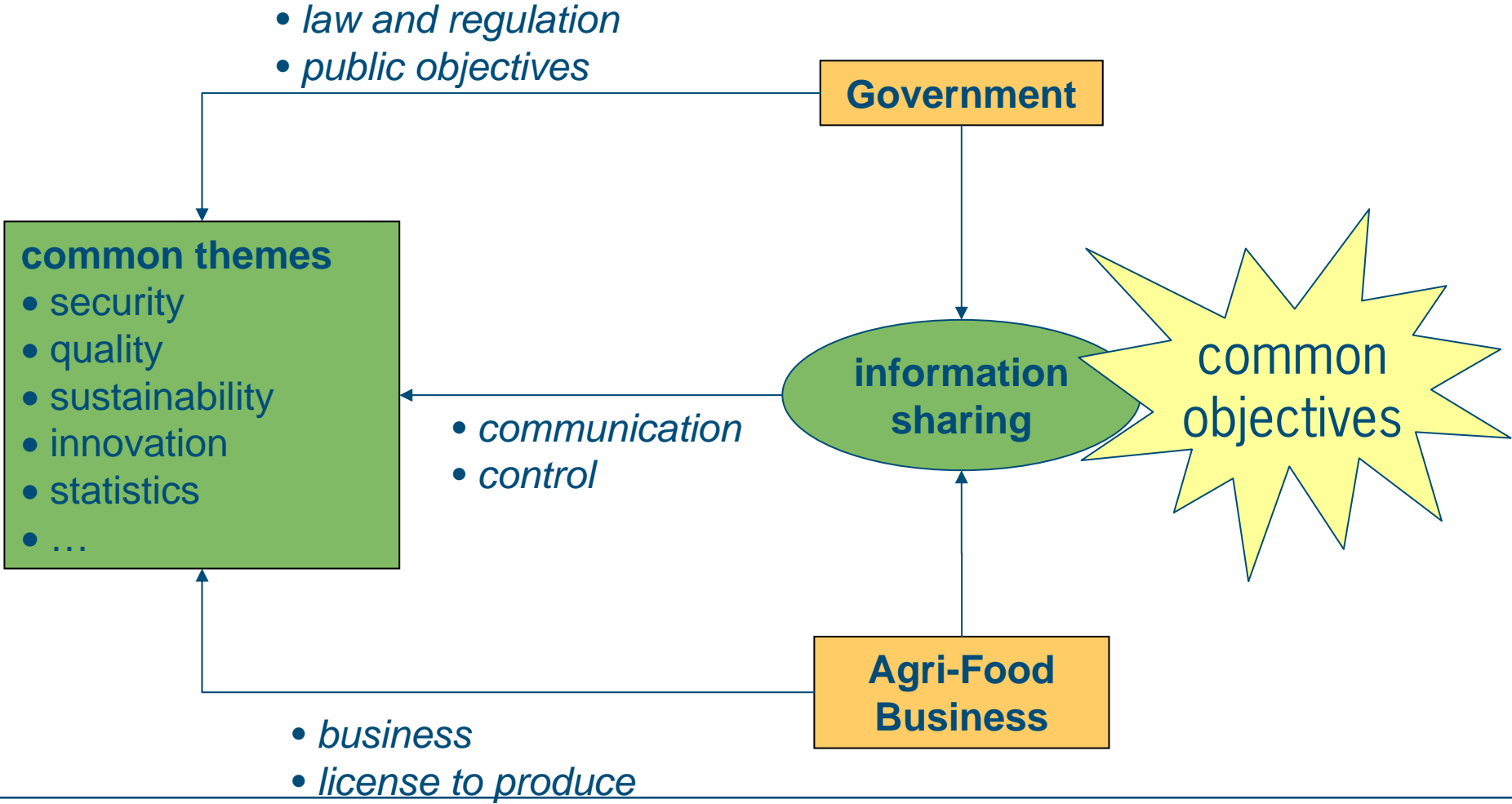
Problem definition by example for pesticide application

government/society
- environmental impact
  - ■ • *reduce environmental impact*

food processor → consumer
- residues
  - ■ • *reduce residues* roduct]
  - ■ d]

pesticide information

farm
- pe
  - • *reduce pests*
  - • *reduce costs*
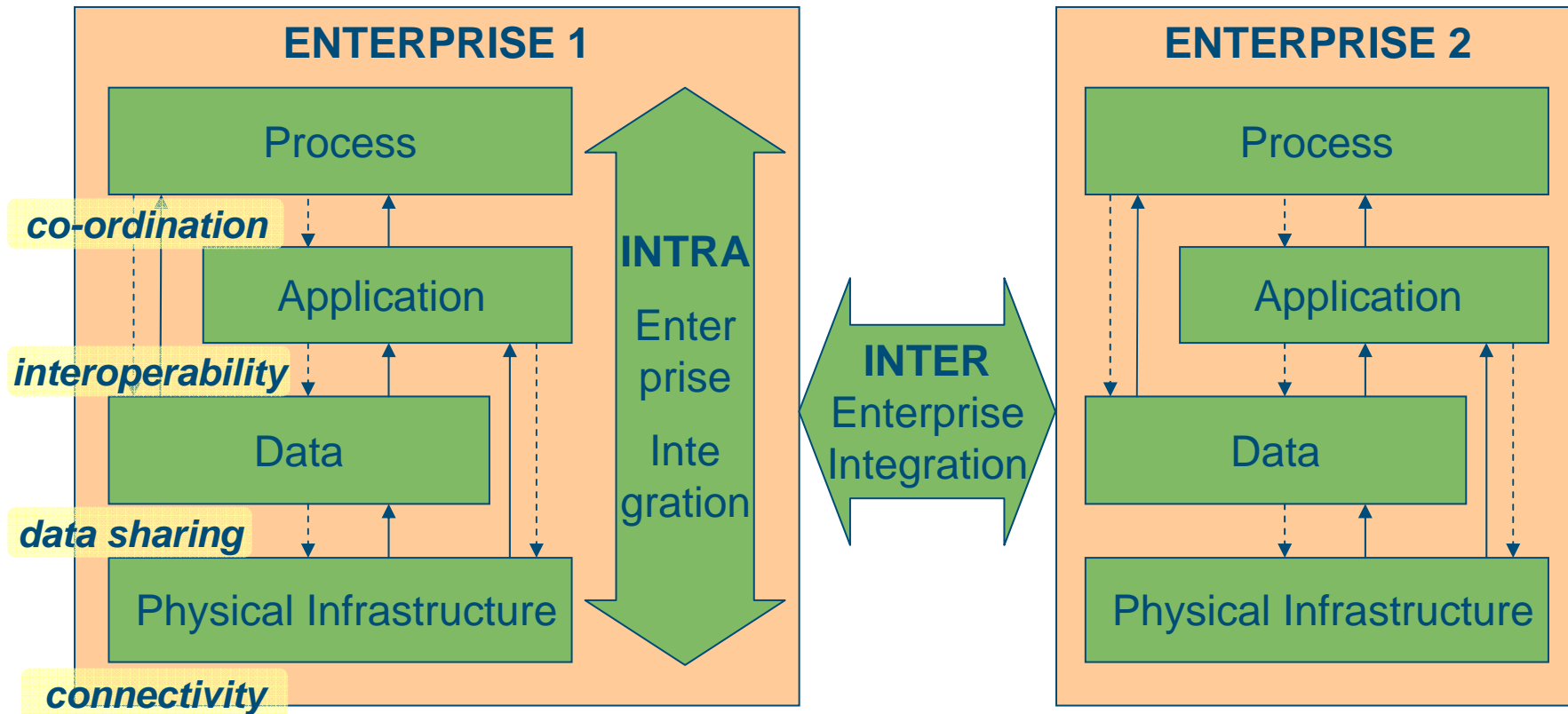 - • *apply site-specific*
  - ■ [costs/ha]
  - ■ [app/10m^2]

business processes are driving!

Presentation outline

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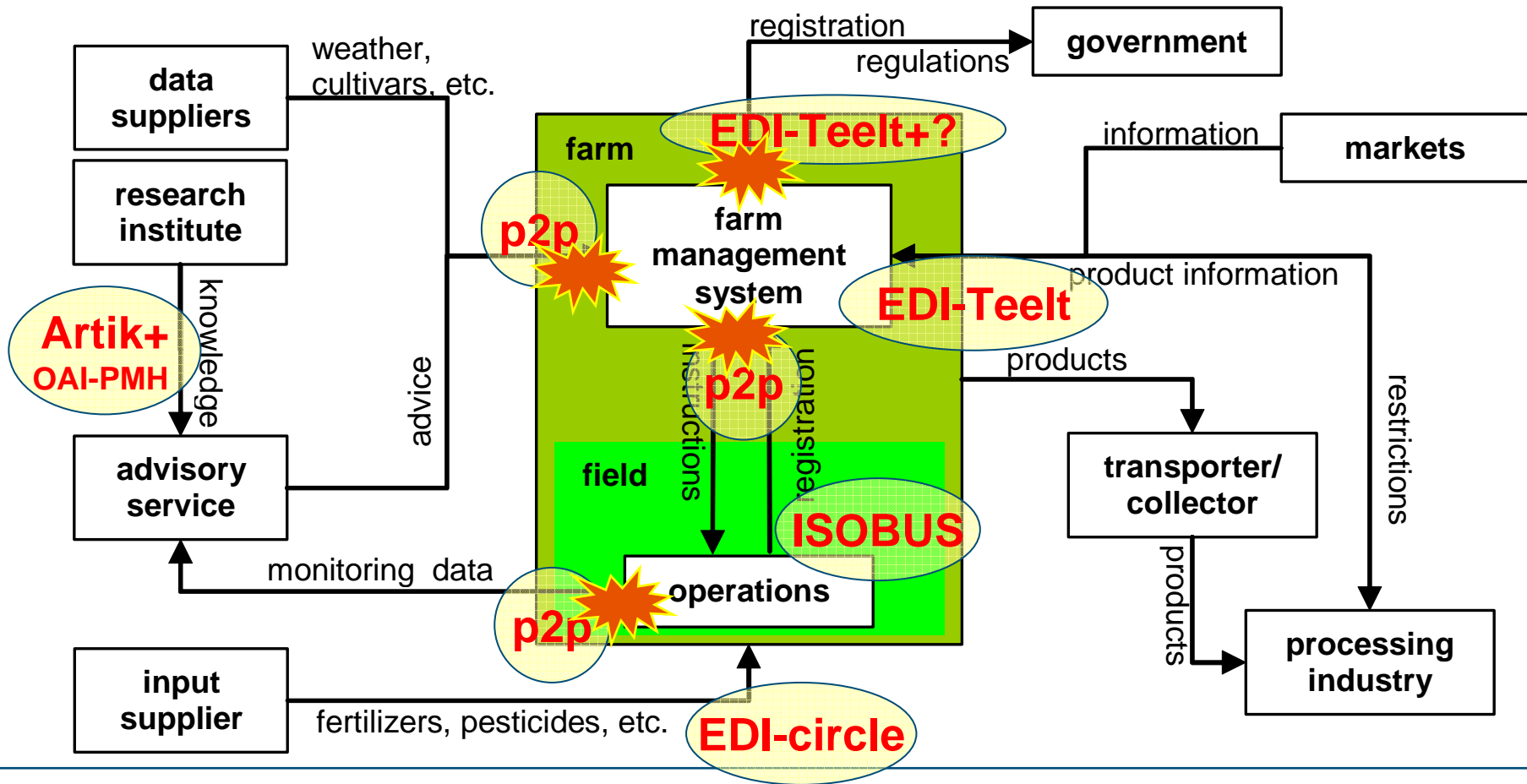
Information Integration Framework

Adapted from Giachetti 2004

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Current situation arable NL: many point-to-points

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Problems

- 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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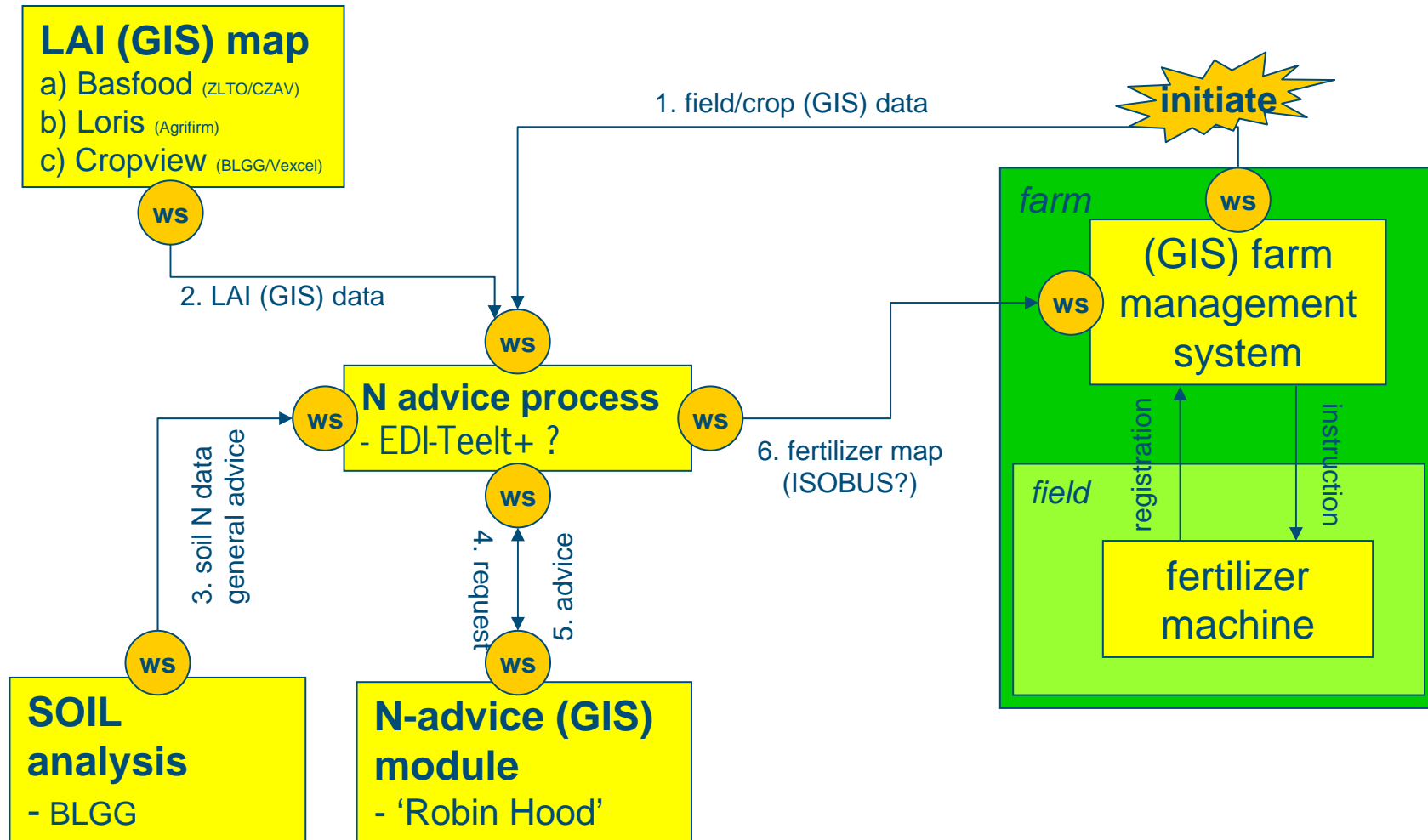
Vision for the future – design spec's

- **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

Presentation outline
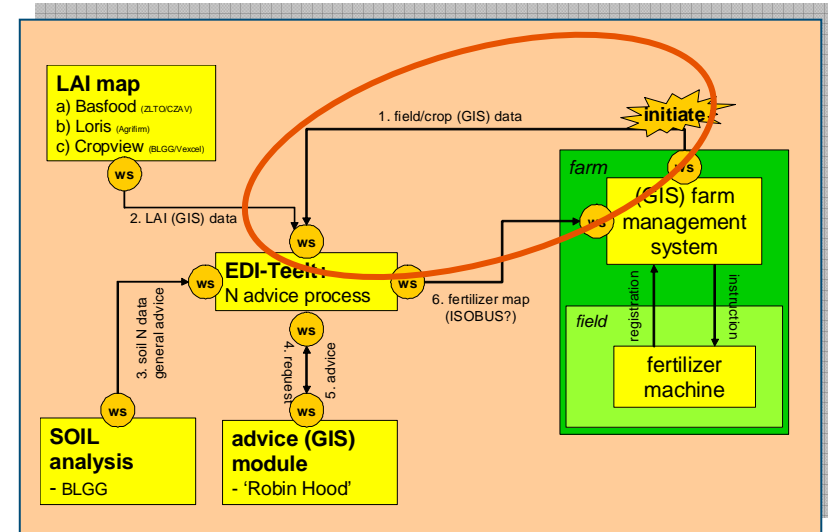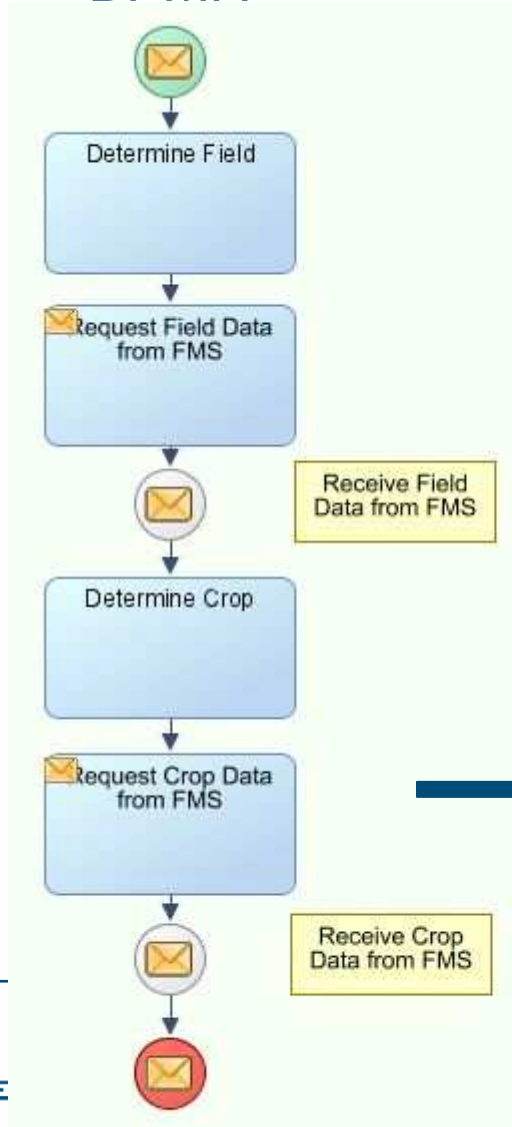
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KodA I&S: geo-fertilizer advice

LAI (GIS) map
a) Basfood (ZLTO/CZAV)
b) Loris (Agrifirm)
c) Cropview (BLGG/Vexcel)

ws

1. field/crop (GIS) data

initiate

farm

ws

(GIS) farm management system

2. LAI (GIS) data

ws

ws

N advice process
- EDI-Teelt+ ?

ws

ws

6. fertilizer map (ISOBUS?)

registration

instruction

3. soil N data
general advice

field

ws

4. request

5. advice

fertilizer machine

ws

SOIL analysis
- BLGG

ws

N-advice (GIS) module
- 'Robin Hood'

Obtain field and crop data: BPMN to webservice

Keys for development

LAI (GIS) map
a) Basfood (ZLTO/CZAV)
b) Loris (Agrifirm)
c) Cropview (BLGG/Vexcel)

ws

2. LAI (GIS) data

1. field/crop (GIS) data

initiate

farm

ws

(GIS) farm management system

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N advice process - EDI-Teelt+ ?

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SOIL analysis - BLGG

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N-advice (GIS) module - 'Robin Hood'

registration

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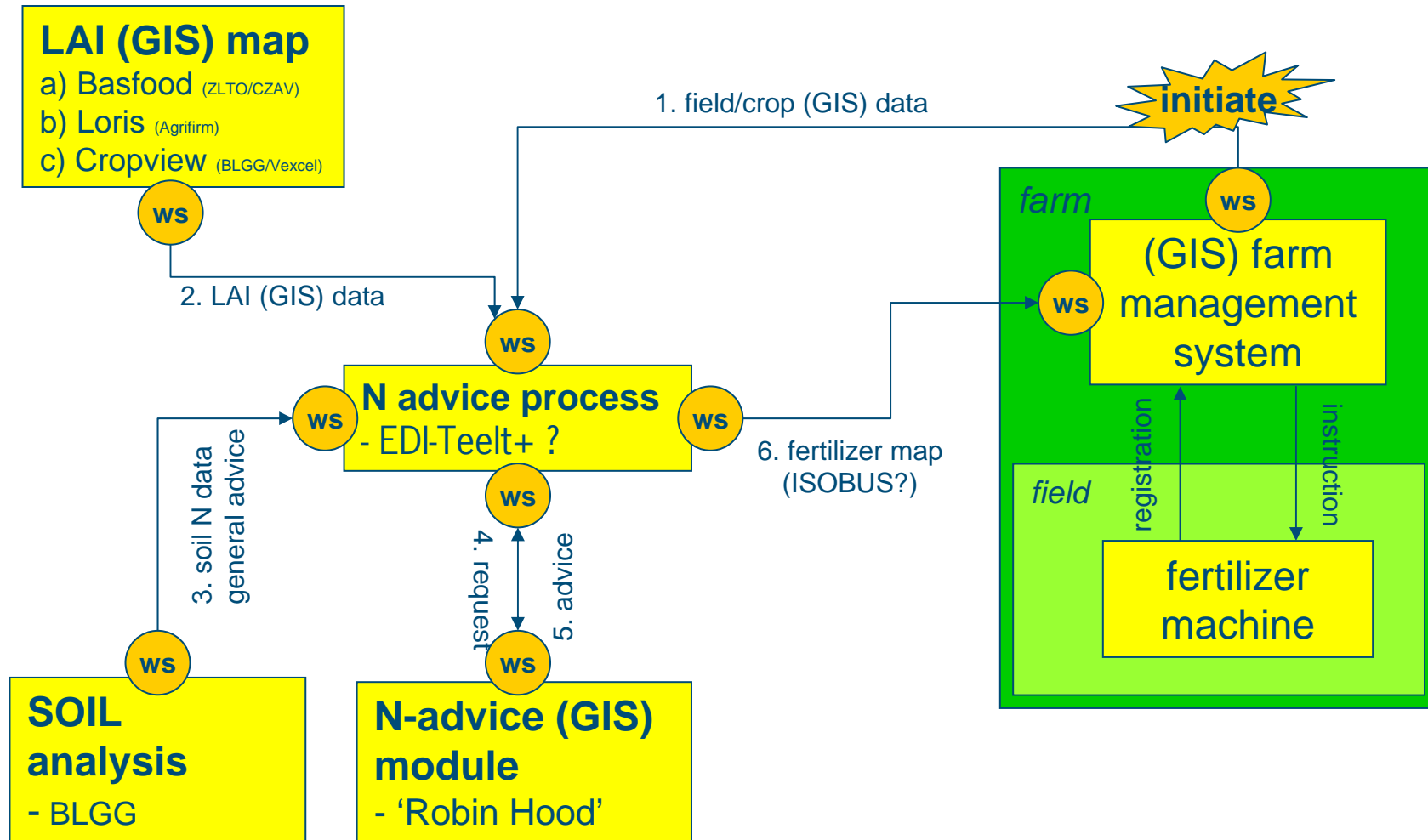
Solving chicken-egg dilemma: a golden egg approach

business case

business case

business case

joint

business case

business

business case

egg!

egg!

egg!

Long-term vision: BPM/SOA architecture and Standards Organization

Step 1

Step 2

Co-ordinate Joint Initiatives (KodA, GeoFarmer, AgroXML, AgroEDI, etc.)

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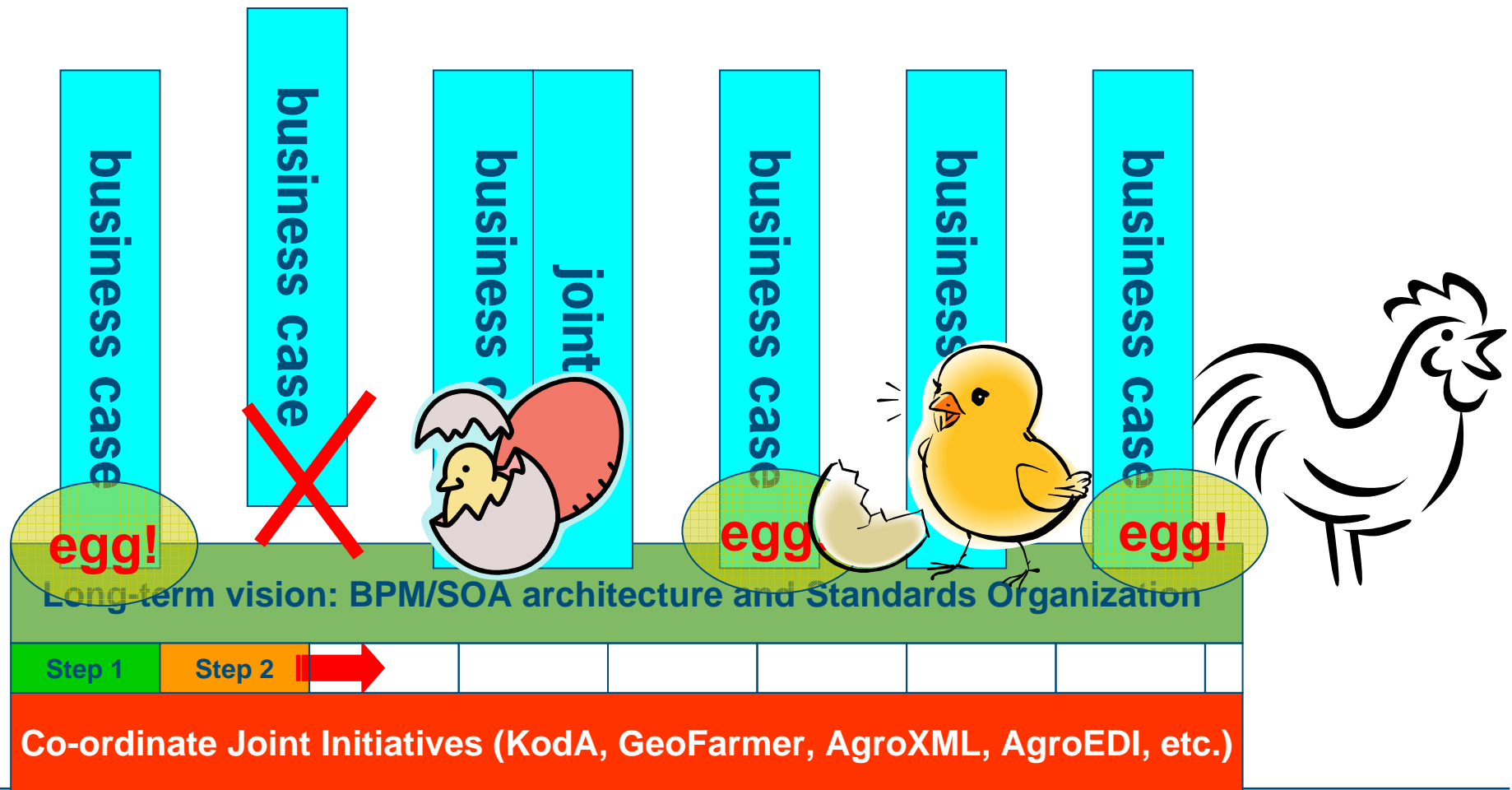
Living Lab Information Management in Agri-Food
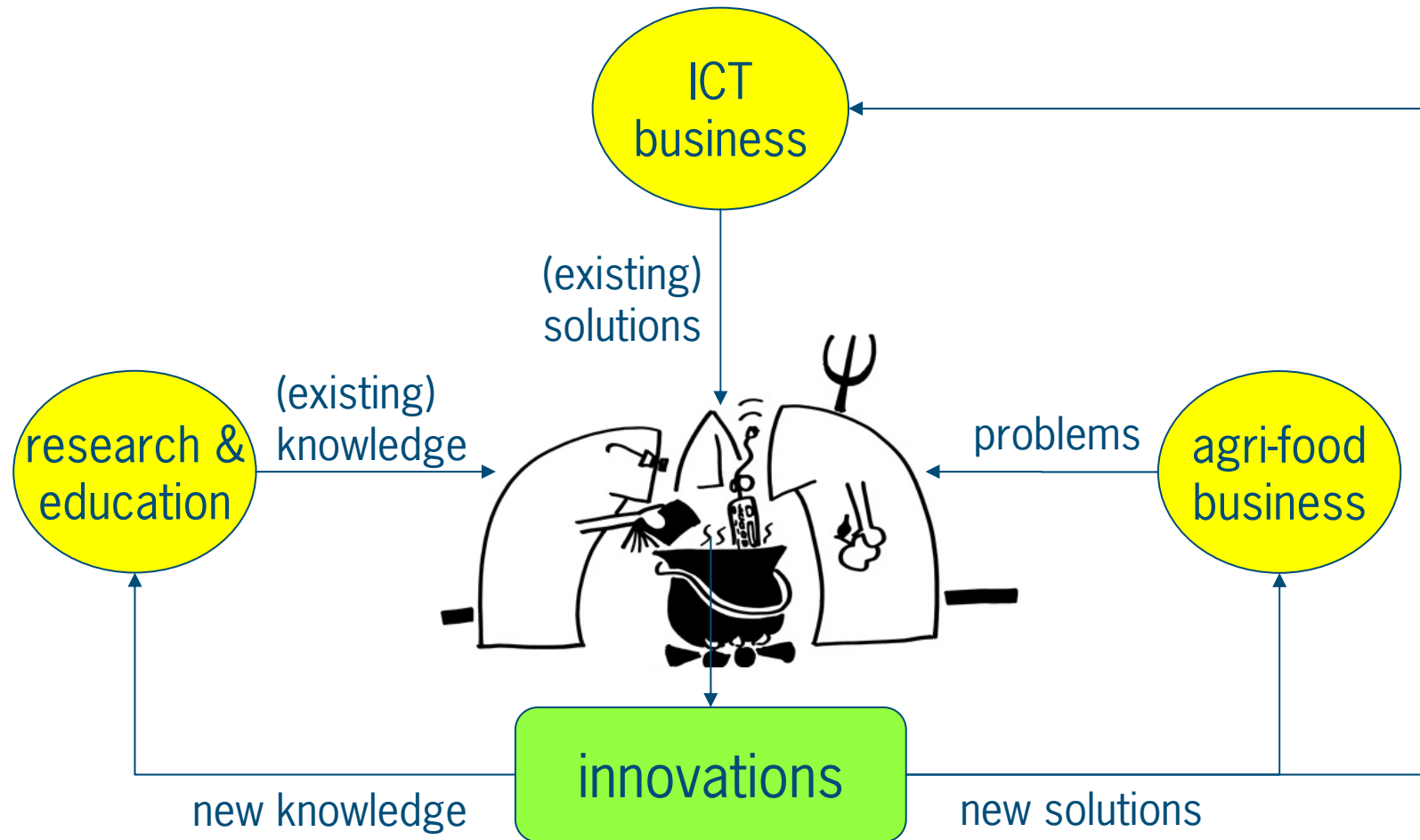
ICT business

(existing) solutions

research & education

(existing) knowledge

problems

agri-food business

innovations

new knowledge

new solutions

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Main challenges

- 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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agriXchange

- Group of EU-people, working on harmonization of agricultural data exchange at a European and global level
  - animal focus group
  - arable group with a special focus on spatial data
- Founded in Hamburg, Nov 2007; meeting in Praha, 13 May 2008; Darmstadt, Dec 2008
- Supported by EFITA and CEN\Agro
- Applying for a EU-7FP-call Coordination & Support Action (deadline 15 Jan.)

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Thank you for your attention!

Business (process) is leading!

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