CLUB OF BOLOGNA

strategies for the development of agricultural mechanisation

Italian Agricultural Machinery Manufacturers Federation

26th Members' Meeting of the Club of Bologna

The 25 years of the Club of Bologna
Evolution and prospects of agricultural mechanization in the world

12-13 November 2016

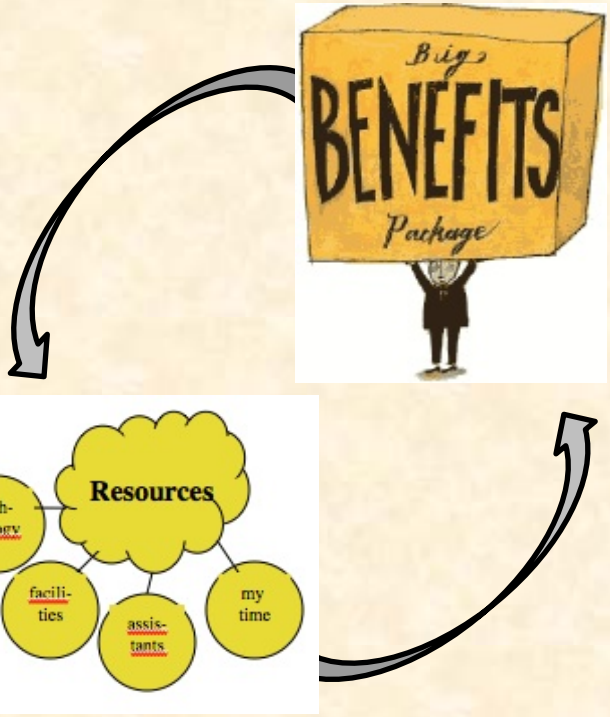
EIMA INTERNATIONAL – Bologna, Italy
Sinfonia Hall

TECHNOLOGY, ECONOMY, AND INNOVATION

Gerhard Schiefer, Germany (schiefer@uni-bonn.de)

Clarification

Economics =#= Finance



Economics:

*a. **Highest benefit** from certain amount of resources*

*b. Certain benefits with as **little resources** as possible*

Clarification

Economics =#= Finance

CEO

Finance Dept.

Economics:

*a. **Highest benefit** from certain amount of resources*

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Clarification

Economics

CEO

ECONOMICS in Innovation:
„barrier“ or „driver“

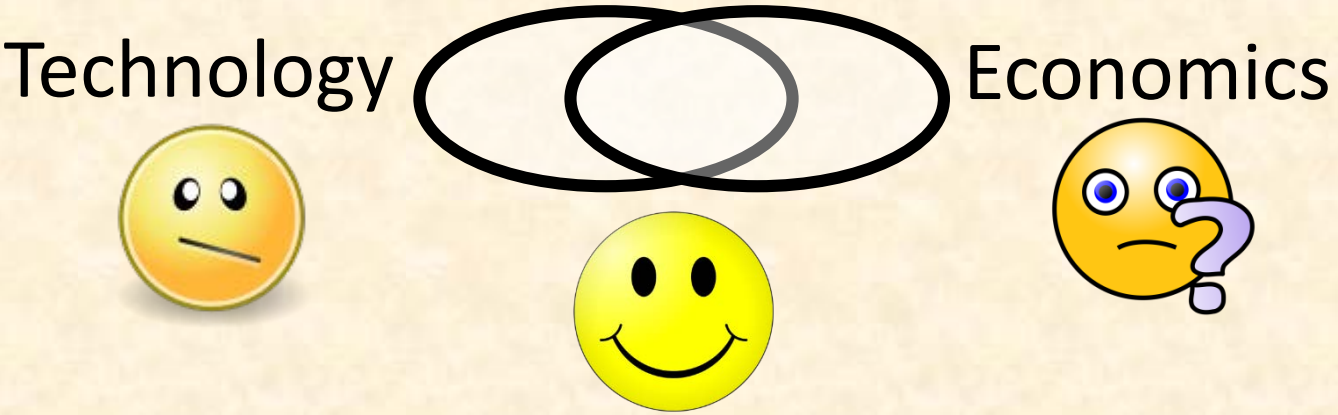
➔ Innovation Process

➔ Integration Process (food chain)

Economics:
a. ***Highest benefit*** *from certain amount of resources*
b. Certain benefits with as ***little resources*** *as possible*

Statement:

➔ No innovation without science cooperation



Developments too slow for society needs

Outline of discussion

European FI-PPP project

ECONOMICS in Innovation: „barrier“ or „driver“

➔ **Innovation Process**

➔ Integration Process

European focus on food chains

Proof 1: Innovation process

Statement

> Economics drives developments of technology

> Economics drives adoption of technology

***Innovation**: **New** development **adopted** by target groups (success)*

➔ Many discoveries have never been adopted and not reached innovation status ("forgotten discoveries„)

Stages of Innovation Process

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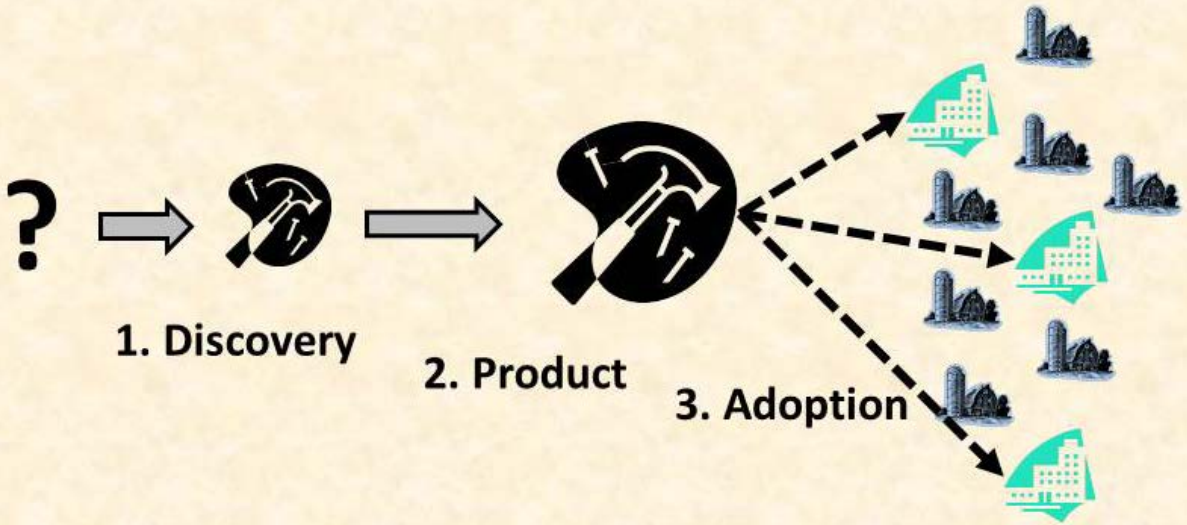
Stage 1: Idea ➔ discovery/new development

Stage 2: Discovery/development ➔ marketable product with potential for changing rules of activities in enterprises or the economy (innovative product)

Stage 3: Adoption by actors in enterprises/economy (innovation in economy)



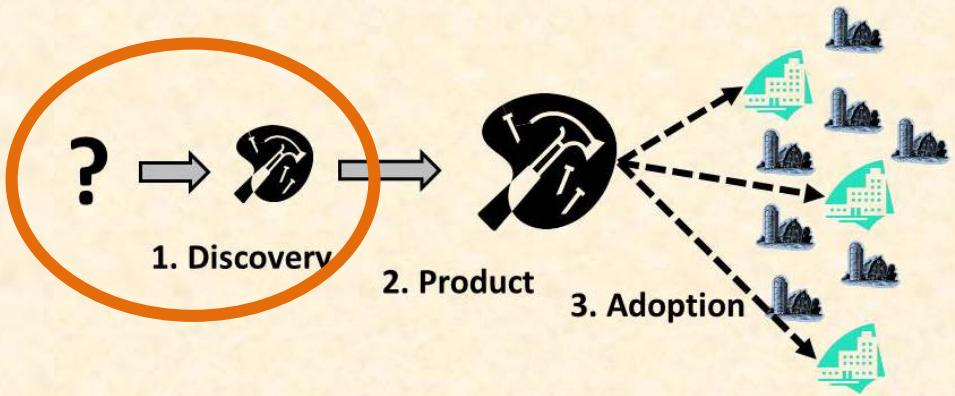
Stages of Innovation Process

Stage 1: Idea ➔ discovery/new development

➔ *Disparity between resources (funds, labor) and* ***desired*** *benefits (e.g. "food security" etc.)*
➔ *creates needs* ➔ *initiates discoveries*

= Economic disparity as driver

Positive Ecosystem



Stages of Innovation Process

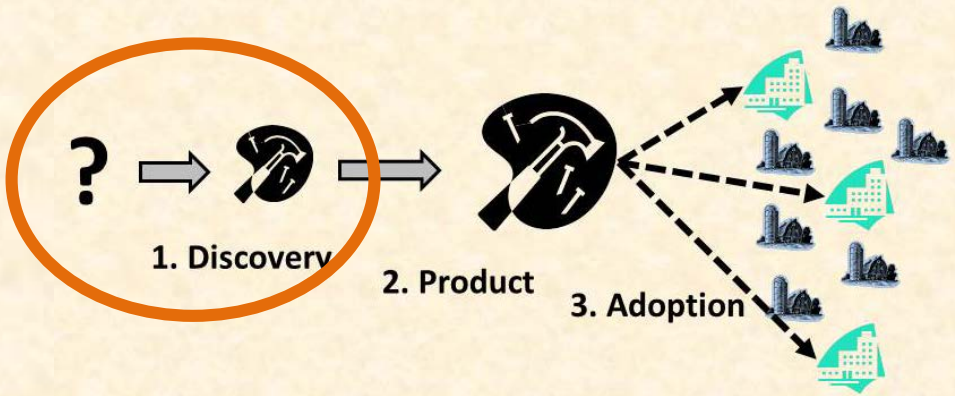
Stage 1: Idea ➔ discovery/new development

➔ *Disparity betwe*
***desired** benefits*
➔ *creates needs*

= Economic dispe

Food security: Elimination of **waste**
Food safety: **Short** chains
Urbanization:
Urban agriculture
Vertical agriculture

Positive Ecosystem

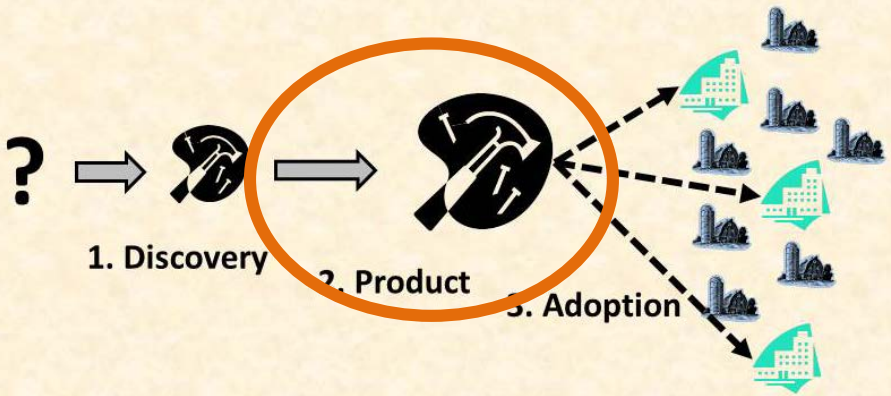


Stages of Innovation Process

Stage 2: Discovery/development ➔ marketable product with potential for changing rules of activities in enterprises or the economy (innovative product)

➔ ***Barrier**: Transformation into marketable products requires resources (**funds**, labor, etc.)*

*> **Economics as barrier**: Provision of resources*



Stages of Innovation Process

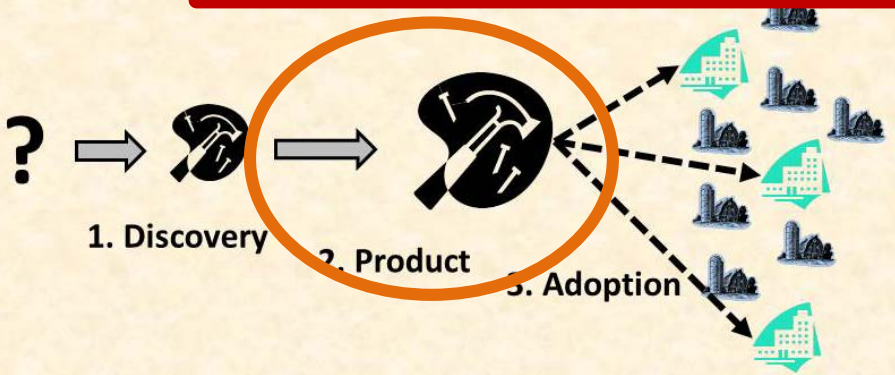
Stage 2: Discovery/de
with potential for changi
the economy (innovative

➔ ***Barrier***: *Transfo*
requires resourc

> Economics as ba

EU: FI-PPP

Funds

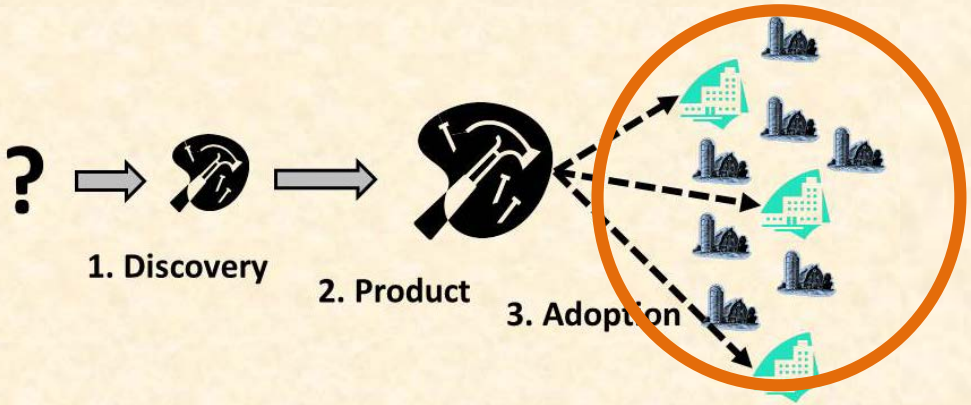


Stages of Innovation Process

Stage 3: Adoption by actors in enterprises/economy
(innovation in economy)

> ***Economic adoption barrier 1****: Investments needs (**funds**, training...)*

> ***Economic adoption barrier 2****: Lack of positive operational benefit/cost ratio*



Stages of Innovation Process

Stage 3: Adoption by actors in enterprises/economy
(innovation in economy)

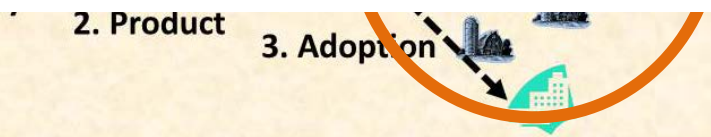
> ***Economic adoption barrier 1**: Investments needs (**funds**, training...)*

> ***Economic adoption barrier 2**: Lack of positive operational benefit/cost ratio*

Policy conclusion for market entry:

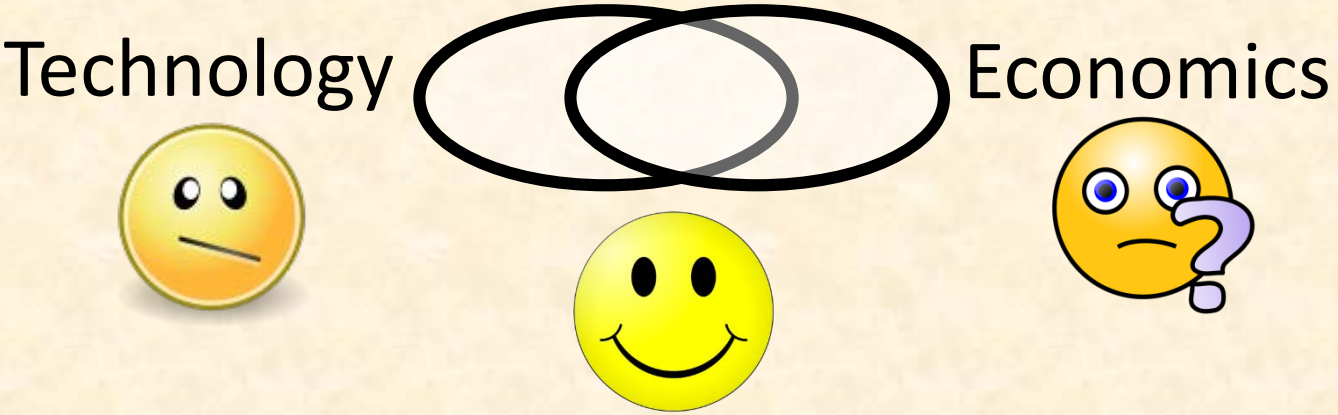
➔ Initial entry with high production costs may fit a **few customers**

➔ Sales uptake might ask for **subsidies (public/private)** for fitting customers with lower benefit/cost ratio



Conclusion „Proof 1“

➔ No innovation without science cooperation



Developments too slow for society needs

Proof 2: Integration process

European FI-PPP project

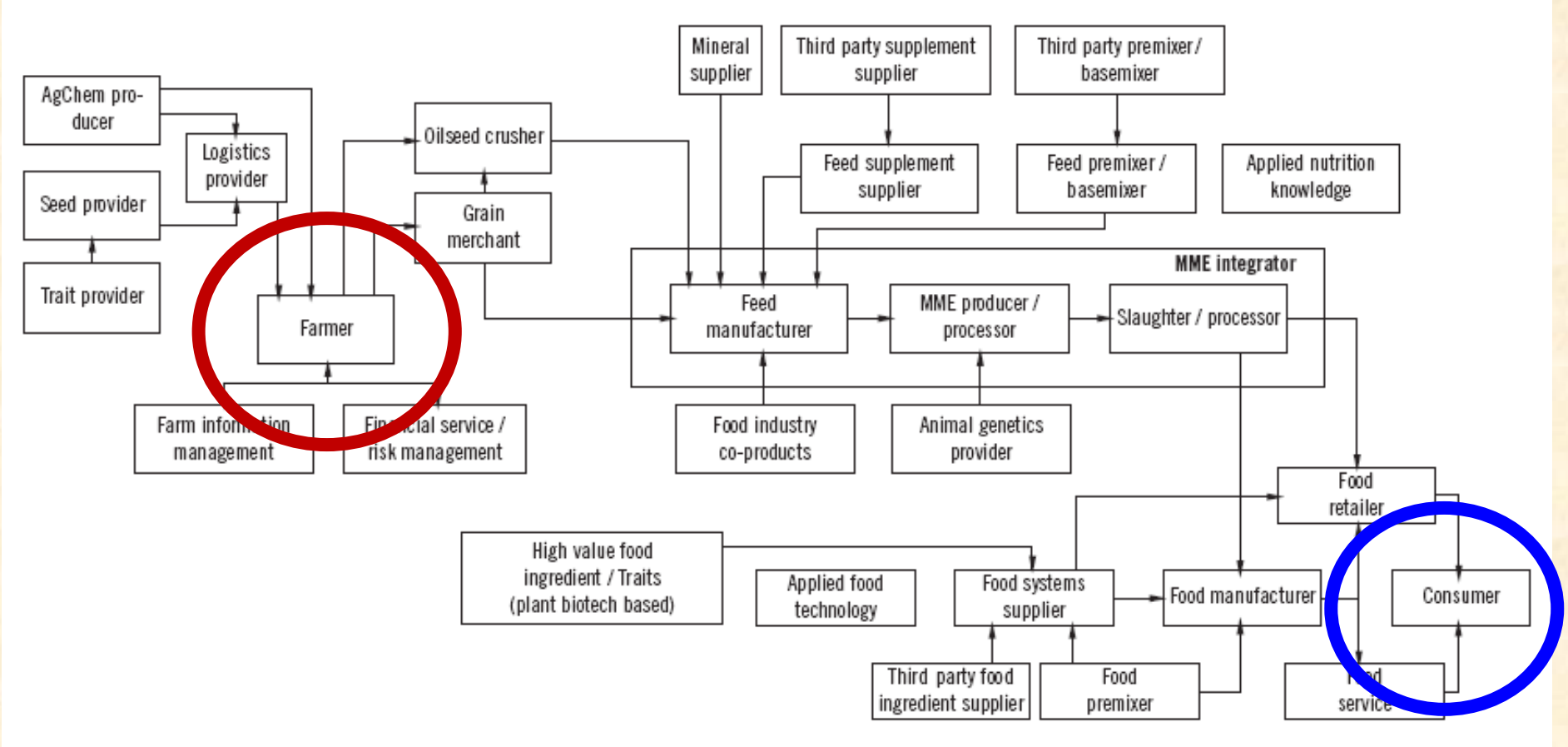
ECONOMICS in Innovation: „barrier“ or „driver“

➔ Innovation Process

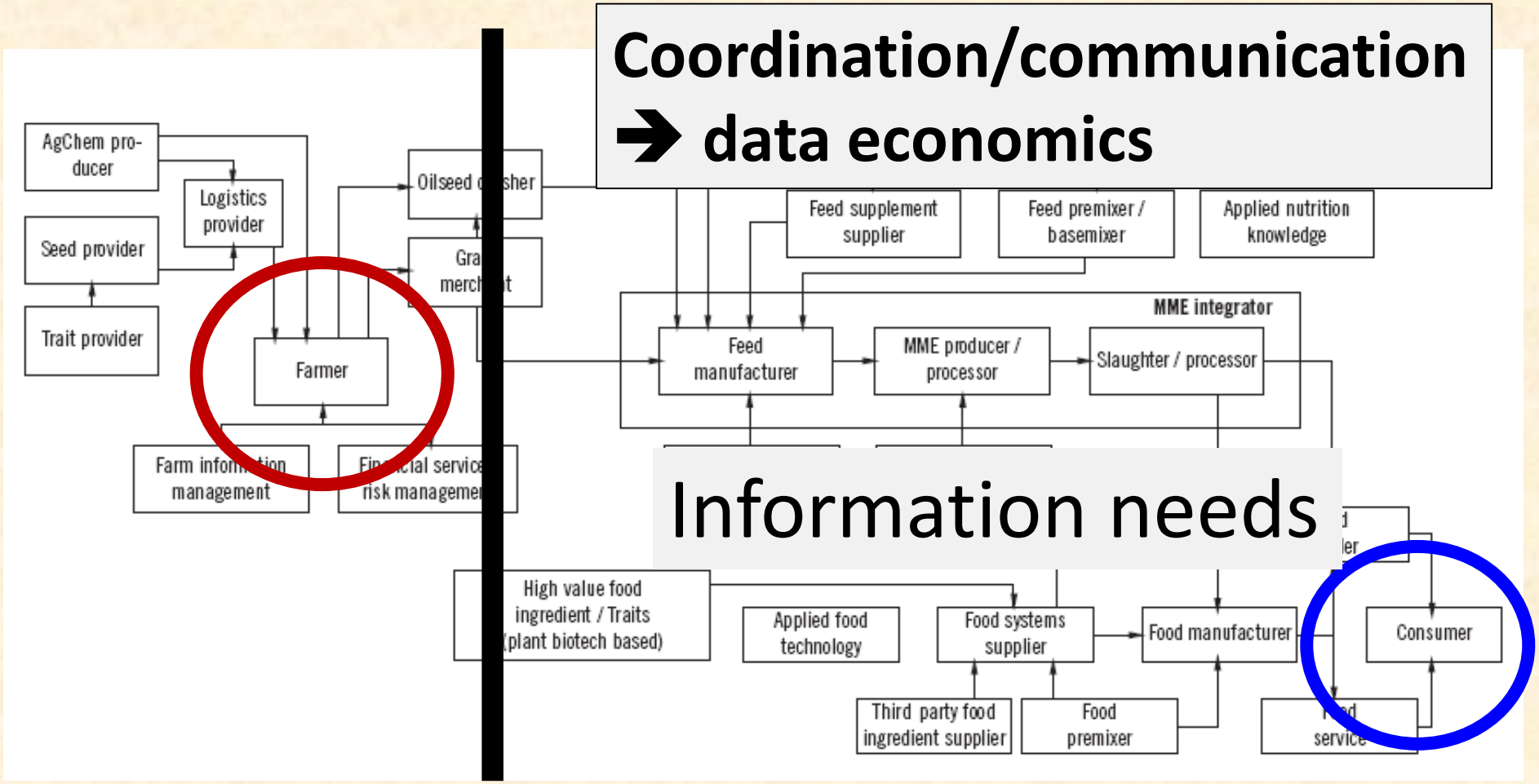
➔ **Integration Process**

European focus on food chains

Food chain integration process



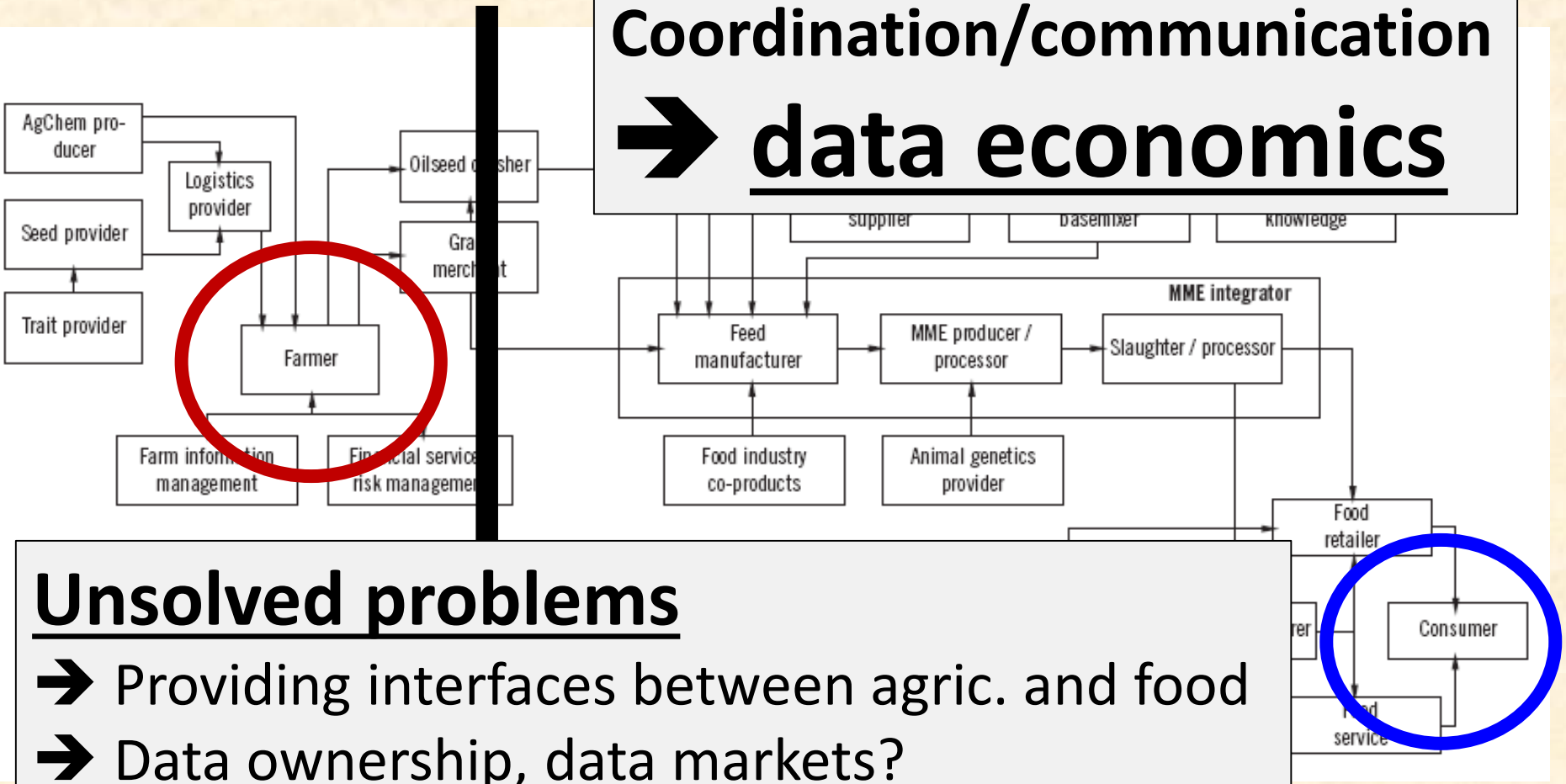
Food chain integration process



Food chain integration process

Coordination/communication

➔ data economics

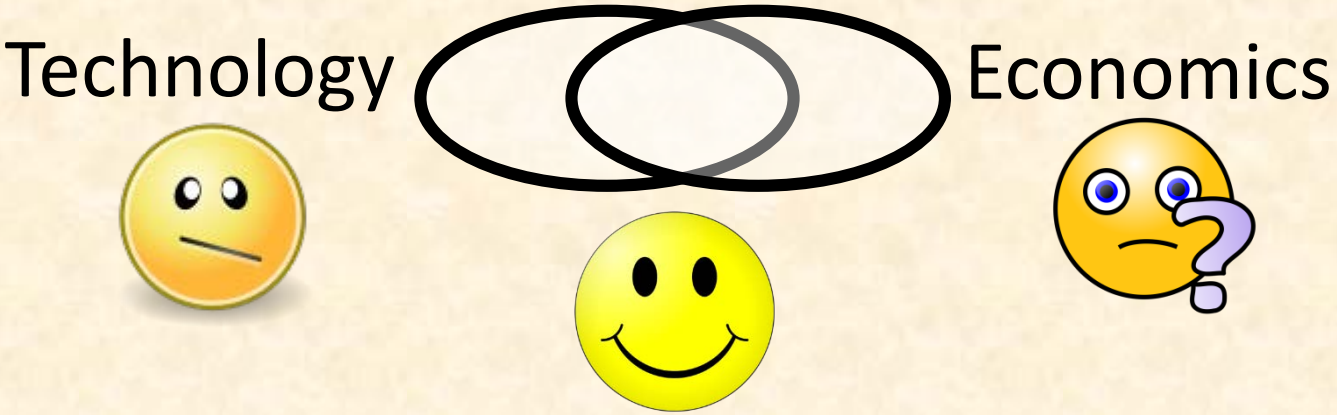


Unsolved problems

- ➔ Providing interfaces between agric. and food
- ➔ Data ownership, data markets?
- ➔ Data exchange (when, what, how, what for…)

Conclusion „Proof 1“ + „Proof 2“

➔ No innovation without science cooperation



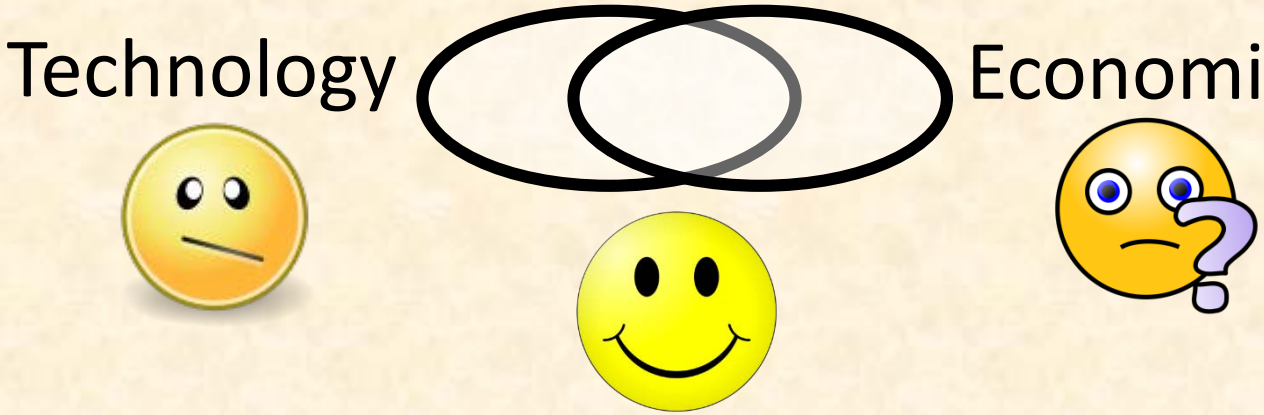
Innovation

Innovation process

Integration process

We need to move forward

Thank you



Innovation

Innovation process

Integration process