



EIP-AGRI Seminar 'Data Revolution: emerging new business models in the agri-food sector'

**22-23 June 2016
Sofia, Bulgaria**

**All information of the workshop is
available on www.eip-agri.eu
at the event webpage**

https://ec.europa.eu/eip/agriculture/en/Seminar_Data_Revolution

Data Innovations in the Agri-Sector: in search of data-driven business models

Krijn Poppe

LEI Wageningen UR

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EIP-AGRI Service point



Disruptive ICT Trends:

- **Mobile/Cloud Computing** – smart phones, wearables, incl. sensors everywhere
- **Internet of Things** – everything gets connected in the internet (virtualisation, M2M, autonomous devices) anything
- **Location-based monitoring** - satellite and remote sensing technology, geo information, drones, etc. anywhere
- **Social media** - Facebook, Twitter, Wiki, etc.
- **Blockchain** – smart contracts everybody

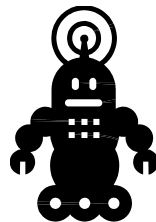
➤ **Big Data** - Web of Data, Linked Open Data, Analytics

High Potential for unprecedented innovations!

IoT in Smart Farming



smart sensing
& monitoring



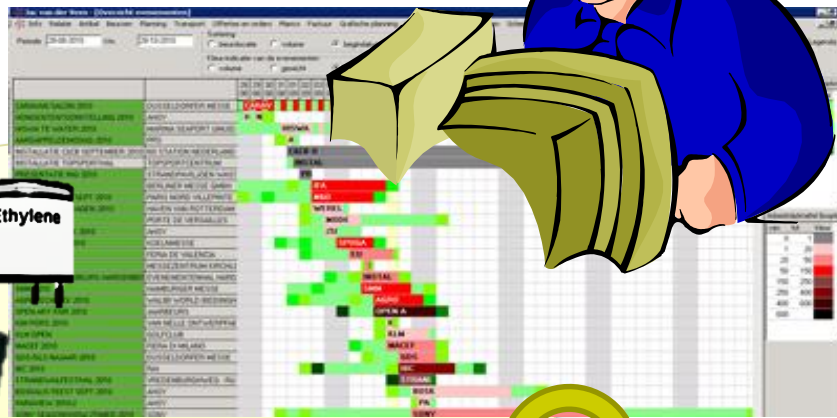
smart control



smart analysis
& planning



IoT in Agri-Food Supply Chains



Virtual Box



Location & State update

Location A



Location & State update



Location B

Location & State update



IoT and the consumer

Smart Farming
tracking/ & tracing
Smart Logistics



Domotics

Health

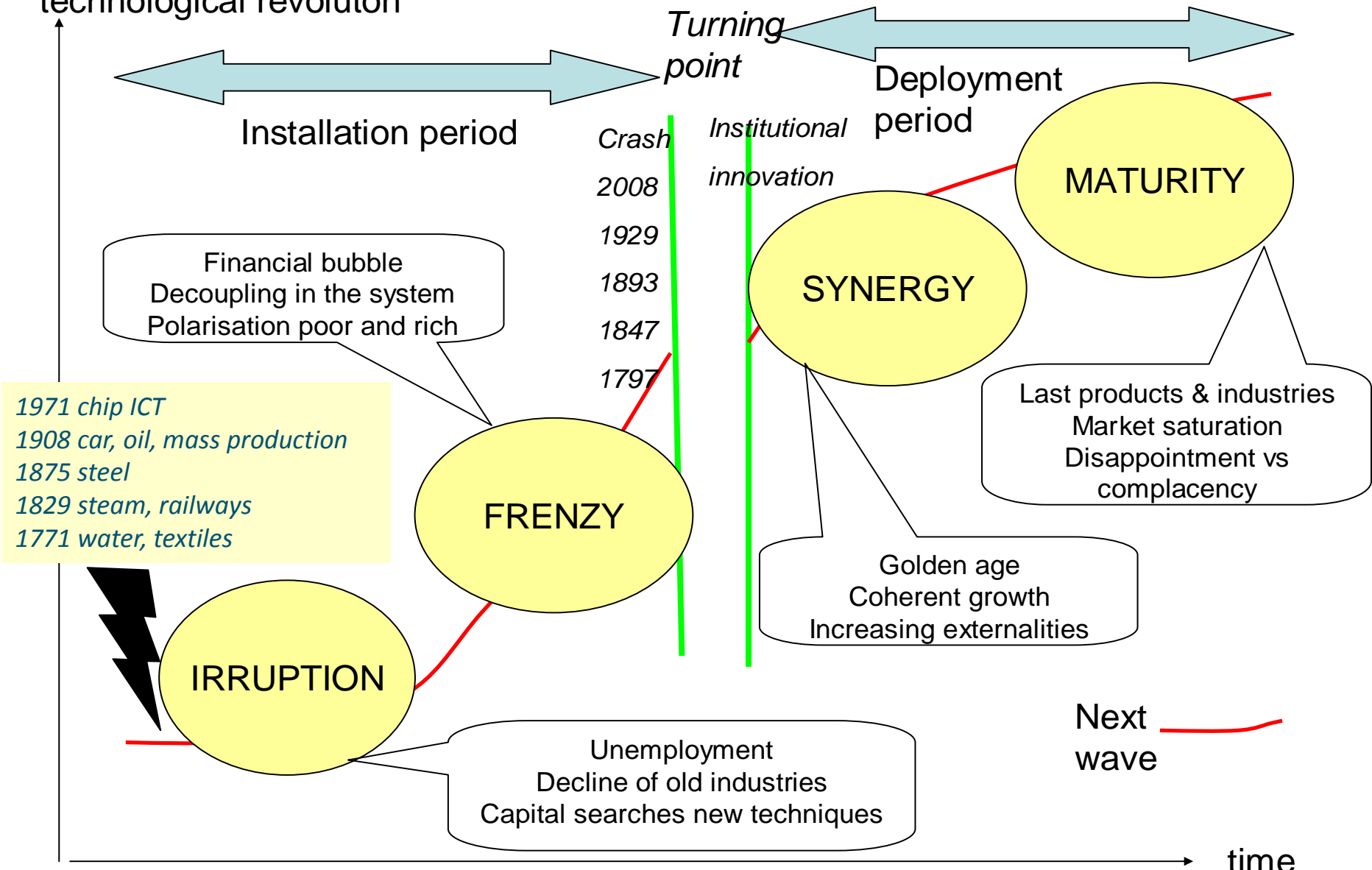
Fitness/Well-being

Health Yourself



The opportunity for green growth

Degree of diffusion of the technological revolution



- 1971 chip ICT
- 1908 car, oil, mass production
- 1875 steel
- 1829 steam, railways
- 1771 water, textiles

4 grand challenges: tomorrow's business



Food & nutrition security



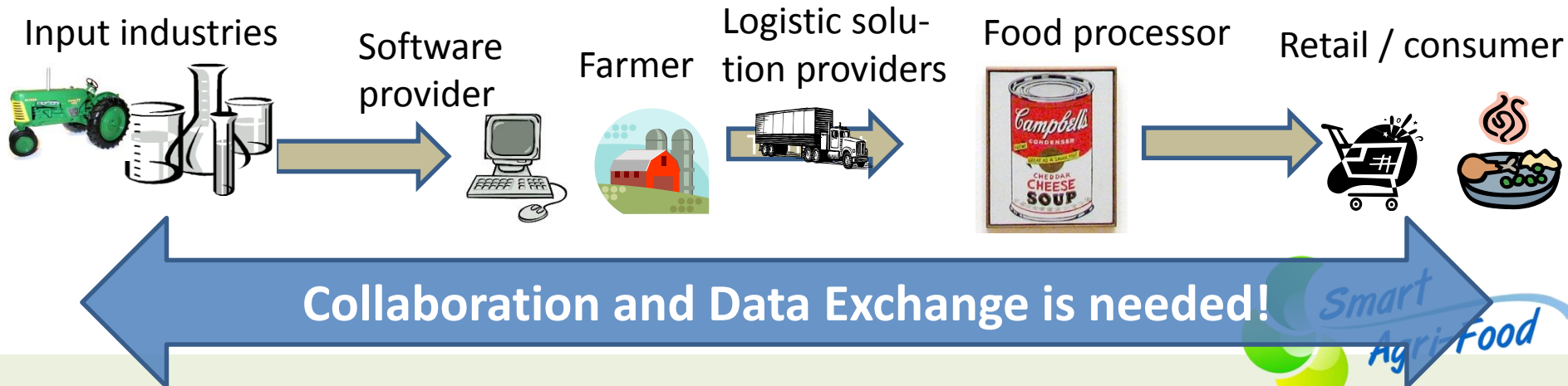
Climate change



Environmental issues

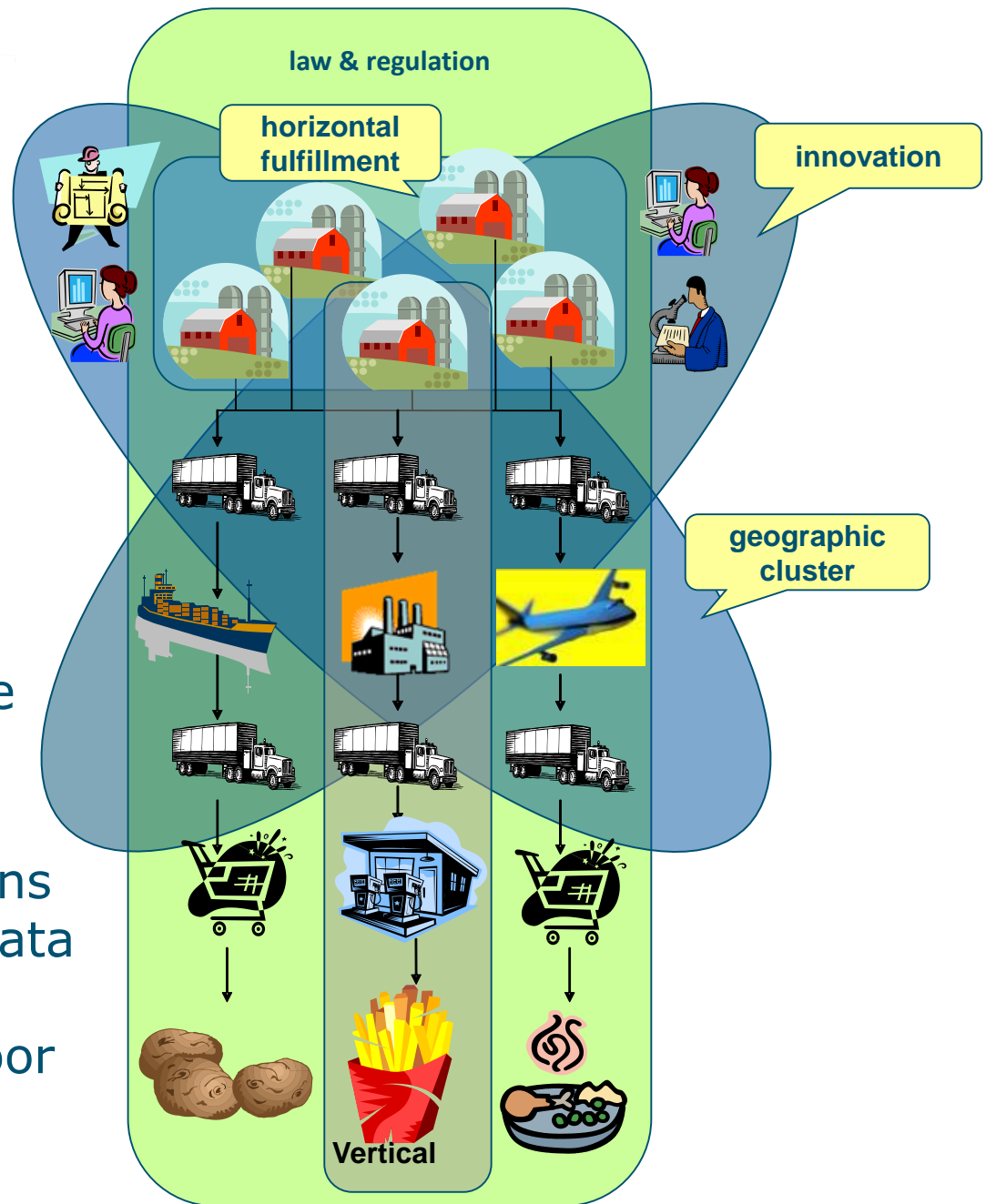


Healthy diet for a healthy life

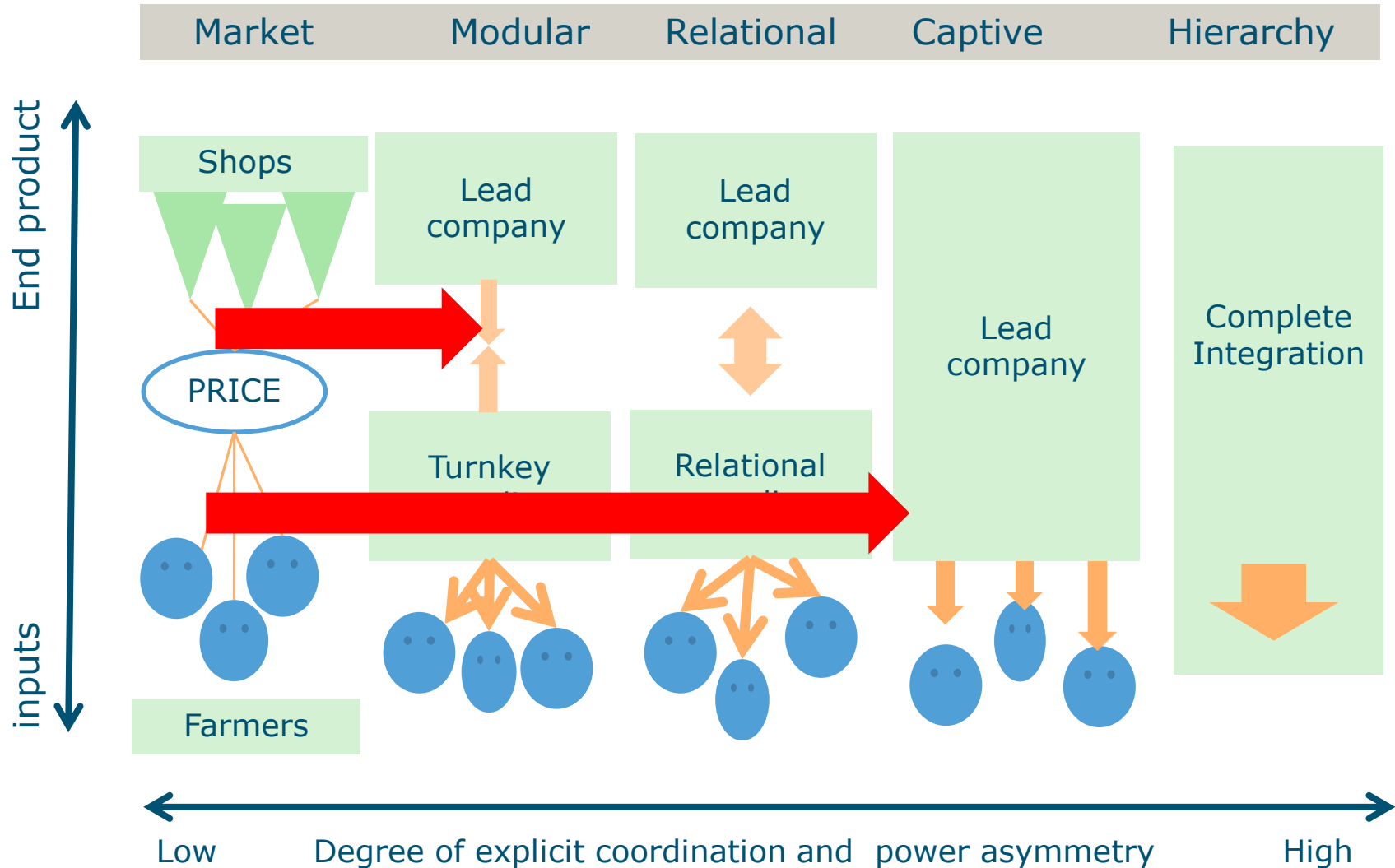


There is a need for software ecosystems for ABCDEFs: Agri-Business Collaboration & Data Exchange Facilities

- Large organisations have gone digital, with ERP systems
- But between organisations (especially with SMEs) data exchange and interoperability is still poor
- ABCDEF platforms help



Chain organisation changes (©Gereffi et al., 2005)



2 Scenarios, with significant impacts ?

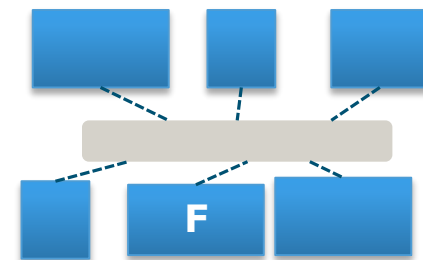
1. Scenario CLOSED PRODUCT CHAINS:

- Farmer becomes part of one integrated supply chain as a franchiser/contractor with limited freedom
- one platform for potato breeder, machinery company, chemical company, farmers and french fries processor.
- Weak integration with service providers, government ?



2. Scenario OPEN COLLABORATION:

- Market for services, apps and data
- Common, open platform(s) are needed
- Higher upfront, common investment ??
- Business model of such a platform more difficult?
- More empowerment of farmers and cooperatives?



New Business Models – a definition

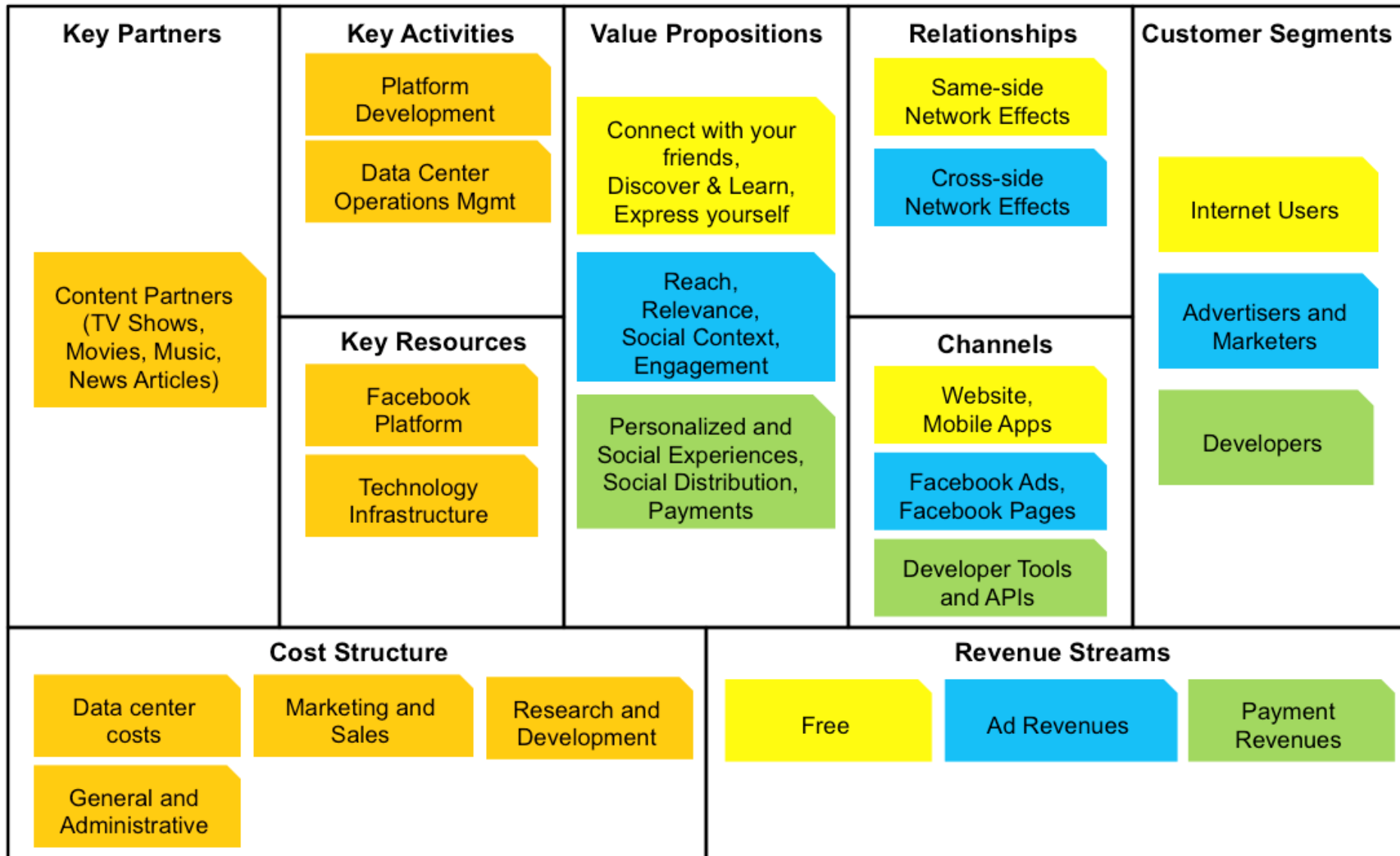
A business model describes the rationale of how an organization creates, delivers, and captures value in economic, social, cultural or other contexts.

The *value proposition*,
value architecture (the organizational infrastructure and technological architecture that allows the movement of products, services, and information),
value finance (modelling information related to total cost of ownership, pricing methods, and revenue structure), and
value network articulate the primary constructs or dimensions of business models.

The process of business model construction is part of business strategy.

Osterwalders' Canvas model: popular tool

Facebook – World's leading Social Networking Site (SNS)



ICT has effect on business models: how to earn money with data?

1. basic data sales (commercial equivalent of open data; new example: Farm Mobile)
2. product innovation (new tools, active machinery industry, e.g. John Deere, Lely's milking robots)
3. commodity swap: data for data (e.g. between farmers and food manufacturers to increase service-component)
4. value chain integration (e.g. Monsanto's Fieldscript for prescriptive farming)
5. value net creation (platforms to pool data from the same consumers each other or for others: e.g. AgriPlace)

See: Arent van 't Spijker: "The New Oil - using innovative business models to turn data into profit", 2014

USA: Farm Mobile

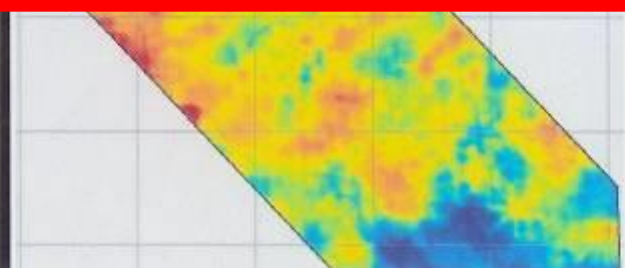
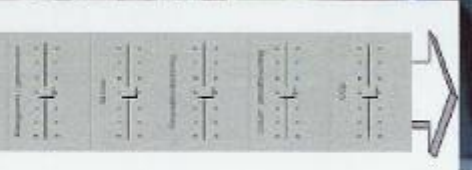


“Farmers believe their trust has been violated”:
their data go to multinationals, that announce
big future income from big data, while they have
pay for everything.

2016 = Farmer renewable revenue.

Farmers collect
'crop stories'
and decide where
they travel (and get a
few cents per item?)
(venture capital based)





USA: Farmers Business Network



Farmers' owned,
investment by Google
Ventures

Summer 2015:

FBN has aggregated data from 7 million acres of farm land across 17 states, and they're growing 30% month over month. The platform is currently able to assess the performance of 500 seeds and 16 different crops.

Costs farmer \$ 500 / year.

Fieldscripts: Monsanto (et al.)



MONSANTO



PRESCRIPTIVE FARMING

based on VARIABLE RATE APPLICATION



Two platform examples from our work



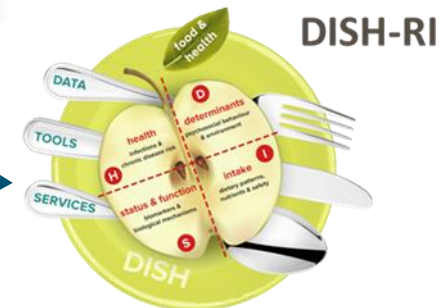
- Agriplace – compliance in food safety etc. made easy



- RICHFIELDS: manage your food, lifestyle, health data and donate data to research infrastructure



Donate to (citizen) research



Ecosystem to link platforms, apps, data

Fispace: business collaboration

Accelerator companies



Farmers

Biz architect bundles apps in a platform



Business Collaboration Services - Based on Open Source Software

Highly Integrated Service Solutions

- Event-driven
- Configurable
- Customizable
- Service model

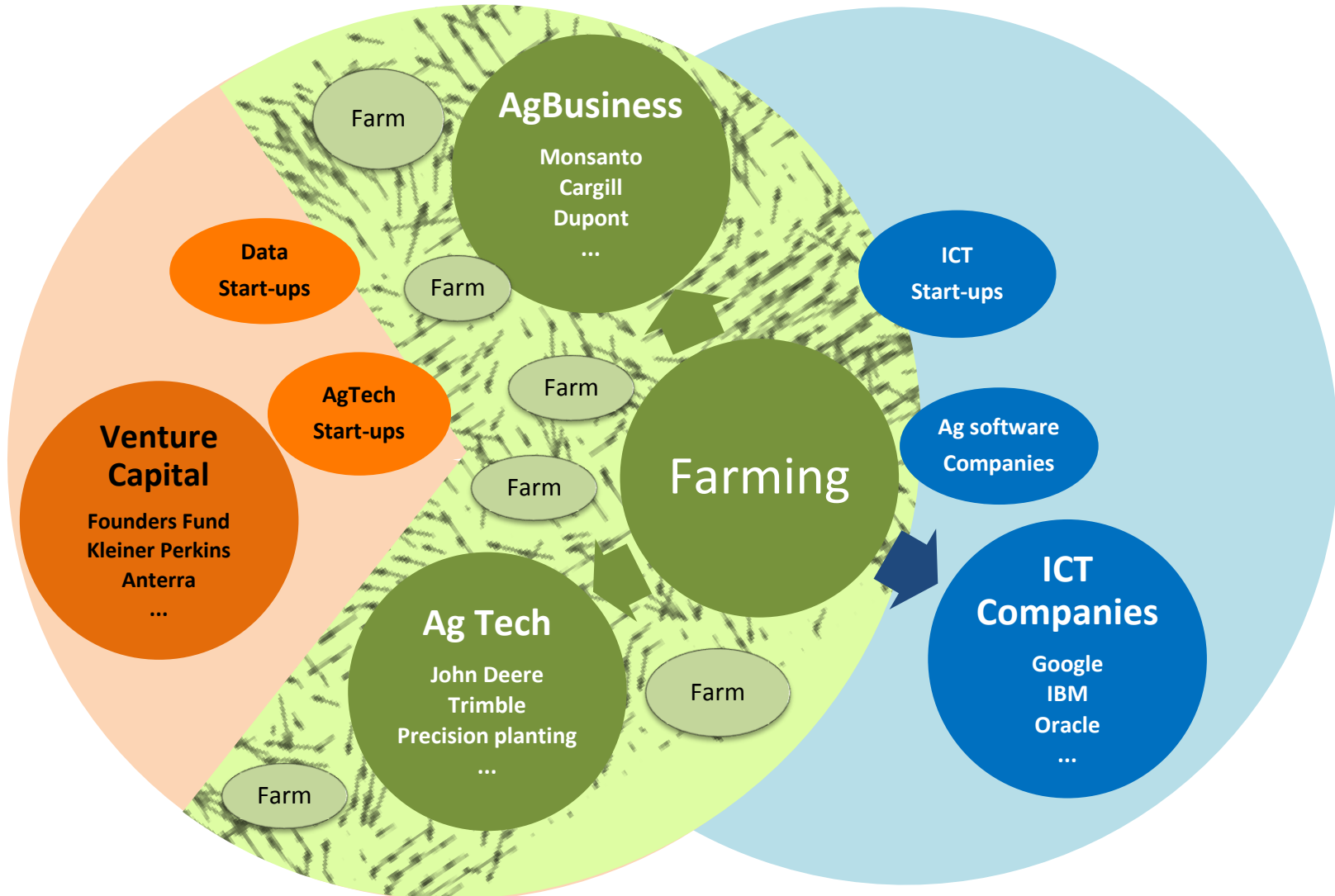
Modules:
 Single SignOn
 Biz Collab.
 Event Proces.
 System-Data integration
 App repository

Data Standards to connect

Data (Standardisation) Services








Dynamic landscape of Big Data & Farming








Farm data harvesting initiatives



Diversity in approaches

Initiatives/Solutions	Slogan/Mission	Use of farm data	Data ownership, privacy and liability arrangements	Pricing/Access control
<p>FarmersEdge</p> 	<i>"Grow more precisely"</i>	Decision support for crop production, fleet management, logistics	Data belongs to the farmers.	Access by payment: \$3.95 per acre.
<p>Farmers Business Network</p> 	<i>"Put your farm's data to work"</i>	Performance feedback and advice	Anonymous aggregated data. No data sharing with anybody	Access by payment: \$500 per year.
<p>Farmforce</p> 	<i>"Integrated Mobile Platform to manage smallholder farming"</i>	Outgrowers management, yield forecast, harvest planning, loans, traceability, compliance	Privacy statement, Consistent with the <i>Privacy and Security Principles for Farm Data</i>	Setup and subscription costs for exporter / aggregator based on # modules, users, etc.
<p>FarmLogs</p> 	<i>"help growers use technology to create a better future for their farms"</i>	Field management, Rainfall tracking, yield maps, input planning, nitrogen monitoring, nitrogen and seeding prescriptions, etc.	Privacy policy: The data you enter through our Service is your data. Full control over who to share personal information.	Both free and paid subscriptions. Version with prescriptions \$2499/year plus \$8.50/acre; \$749.00/device per year
<p>Farmobile</p> 	<i>"Farmobile simplifies data from machines to decisions"</i>	Data driven decisions, precision agriculture	Data owned by the farmer. Farmer controls who has access to data.	Access by payment: \$1,250 per year. 50% revenue derived from selling the data.

Diversity in approaches

Initiatives/Solutions	Slogan	Use of farm data	Data ownership, privacy and liability arrangements	Access control/Pricing
365FarmNet 	<i>"The software for your business"</i>	Decision support for farm management	Data is only provided to third parties with approval of farmer. Certified service providers guarantee data security.	Varies per module, between 0.83-4 .00€ per month per 100 ha
Akkerweb 	<i>"Your field in view"</i>	Data sharing, Development of apps	Grower, authorisation	Free account, payment by app developers
GeoTraceability 	<i>'Build trust and transparency throughout supply chains" "putting smallholders on the map"</i>	Traceability and supply chain management	Privacy policy, data non-confidential except Personal Data (Access to own personal information may be charged a fee of £10)	No fees for farmers, Mapping costs vary according to the context. For cacao in Ghana approx. \$15/ha;
John Deere 	<i>"Turning data into insight at any time anywhere"</i>	Decision support for farm management	Only access to data for the trusted partners.	It is open for everybody. It is free of charge.
Monsanto 	<i>"Unlock the yield potential in your fields"</i>	Planting tool and yield management	Data is only shared with subsidiaries and business partners.	Access by payment: \$10 per acre.

There are also governance issues

- Do I own my tractor? (IPR John Deere software >“an implied license for the life of the vehicle to operate the vehicle”)
- Do I own my own data? Who has access to my data?
- Does the government have access?
- Do companies gain market power on future markets ?
- Is there a lock-in ?
- Do I become a franchiser with the risks but not the returns?



American Farm Bureau Federation®

Code of Conduct

Objectives for this EIP-Agri seminar:

- Identify and discuss existing and potential data driven business models in the agricultural sector, including the whole supply chain
- Identify enabling conditions for these business models and strategies to support their development
- Bring people together to further develop data driven business models

Thanks for your attention

krijn.poppe@wur.nl



www.lei.wur.nl

