

**AgriFoodTech Event, Den Bosch, 14-12-2017**

**Photonics in Agri & Food: "Beyond Taste and Vision"**

**Beauty is in the eye of the beholder.**

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**TKI = Topconsortium for Knowledge and Innovation**

**CIO = Chief Inspiration Officer**


Woody Allen (1953): why food?

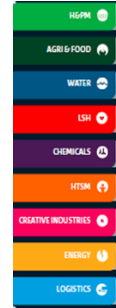


- Three existential questions exist.
- 1. Why are we here?
- 2. Where do we go?
- 3. When do we eat?
- Maybe to be added: What do we eat, Which wine to choose?



The Topsector policy






- Combine public and private investments in Research and Innovation.
- This includes the public investments in applied research institutes (35-100% of their budget).
- This includes the public investments in scientific research (the national science foundation NWO) to universities (50% of the budget (275 M€) of which 1/3 is under direct dialogue).
- Unique in Europe, example Japan and Korea.

Omvang van enkele topsectoren

Toegevoegde waarde aan de Nederlandse economie



€ 42 mrd


Voedsel

Aantal bedrijven in de sector


135.560

Voedsel 3130  
Chemie 2210  
Water 1560  
Energie 800  
Biotech 600

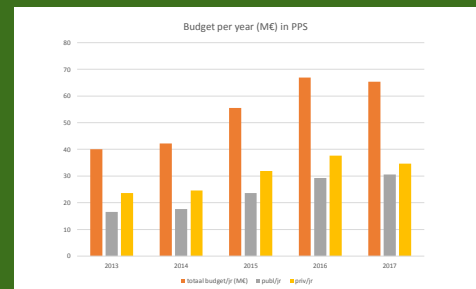
Bron: Topsectoren.nl 2010



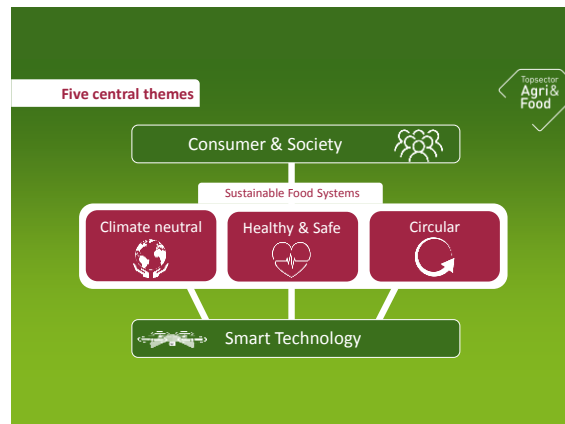
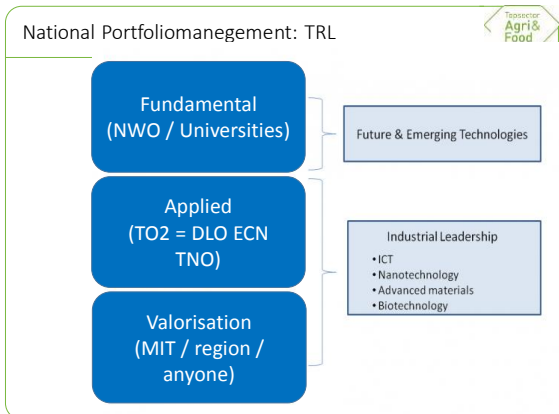
Budget



Budget per year (M€) in PPS



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**And Photonics?**

- Spectroscopy, Microscopy and Imaging

Topsector Agri & Food

**Consumer & Society**

*Ambition:*

- Development of consumer-driven chains that efficiently produce healthy and sustainable food
- Help societal welfare and economic strength
- Choice-competent consumers for healthy diets and lifestyle

Topsector Agri & Food

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**Climate neutral**

*Ambition:*

- Develop efficient, resilient and robust production systems,
- framed by animal- and plant health, animal welfare and biodiversity,
- With climate neutrality as ultimate target.

Topsector Agri & Food

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**Subthemes Climate neutral**

- Integral resilient and robust production systems
- GHG's
- Soil and water
- Healthy animals and people
- Plant health
- Sustainable fishery & aquaculture

Topsector Agri & Food

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## Healthy & Safe



### Ambitie:

- Improve public health by healthy, tasteful and safe food
- Less salt, sugar and fat, more fibers
- Decrease food allergies
- Sustainable processing

### Boundaries:

- Food safety and human health vs animal health



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## Subthemes Healthy & Safe



- Develop products & processes for healthier diets
- Sustainable post-harvest processing
- Safety & health food and animals



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## Circular



### Ambitie:

- Close the loop, reduce losses, bring side- & rest streams to value
- All over the chain: from farm to consumer



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## Subthemes Circular



- Development of new or adapted (green) sourcing
- Valorisation proteins, carbs, oils and fats
- Integrated (downscaled) biorefinery
- Processing and value creation with manure



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## Smart Technology



### Ambitie:

- Produce smarter en more precise with sensors, drones, geo
- Resource-saving technologies
- Application of IoT, blockchain
- Apply data-analysis, system architecture & -integration



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## Subthemes Smart Technology



- Data collection: sensors, detection, vision-systems
- Analysis and usage data: ICT, Big Data, interpretation
- Automation and control: activation, manipulation, handling, robotics
- Materials & processing: nanomaterials, *soft matter*, smart surfaces



18 Kennis & Innovatieagenda

## Summarizing

Tosca  
Agri &  
Food

- Connections well available, but not everywhere
- It's a beauty
- Need for beholders: you!

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Agri &  
Food