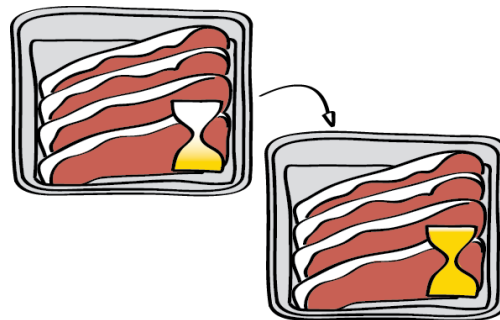
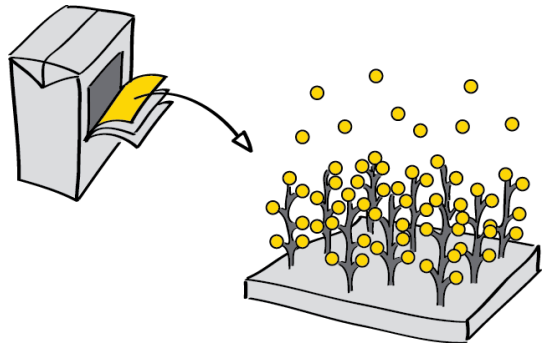
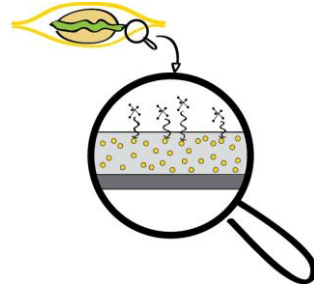
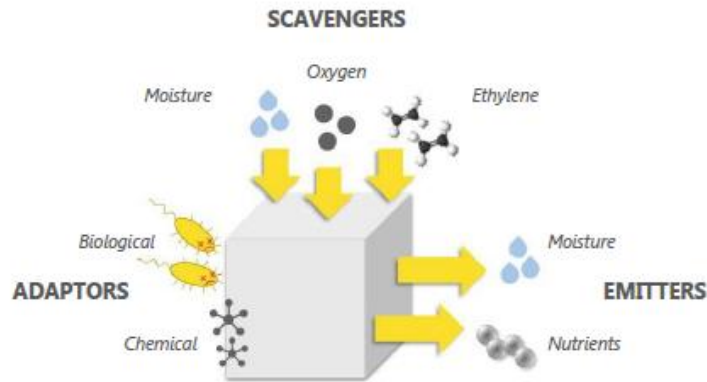


# TRENDS IN SMART PACKAGING

SANNE TIEKSTRA, Chair ActInPak

VIENNA, 20-11-2018



Packaging protects food against damage, Smart packaging can further improve the functions of packaging

**Active** packaging can interact closely with the internal environment of the packaging and the packed products in order to ensure the quality, protect the valuable nutritional components and prevent degradation.

**Intelligent** packaging on the other hand senses changes inside the packaging atmosphere and communicates about the quality of the product.

# SMART PACKAGING CONNECTS TO GENERAL TRENDS



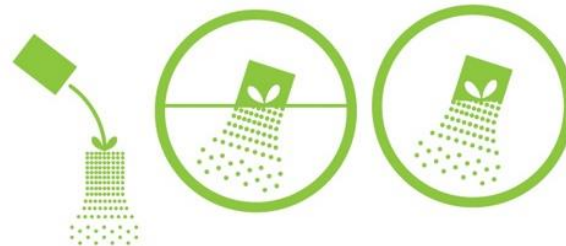
# SMART PACKAGING CONNECTS TO MATERIAL TRENDS



Deze Biotex verpakking bestaat voor 80% uit gerecycled karton. Cet emballage Biotex consiste pour 100% de carton recyclé.

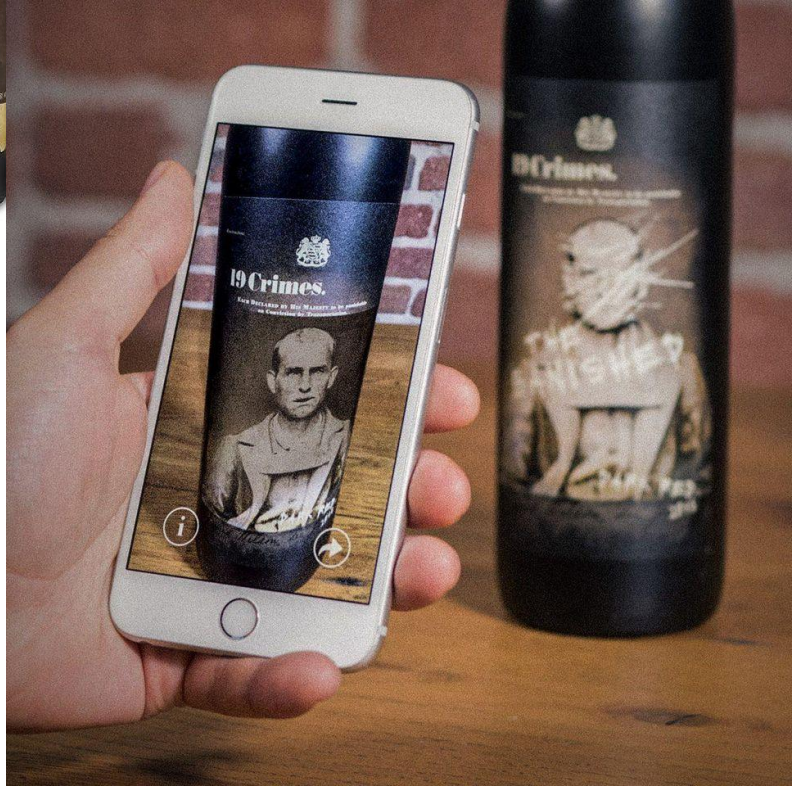


compostable



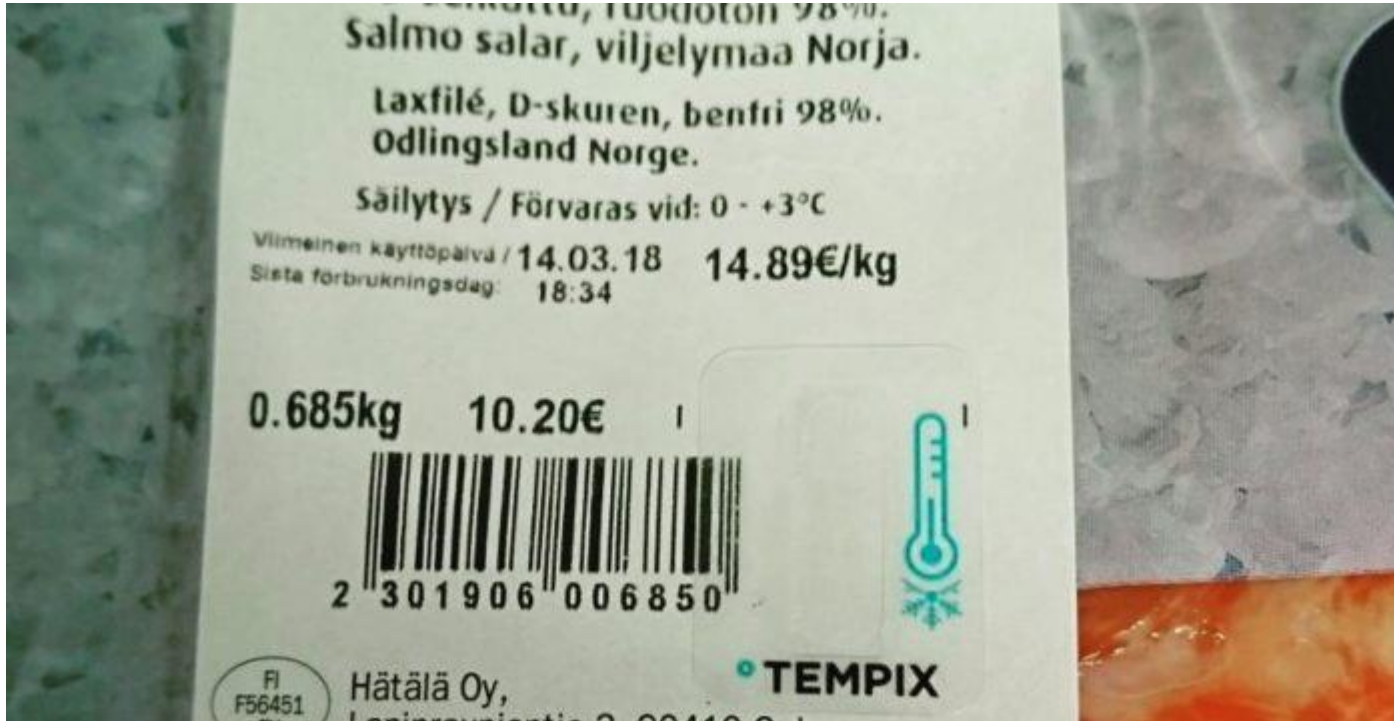
# OPPORTUNITIES – SOME EXAMPLES

# CONSUMER ENGAGEMENT – AUGMENTED REALITY



19crimes.com <https://www.cmo.com.au/article/632790/treasury-wine-estates-pushes-consumer-engagement-augmented-reality-app-portfolio/>

# INFORMATION COLD CHAIN – THERMOCHROMIC INK



UNBROKEN COLD CHAIN



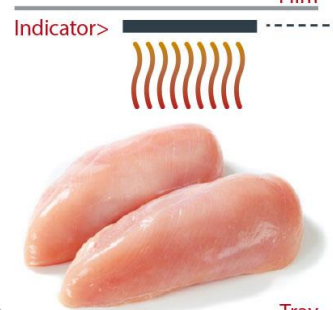
BROKEN COLD CHAIN

<http://tempix.com/notis/lidl-is-the-first-to-secure-their-cold-chains/>


# INFORMATION FOOD QUALITY – INDICATORS



Indicator> **Film**




**Tray**




Do not consume if the indicator is darker than the reference colour

Indicator> **Film**



**Tray**



Do not consume if the indicator is darker than the reference colour





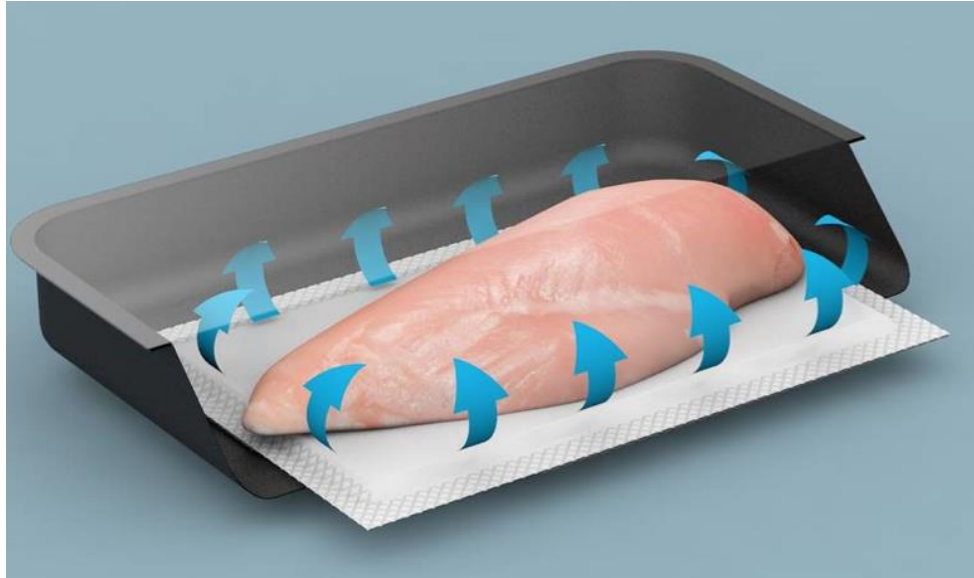


Stora Enso Macaron box



Interactive moisture sensor. The display is activated by putting the metal feet's in a plant pot





Left to right: CO2 emitter by Cellcomb | Demonstrator antimicrobial flower packaging KCPK  
| Fresh Paper by Fenugreen |

# SAFETY ASSURANCE – ANTIMICROBIAL



Left to right: Drinkable book by Teri Dankovic | Demonstrator antimicrobial Medicine box  
NewGenPak

# CONSUMER ENGAGEMENT – INTERACTIVITY



Left to right: Stora Enso Champagne box | Bombay Sapphire | Drum poster by Novalia | 'Fresh' fish packaging for Miila

<http://blog.drupa.com/fish-packaging/>

# CONVENIENCE – SELF HEATING / SELF EXPANDING



Left to right: Self cooking egg by KIAN: <http://kian.ru/eng/projects/gogol-mogol/> | Self expandable bowl by RI.SE <http://www.innventia.com/en/About-us/News1/Prizewinning-Swedish-package-design/>

- Protect valuable nutritional components
- Prevent degradation
- Ensure quality
- Guarantee, predict and extend shelf life, also after opening
- Save high value material: the product
- Limit over-packaging
- More natural food by reduction of preservatives
- Communicate to the consumer about the quality or the state of the product (eg safe, original...)
- Reduce value losses: Security / anti-counterfeiting

# CHALLENGES





**"This really is an innovative approach, but I'm afraid we can't consider it. It's never been done before."**

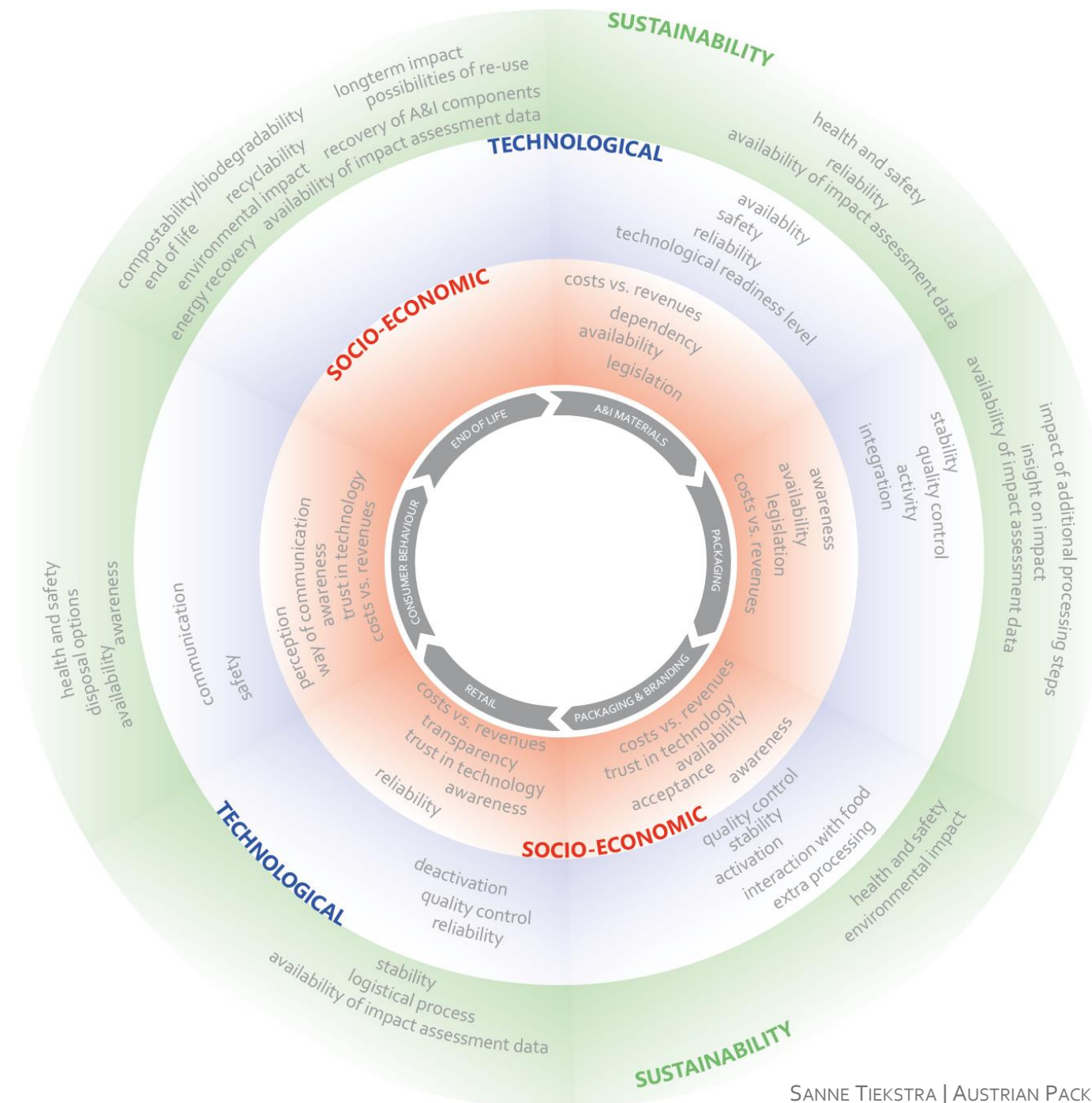


Identification of challenges and hurdles to overcome for successful market implementation on several topics

Large European network of scientists and industry from 40 different countries

[www.actinpak.eu](http://www.actinpak.eu)

# CHALLENGES

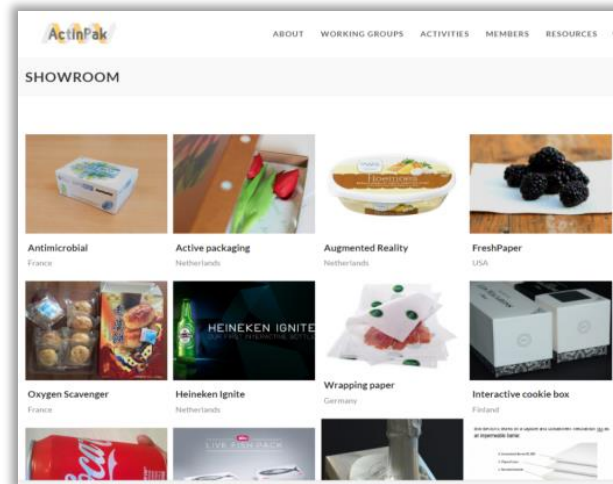


- Gap research <> industry
  - Lack of awareness of what is AIP
  - Lack of awareness of benefits, added value and impact; not only for consumer, also throughout value chain
  - Cooperation between stakeholders
    - Industry seems to prefer fleshed out technologies, whereas science delivers partial solutions
  - Challenges differ per packaging type (eg bulk vs unit)
  - Who is key decision maker; Stakeholder that benefits most?
  - Prove advantages outweigh the costs
  - Conflicting interests throughout value chain >> find common ground
- Gap industry <> consumers
  - Active packaging is “invisible”
  - Lack of awareness of what is AIP, reach out on different levels
  - More action needed on traceability of unsafe food + informing public when unsafe products are found on the market
  - We are all consumers: if you will never buy it, forget it

1. Society
  - » Video explaining AIP
  - » Videos about research
2. Industrial
  - » Virtual Showroom with possibilities
  - » Leaflets
3. Scientific
  - » Conferences
  - » Papers



• [www.actinpak.eu](http://www.actinpak.eu)



ACTIVE AND INTELLIGENT  
PACKAGING ON DISPLAY

**VIENNA**  
CONFERENCE AND FAIR

## SAVE THE DATE ON NOVEMBER 21ST THE ACTINPAK CONFERENCE AND FAIR WILL TAKE PLACE IN VIENNA, AUSTRIA



as well-known scientific and industry members of the European COST Action FP1405 ActInPak will share interactive presentations and physical demonstrations of active and intelligent packaging.

Here, you will find the latest on novel innovations and market implementation of packaging that interacts with its contents (active) or communicates with its consumers (intelligent).

Results of the 4-year COST Action, which involves partners from 43 countries representing 209 academic institutions 83 industries and 35 technical centres, will be presented.

The conference and fair program will soon be published on the [ActInPak website](#) where you can also read more about ActInPak.



For more information, please visit the ActInPak LinkedIn page or Youtube channel. Follow us also on Facebook and Twitter.



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