

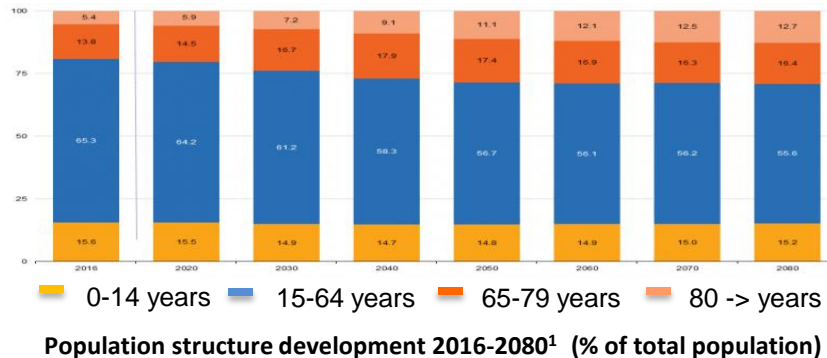
The PERFORMANCE* project – towards 3D
printing of food

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Brussels, 16th October 2017

- Persons in special life situations such as:

health and/or nutritional deficiencies, malnourished persons, **sick persons, frail and elderly persons**



Factors such as

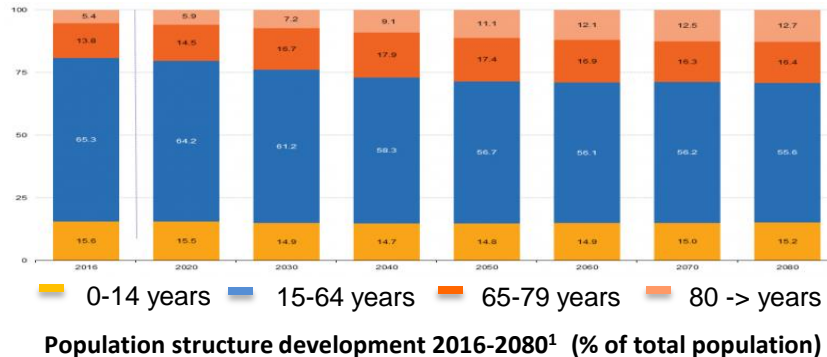
- Apoplexy; craniocerebral injury,
 - multiple sclerosis, tumours, stroke,
 - surgery at head area or throat area,
 - dementia diseases as Alzheimer
- etc..

¹EuroStat data Population structure by major age groups, EU 28, 2016-2080

Demand for personalised food

- Persons in special life situations such as:

health and/or nutritional deficiencies, malnourished persons, **sick persons, frail and elderly persons**



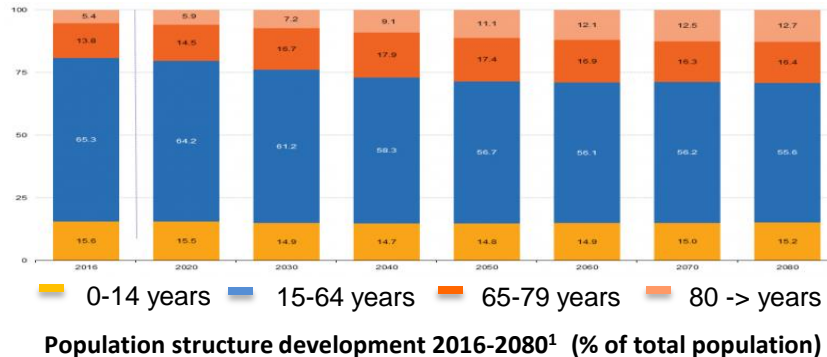
*... often lead to
dysphagia
("When eating becomes a
pain")*

¹EuroStat data Population structure by major age groups, EU 28, 2016-2080

Demand for personalised food

- Persons in special life situations such as:

health and/or nutritional deficiencies, malnourished persons, **sick persons, frail and elderly persons**



... in consequence it causes often malnutrition

¹EuroStat data Population structure by major age groups, EU 28, 2016-2080

- Mashed food
- ↓
- Visually not appealing
- ↓
- Reflection of one's own situation
- ↓
- Loss of interest and appetite
- ↓
- **Nutrient deficiency** and Dehydration
- ↓
- **Malnourishment /under nutrition**



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Do you get appetite for this meal?

- Increased request for healthy, tasty and visual appealing food/menus
- Less tolerance towards mash-type food
- Growing number of people suffering from dysphagia

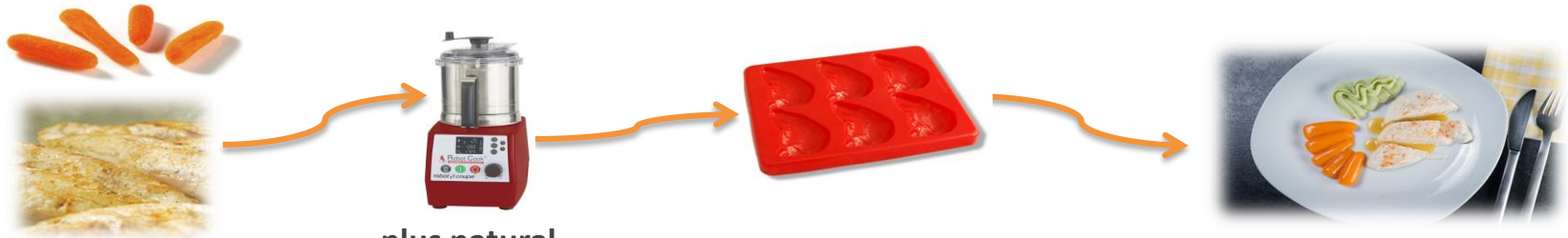
Challenges

- Growing care market (aging society)
- Often lack of knowledge for preparation of nutritional diets
- Time pressure and lack of personnel in nursing home kitchens
- Insufficient monitoring of nutritional status and reporting

Solution?

smoothfood 1.0

This food concept is based on fresh food (meat, fruits and vegetables) which are modified in their consistency. It allows already today the personalisation of food while valuable **ingredients, taste and aroma as well as the visual appealing remain similar to the original**.



Limits:

- requires skilled personnel
- Logistic challenge for larger nursing homes, personalisation limited
- Limitation in the variety of meals (due to the need for silicon moulds)

Step forward

The PERFORMANCE innovation

Yesterday:



© Katharina Jäger fotografische Werkstatt

Chicken wing
mash

Today:



Hand-made
smoothfood
chicken wing

Tomorrow:



© Biozoon 2014

smoothfood
3D printing

Result



“PERFORMANCE” personalised
smoothfood, industrially
manufactured
(*smooth*food 2.0)

Elaboration of **smoothfood 1.0** towards **smoothfood 2.0** by making use of 3D printing technology

Expected advantages

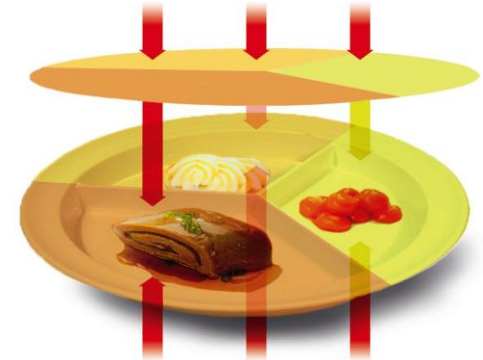
- Automated production of personalised **smoothfood** menus
- Production of large quantities
- Personalisation down to individual level on a daily basis
- Enabling implementation nutritional strategies for an individual person
- No limitation in the variety of meals (no need for silicon moulds)



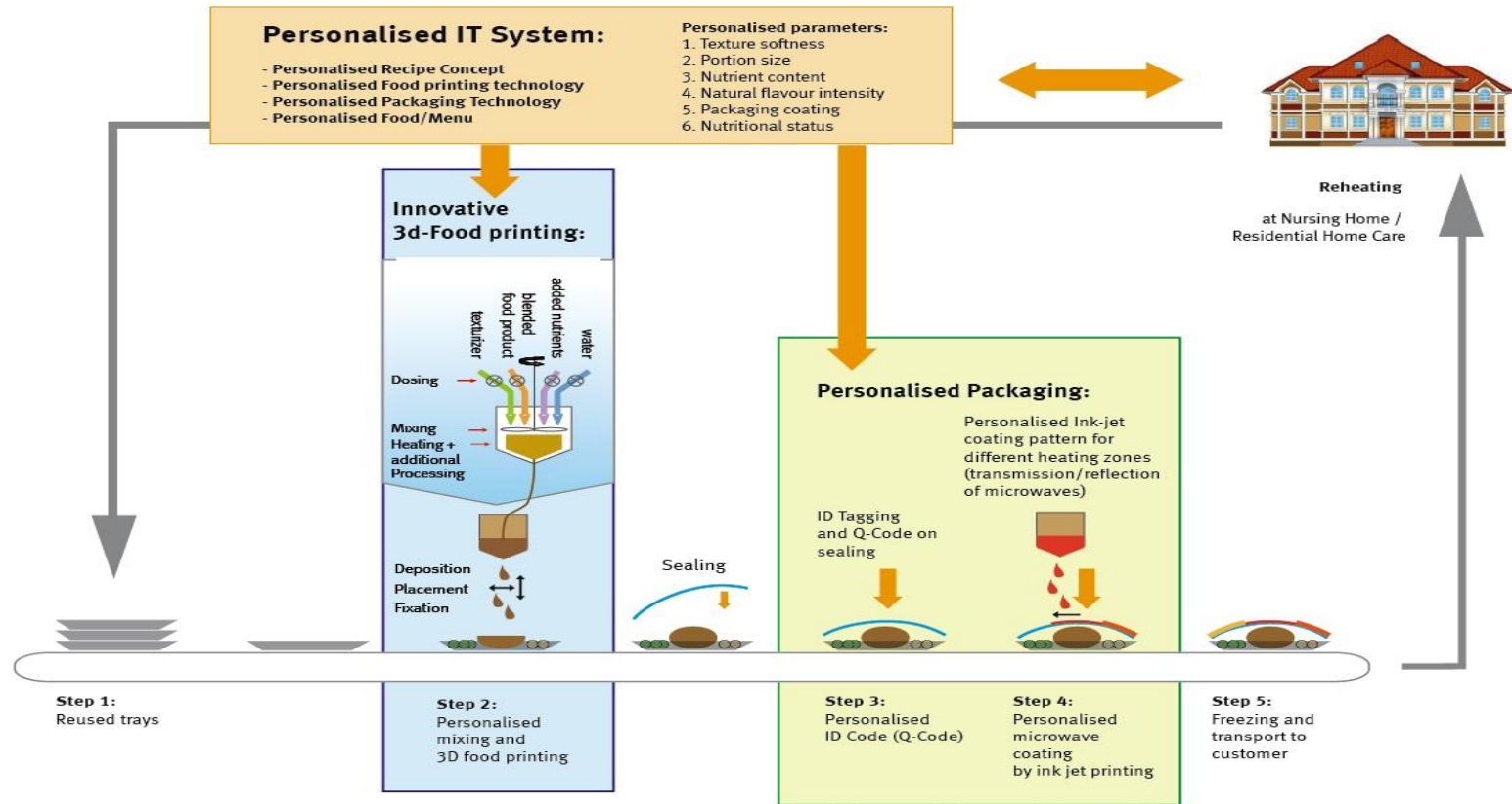
- Development of **novel processing** and **packaging technologies** for a **personalized food supply chain** which allows the automated manufacturing of individual, specially textured and healthy food for frail and elderly people and a convenient packaging design

Personalized:

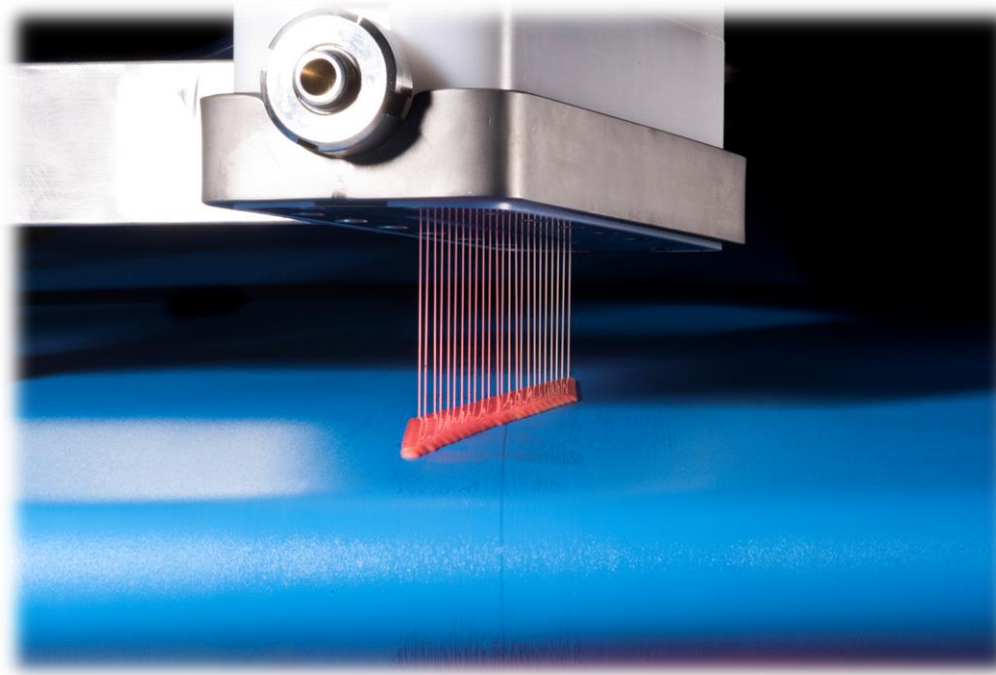
- **recipe concept**
- **food printing technology**
 - (individual portion size, nutrient content, texture softness...)
- **packaging technology**
- **IT-system** for recording & processing nutritional requirements



The PERFORMANCE concept

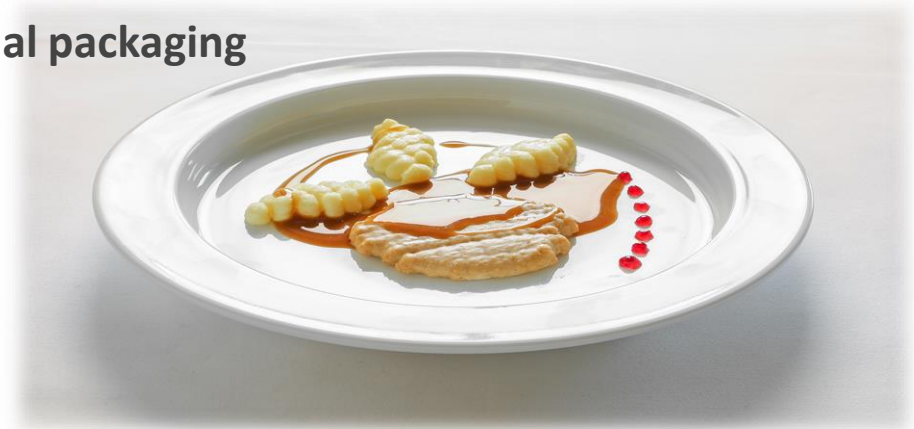


Achievements



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- Food is a **natural product**
 - limitation in what can be added
 - food composition/quality is always different
- **Speed** of the printing process
- Homogenous reheating requires **special packaging solutions**
- Yet **unknown scale and cost** of the most promising printing solution
- **Consumer acceptance?**

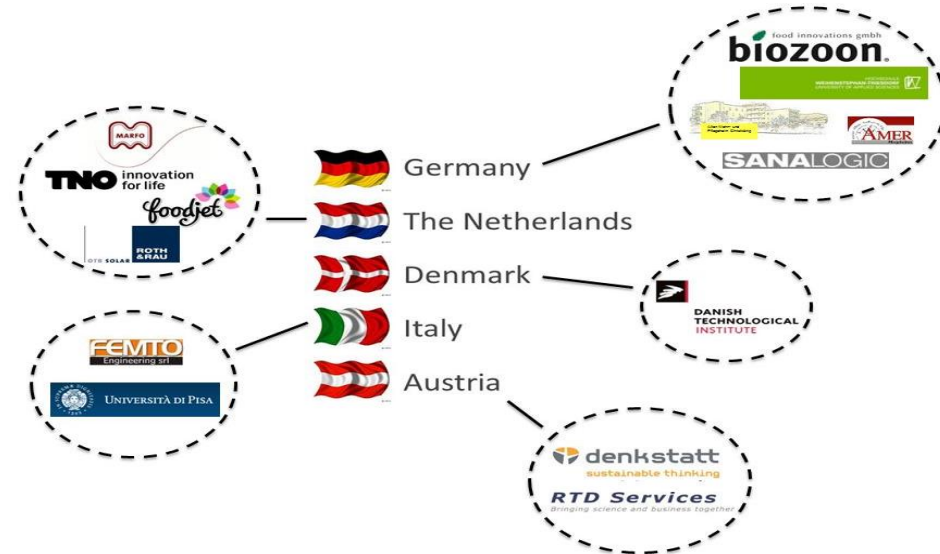


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Acknowledgement

Proposal full title:	PER sonalised FO od using R apid MA nufacturing for the N utrition of elderly C onsum ER s
Proposal Acronym:	PERFORMANCE
Duration:	36 months
Number of participants:	14
Total EC contribution:	2,998,000 Euro

Coordinator:



Thank you ...

... for your attention!



For more information find us on

www.performance-fp7.eu

