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# Personalized Food Production

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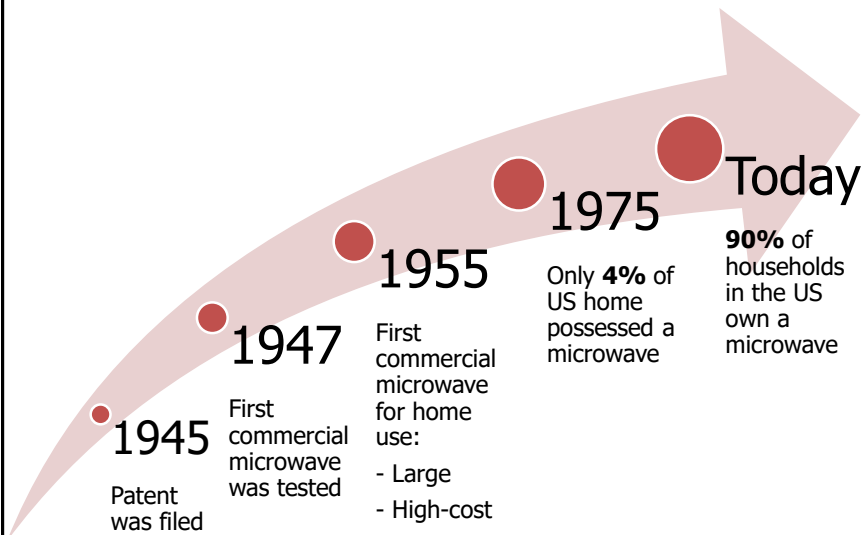


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## AGENDA:

- Technology evolution
- What is 3D food printing?
- Why is it smart?
- How to 3D print food?
- What is the status?
- What is next?

## Technology evolution of the microwave



### Microwave:

- ✓ Save time
- ✓ Retain nutrients in the food
- ✓ Easy to clean
- ✓ Reduce energy consumption
- ✓ Reduce food waste

Retrieved from: <https://www.livescience.com/57405-who-invented-microwave-oven.html>

## What is 3D food printing?



### New concept in cooking

- On-demand production of **individually customized meals**
- Ability to produce food structure that could not be produced before



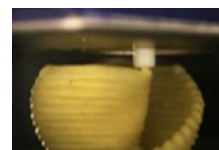
3D natives



TNO



BeeHex



Pasta print, TNO



3dprintheq



Open Meals

## Why is 3D food printing smart?



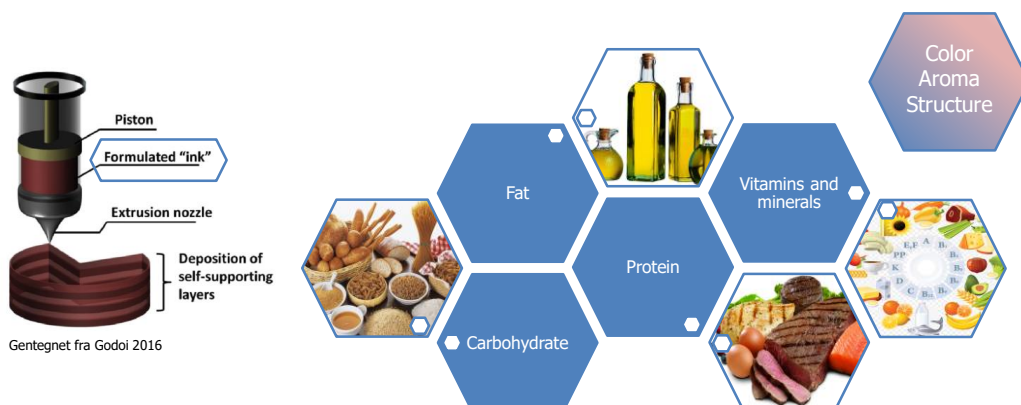
### Individually adapted food

- Nutritional content (special needs can be met)
- Allergens (individual allergies can be avoided)
- Energy content (everyone gets what they need)
- Texture (inviting meals for who have difficulties to swallow)
- Appearance (visually appealing)
- Taste (everyone gets what they like)

### Food production for the world's rising population

- Reduce food waste: Only the meals to be consumed are produced
- Easy to prepare
- Retain nutrients in the food
- Easy to clean

## How to 3D print food (2020)?



## How to 3D print food (2020)?



### Printable ingredients

#### Viscous ingredients

Dairy products (soft cheese, yogurt, desserts)  
Fruit and vegetable mash / puree  
Dough (pasta, bread)



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ChefJet

#### Ingredients that can solidify

Chocolate, butter, peanut butter  
Temperature-dependent



TNO



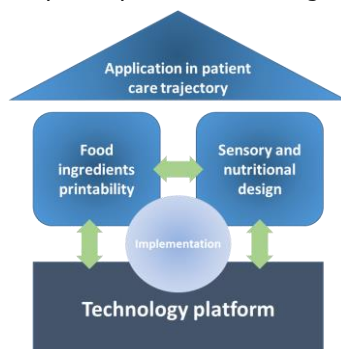
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## What is the status of 3D food printing?



### Case: Personalised food Products for Patients (3P)

- Funded by  Innovationsfonden
- Objective: Production of individually adapted meals for hospitalized patients at Aalborg University Hospital.



## What is the status of 3D food printing?



### Case: Personalised food Products for Patients (3P)

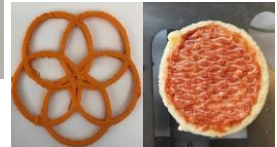
Funding by



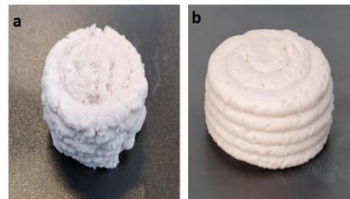
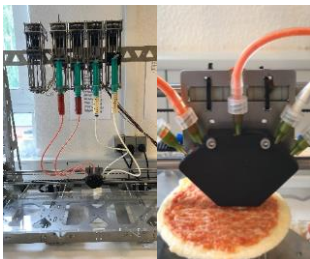
- Printability of food ingredients
  - Print with fat, carbohydrate and protein
- Print of other meal components
- Printer design and printer prototypes



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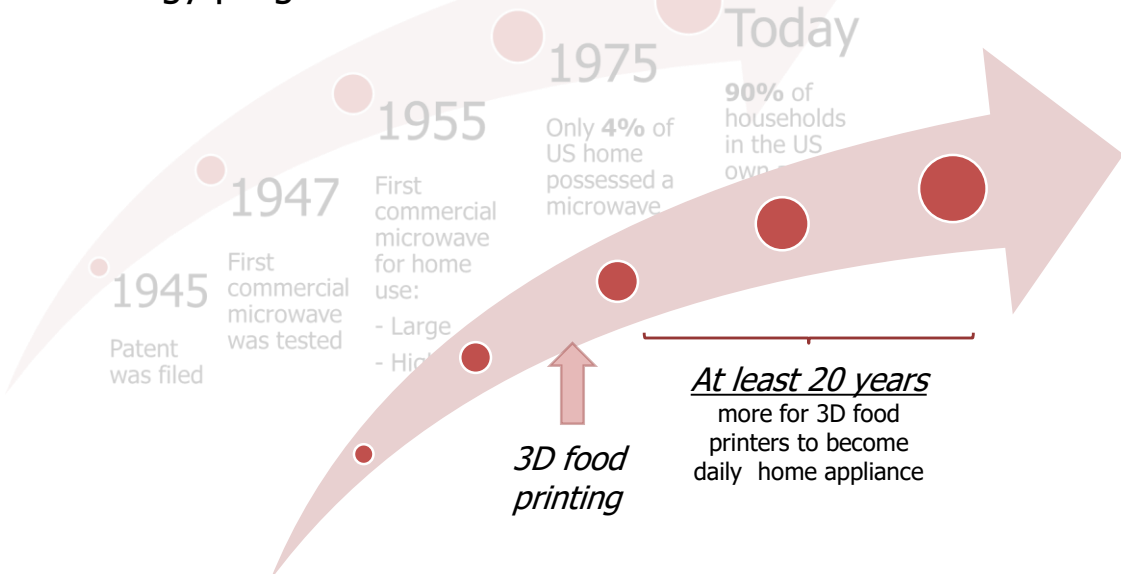
## What is next?



### Focus area:

- Technology development
- Production capacity
- Food "printability"
- Functionality of ingredients
- Hygiene and microbiology
- Design of taste and texture
- Implementation

Where is 3D food printing in terms of technology progress?



**Would you like to know more or be part of future projects?**

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