



# From research based evidence to policies – Food Choice Architecture Research.



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**University of Malta, April 14, 2014**

**Abstract:** There is an increasing interest in interventions targeting the environment and the local level. This presentation introduce the framework of foodscapes as a way to look at the food environment and discusses its potential for playing a role in public health nutrition strategies. The presentation give a brief account of new approaches to interventions based on the idea of choice dynamics, choice architectures, dual brain processes and nudging It finally give an introduction to new types of personalised intelligent health devices that are increasingly becoming an international agenda in monitoring lifestyle behavior and which are explored in the AAU foodscapelab ([www.foodscapelab.aau.dk](http://www.foodscapelab.aau.dk))





# **What Food Scapes Studies can offer**

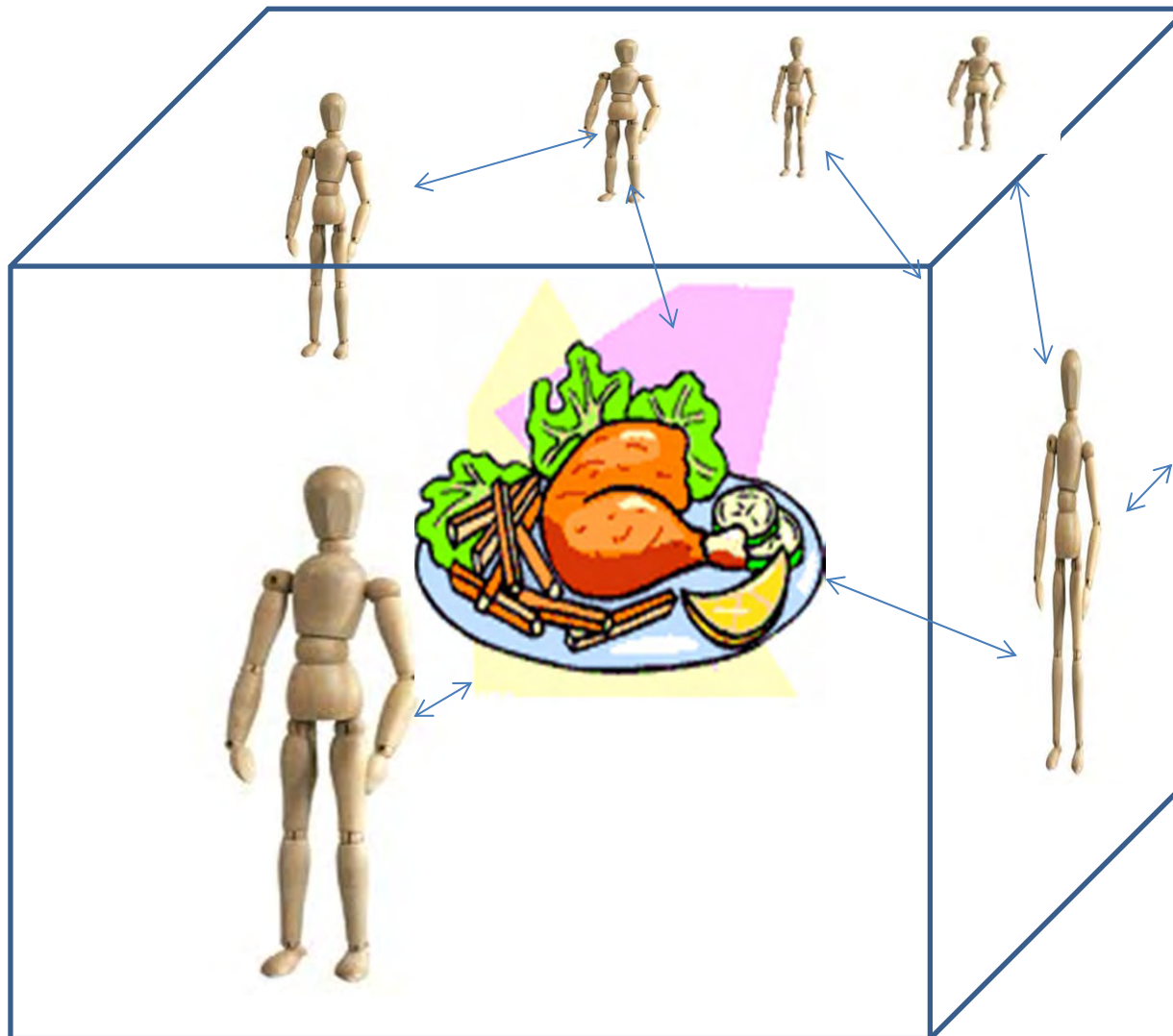
# Eating

*“Next to breathing, **eating** is perhaps the most essential of all human activities, and one with which much of **social life** is entwined.”*

*(Mintz & Du Bois, 2002)*

# Foodscapes

## People, meals & spaces

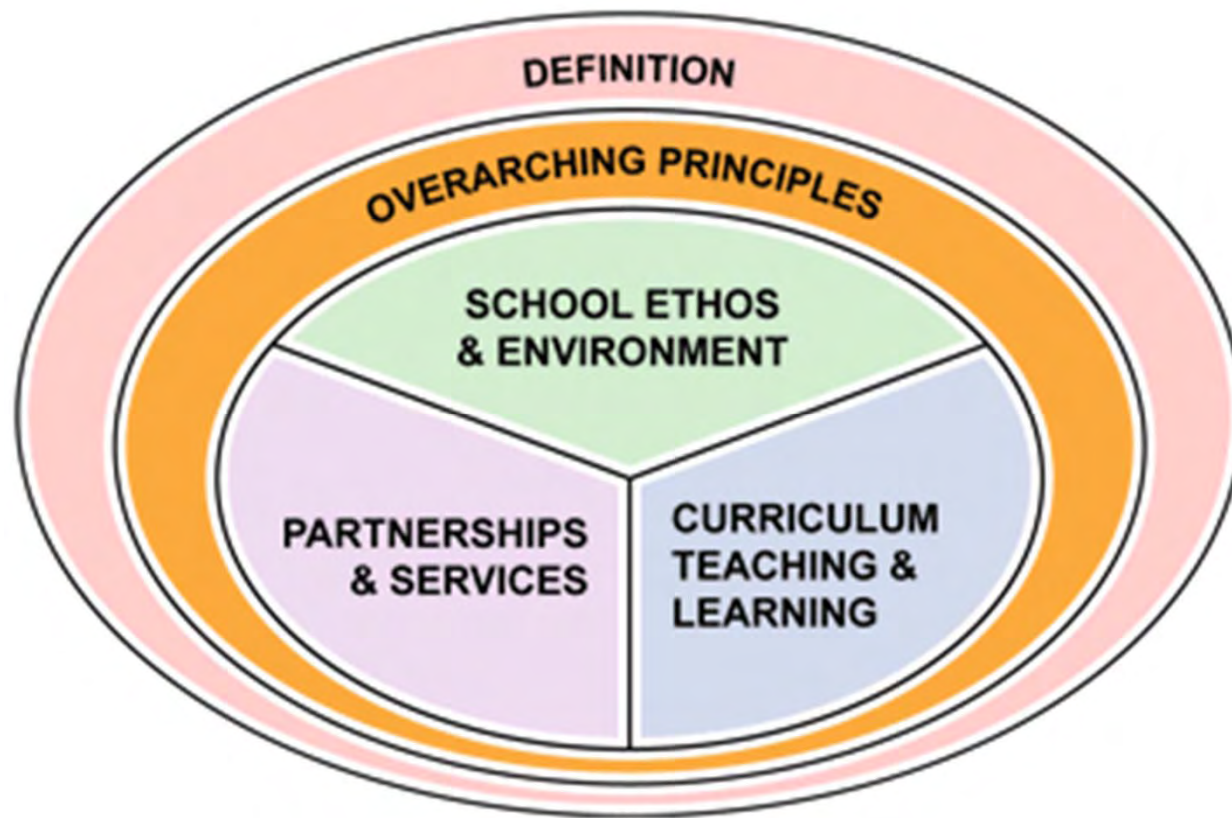


**IMAGES OF FOODSCAPES -  
INTRODUCTION TO FOODSCAPE  
STUDIES AND THEIR  
APPLICATION IN THE STUDY OF  
HEALTHY EATING OUT OF HOME  
ENVIRONMENTS**

Mikkelsen, Bent Egberg  
. Perspectives in Public Health,  
submitted

# Systems approach

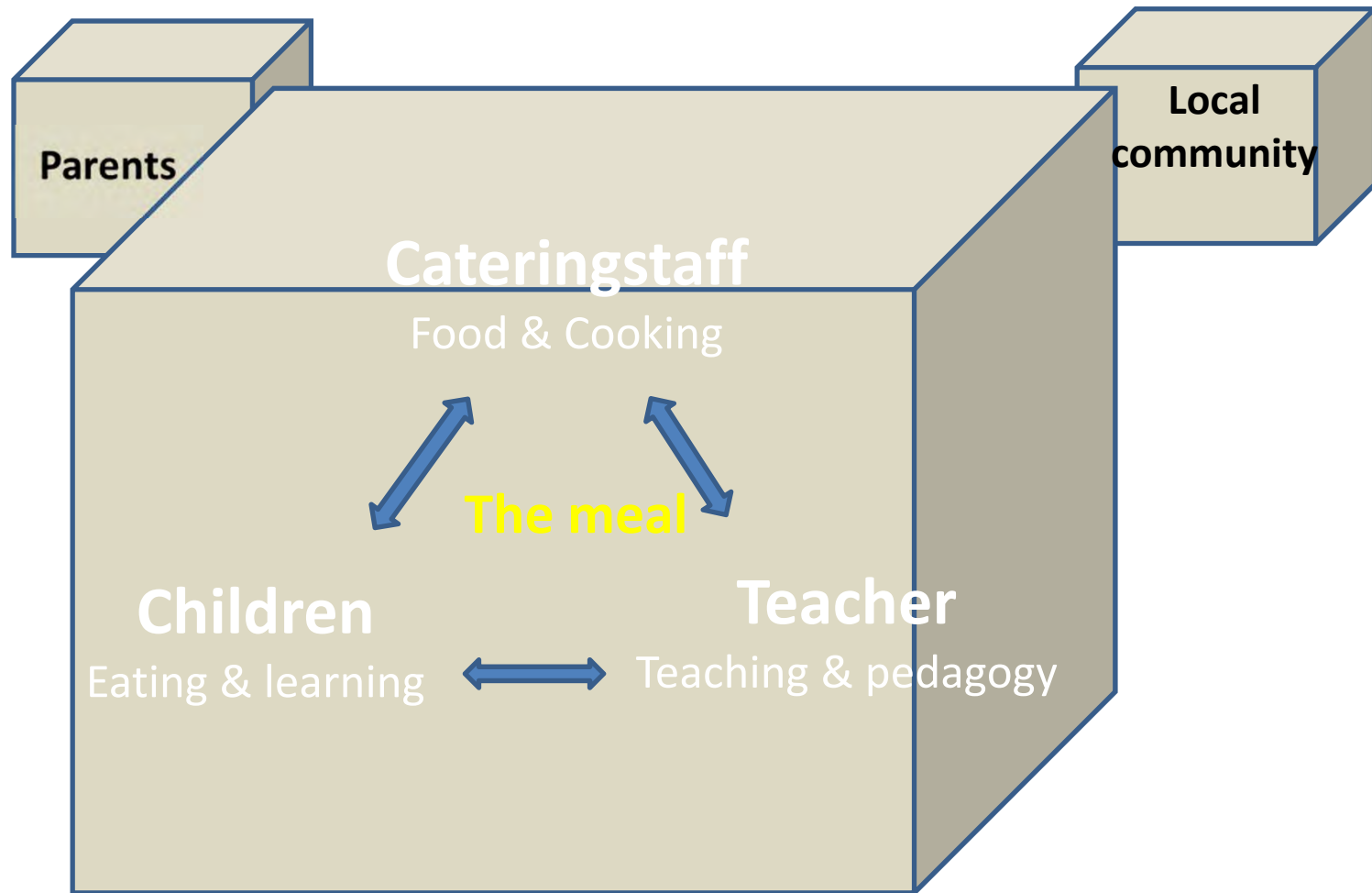
## “Whole School Approach”



WHO, Dooris, 2005)

# Theoretical framing

## The school foodscape







**Food at school:  
an instrumental approach**

# Two doors of the school

Food &  
Meals



Teaching &  
learning



# Affordances

- From the work of Gibson (1977) and the Theory of Affordances and *The Ecological Approach to Visual Perception* (1979)
- "action possibilities" latent in the environment
- objectively measurable
- independent of the individual's ability to recognize them
- always in relation to agents
- therefore dependent on their capabilities

# Social space

*“....contains a great diversity of **objects**, both **natural** and **social**, including the **networks** and **pathways** which facilitate the **exchange** of material **things** and **information**.”*

*Such ‘objects’ are thus not only things but also relations.”*

*(Lefebvre, 1991)*

# **Appadurai's 5 –scapes**

facilitate the global exchange of ideas and information.

- Etnoscapes
- Techno scapes
- Finance scapes
- Media scapes
- Ideo scapes

**Foodscapes are**

(spatial view)

*”...- institutional sites for the  
merchandising and  
consumption of food.”*

*(Winson, 2004).*

**Foodscapes are**

(behavioural view)

***“how we live our lives **with**  
food, **according** to food  
and **through** food”***

*(Dolphijn, 2004).*



**Foodscapes are**  
(relational view)

*“never a **sum of its parts**;  
it is in the **sum itself** that  
the parts are **created**”  
(Dolphijn, 2004).*

# Foodscapes

*Could be **networks, webs and pathways** for the exchange of **food, meals information, ideas, norms etc.** in a **given space** created by **time & place.***

# The captive foodscape



·I Warners Foodscapes

“the physical, organizational and socio cultural captive space in which individuals encounters meals, food, food related issues and intermediaries”



# A typology of foodscapes

Type of foodscape	Geographical coverage	Subcategory
Macro view	National level	
Meso view	Local level	
Micro view	Institutional level	
Micro view	Domestic level	Kitchen
		Table
		Plate
		Food

Mikkelsen. 2011, inspired by Lake (2010) that distinguish between micro and macro levels, the contribution of (Lake et al., 2010), the ideas of “sub categorization” of Sobal & Wansink (2007) and the Socio Ecological Model (Bronfenbrenner, (1979)

# Foodscapes

well suited for capturing complexity

TYPE	RQ
Material	How they appear
Discursive	How do we talk about
Learning	How you learn in them
Virtual	How they might be
Social	How they function as social glue



# FoodScapes Assessment

## **Food availability**

SMP (school meal program) available?  
School Fruit Scheme (SFS) available  
School Milk Scheme (SMS) available  
Presence of unofficial "skole bod" with competitive foods?  
Canteen/sit down eating facilities available

## **Policies**

Free school meal entitlement (FSME) scheme available  
School food & Nutrition policy (SFNP) available  
School policies about nutrition and leaving campus  
Organic food sourcing policy in operation

## **Learning & curricula aspects**

Home economics facility (HEF) available  
Hands On Food Activity (HOFA) available  
On campus School garden available  
Off campus School garden available  
Cooking lesson activities  
Taste education (Sapere) activities  
School Roof garden activities  
Edible school yard activities  
Farm2School link activities  
Other Hands On Food Activity (HOFA) available. Please specify\_\_\_\_\_

## **Near campus food environment**

Alcohol outlets within 200 metres from school  
Competitive food outlets within 200 metres from school?

# Foodscapes Assessment

Environment/structures	Assessment of environment	Assessment of action possibilities
Food availability		
SMP (school meal program) available?		
School Fruit Scheme (SFS) available		
School Milk Scheme (SMS) available		
Official "skole bod" with		

"Foodies"/Stakeholders/Agents	Priorities	Activities that could support priorities	Assessment of action possibilities
Head teacher			
Teaching staff			
Canteen staff			
Janitor staff			
Parents board			
Home economics teaching staff			
Municipal school <u>adm</u> staff			
PE/Outdoor activity teaching staff			
Municipal procurement			
Students board			

# The foodscape approach to eating at school

doi:10.1017/S246900014000690C

Public Health Nutrition page 1 of 4

## Editorial

### School – a multitude of opportunities for promoting healthier eating

Strategies to counteract the burden of nutrition-related disorders and unhealthy eating patterns at the national level are commonly based on regulatory approaches, but a growing number of strategies are also targeting the local level. School-based strategies are among the most promising, and the growing interest in school-based public health nutrition strategies is reflected in the growing number of contributions to *Public Health Nutrition*. A count of papers published in this journal shows that those dealing with food and nutrition at school have grown exponentially since the middle of the new millennium.

Cluster-randomised studies provide increasing evidence for the idea that school-based nutrition interventions can positively impact the eating patterns of children and in some cases even indicators of health status. A number of studies have also shown that the school meals offered tend

#### A broad range of challenges and strategies

This issue of *Public Health Nutrition* highlights work from the global research community that advances scientific investigations on the potential contributions of school-based nutrition initiatives to public health. The articles come from a wide range of countries including Germany, Switzerland, Denmark, Norway, Portugal, England, Wales, the USA, Chile, Brazil and South Africa, and they represent a broad spectrum of scientific approaches.

#### Choosing among healthy and unhealthy food options

Schools can be useful settings for behavioural interventions targeting school-aged children. Ribeiro et al.<sup>(1)</sup> compared two school-based programmes for health behaviour

# SoL high-impact intervention sites





# SoL supersettings

<http://www.tv2bornholm.dk/programmer/bare-lidt-sundere.aspx?videoID=32365&vidLoc=NewDB>





# Peoples meeting: Bornholm June 12-14 2014



# Expected outcomes

- **Increase**
- 15 % retail sale of F&V and whole grain compared to control
- 25 % intake of F&V and whole grain among 220 intervention families compared to control
- Significant difference in knowledge (cultural capital) and attitude among intervention families compared to control
- **Decrease**
- 15 % of intake of candy and soft drinks compared to control
- TV viewing of ½ hour among children in intervention families

# Conclusion

FSS's are a way to look at food & eating and

- Get the big picture
- Capture availability & learning
- Use the full potential of school
- Looking at agency and structure
- Analysing associations
- Making predictions

# Students group work

a protocol for testing Nudge efficiency in cash cafeterias

- Purpose: increase FV intake in a cash cafeteria by influencing choice dynamics
- Tool: costumer journey / your creativity /evidence
- Outcome: ideas for "nudges" for a cash cafeteria

# Structure

- Background, environments, Foodscapes, Choice architectures
- New opportunities. Big data, Data'n Devices, GeoNutrition/Spatial Nutrition,
- Our FoodScape experiments
  - Lab Foodscapes
  - Living Foodscapes



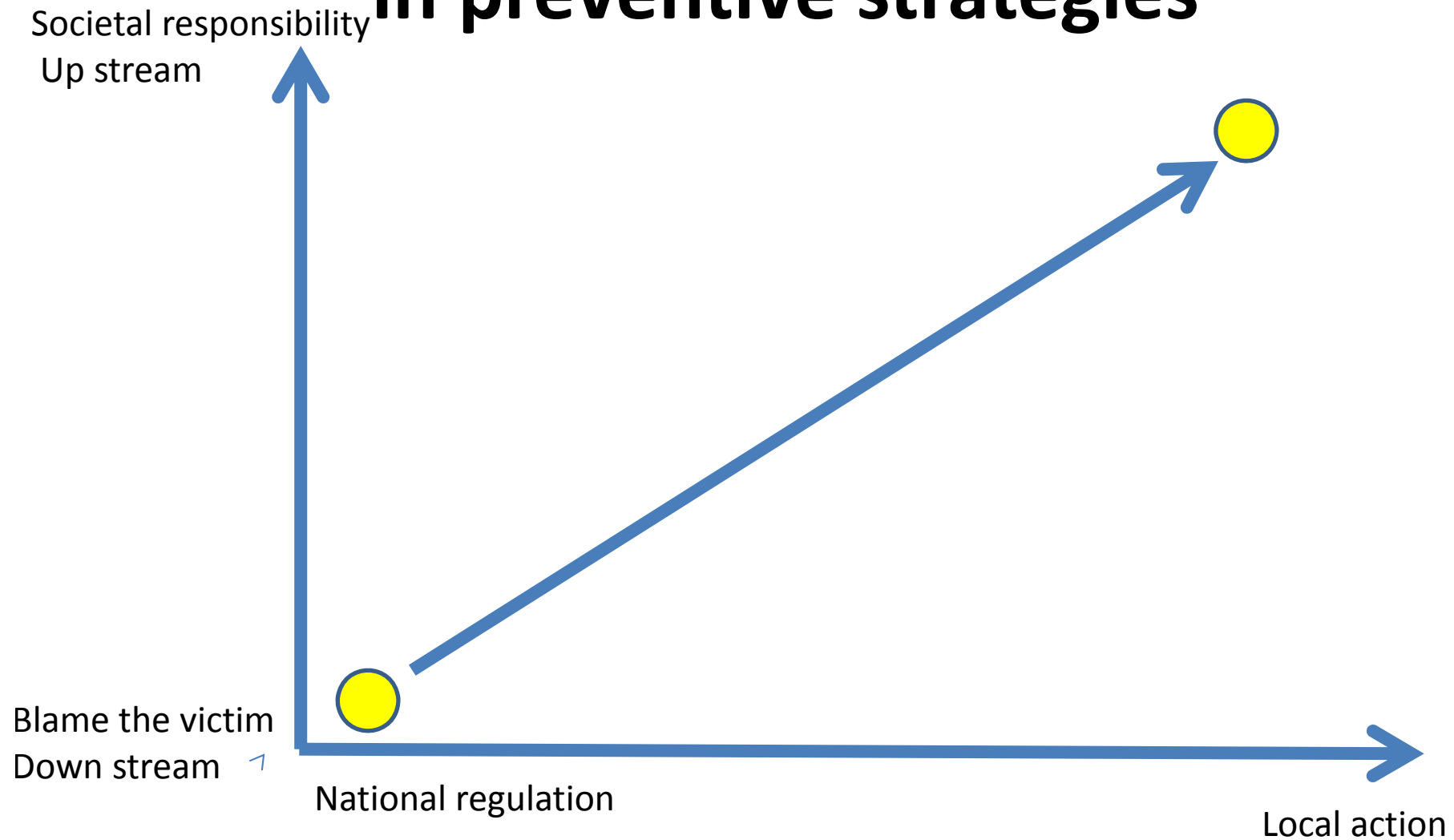
# Prevention and health promotion

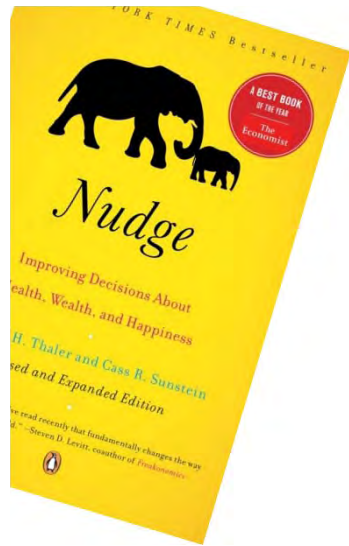
## Downstream or upstream?



**Choice architectures –  
an in-between environmental strategy**

# A new paradigm in preventive strategies





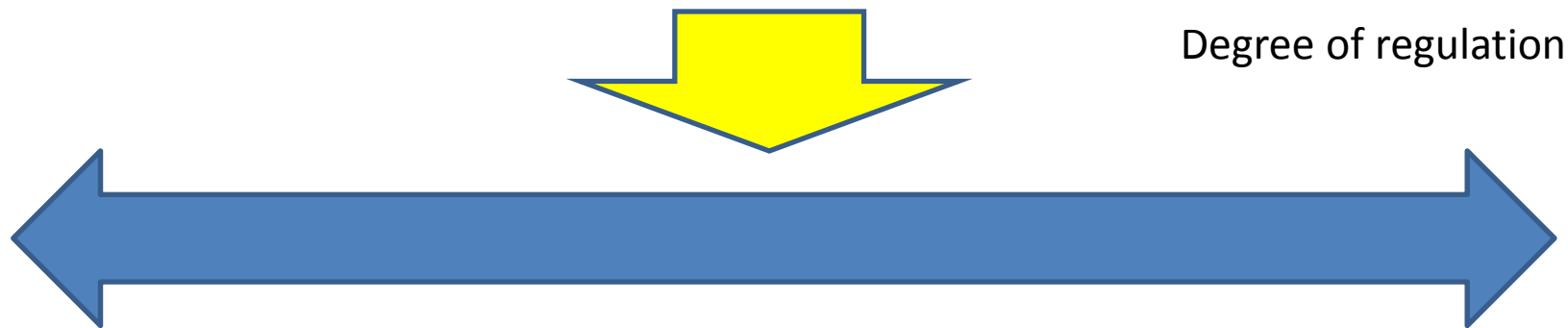
# Definition

**“Any aspect of the choice architecture that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives”**

*Thaler & Sunstein, 2008*

# Nudging as a third way?

- Soft and hard paternalism



[Robert Nozick](#) (1938-2002) var en af de store teoretikere bag libertarianisme, og hans bog [Anarchy, State, and Utopia](#)

Christopher B. Gray (ed.), *Philosophy of Law: An Encyclopedia*, Garland Pub. Co, 1999, II.632-635. [Copyright](#) © 1999, [Peter Suber](#).

**Paternalism**[Peter Suber](#), [Philosophy Department](#), [Earlham College](#) "Paternalism" comes from the Latin *pater*, meaning to act like a father, or to treat another person like a child. ("Parentalism" is a gender-neutral anagram of "paternalism".) In modern philosophy and jurisprudence, it is to act for the good of another person without that person's consent, as parents do for children

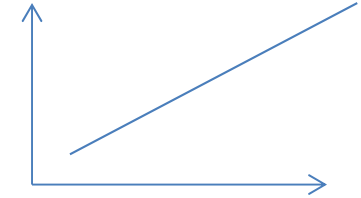
## **Someone has ambitions on your behalf**

- Routes to persuassion
- Inducing consumption
- Choice editing
- Behaviorual change

# 2 routes to persuasion

## Elaboration likelihood model (ELM)

- A model of how attitudes are formed and changed
- The idea of "elaboration continuum" is central
- Ranges from low elaboration (low thought) to high elaboration (high thought).
- Peripheral route: Emotional appeals—fear, humor, and sex—and compared their impact with. Uses preexisting ideas and superficial qualities to be persuaded
- Central route: Central, rational, logic, information. Rational appeals such as comparison, gain/loss, and one or two sided (Hornikx and O'Keefe 2009).



Richard E. Petty & John Cacioppo in the early nineteen eighties

# Defaults

someone always decided how it should be





# The case of Picanto

## Seductive sensible?



- <http://www.youtube.com/watch?v=wshLJzAYcjk&NR=1&feature=endscreen>

# Inducing food consumption

## some examples of nudges

- Appearance (how things look)
- Anchoring (to set high price, amount, goal, compare everything subsequent with that)
- What others are doing (collectivity)
- Variety (affluence)
- Novelty (something is new)
- Bogoffs (Buy1Get1ForFree)
- Brand (logos etc)
- Prices

# Nudges

## what works

Smaller lunch plates → smaller intake

Wansink, Van Ittersum, og Painter (2006): subjects took more ice cream in bigger bowls

Diliberti, Bordi, Conklin, Roe, og Rolls (2004): if subjects were given larger portions → ↑ intake

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DiSantis, Birch, Davey, Serrano, Zhang, Bruton, & Fisher, 2013: children who are given adult plates instead of children's plates take more food → eat 50% of the access calories they took

Rolls, Morris, & Roe, 2002

Rolls, Roe, & Meengs, 2007

Wansink & Cheney, 2005

Wansink & Van Ittersum, 2005

} larger plates/portions → ↑ intake

Rolls, Roe, Halverson, & Meengs, 2007

Shah, Schroeder, Winn, & Adams-Huet, 2011

} No effect of plate size

# Nudges what works

More variation in healthy food and not in unhealthy

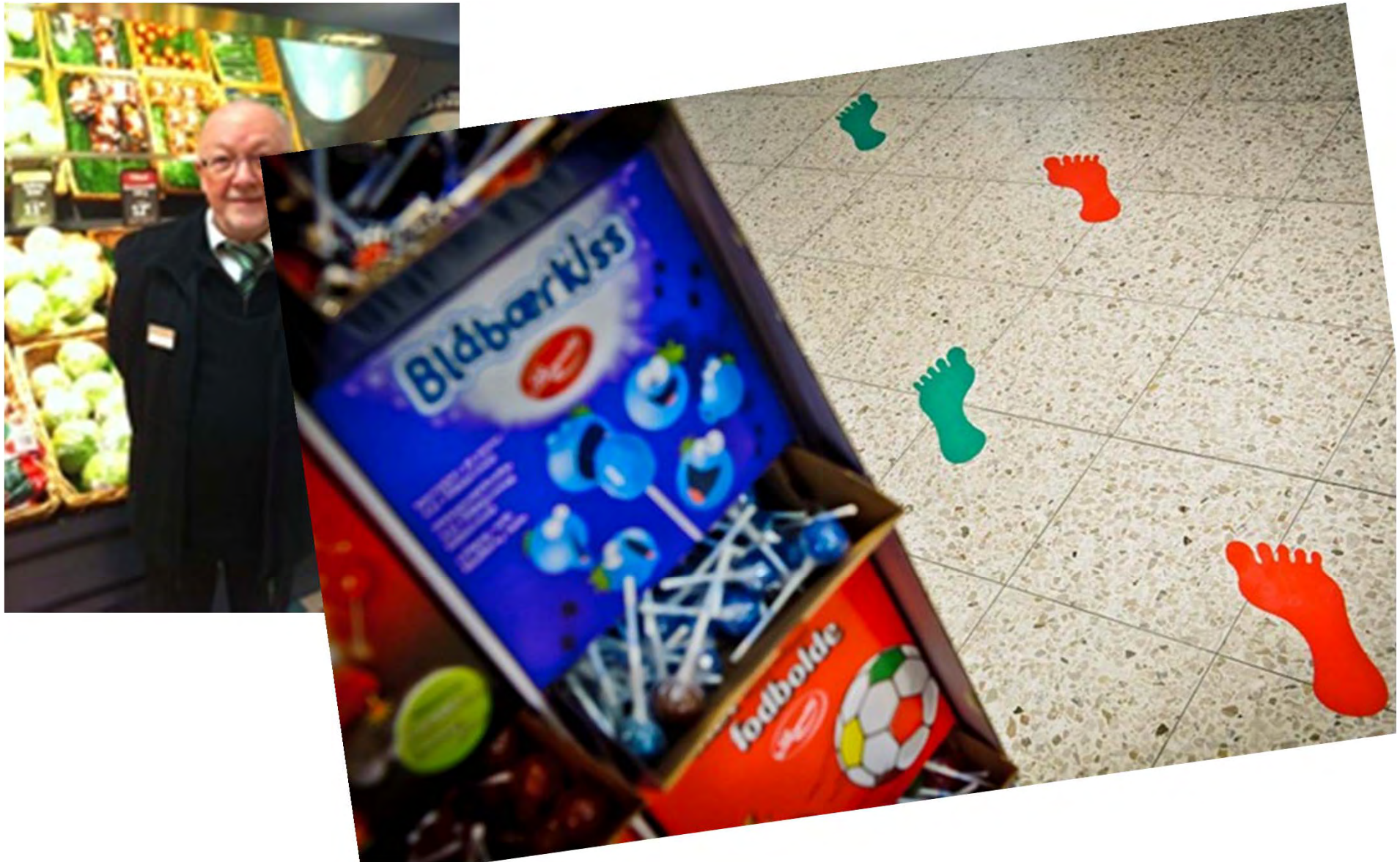
Redden & Hoch (2009): children was told to pour candy into a bowl to imitate a pre-prepared bowl.  
They put more candy in the bowl when the candy was in different colours

Sela, Berger, & Liu, 2009: large variation in an assortment → ↑ probability that subjects choose something they can defend to themselves (healthier)

Kahn & Wansink: more variation in colours of jellybeans → ↑ intake



**Already in a supermarket near you**



# Science of persuasion

- Reciprocity. Tendency to return favors
- Commitment. Likelihood of honoring agreements
- Social Proof. Do things that others are doing
- Authority. Tendency to obey authority figures/modelling/vicarious learning
- Liking. Persuasion by people we like.
- Scarcity. The "limited time only" trick



Cialdini, R. B. (2001). Influence: Science and practice (4th ed.). Boston: Allyn & Bacon



# Case 1: The cake & fruit experiment

- **Subjects:** 390 Danish business executives and managers
- **Setting:** 27th of January in Copenhagen opera.
- **RQ:** Does cutting cakes and apples into small pieces, and arrangement of buffet has an effect on how much you eat?
- **Results**
  - Cake intake down by 30.5%
  - Apple consumption up by 84%

THE SMALLER THE PIECE THE HEALTHIER CONSUMPTION – A CHOICE ARCHITECTURAL EXPERIMENT IN BEHAVIOURAL NUTRITION, L. Rohden Skov<sup>1</sup>, K. Schmidt<sup>2</sup>, P. Guldberg Hansen<sup>3</sup>, K. Lund Skov<sup>2</sup>, B. Egberg Mikkelsen<sup>1</sup>, F J A. Pérez-Cueto<sup>1</sup>, Ann Nutr Metab 2013;63(suppl 1): 1-1960

# The Breakfast experiment

Materials:

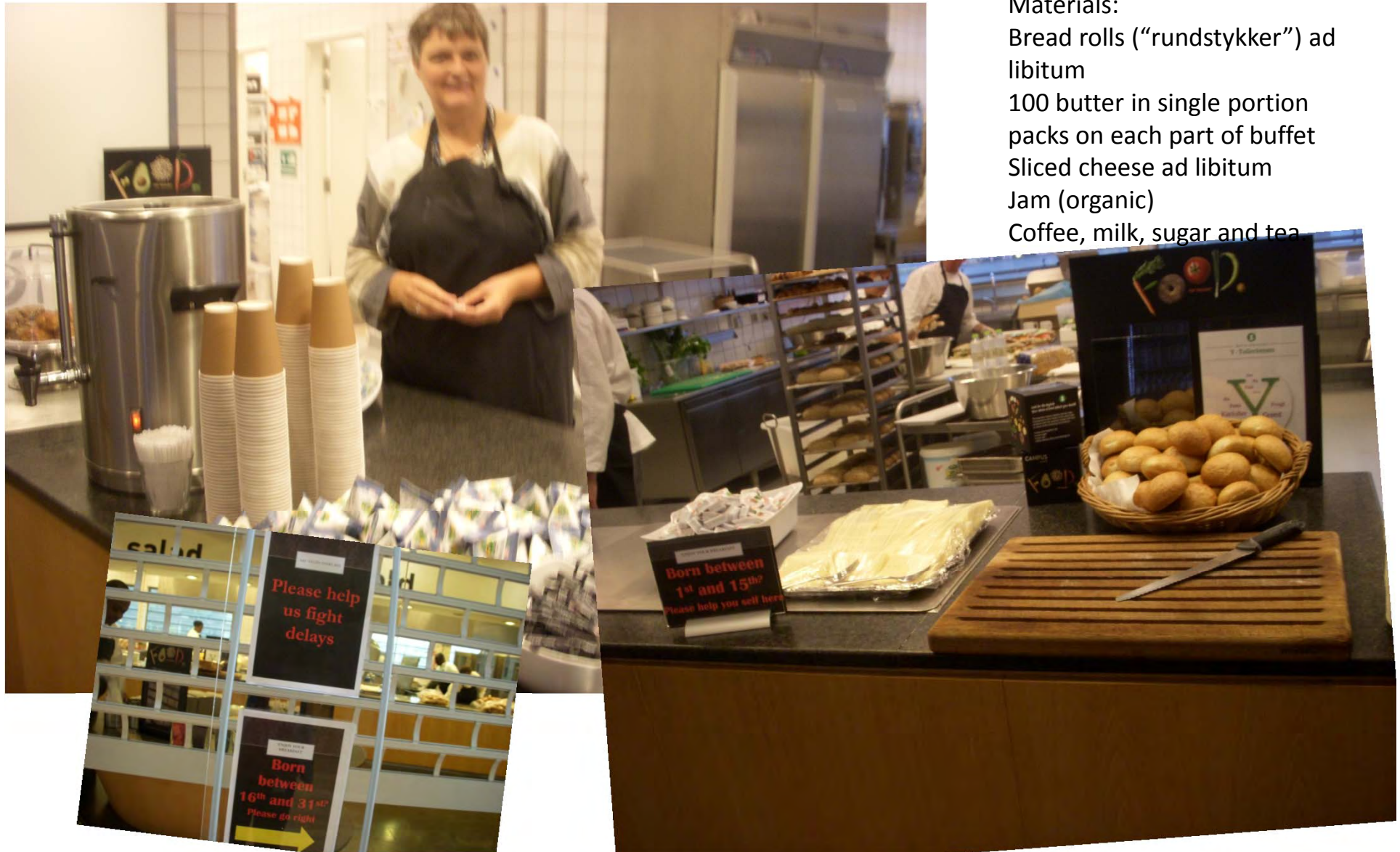
Bread rolls (“rundstykker”) ad libitum

100 butter in single portion packs on each part of buffet

Sliced cheese ad libitum

Jam (organic)

Coffee, milk, sugar and tea







FOODSCAPE LAB

**Integrated Food Studies: [www.ifs.aau.dk](http://www.ifs.aau.dk)**

# FoodScapeLab

## services

Service	Purpose
Measuring foodintake - the intelligent buffet	Study the intake of individuals and calculate food intake
Assessing & quantifying dietary intake	Record what consumers are eating, convert into nutrients and compare with recommendations
Tracking user perception of food – the FaceReader	Measure consumer response to different foods using a camera and special software
Recording food behaviour - the Observer XT	Record consumers behaviour in self service environments estimate food and nutrient intake
Capturing foodscapes - photo, audio & video recording and editing	Observe, capture, edit and analyse consumer behavior in “out of lab” foodscapes such as schools, kindergartens, cafeteria, street food settings etc.

# FoodScape lab

## floorplan

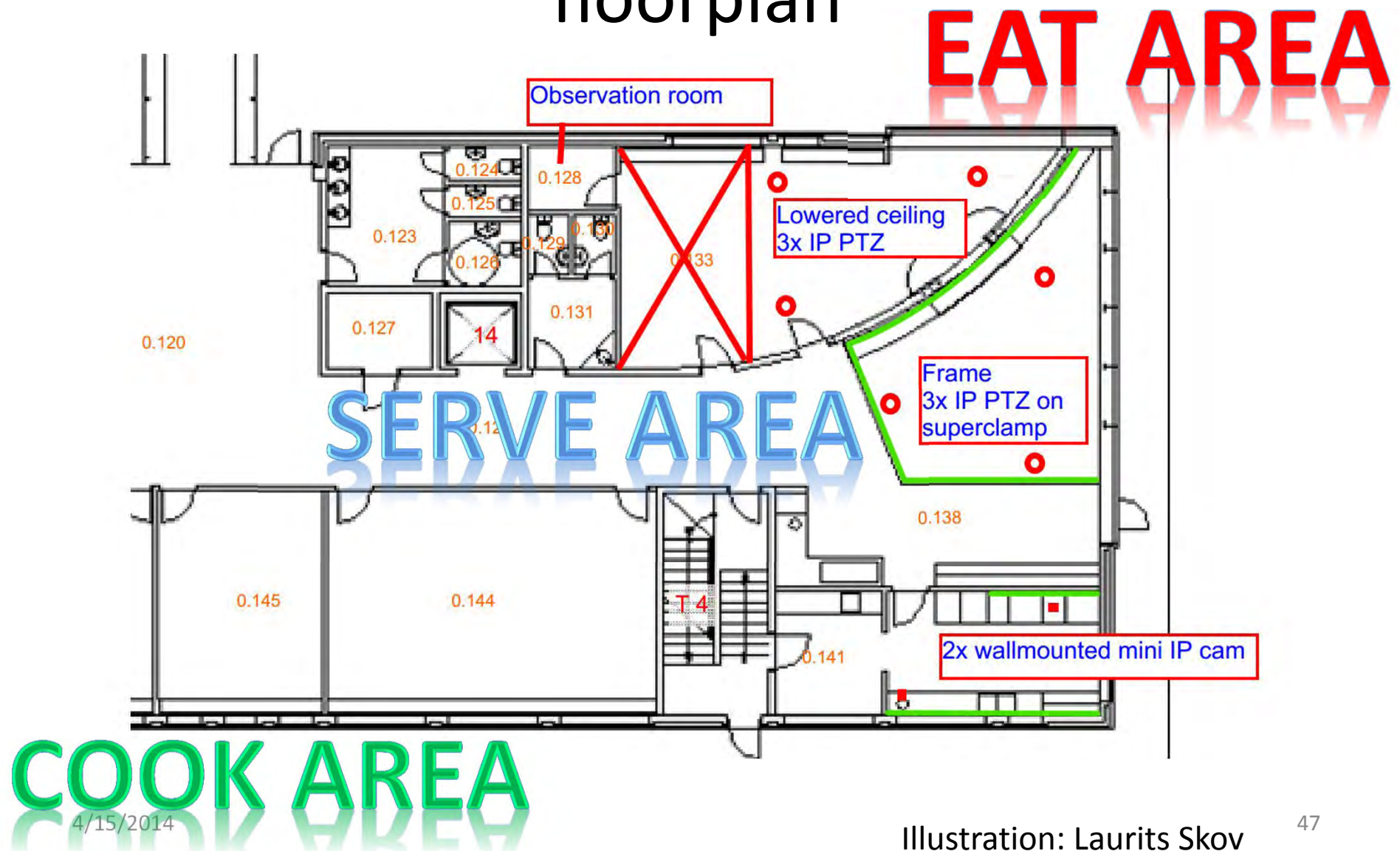


Illustration: Laurits Skov



# Eat area overhead cam





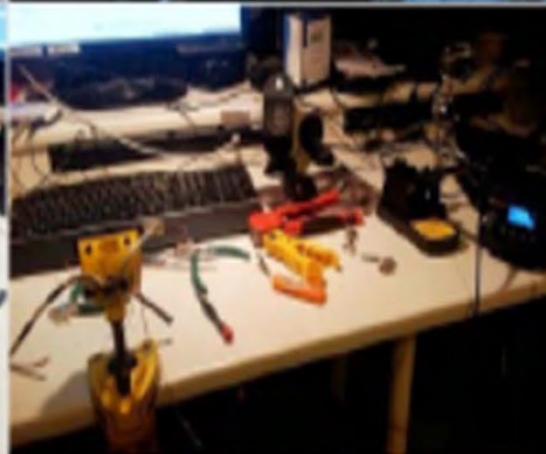
# ANALYTICS



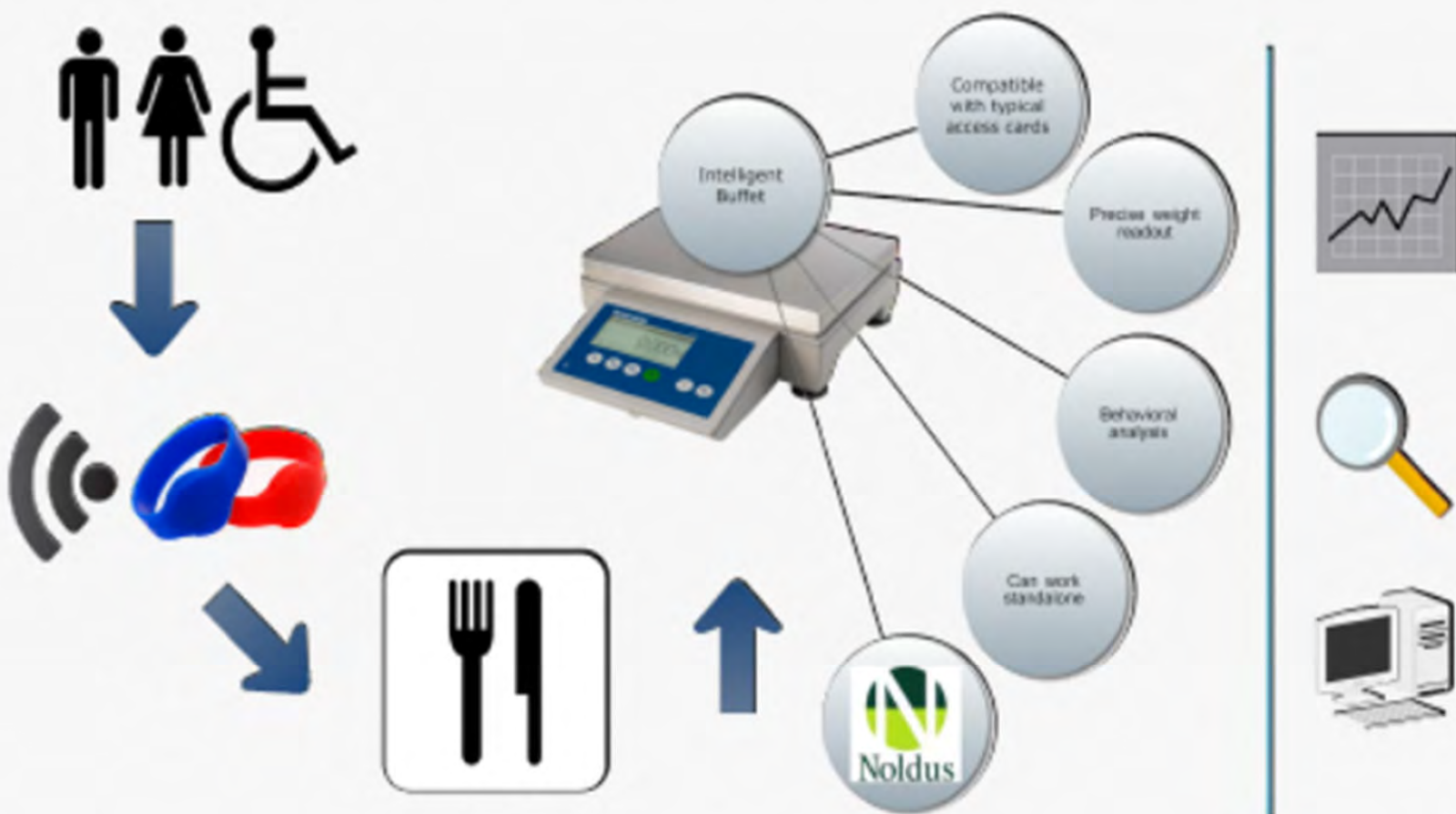
# **Analytics Software**

- Observer XT
- Nvivo
- Arch GIS
- Video & picture processing
- Statistics, SPSS, SAS; R & Stat
- Dietetic Master cater. Nutrients
- Simapro LCA. Carbonequivalents





# INTELLIGENT BUFFET

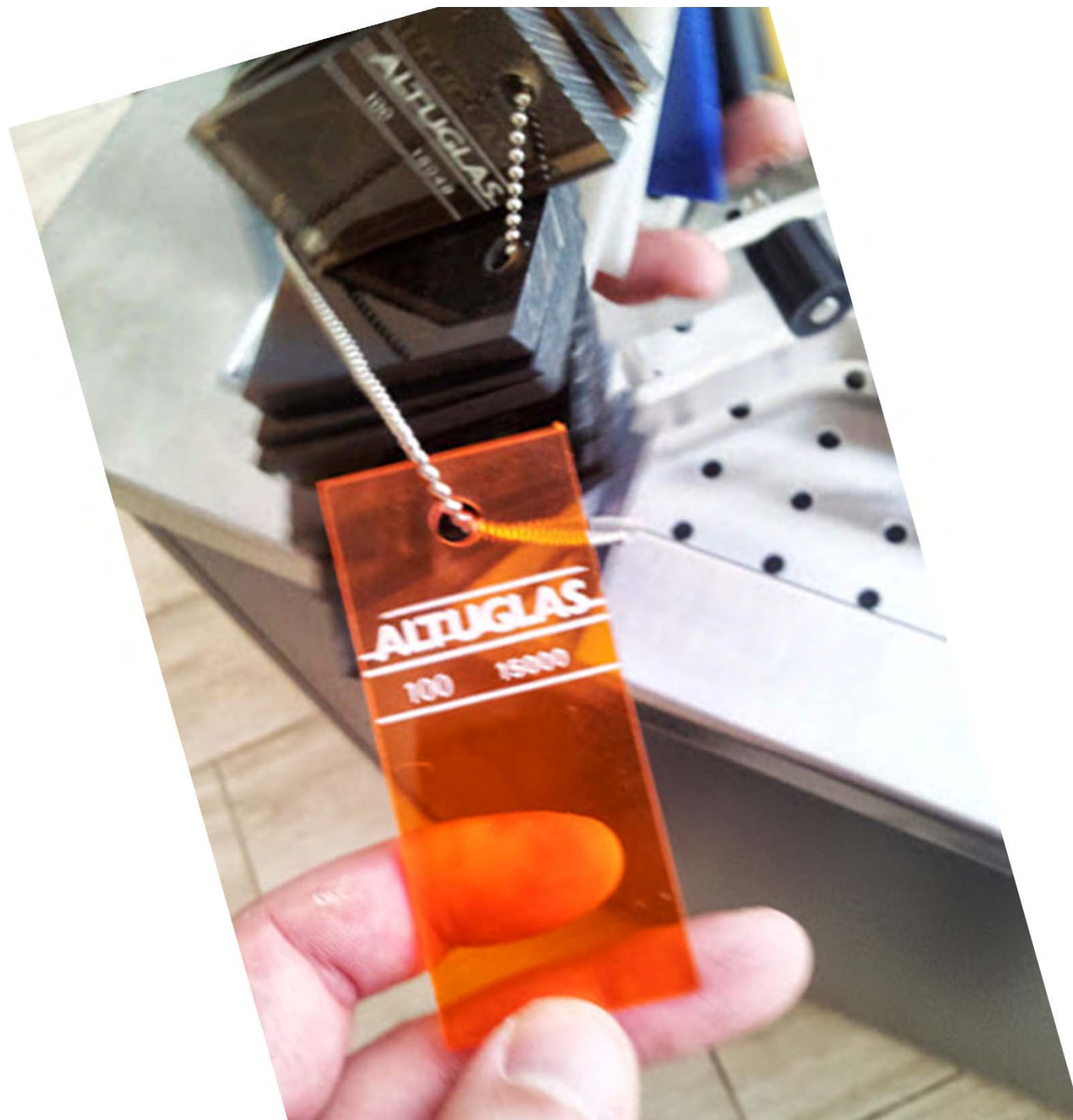














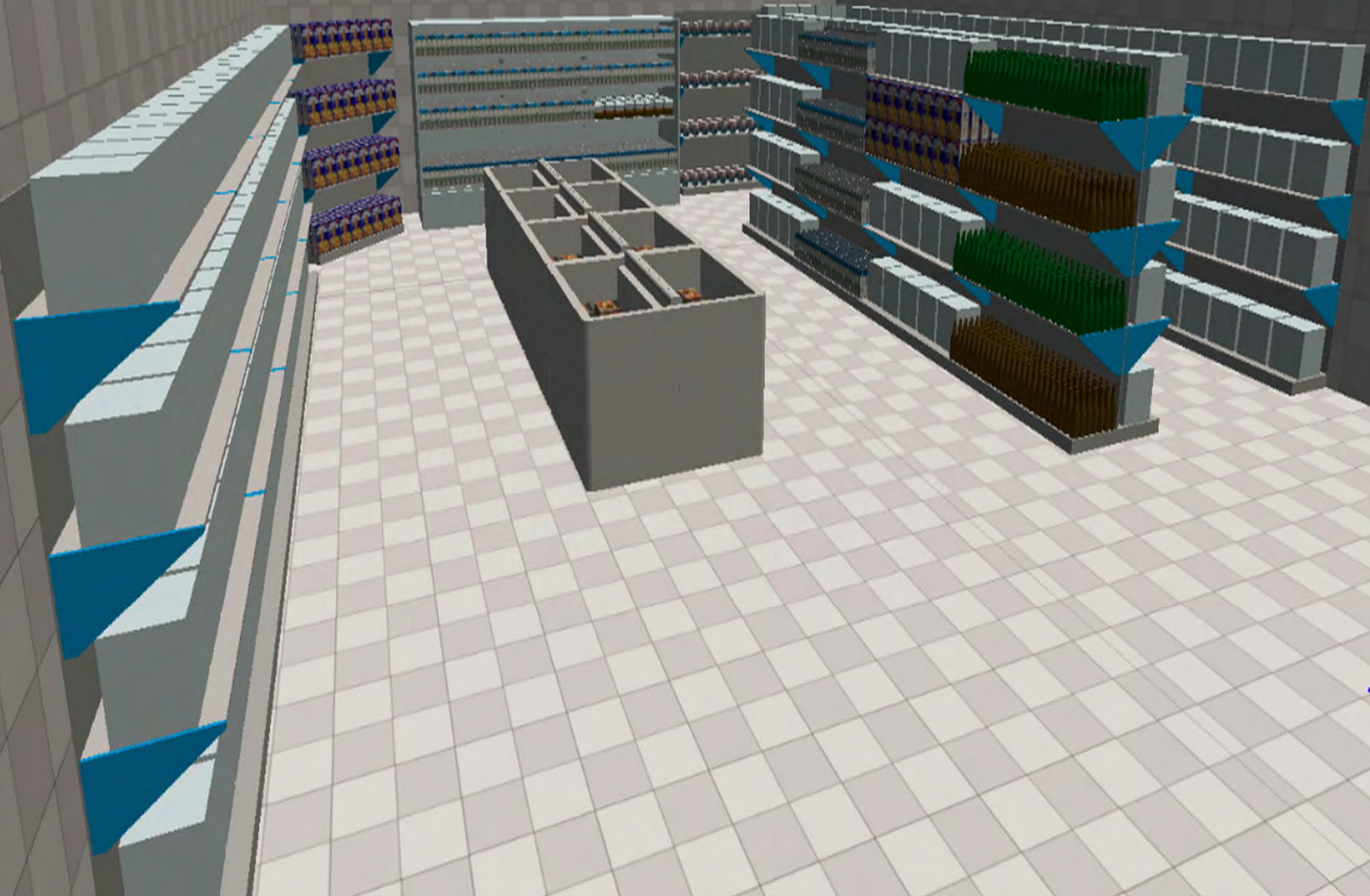




# Big Fridge is watching you

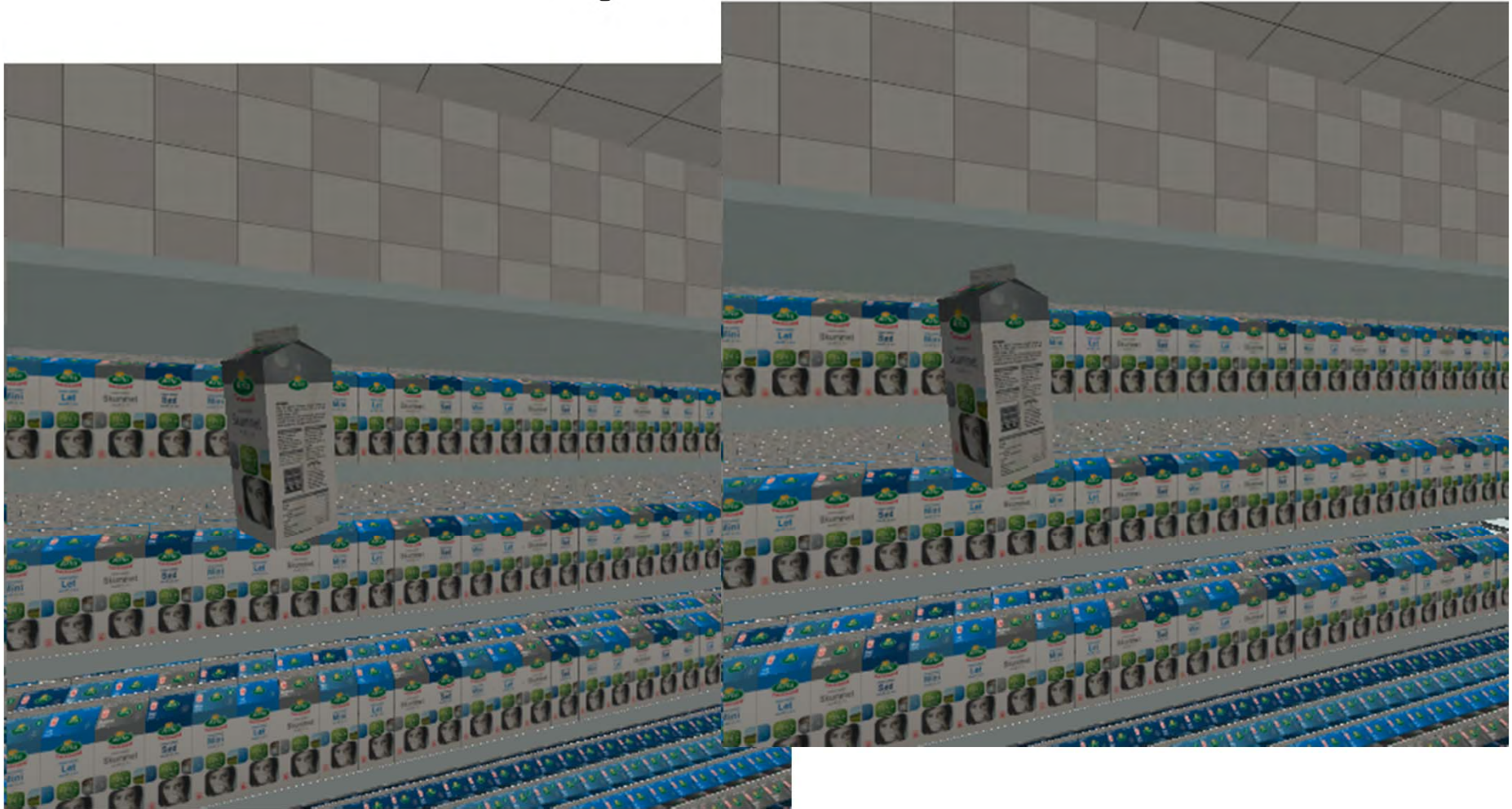


# A snapshot of the virtual supermarket





# A 3D look at the dairy cold cabinet



Courtesy of: Dennis Godtfredsen, Philip Brisson,  
Martin Rene Andersen and Patrick Lehmann Hald,  
Project Group Create kl14ml601