

Consumer archetypes in future systems

The European Commission's
science and knowledge service
Joint Research Centre

Sandra.Caldeira@ec.europa.eu

Governance

- Policy**
- Education
 - Health
 - Social
 - Research
 - Food (labelling, taxes)
 - Agricultural
 - Innovation
 - Competitiveness
 - Environment
 - Public procurement

Innovation

- Research**
- Pharmaceuticals, medical devices
 - Food processing & retail
 - Agricultural production
 - Resource efficiency
 - Climate change adaptation/mitigation
 - ICTs
- Technology**
- Processes
 - Products
 - Services

Economy

- Emerging economies**
- Economic power
 - Food consumption pattern
- Globalisation**
- Interconnectedness
 - Volatile markets
 - International trade
- Macro-economic situation**
- Inequalities
 - Social/Political tensions
 - Protectionism
 - Investments

Demography

- Global population growth**
- Migration & diversity
 - Demand for food
- EU population distribution**
- Urbanisation
 - Internal migration
- Healthcare systems**
- Increased demand
 - Focus on prevention

Human physiology

- Biological characteristics**
- Genetic profile
 - Age
 - Sex
 - Physiological homeostasis
 - Safety
- Xenobiotics**
- Environmental (ECDs)
 - Drugs/medications
- Factors affecting physiology**
- Drinking
 - Smoking
 - Mental health

Social factors

- Cultural context**
- Tradition
 - Religion
 - National/regional
 - Gender
- Societal values**
- Individualism vs collectivism
 - Long term vs short term
 - Peer pressure
 - Prevention vs cure
 - Role of family
 - (Corporate) Social responsibility

Individual factors

- Nutrition needs**
- Energy
 - Macronutrients
 - Micronutrients
- Health motivations**
- Prevention
 - Manage
 - Genetic diseases
 - Lifestyle diseases
 - Multifactorial diseases

Primary appetite control

Consumer health

FOOD

Consumer health

CONSUMPTION

Food supply & offer

Food access & affordability

- Consumer price**
- Distribution of value added
 - Structure of the food chain
 - Price transmission
 - Labour costs
 - Energy costs
 - Capital
 - Pricing strategy

Food availability

- Non-food uses**
- Energy
 - Bio-based materials
- Natural resources**
- Availability
 - Water
 - Land
 - Soil nutrients
 - Energy
 - Biodiversity
 - Fish stocks
 - Efficiency of use

- Climate change**
- Weather extremes
 - Pests & diseases
 - Shift in production areas

Environment

Food waste

- Food distribution**
- Food deserts
 - Number of fast food restaurants
 - Number of farmer's markets

- Safety**
- Contaminants
 - Additives
 - Food-borne pathogens
 - Food contact materials

- Sensory properties**
- Taste
 - Colour
 - Flavour
 - Texture

Process quality

- Production method
- Place of origin
- Sustainability
 - eco-friendliness
 - organic
 - social impact/fair trade
 - ethics, animal welfare

Nutritional value

- Macronutrients
- Micronutrients
- Energy density
- Palatability/safety
- Portion size
- Heavily processed foods
- Reformulation
- Functional food

Malevolent manipulation

- Fraud
- Bioterrorism

Food supply chain

- Primary production
- Processing and packaging
- Retail
- Food service

Food quality

Shelf life/durability

- Convenience**
- Prepared food
 - On the go
 - Out of home
 - On-line purchase

Variety

- Ample choice
- Differentiation/specialisation
- Personalised food

Industry structure

- Consolidation
- Concentration
- Vertical integration
 - private labels
- Economies of scale
- Market power
 - private standards

Food supply

Psychological factors

- Hedonism/Pleasure
- Biases
- Beliefs
- Attitudes
- Self image
- Resilience
- Perception of
 - Healthiness
 - Risk incl. food safety
 - Quality

Non-health motivations

- Habits
- Familiarity
- Values
 - Sustainability
 - Animal welfare
 - Fair trade
- Technology acceptance

Shopping environment

- Outlet format diversification
- Packaging
 - marketing practices
 - Multi-channels
 - Interactivity
 - Personalisation

Information provision

- Advertisements
- Labelling
- Packaging
 - handling instructions
 - cooking instructions
 - Traceability
- Transparency
- Quality indicators
 - Brand name
 - Store name
 - Certification
 - Reputation

Understanding information

- Education
- Nutrition literacy
- Health literacy
- Food scares
- Information overload
- Misinformation
- False beliefs

Digitalisation

- E-, m-, s-commerce
- Internet of things
- Ubiquitous sensors
- E-tele-health

Information source

- Media
 - Government
 - Industry
 - NGO
 - Health professionals
 - Word of mouth

Information platform

- Internet
 - Social media
 - Recommendation sites
- Newspaper
- Radio
- TV
- Mobile phone

Information environment

In "Tomorrow's healthy society: research priorities for foods and diets" EC, 2014

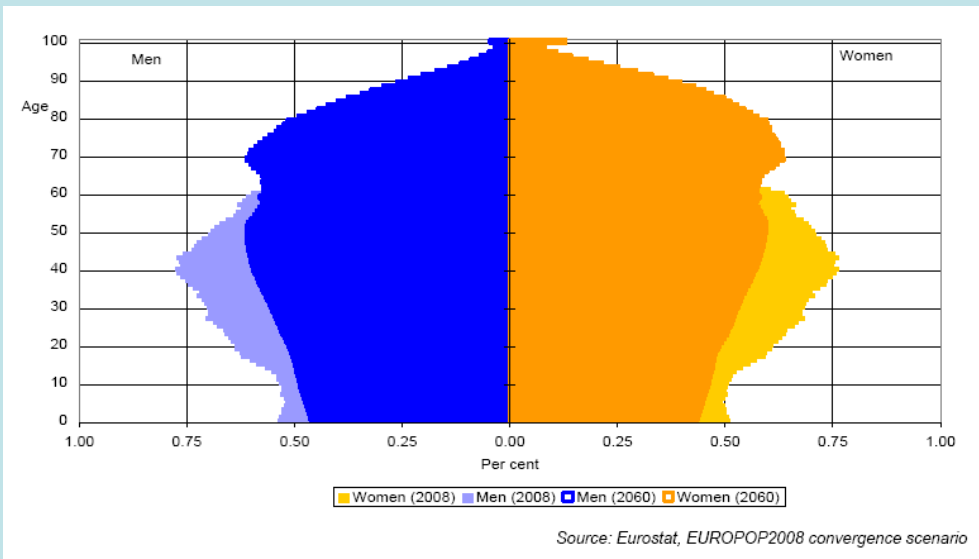
The EU consumer ...



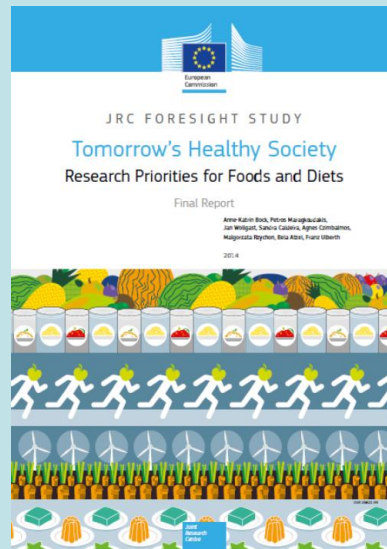
- understands the general concepts of a healthy diet
- feels confident and well informed about food
- purchases taking into account predominantly food quality price and appearance (*but also thinks of taste and pleasure*)
- buys in supermarket, trend towards spending less time cooking at home and more time in out of home eating.



Future challenges and preparedness



Population pyramid 2008 & 2060, Eurostat



Driver	“Global Food”	“Regional Food”	“Partnership Food”	“Pharma Food”
Global trade	Full liberalisation	Disrupted and fragmented	EU trade focus on the US & Canada	Full liberalisation
EU economic growth	Medium	Decoupled, GDP no longer used as indicator	Stagnation	High
Agro-food chain structure	Concentration	Diversification, alternative food chains	Concentration	Concentration
Technology uptake	High	High with focus on environmental sustainability	High	High with focus on nutrition & health
Social cohesion	Low	High	Limited to local community	High
Food values	Low	High with focus on local production & quality	Low	High with focus on nutrition & health
Climate change	2°C threshold of temperature increase will be reached by 2050			
Depletion of natural resources	Progressive natural resource depletion towards 2050			
World population growth	World population will increase to about 9 billion by 2050			

Scenario Pharma Food

2015

2030

2050

NCDs prevalence – public health expenditure

Slow EU economy recovery

R&D prevention NCDs

EU citizen health-aware

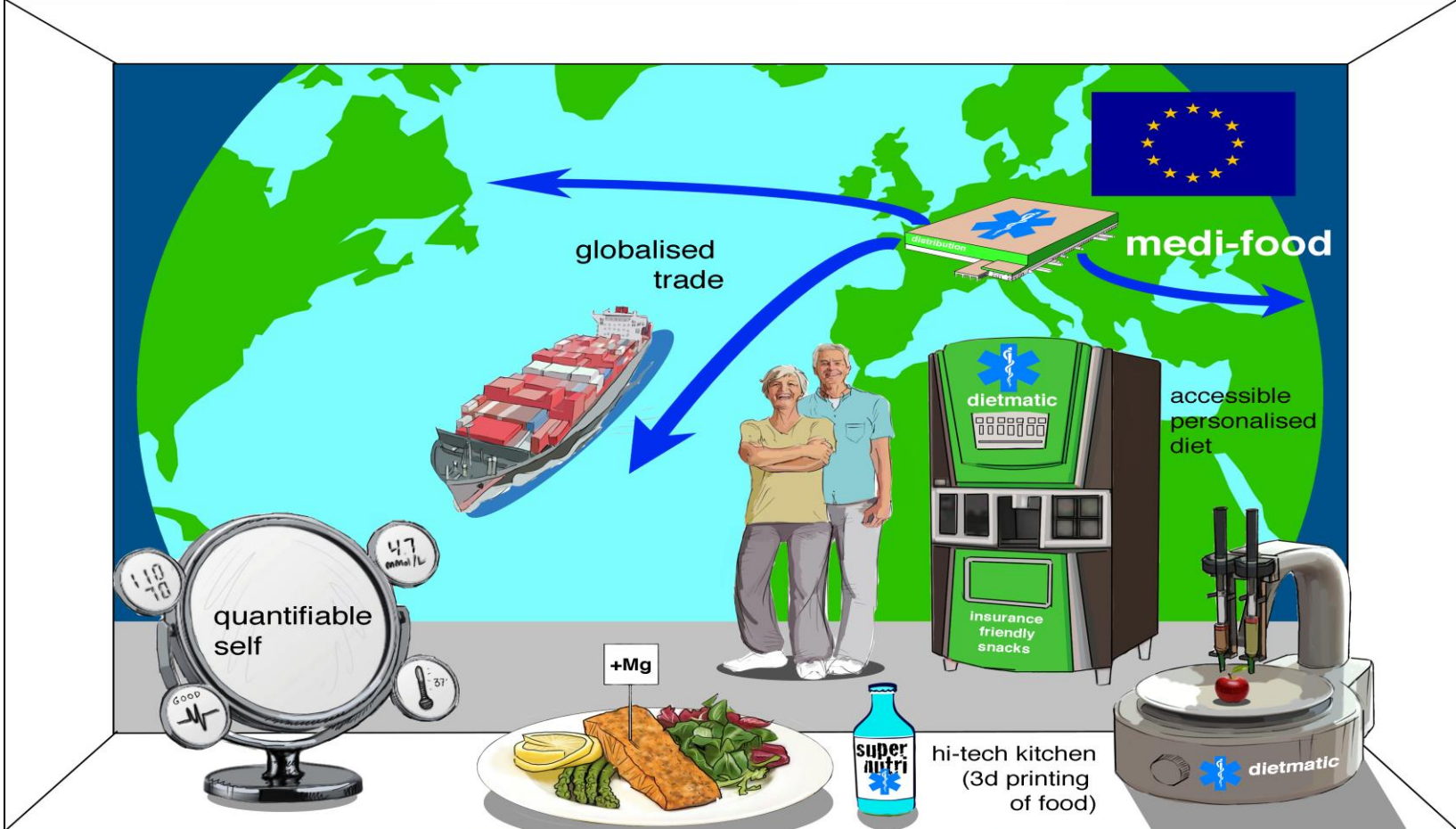
Science breakthroughs - food & health

Evidence-based, targeted diets

Food – pharma merge

Personalised nutrition mainstream

Buy-in for all



Challenges Pharma food	Policy Options
Potential drawbacks of personalised nutrition and “phoods”	Adapt or create an effective regulatory framework Redefine health and nutrition claims
Ability to perform official food-related controls (e.g. prosumer)	Regulate “phood” manufacture by introducing a “Phood licence” Enhance post-market monitoring and “nutrivicilance” controls Expand third country controls
Suitability of current EU risk assessment for new food ingredients, food products and food-related technologies (inc. suitability of exposure data and maximum residue levels)	Deal with cumulative effects and long term exposure

Scenario: Global Food

2015

2050

Little climate change mitigation

2030

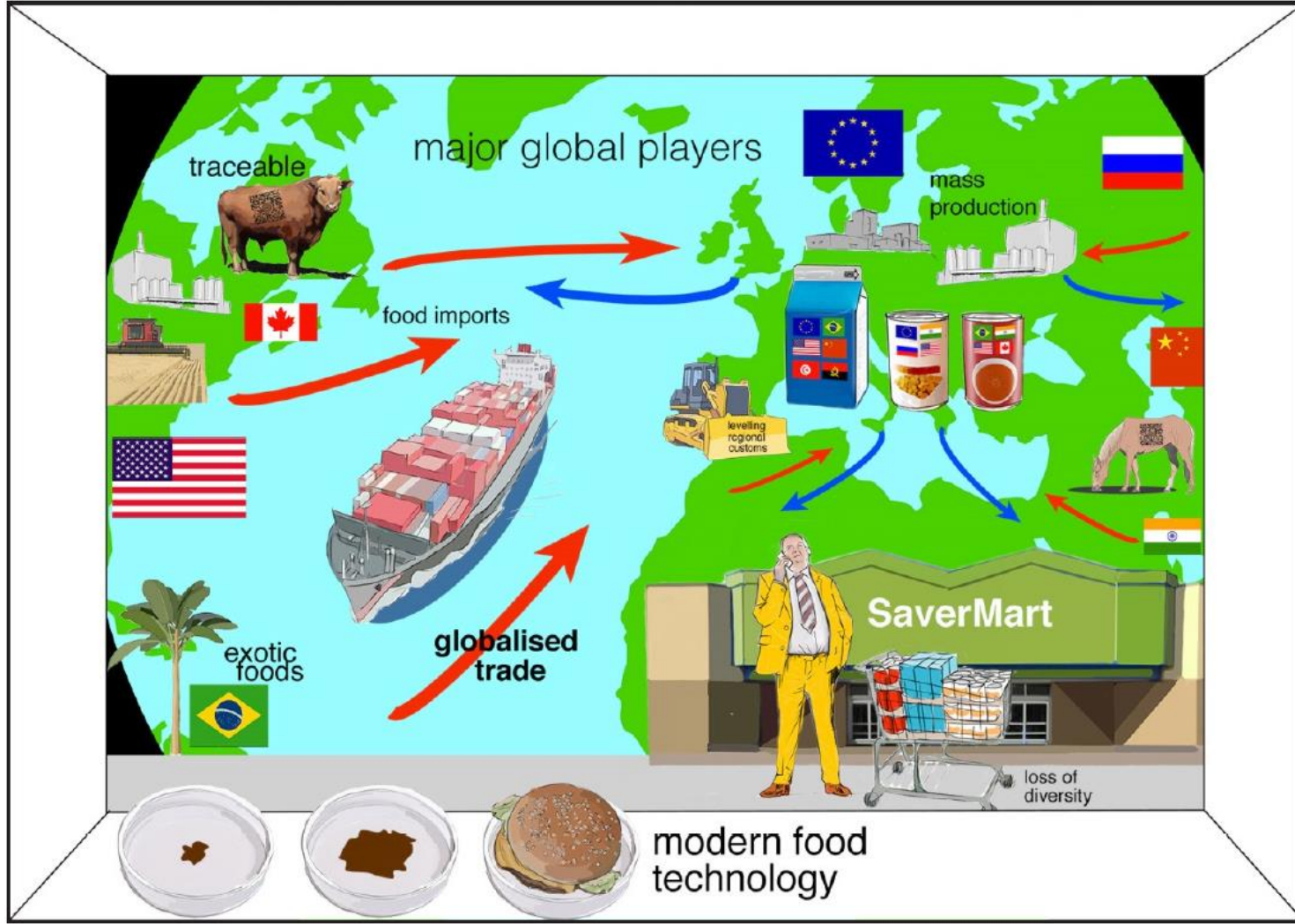
Climate change impacts rural areas, agri-food chain

Increased urbanisation

"Emerging" economies- EU one of many players

Trade as an answer to resource scarcity

Major WTO deal – full liberalisation



Challenges Global Food	Policy options
Differences in the handling of food in 3rd countries & Ability to perform official food-related controls	... (see report)
Increased sedentary behaviour & Diets based on highly processed foods and decreased availability of fresh produce	<p>Fiscal measures -> food taxation or other (des)incentives</p> <p>Reformulation towards healthier food options</p> <p>Zoning & incentives for fresh food markets</p> <p>Standards for healthier options in public food procurement</p> <p>National and European actions on balanced diets and access to fresh produce (inc. education and provision of information)</p>
Abundance of voluntary food information, increased opportunity for misleading information	Harmonisation of labelling at international level beyond language barriers

Scenario Regional Food

2015

Little climate change mitigation

2030

Climate change impacts rural areas, agri-food chain

EU society reacts – environmental sustainability

Profound resource scarcity

2050

EU abandons international trade agreements

Uphill struggle for the EU

Trade disruptions – food safety scares



Challenges Regional Food	Policy Options
<p>Greater reliance for food safety on individuals engaging in food production</p>	<p>Scope of the General Food Law, hygiene regulations and related controls to include "<i>individuals engaging in food production</i>"</p> <p>Registration and vaccination of all livestock</p> <p>Food safety education</p> <p>List of "high-risk" products</p>
<p>Temporary shortages of fresh produce and food poverty in a self-sufficient food system</p>	<p>Emergency mechanisms for food re-distribution</p> <p>Production quotas to ensure balanced diets during temporary shortages</p> <p>Education -> adequate nutrition during temporary disruption of fresh produce</p>
<p>Failure to provide appropriate food safety information to the consumer</p>	<p>Social networks and ICT use by "<i>individuals engaging in food production</i>" to provide food information to their peers</p>
<p>Re-introduction of food waste and organic side-stream products in the food chain</p>	<p>Scope of the General Food Law as above</p> <p>Communal food waste handling or recycling centres</p> <p>Education -> re-use of food waste</p>

Conclusions



- **The "future" consumer(s) will bring about new challenges**
- **Anticipation -> research priorities and policy**
- **Indicators**
- **Food systems (win-wins and trade-offs)**



Find me on twitter @scaldeira
& sandra.caldeira@ec.europa.eu



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