Delivering on EU Food Safety & Nutrition in 2050

Future challenges and policy preparedness

The European Commission's science and knowledge service

Joint Research Centre

Sandra.Caldeira@ec.europa.eu

Euroopa Maaelu Arengu Põllumajandusfond: Euroopa investeeringud maapiirkondadesse

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Who are we – Joint Research Centre

"As the science and knowledge service of the European Commission, our mission is to support EU policies with independent evidence throughout the whole policy cycle"

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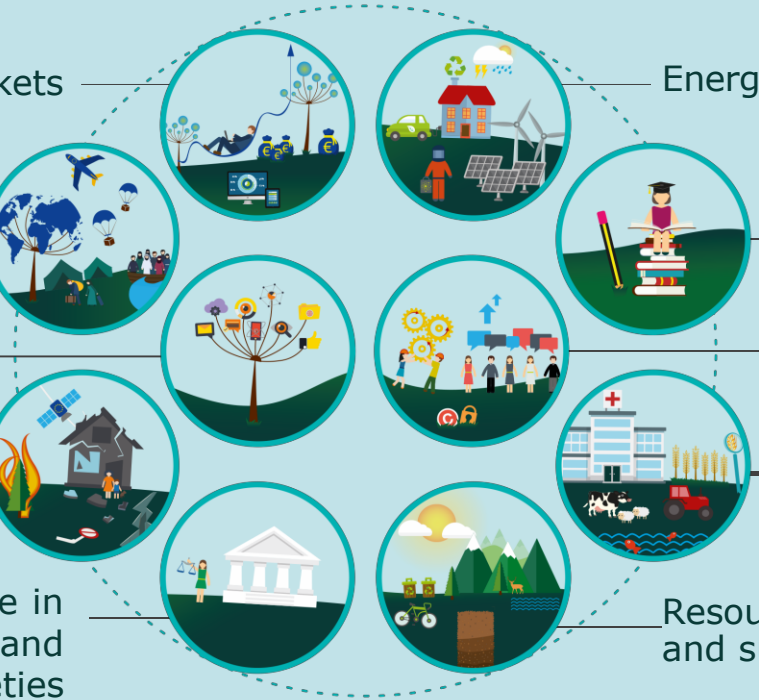
JRC 10 Priority Nexus



Economy, finance and markets

Energy and transport

Migration and territorial development

Education, skills and employment

Data and digital transformations

Innovation systems and processes

Civil security

Food, nutrition and health

People, governance in multicultural and networked societies

Resource scarcity, climate change and sustainability

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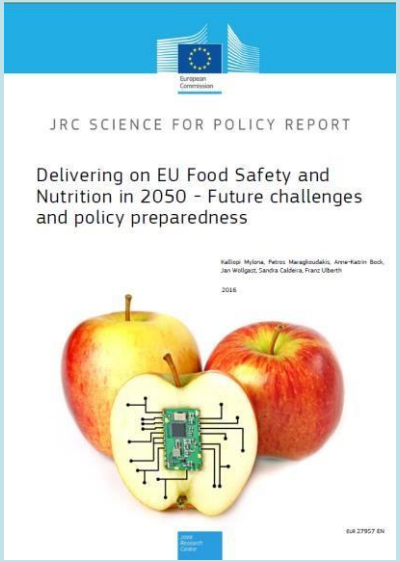
Delivering on EU food safety and nutrition in 2050



DG SANTE & JRC

- To identify possible **future challenges** to the EU food safety & nutrition policy and regulatory framework
- To **assess resiliency** of the current food policy and regulatory framework
- if appropriate, develop **policy recommendations**
- Identify **research gaps** and **indicators of change**

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Future challenges and policy preparedness

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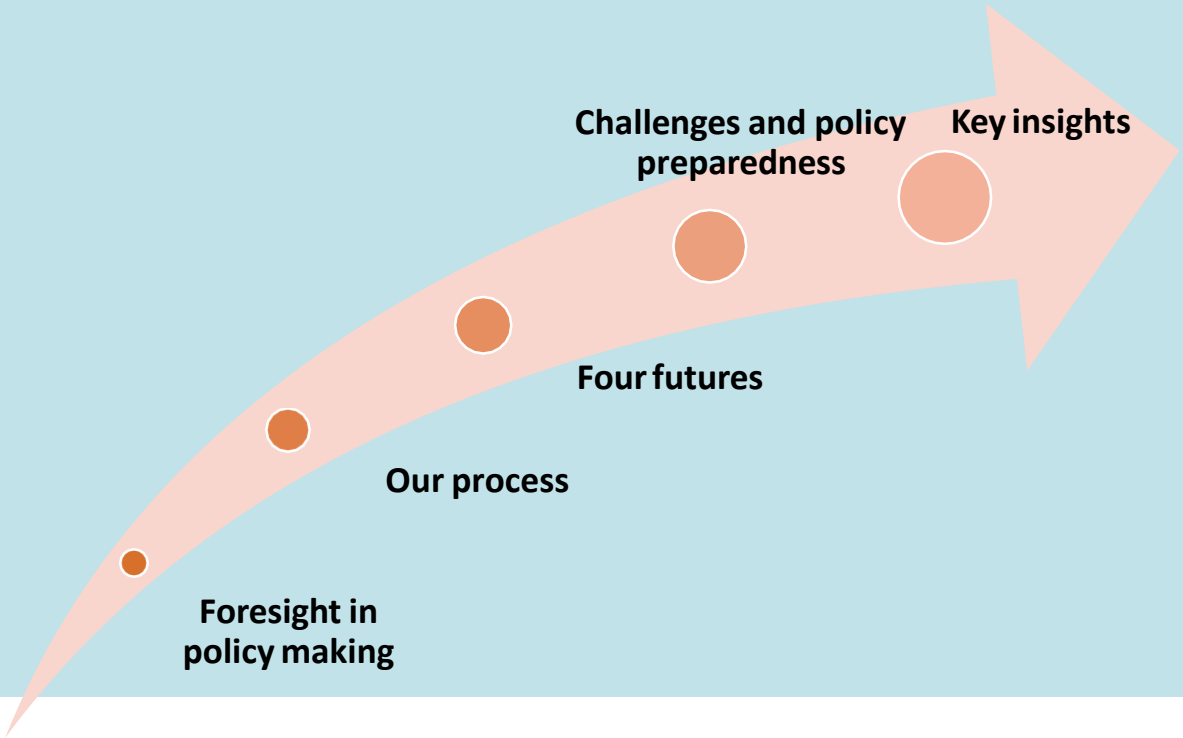
The next 20 minutes



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Foresight and our scenarios approach

- stories (creative combination of data, facts and hypotheses) which explore how the future could look like under the influence of a combination of driving forces.
- highlight possible futures, do not predict the future or suggest a preferred
- can be used to identify future challenges and opportunities to enlighten today's decisions.

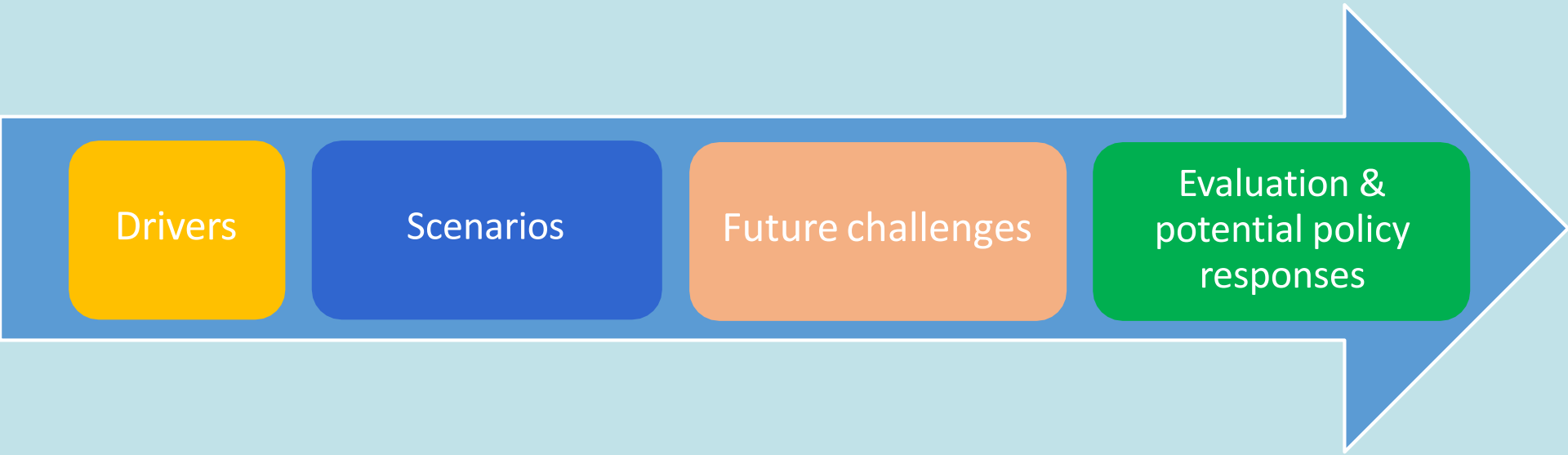
Plausible

Internally consistent

Diverse

Useful decision-making

The process



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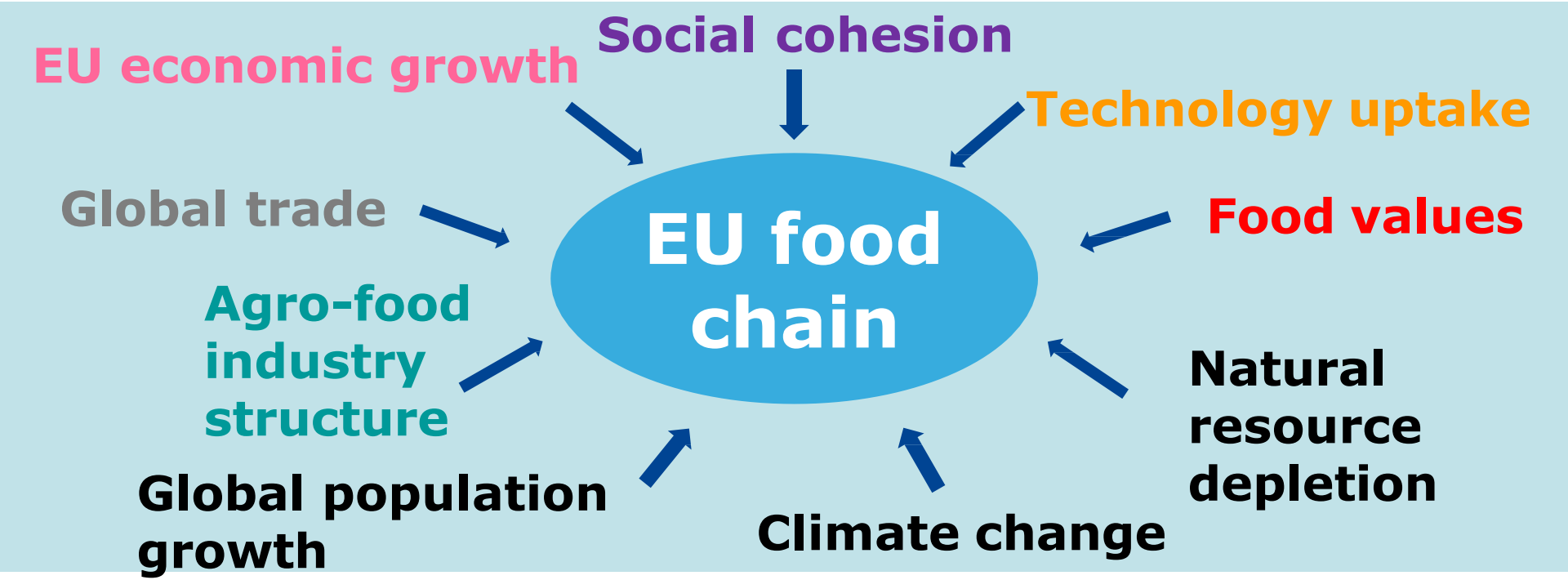
Drivers*



*Forces that can exert influence, *drive* change, in a given system

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Scenario: Global Food

2015 **2030** **2050**

Climate change - Pressure on natural resources - Population growth

Little climate change mitigation

Climate change impacts rural areas, agri-food chain

Increased urbanisation

"Emerged" economies- EU one of many players

Trade as an answer to resource scarcity

Major WTO deal – full liberalisation

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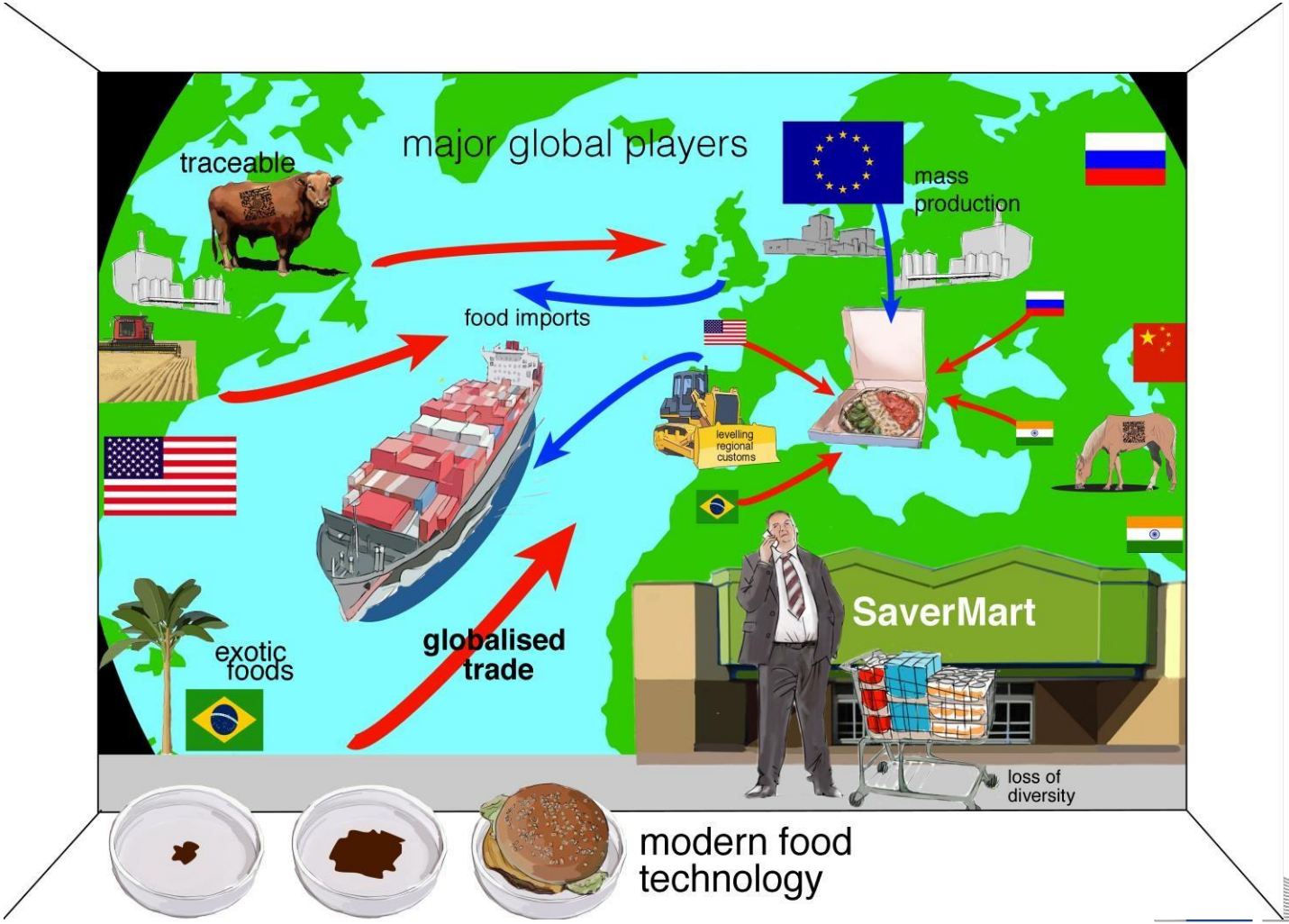
major global players
traceable
mass production
food imports
levelling regional customs
SaverMart
exotic foods
globalised trade
loss of diversity
modern food technology

Scenario: Global Food

- Fully liberalised global trade – convergence of standards – global food chain and sourcing
- High technology uptake and acceptance – less stringent approval procedures – focus on energy efficiency, alleviating climate change impacts – supporting long food chains
- Concentration in the food sector– dominant food industry and retail – affordable, standardized mass produced food
- No health or environmental food-related awareness – food choice driven by price, convenience, taste – increased out of home eating, snacking
- Low social cohesion – inequalities in diets and health

Scenario: Global Food

Main Challenges	Policy Options
Differences in the handling of food in third countries due to diverging food safety standards	Build efficient food safety standards that also include implementation details Promote co-regulation or enforced self-regulation by food business operators
Suitability of the current EU risk assessment procedures for new food ingredients, food products and food-related technologies (including suitability of exposure data and current maximum residue levels)	Enhance collaboration between risk assessment bodies at EU and international level Use horizon scanning to identify vulnerabilities in the supply chain
Ability to perform official food-related controls	Invest in long-term funding mechanisms Expand third country controls Enhance surveillance to ensure food safety during transportation Improve traceability employing technological developments
Increased sedentary behaviour and snacking due to changed lifestyles & *Diets based predominantly on highly processed foods and decreased availability of fresh produce*	Introduce fiscal measures such as food taxation or other financial incentives Promote reformulation towards healthier food options Introduce zoning and incentives for establishment of fresh food markets Implement standards and guidelines for healthier options in public food procurement Fund national and European actions on balanced diets and access to fresh produce Improve nutrition education Improve the provision of nutrition information
Abundance of voluntary food information and increased opportunity for misleading information	Promote harmonisation of labelling at international level beyond language barriers

Scenario Global Food

Is the EU heading towards Global Food?

Table 8 - "Global Food" specific indicators and potential sources of data[1]. ↑ or ↓ indicate an increase or decrease compared to 2016					
↑	% of EU food market revenue generated by multinationals	% of populations living in urban centers	% of exports and imports of processed foods and food ingredients	% of overweight obese children and adults	Volumes (tons) and value (Mio €) of GM foods sold in the EU
Sources	FDE[2], UEAPME[3]	World Bank, FAO[4], EEA[5]	WTO[6], OECD[7]	WHO, OECD	Eurobarometer, BEUC[8]
↓	Daily intake (g) of fruit and vegetables per capita	Sales revenue (Mio €) of organic food products in the EU	% of small farm holdings in primary production and grocery shops in retail	% of consumers thinking of environment, animal welfare and fair trade when buying food	% of EU consumers regularly preparing food at home
Sources	WHO, FAO, EFSA[9]	IFOAM [10]	COPA-COGECA[11], EuroCommerce[12]	Eurobarometer, BEUC	Eurobarometer

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Scenario Global Food

Table 9 - Research needs per challenge in "Global Food"
Differences in the handling of food in third countries due to diverging food safety standards
Learn from other regulatory systems: Research (and gap analysis) in the strong and weak points of other regulatory systems around the world to identify appropriate elements to be used towards international harmonisation of food safety standards.
Identify opportunities for industry-government-civic society organisations (CSOs) collaboration in standard development: opportunities should aim at jointly developing food safety standards, and consequently working towards international harmonisation. Identify examples of such collaboration in standard development and lessons that can be learned from relevant successes or failures.
Increase transparency with regards to ethical issues in the global food chain: Further research is needed to understand the ethical issues associated with animal welfare and child labour standards in various parts of the world and their implementation when production takes place overseas. This can also help increase transparency in the global food chain. Also research is needed to elucidate whether the implementation of and adherence to ethical standards has any effects on food price.
Suitability of the current EU risk assessment procedures for new food ingredients, food products and food-related technologies (including suitability of exposure data and maximum residue levels)
Inter-operable harmonised infrastructure for food composition and consumption databases: In the context of the globalised and interconnected food system, harmonising food composition and consumption database infrastructure across the globe, and exploiting "big data" capacities using ICT tools or "crowdsourcing" platforms for data collection, could assist in calculation of exposure levels and inform risk assessment procedures.
Knowledge gap on maximum residue levels: The increased sensitivity of analytical methods can detect and quantify tiny amounts of residues. It is important to understand how this affects risk assessment and decision making, for example in the above case this may lead to the establishment of lower and lower maximum residue levels (MRLs) for certain substances in different products, making it increasingly difficult for products to be compliant. This may be particularly challenging in the future, in particular for substances that may be impacted from climate change.
Abundance of voluntary food information and increased opportunity for misleading information
Alternative means of information: There is an interest from different stakeholders in potential alternatives to current labelling schemes, e.g. use of pictograms, etc. Their use is not easy and straight-forward, and there is a need to investigate the potential benefits and drawbacks related to consumer understanding in comparison to existing schemes. Therefore, further research on the effective delivery and cognition of food related information (ingredients, nutrition information and nutritional value versus price) is necessary.
Increased sedentary behaviour and snacking due to changed lifestyle & Diets based predominantly on highly processed foods and decreased availability of fresh produce
Food research in reformulation and innovation: More research would be needed on how to reformulate processed foods in order to make them healthier while preserving taste, convenience and low-priced options adapted to the lifestyle of the future consumer.
The potential of behaviour sciences: There is a need for more research on behavioural science insights on consumers and the food industry. Best practices and "success stories" could be assessed for potential use and implementation in policy-making in order to improve consumer diets and increase physical activity. Also, research is needed on how to design behavioural science-informed policy options taking into account the potential dietary habits and physical activity of consumers in 2050.

Scenario EU Food

2015

2030

2050

Little climate change mitigation

Climate change impacts rural areas, agri-food chain

EU society reacts – environmental sustainability

Uphill struggle for the EU

Profound resource scarcity

Trade disruptions – food safety scares

EU abandons international trade agreements

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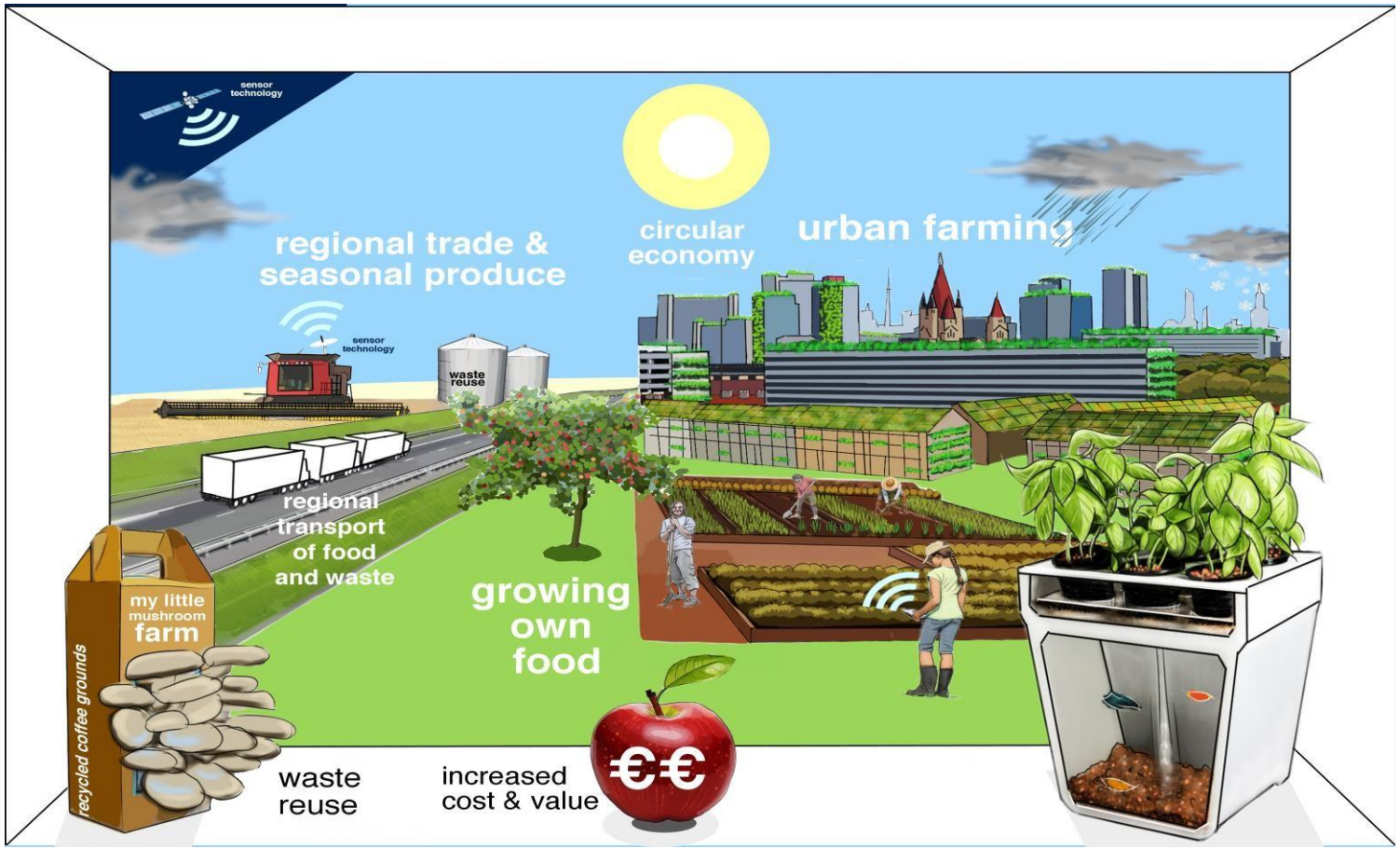

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Scenario EU food

Main Challenges	Policy Options
Greater reliance for food safety on individuals engaging in food production	Expand the scope of the General Food Law, hygiene regulations and related controls to include individuals engaging in food production
	Implement the registration and vaccination of all livestock
	Establish a list of "high-risk" products
	Improve food safety education
Failure to provide appropriate food safety information to the consumer	Promote the use of social networks and ICTs by individuals engaging in food production to provide food information to their peers
Re-introduction of food waste and organic side-stream products in the food chain	Expand the scope of the General Food Law and feed hygiene regulations to individuals engaging in food production
	Establish communal food waste handling or recycling centres
	Educate individuals engaging in food production on the re-use of food waste
Temporary shortages of fresh produce and food poverty in a self-sufficient food system	Establish emergency mechanisms for food re-distribution
	Introduce production quotas to ensure balanced diets during temporary shortages
	Educate consumers to ensure adequate nutrition during temporary disruption of fresh produce

Scenario Partnership Food

2015 — **2030** — **2050**

No EU economic recovery

Limited investment in R&D – brain drain

Climate change & resources scarcity

EU loses geo-political importance, US doing better

EU teams with US

Continuous trade agreements

Trade barriers removed - regulatory & policy convergence

Trans-atlantic food culture

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Scenario Partnership Food

Main Challenges	Policy Options
Inadequate food safety and nutrition literacy, loss of food traditions and increased exposure to unreliable sources of information	Introduce mandatory food safety and nutrition education and information on food technology advances
	Increase exchange between consumer organisations
Diets based predominantly on highly processed foods and decreased availability of fresh produce[1]	Introduce fiscal measures such as food taxation or other financial incentives
	Promote reformulation towards healthier food options
	Introduce zoning and incentives for establishment of fresh food markets
	Implement standards and guidelines for healthier options in public food procurement
	Fund national and European actions on balanced diets and access to fresh produce
	Improve nutrition education
	Improve the provision of nutrition information
The loss of scientific and technological know-how in Europe	Foster innovation and competitiveness by improved food governance mechanisms
	Reduce cost of regulatory compliance
	Improve consumer understanding of innovative products and technologies through transparent communication
	Increase co-operation with food business operators
Suitability of the current EU risk assessment procedures for new food ingredients, food products and food-related technologies (incuding suitability of exposure data and maximum residue levels)	Re-enforce risk-benefit assessment and management
	Streamline risk assessment by increasing the collaboration between all actors

1 This challenge in "Partnership Food" is of similar nature as in the "Global Food" scenario, and therefore the policy options proposed fit both scenarios equally well

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Scenario Pharma Food

2015 — **2030** — **2050**

NCDs prevalent – public health time bomb

EU economy recovers

Increased R&D investment

EU citizen health aware

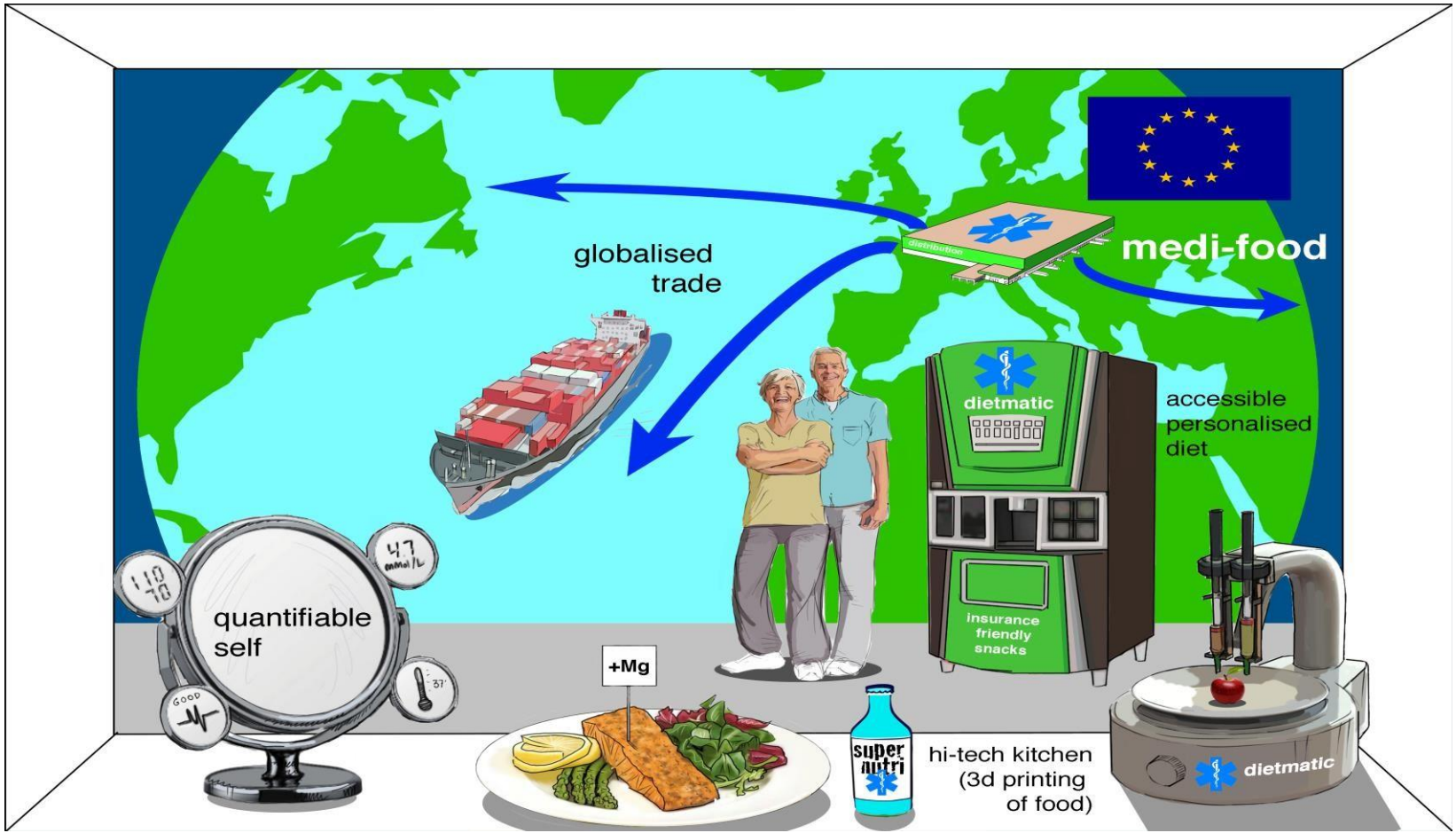
Science breakthroughs - food & health

Evidence-based, targeted diets

Personalised nutrition mainstream

Buy-in for all

Food – pharma merge



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Scenario Pharma food

Main Challenges	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	Regulate "phood" manufacture by introducing a "Phood licence"
	Enhance post-market monitoring and "nutrivigilance" controls
	Expand third country controls
Suitability of the current EU risk assessment procedures for new food ingredients, food products and food-related technologies (including suitability of exposure data and maximum residue levels)	Deal with cumulative effects and long term exposure

Key insights

The legislative framework governing food safety in the EU is robust and appropriate

Harmonisation of risk assessment approaches and inclusion of other legitimate factors such as health benefits and socio-economic consequences

Adaptation of official control and inspection services to future needs

Action needed for improving the effectiveness of EU nutrition policies

Investment in providing food safety and nutrition education to the public

Win-wins and trade offs

Compromising food safety for achieving sufficiency?

Stretching the limits to ensure food safety - compromising local food sufficiency?

Can consumer scepticism compromise innovation and food sufficiency?

And could innovation for nutrition and health compromise food safety?

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Viewpoint

Viewpoint: Future of food safety and nutrition - Seeking win-wins, coping with trade-offs

Kalliopi Mylona [a], Petros Maragkoudakis [a], Ladislav Miko [b], Anne-Katrin Bock [a], Jan Wollgast [a], Sandra Caldeira [a], Franz Ulberth [a,*]

[a] European Commission, Directorate-General Joint Research Centre (JRC), 1049 Brussels, Belgium
[b] European Commission, Directorate-General Health and Food Safety, 1049 Brussels, Belgium

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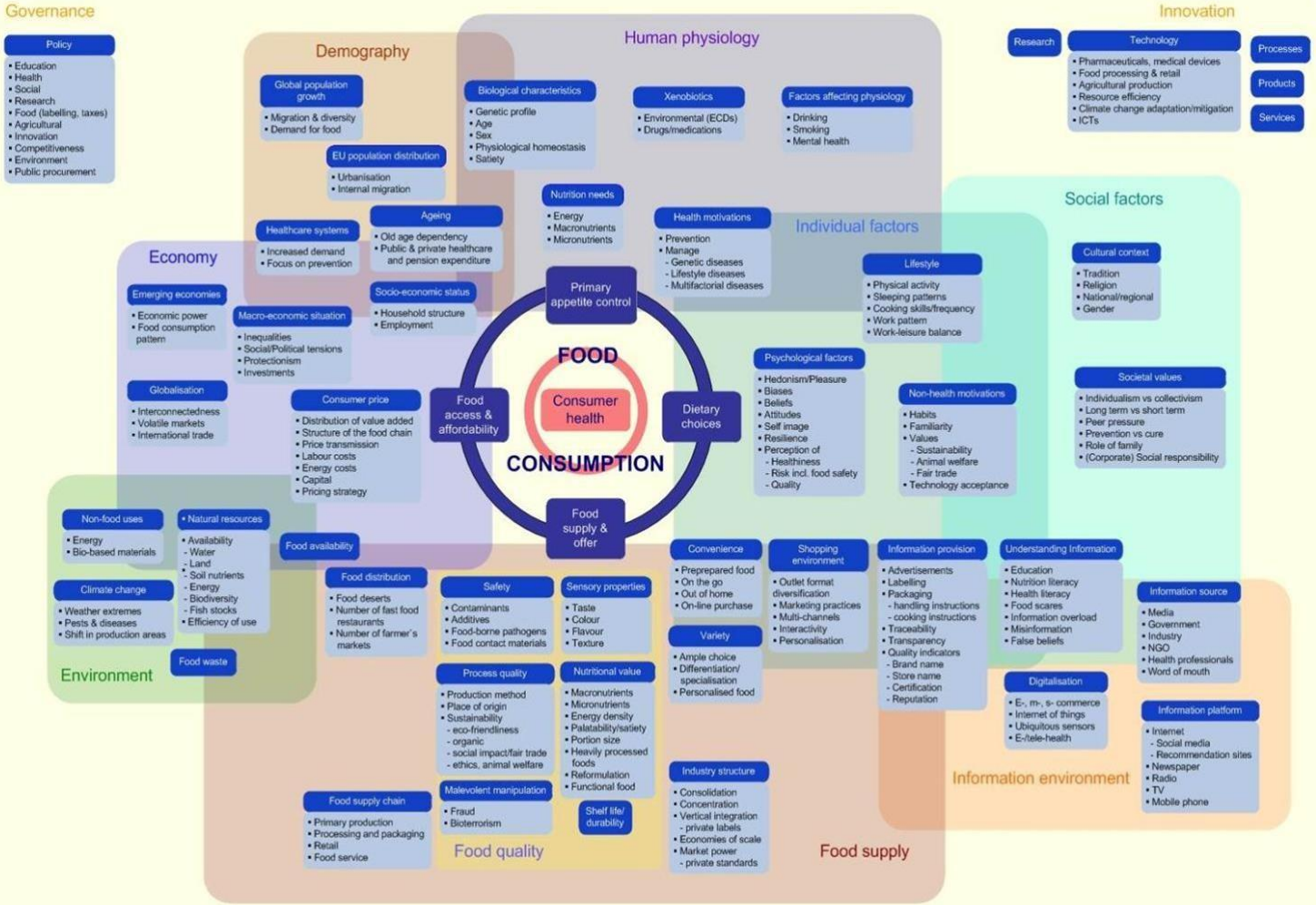
ABSTRACT

The possible implications of global trends such as climate change and resource scarcity on food security are high on the political agendas. While the food sufficiency aspect of food security takes centre-stage, the future of food safety and nutritional quality of diets often seems to be taken for granted. This paper builds on the results of a foresight study on EU food safety and nutrition towards 2050 to discuss potential future points of tension for food policy. Increasing food production while using fewer resources and reducing food waste while ensuring food safety are just two examples. Innovation at different levels in the food system will be needed to address future challenges. Fast technology uptake and the launch of new food-related products can put pressure on the ability to deliver timely risk assessments, the scope of which might also need to cover other legitimate factors. Future food policies need to be more sensitive to impacts on food safety and nutrition and health aspects. A holistic food systems approach must be taken to identify and discuss in advance possible tensions and trade-offs and to address them upfront in a systematic and transparent manner.



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Any questions?

You can find me @scaldeira & sandra.caldeira@ec.europa.eu

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Drivers

Driver	"Global Food"	"EU 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			