

DRIVERS OF CHANGE

A FOODSAFER perspective

ir. Mathis Vermeersch



*"**transformation** to more **efficient**,
inclusive, **resilient** and **sustainable**, agri-
food systems for better production, better
nutrition, a better environment, and a better
life, leaving no one behind"*

DRIVERS



The future of food and agriculture

Trends and challenges





Food and Agriculture
Organization of the
United Nations

*"**transformation** to more **efficient**,
inclusive, **resilient** and **sustainable**, agri-
food systems for better production, better
nutrition, a better environment, and a better
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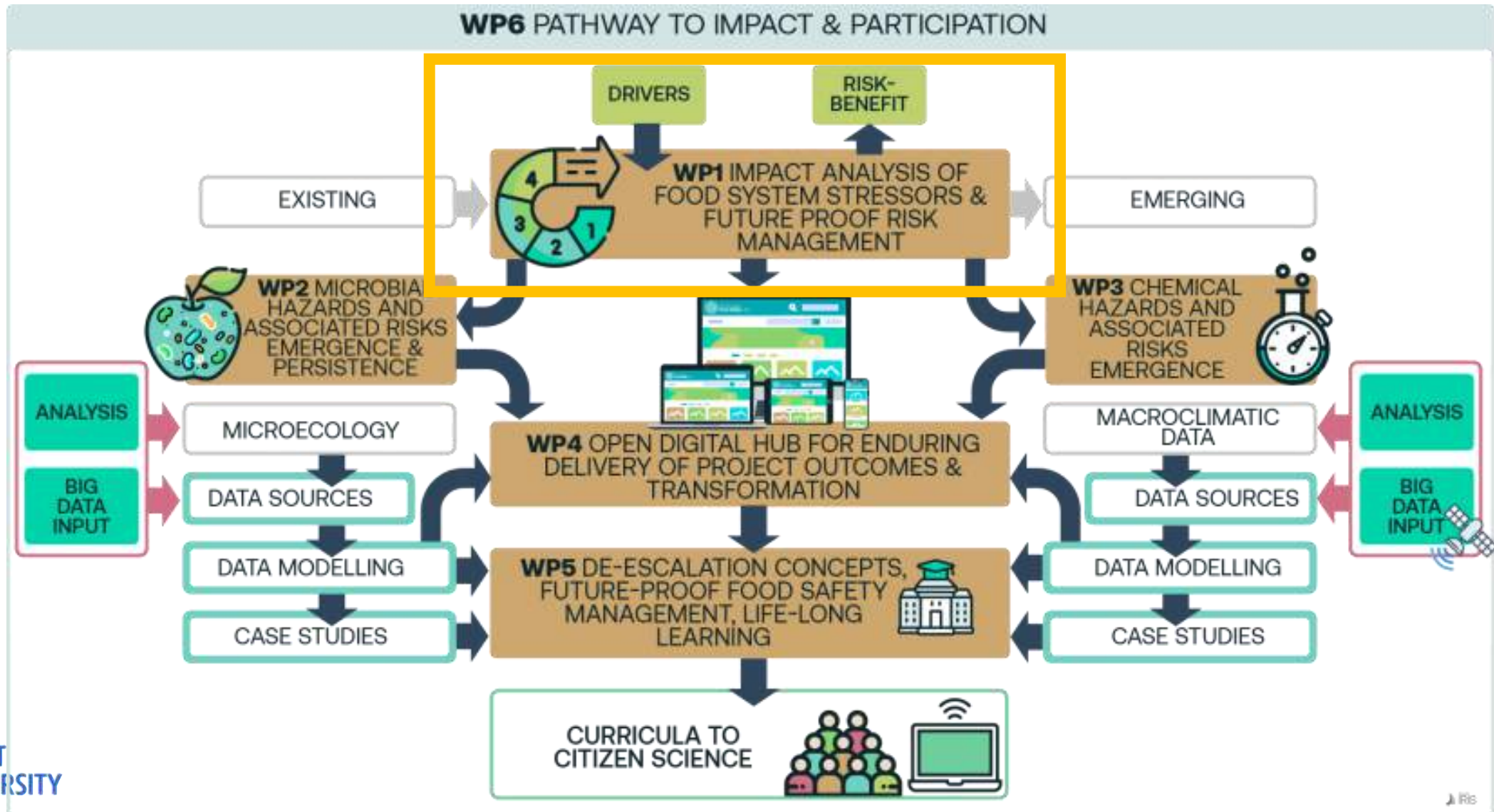
FOOD SAFETY



Thinking about
the future of
food safety
A foresight report



FOODSAFER



DRIVERS OF CHANGE



Drivers are **macro-level factors** that derive from a broad spectrum of areas: societal, technological, environmental, economic, and political. Drivers can be slow to form, but once in place cause changes with obvious wide-reaching impacts across a range of sectors, spanning different geographic areas and over varying time frames (FAO).

Emerging risk = a risk resulting from a **newly identified hazard** to which a significant **exposure** may occur, or from an unexpected new or increased significant exposure and/or susceptibility to a **known hazard** (EFSA).

Drivers → may act as modifiers of effect on the onset of emerging risks, namely they can either amplify or attenuate the magnitude or frequency of risks arising from various sources (EFSA).



DRIVERS OF CHANGE



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A FoodSafeR perspective on emerging food safety hazards and associated risks

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DRIVERS OF CHANGE



Journal of Agriculture and Food Research
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A co-creation approach to identify drivers and indicators for emerging food safety risks in a changing food system

Sabine Neuberger^a  , Tony Benson^b, Beatrix Wepner^a, Nina Hommels^c,
H.J. van der Fels-Klerx^{c,d}

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Food Control
Volume 177, November 2025, 111415



Identification of drivers of change of emerging food safety risks in Europe

N.M.C. Hommels^a  , M. Focker^b, M.C.M. Mourits^a, M. Vermeersch^c,
H.J. van der Fels-Klerx^{a,b}  

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DRIVERS OF CHANGE



*Social
Drivers*

Consumer behaviour

Demographic development

Health and wellbeing

*Technological
Drivers*

Technologies in food production

Technologies in food processing

*Economic
Drivers*

Distribution

Environmental contamination

*Environmental
Drivers*

Management of natural resources

Bioprocesses

Legislation, policies and governance

*Political
Drivers*

Geopolitical instability

CONSUMER BEHAVIOUR

The behaviour of individual consumers can influence the nutritional habits /individual diets. (Changed eating habits lead to potential exposure or development of new hazards.)

- Dietary choice
- Consumer knowledge
- Consumer awareness/attitude
- Public awareness



GEOPOLITICAL INSTABILITY

Advancing economic globalization is currently hampered through newly established/changed borders, barriers, and limits.

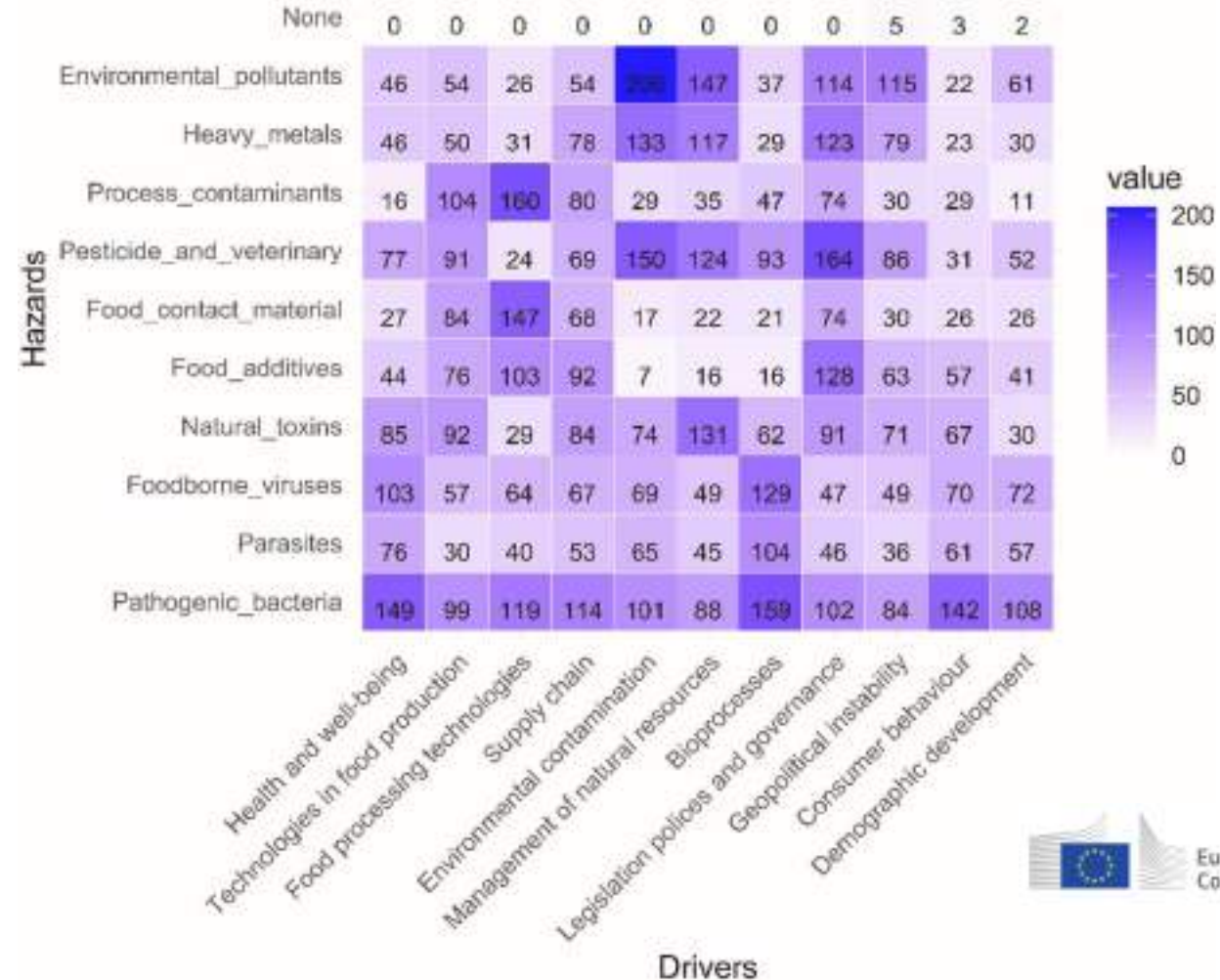
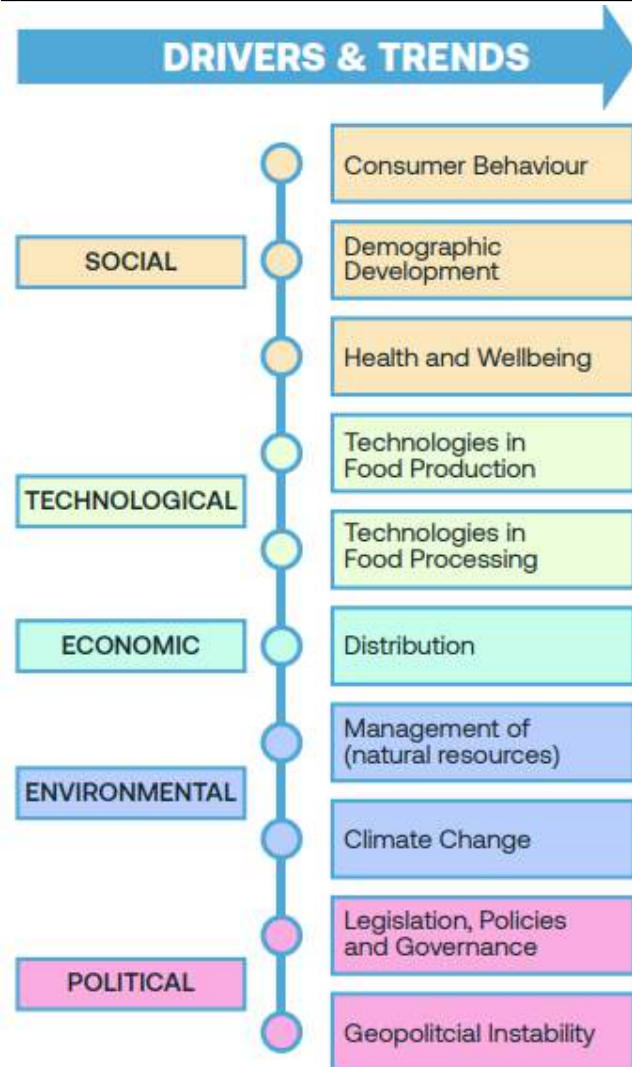
- War and conflict
- Fragmentation between nations



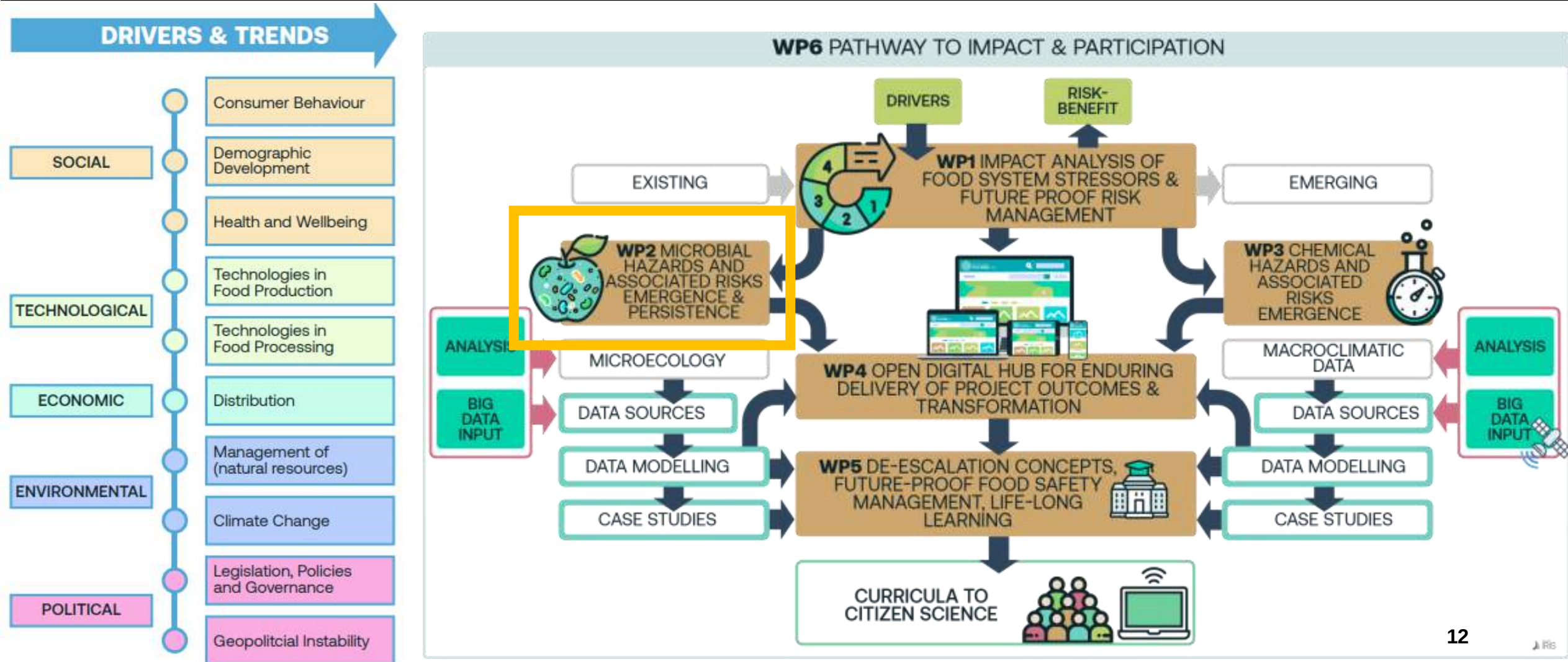
1. EXPERT SURVEY

Identification of drivers of change of emerging food safety risks in Europe

N.M.C. Hammels^{a, b, c}, M. Focker^d, M.C.M. Mourits^e, M. Vermeersch^f,
H.J. van der Fels-Klerx^{a, b, c}



2. MICROBIOLOGICAL HAZARDS





International Journal of Food Microbiology

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Navigating Emerging Microbiological Risks in Novel and Alternative Food Networks

Last update 13 August 2025



International Journal of Food Microbiology

Volume 442, 2 November 2025, 111393



Microbiological hygiene and food safety assessment of urban aquaponic farming ☆

Mathis Vermeersch ^a, , , Liesbeth Jacksens ^a, Tara Baele ^b, Inge Van Damme ^{c,d},
Bavo Verhaegen ^d, Nico Boon ^e, Mieke Uyttendaele ^a



International Journal of Food Microbiology

Volume 446, 30 January 2026, 111541



Microbiological survey of spontaneous vegetable fermentations: A food safety perspective ☆

Mathis Vermeersch ^a, , , Cintia Mayr ^b, An Maes ^c, Anneleen D. Wieme ^d, Bruno De Meulenaer ^e,
Peter Vandamme ^a, Liesbeth Jacksens ^a, Tanja Kostic ^b, , , Mieke Uyttendaele ^a



International Journal of Food Microbiology

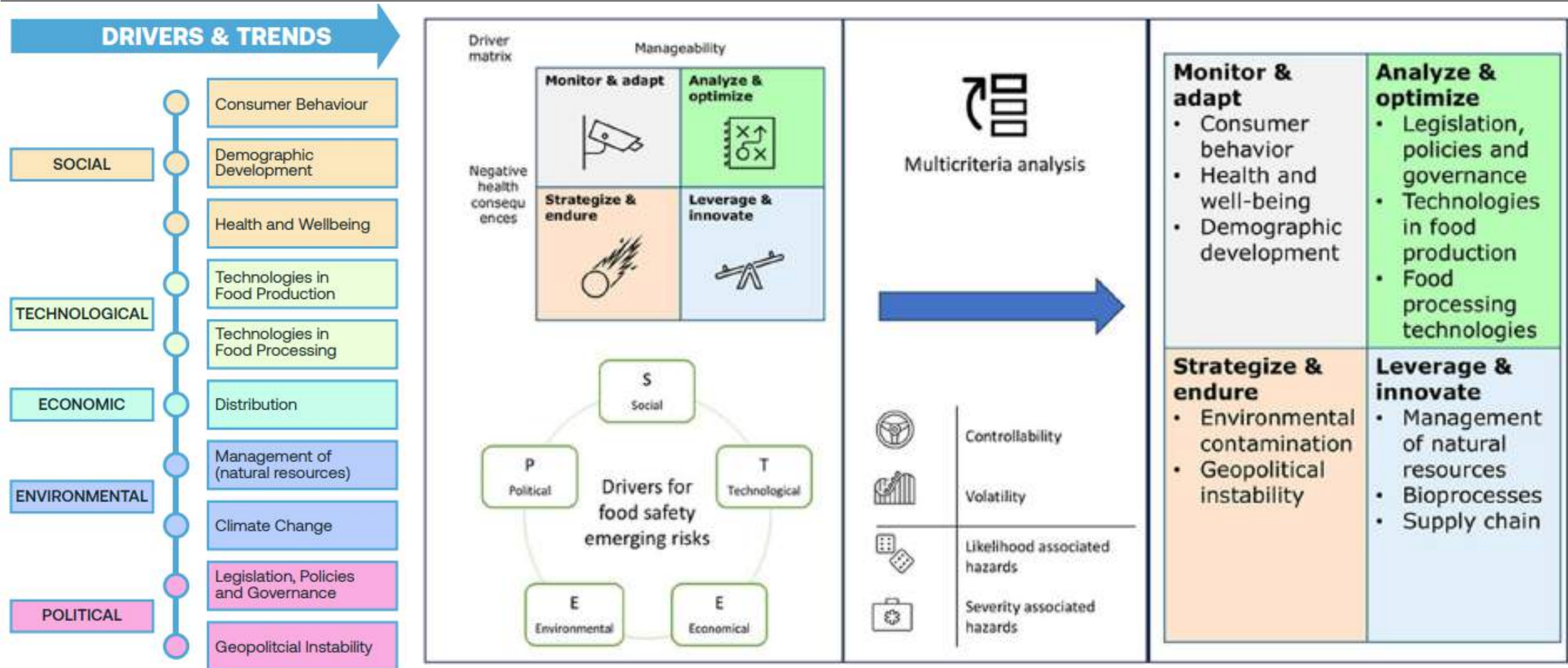
Volume 457, 2 August 2026, 111822



Food safety assessment of last mile delivery as an alternative food distribution system for ready-to-eat multi-ingredient salad bowls ☆

Mathis Vermeersch ^a, Mieke Uyttendaele ^a, , , Cintia Mayr ^b, Nadine Yeramian ^{c,d},
Mariana Alves Elois ^{c,d}, David Rodriguez-Lazaro ^{c,d}, Tanja Kostic ^b, , Liesbeth Jacksens ^a

3. CATEGORIZATION OF DRIVERS



4. DRIVERS > FOOD BUSINESSES



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Influence of the external business environment on food safety management systems: a case study of microbiological food safety challenges

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THANK YOU!!

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FOODSAFER



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