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Developing effective communication about emerging food safety risks

Presented by Lynn Frewer on behalf of the WP 5 team

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The context of emerging food risk communication

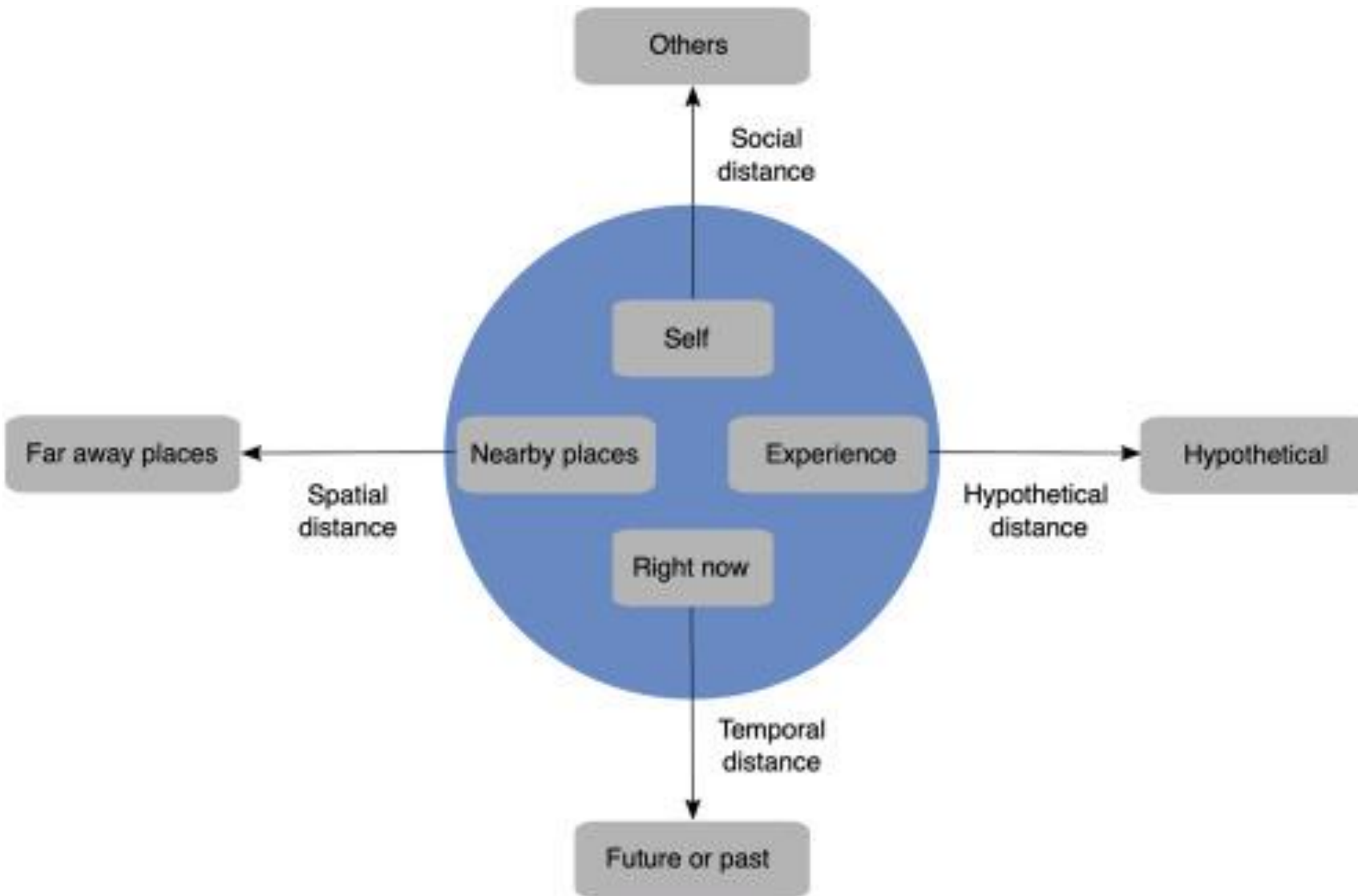
Most research has been conducted on existing food safety risks.

Emerging Food hazards are perceived to be associated with

- High levels of uncertainty.
 - Is it a human and/or hazard at all?
- Ambiguity (different stakeholders, including public, scientists and policy makers, may differentially prioritise the risks).
- Are the associated risks tolerable?

Are emerging food safety risks perceived differently ?

- Novel (which theoretically increases risk perceptions)
- Uncertain (e.g. inherent in climate change associated risks)
- Does this impact on risk communication strategies?



Psychological distance has four dimensions:
temporal distance (*when* something happens),
spatial distance (*where* it happens),
social distance (to *whom* it happens),
hypothetical distance (whether it is *likely* to happen).

Construal Level Theory explains how psychological distance influences how people mentally represent events or objects.

Citizen survey experiment

An important element of risk communication is risk information seeking and sharing, but these have investigated in the context of emerging food hazards

Research questions

- ▶ Do citizens perceive emerging, as opposed to existing, food risks differently?
- ▶ How do people access information about emerging food risks?
- ▶ Are there differences in these between different groups within the population?

Citizen Survey

- Overall, participants perceived medium to high levels of risk for both existing and emerging food hazards across all four countries.
- Emerging food hazards were consistently rated as riskier than existing ones.

	Risk Perceptions		Risk Response	
	Existing food risks	Emerging food risks	Information seeking	Information sharing
France	3.79 (0.79) ^b	3.82 (0.71) ^a	3.63 (0.81) ^b	3.72 (0.86) ^a
Germany	3.39 (0.85) ^b	3.49 (0.84) ^a	3.35 (0.95) ^b	3.61 (0.91) ^a
Hungary	3.54 (0.77) ^b	3.64 (0.76) ^a	3.56 (0.86)	3.57 (0.94)
UK	3.56 (0.81) ^b	3.69 (0.77) ^a	3.61 (0.87) ^b	3.74 (0.88) ^a

Note: Means with different superscripts (a–b) differ significantly between constructs based on paired t-tests.

Survey overview



A total of 4,038 responses were obtained

France (n = 1,002)
Germany (n = 1,012)
Hungary (n = 1,011)
UK (n = 1,013).



Quota sampled on the basis of age, gender and sociodemographic class



Surveys developed in English translated and back translated into local languages



Developed from the interviews Sari et al, 2025) and the scientific literature

Data also collected regarding specific emerging food risks

Methyl mercury in the marine food chain

Harmful algal blooms in drinking water and food production

Mycotoxins in the food chain

Replacing meat on the food chain using proteins derived from insects

Replacing meat on the food chain using proteins derived from plants

Microplastics in food and water

Bacterial food poisoning

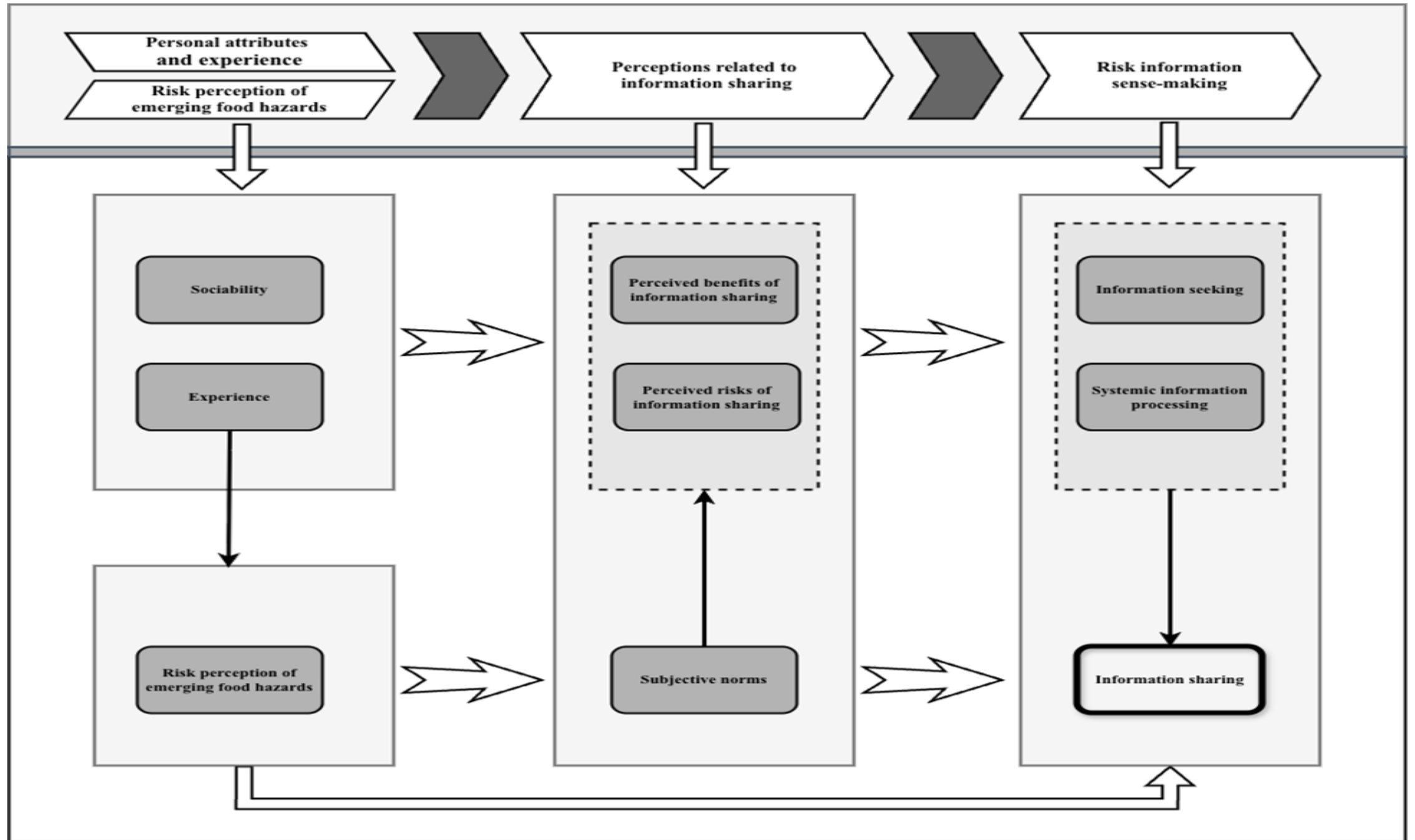
Food Fraud

Misuse or failure of AI in food safety decision-making

Persistent organic pollutants (POPs)

Heavy metal contamination of food

Risks associated with food packaging



Selected results

Greater information seeking intentions were associated with

- Higher risk perceptions associated with of emerging food hazards

- Perceived benefits of risk information sharing

- Perceived subjective norms (“social pressure”)

- Participants showed similar levels of perceived risk (moderate to high) regarding emerging food hazards in general

- Perceived risk levels associated with specific hazards demonstrated both similarities and differences between countries

A few key results

All countries

- Higher risk perceptions associated with emerging food hazards moderately predicted (greater) information seeking intentions
- Women perceived more risk than men associated with all emerging hazards
 - Women were more likely to seek information about emerging food safety risks
 - “Social exclusion “ from control strategies and actions over emerging food risk?
 - Greater responsibility for food within households?
- Trust in information about emerging food risks
 - Health professionals, experts and the relevant authorities were highly trusted
 - AI chatbots, social media, traditional media and retailers were the least trusted
- Subjective norms had a small effect in France, Hungary and Germany, and a negligible effect in the UK.
- Conceptual model generally supported
- Risk communication strategies need to be considered information seeking behaviour and link this to behavioural change models

Social media and communication about food risks

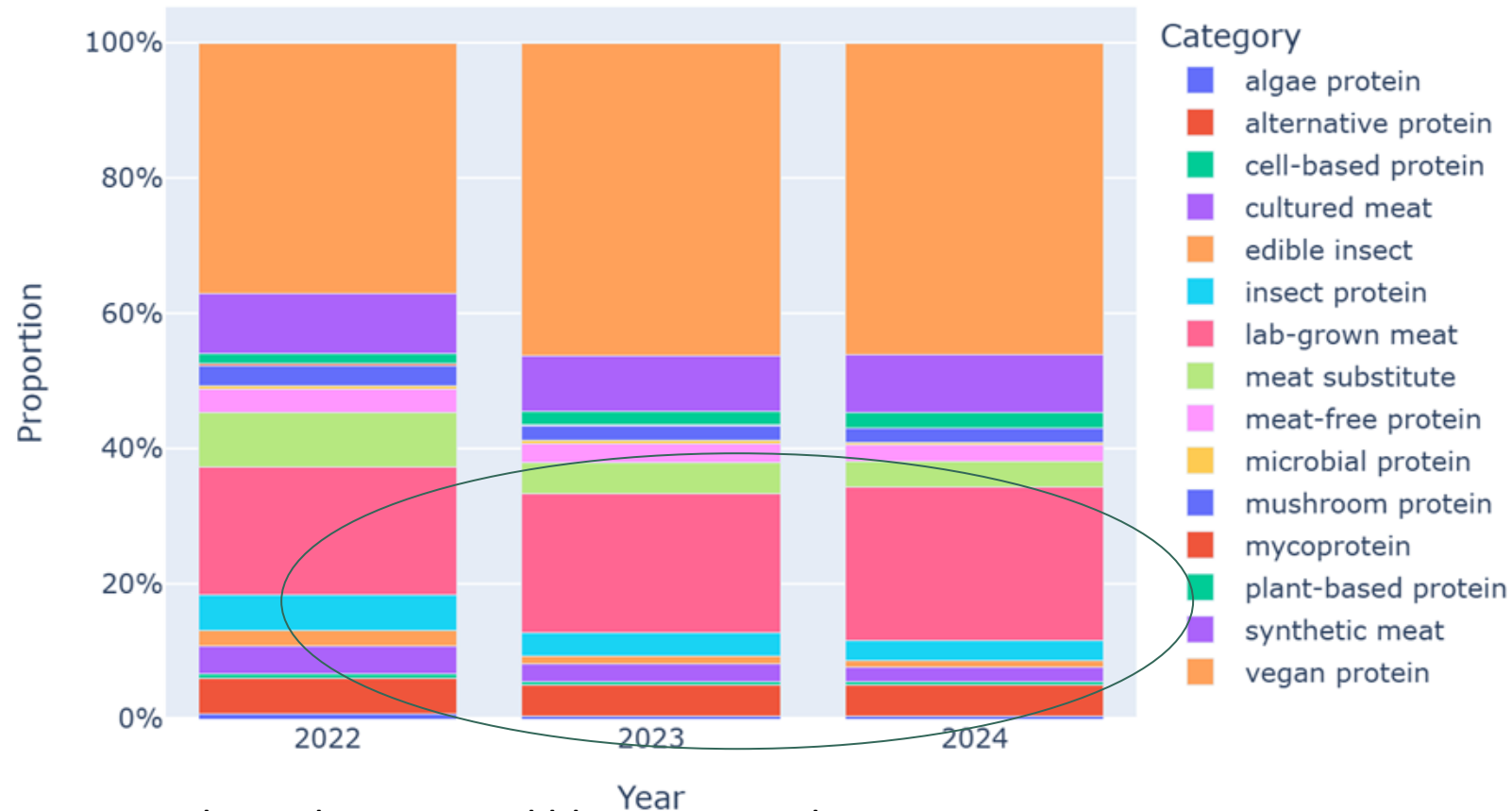
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Despite the lack of trust in social media, people engage in discussions on about food safety on these platforms

Is this a primary source of information for some citizens?

Social media case study, discussion of alternative proteins in X

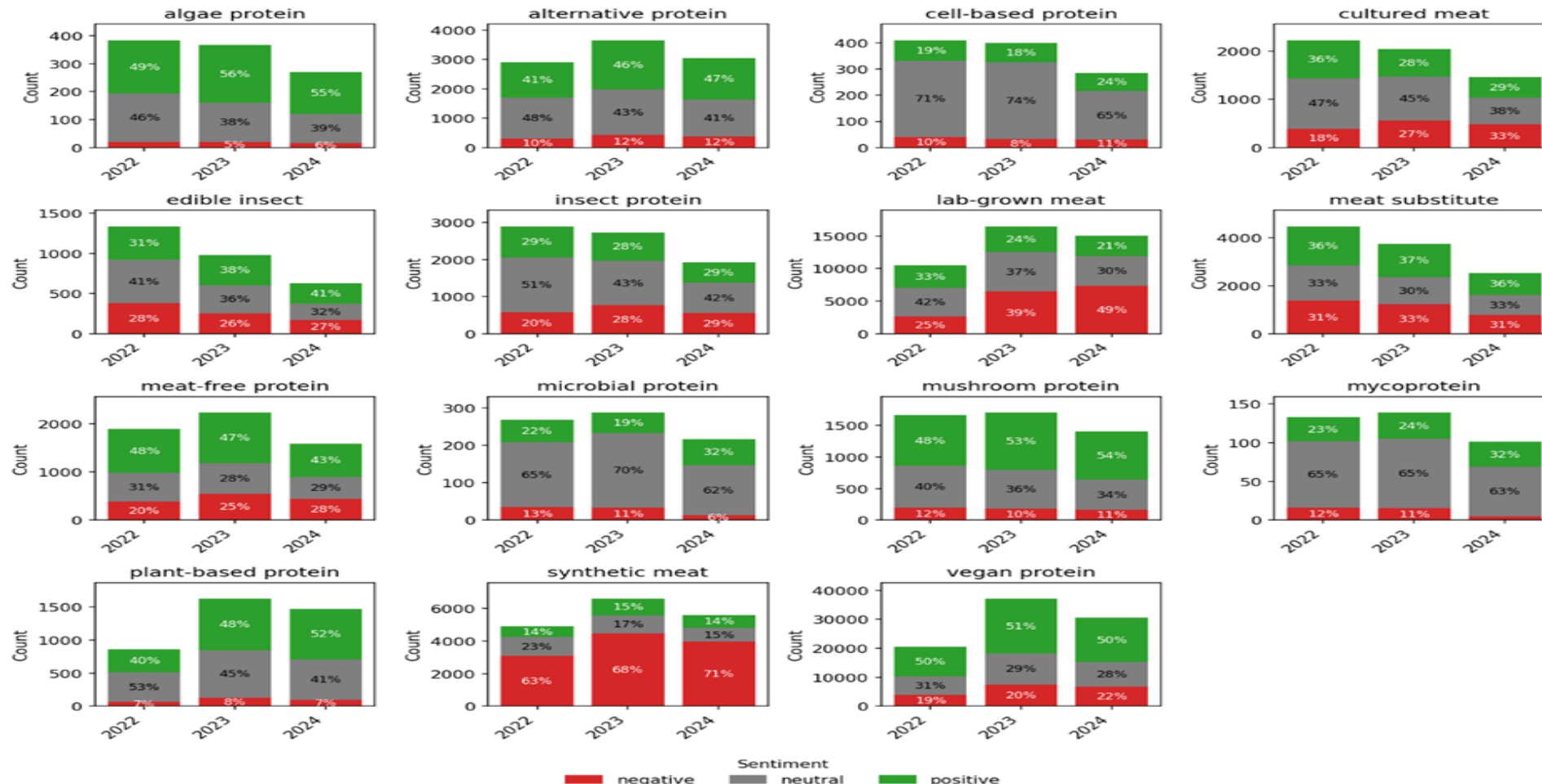
Proportion of Tweets per Category by Year



Lab grown meat is about the same, edible insects and vegan proteins have increased (Országha et al, submitted)

Sentiment analysis

Yearly Counts of Final Sentiments by Semantic Category



Social media analysis and risk perceptions

- ▶ Crowdsourcing, is a valuable tool for detecting emerging food-related risks
 - ▶ identifying shifts in consumer concerns, behaviours, and trends
- ▶ Improve early warning techniques through the use of citizens social media
- ▶ Needs: To establish a core governing body to the process
 - ▶ streamline both the reporting process and subsequent actions
- ▶ There is a need incorporate crowdsourcing into reporting methods

Citizen Science Infrastructure and Emerging Food Risks

Case study: *Vespa velutina* (yellow legged hornet) monitoring in Europe

Threat to native species, including honey bees

- Comparison of citizen science reporting infrastructures for *V. velutina* monitoring in UK, Italy, France and Germany.
- Examined how citizen reports are collated and integrated into early warning and response systems.

Key findings

- **Clear reporting pathways support effective communication**
 - Centralised systems provided a single route for reporting and dissemination of information.
- **Verification is essential for identifying credible reports**
 - Large volumes of reports require substantial filtering.
- **Coordination impacts effective information flow**
 - Greater variation in reporting infrastructures increased coordination requirements between organisations and within frameworks.
 - EFSA coordination? preparation,

Spivey, Frewer et al in

Some conclusions

- ▶ Emerging food risks require dedicated communication strategies
- ▶ “Green bias” is like optimistic bias
 - ▶ Risks associated with climate change will not affect me
 - ▶ I personally cannot contribute to adaption and mitigation strategies
 - ▶ Make information relevant to individuals
 - ▶ People have higher risk perceptions about emerging food safety risks compared to existing ones
 - ▶ Consider that, while people trust the authorities and other “professionals and experts” they may get risk information from social media and AI even if they trust it less

Where else should we consider affect ?

Climate change

- People perceive climate change as a systematic risk which does not apply to them personally and so do not take mitigatory or adaptive actions
- Couple messaging with affective imagery?



• [The burning world](#)



[Mutant Fish - WWF](#)



[Impacts on "charismatic" animals](#)



[the "murder hornet"](#)

The affect (emotion) heuristic. Can we use this to “carry” messages



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Trypophobia (“discovered” by social media)



THE PSYCHOLOGIST, PAUL ROZIN, AN EXPERT ON DISGUST, OBSERVED THAT A SINGLE COCKROACH WILL COMPLETELY WRECK THE APPEAL OF A BOWL OF CHERRIES, BUT A CHERRY WILL DO NOTHING AT ALL FOR A BOWL OF COCKROACHES.

- DANIEL KAHNEMAN -



Thank you
for your
attention

Országha, E., Vribéka, K, Frewre. L.J., Jozwiaka, A., Farkasa, Z. (submitted). Emerging concerns surrounding alternative proteins: A large-scale NLP analysis of social media discourse on X.

Sari, N. H., Feliciano, R. J., Orszagh, E., Moriceau, N., Benighaus, L., Reale, F., Dendler-Rafaeld, L., Kasza, G., Szakos, S. & Frewer & (2025). Citizen preferences for risk communication associated with emerging food risks linked to climate change. Journal of risk research, 28(8), 893-911.

Other papers are in preparation.

