



Positive tipping points for healthier diets and diversified protein supply

This paper is adapted from the Food and Land Use Coalition (FOLU) report [Accelerating the 10 Critical Transitions: Positive Tipping Points for Food and Land Use Systems Transformation](#). Our publication in [Global Sustainability Journal](#) provides a more detailed elaboration of the tipping points framework described in this paper including a detailed literature review.



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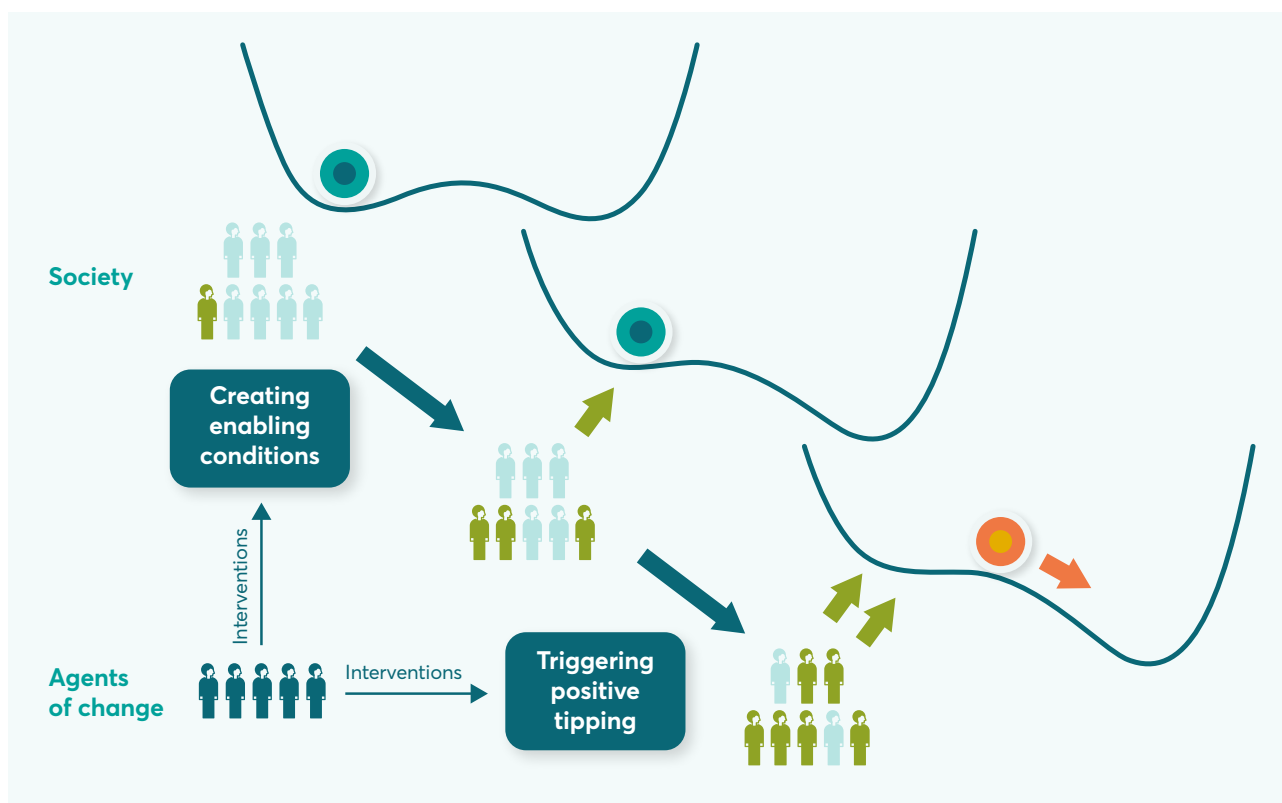
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Introduction

The world is at a critical inflection point with rising awareness of the need for change and progress on **several fronts**. There is a growing realisation that food and land use systems transformation is central to tackling the urgent challenges of our time – from COVID-19 recovery to conflict in Ukraine and the ripple effects across to world to action on climate and nature. As a result, both the public and private sector are setting ambitious net zero emissions targets or investing in ways which protect nature and address food and land use systems' contribution to the dual climate and nature crisis.

But the pace of progress is not sufficient; the world must unlock rapid change at scale to achieve our vision for sustainable food systems in the next decade through positive, systemic “tipping points.” (Figure 1). Tipping points are critical points in a system where targeted interventions lead to large and long-term consequences on the evolution of that system, profoundly altering its modes of operation.^{1,2,3,4} They can trigger and accelerate change across socio-technical, ecological and economic systems.

Figure 1: A dynamical systems conceptualisation of positive tipping points⁵



In this conceptualisation of systemic tipping points, the current state of the system is the “ball” and the shape of the “valley” it sits in describes its resilience to perturbations. The schematic shows how interventions by agents of change can create enabling conditions and then trigger the system to be tipped into an alternative state (the other valley).

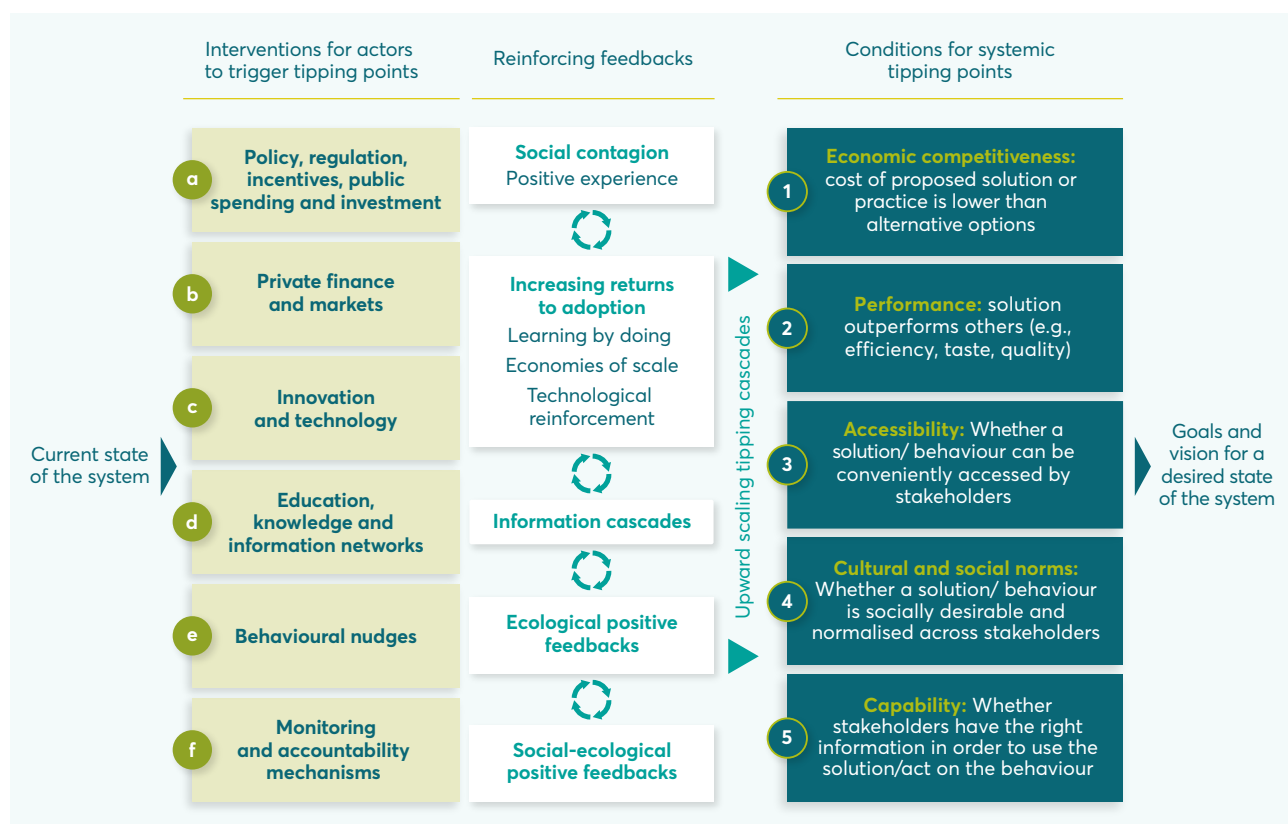
Certain economic, political or technological changes – coupled with socio-ecological changes – lead to positive, outsized effects on a system. The point at which this occurs is what we refer to as a “positive tipping point”. There is evidence from beyond food and land use systems that targeted policy interventions can foster the emergence of positive feedback loops and activate small (sub-system) tipping points which, in turn, can trigger wider systemic tipping points.^{6,7} The growth in the solar markets in the last decade is an example of this.

Tipping systems towards healthier diets and diversified protein supply in Europe

Shifting to a human and planetary health diet is fundamental to achieving the Sustainable Development Goals and the Paris Agreement targets on climate change. In Europe there is evidence that targeted interventions in the near-term could trigger a systemic tipping point to plant-rich diets. Consumers are reporting that they are open to or are actively seeking to change their behaviours; over 20 percent of Europeans now consider themselves flexitarian, vegetarian or vegan and among flexitarians, and over 57 percent say they want to become vegetarians.⁸ In 2020, \$527 million was invested into alternative proteins in Europe, more than quadrupling investment flows in 2019.⁹

But while the market for alternative protein products has grown in recent years, we are not yet seeing a significant corresponding reduction in meat consumption in Europe overall.¹⁰ We have developed a framework (Figure 2) to help actors trigger positive tipping points towards a desired system state – the goal and vision of reduced meat consumption.

Figure 2: Framework for triggering tipping cascades



Following the tipping points framework, here we set out the five “conditions” that need to be met to enable the widespread adoption of alternative proteins in Europe:

- 1 **Economic competitiveness:** tasty and convenient alternative proteins are at price parity or cheaper than conventional meat.
- 2 **Performance:** alternative proteins have the same or better sensory and health properties as conventional meat.
- 3 **Accessibility and convenience:** alternatives are observable, accessible, and easy to purchase in stores, online, and in restaurants, whilst choice architecture limits the convenience and availability of unsustainably produced meat.
- 4 **Cultural and social norms:** it is socially unacceptable to over consume meat, while alternatives are socially desirable and normalised throughout society.
- 5 **Capability:** consumers and chefs have the knowledge and skills to cook with alternative proteins, and are aware of the health and environmental impact of their food choices.

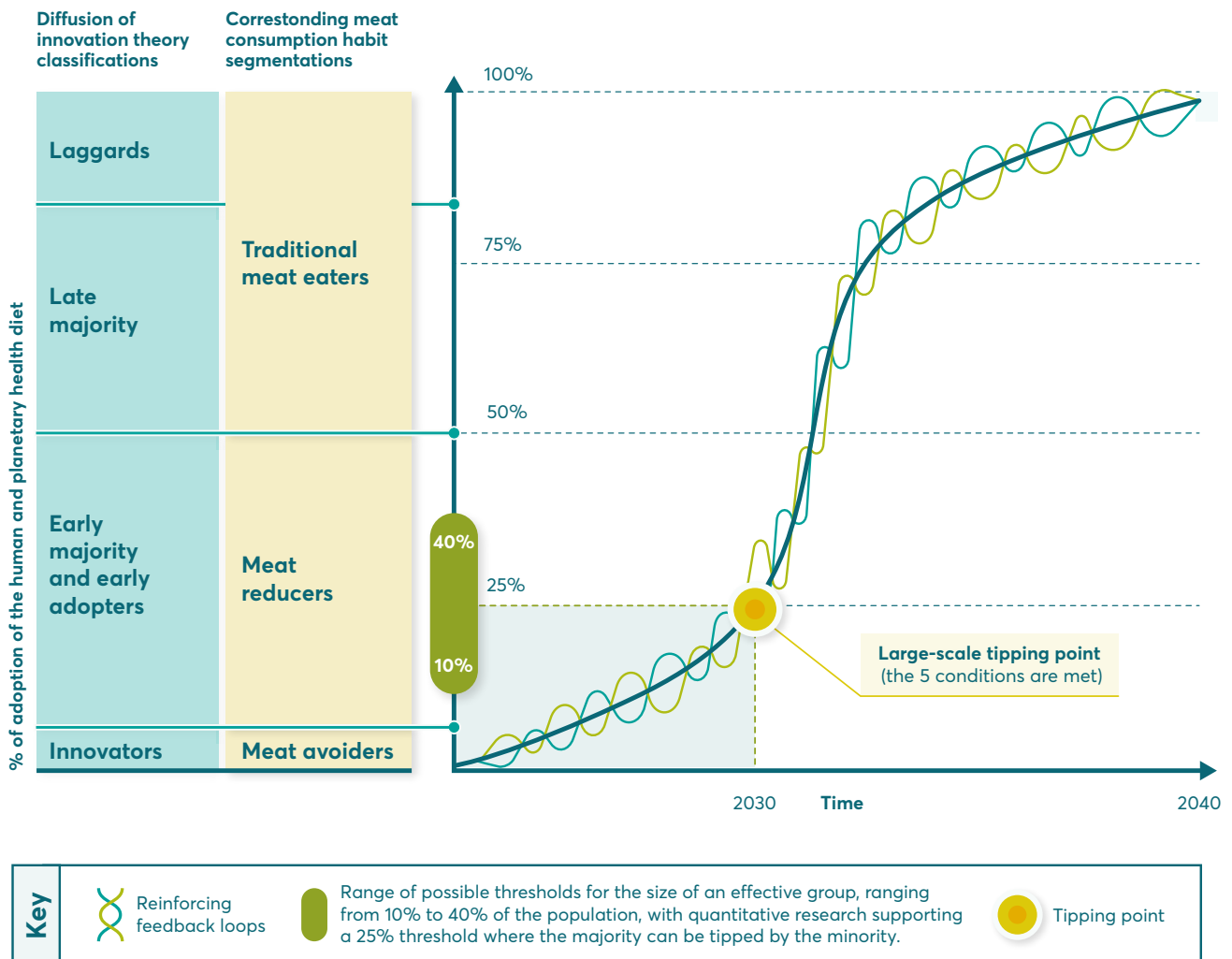
Reinforcing “feedback loops” might accelerate the shift of European consumers towards alternative protein products and away from meat consumption. By overlaying the Diffusion of Innovation Theory with current meat consumption habits (Table 1) we can identify the priority consumer segments most likely to have the biggest impact and the corresponding critical interventions that “pull” consumers towards alternatives, and those that “push” consumers away from meat consumption.

Table 1: Diffusion of Innovation theory classifications mapped against meat consumption habit consumer segmentations

| Diffusion of Innovation (DOI) Theory Classifications | Estimated population % according to DOI | Meat consumption habit consumer segmentation ¹¹ |
|--|---|--|
| Innovators are the first to try a new behaviour, product or idea (and may even be its creator). | 2.5% | Meat avoiders who may place higher value on animal welfare and/ or environmental and health concerns. Not the primary target segment if the goal is to increase adoption of plant-rich diets. |
| Early adopters are comfortable with innovations and cognisant that change is often inevitable. | 13.5% | Meat reducers are open to behaviour change but change needs to be easy, affordable, appealing and convenient. |
| The early majority must see evidence of the innovation's worth prior to their adoption of it. | 34% | |
| The late majority is sceptical and more reluctant to embrace change, only adopting an innovation once it becomes the norm in their society. | 34% | Traditional meat eaters which are the most difficult segment to reach. Health considerations might in this instance be the primary driver for reducing meat consumption. |
| Laggards are bound by tradition and suspicion and dislike change. | 16% | |

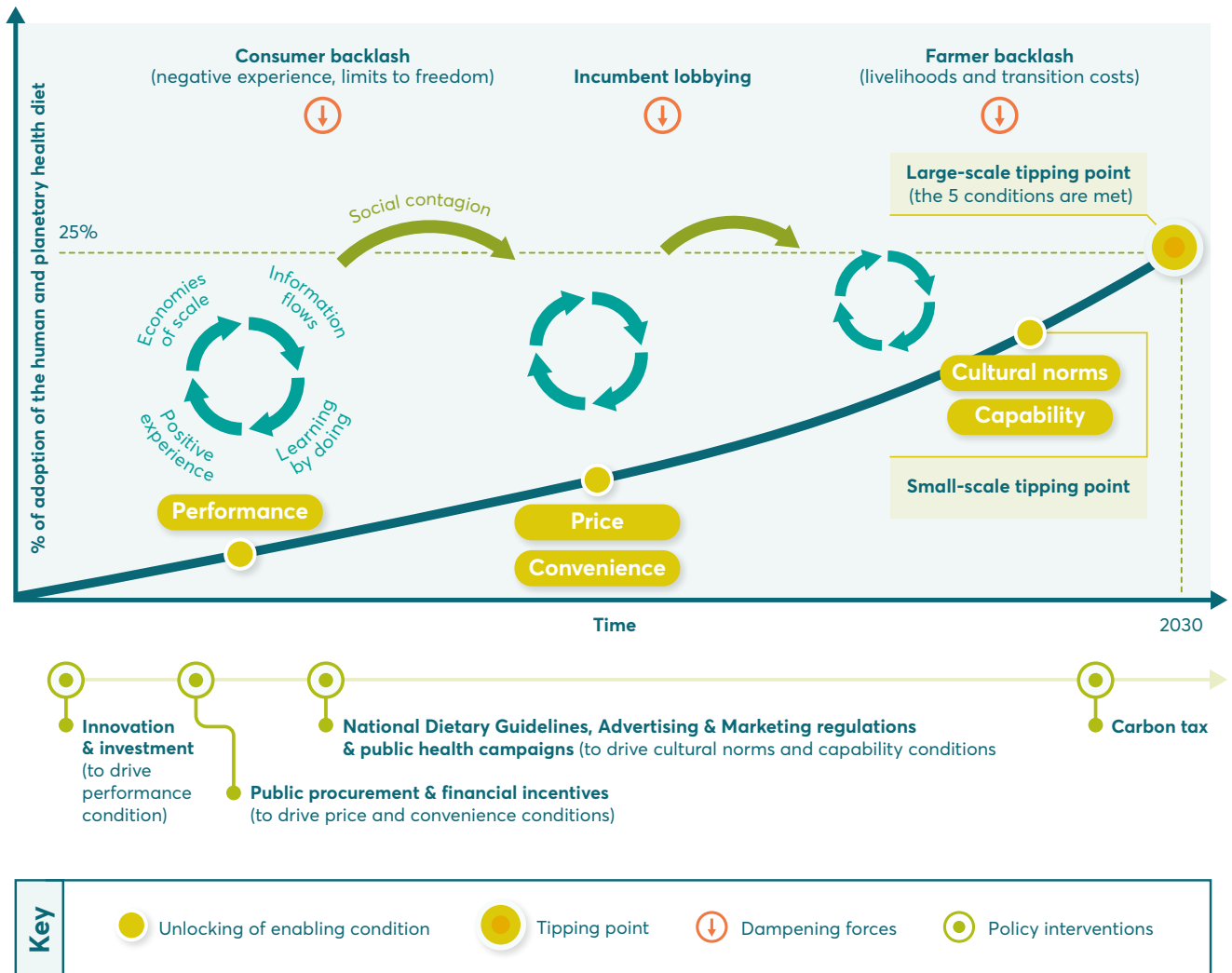
The illustrative image below (Figure 3) shows how once approximately 25 percent of the population adopts this behaviour, we would expect a larger scale tipping point, accelerating change – which we have nominally placed in 2030.

Figure 3: Illustrative visualisation of dietary shift transition in Europe



The shift to plant-based diets in Europe can be accelerated through a variety of “interventions”. Investing in innovation to improve the taste, quality, affordability, and social acceptance of alternative proteins is a critical early-stage policy intervention. There is also a major role for public procurement in signalling demand and creating incentives, as well as regulatory interventions relating to national dietary guidelines and governance of corporate advertising and marketing. These earlier interventions are also designed to limit the backlash associated with the sudden implementation of stringent policy measures that would encourage consumers to reduce meat consumption. Positive feedback from these initial interventions allows more stringent policies to be added over the longer term, including tax and regulation.

Figure 3: Illustrative visualisation of dietary shift transition in Europe zoomed into the next decade



Critically, a transformation to planetary and human health diets in Europe would create cascading “tipping points”. Much meat and dairy is sourced within Europe where biodiversity is in systematic decline due to current farming practices,¹² and these livestock are dependent on feed which is increasingly imported, much of it from Latin America.¹³ A reduction in land demand for animal feed would open up opportunities for regenerating natural ecosystems in Europe and globally, and especially in tropical biomes that are rich in biodiversity and stabilise the climate.

Some “actors” will hamper the tipping of this system, and the meat and dairy lobbies in both the EU and the US are particularly powerful.¹⁴ It is likely that pushback from the meat and dairy sector will be most significant at the early stages of reform, where policymakers start to implement incentives to create market signals for the industry. We call for appropriate investments in human capital and “stranded communities” to enable them to create or access different opportunities.

We can all take action to trigger positive tipping points. Policymakers and public authorities are a major focus given their role in setting and enacting economic and social rules. But in addition, financial actors can direct investment into nascent alternative proteins. Civil society organisations can hold them all to account. Citizens forming social movements can trigger positive tipping points and start upward-scaling tipping cascades. Researchers and technological innovators are the creators of novel meat alternatives and entrepreneurs can help propel their upscaling. Citizens as consumers are key to their uptake. The private sector can actively engage in innovation trajectories and help build an innovation 'ecosystem'. can help tip change in public attitudes. The media can help communicate it. The faith sector can help tip hearts and minds. We all have a role.

This paper is adapted from the Food and Land Use Coalition (FOLU) report [Accelerating the 10 Critical Transitions: Positive Tipping Points for Food and Land Use Systems Transformation](#). The longer paper applies the tipping points framework to the challenges of scaling up regenerative agriculture and tropical forest protection. Our [publication in Global Sustainability journal](#) provides a more detailed elaboration of the tipping points framework described in this paper including a detailed literature review.

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