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# Designing adaptable consumption: a new practice to foster food system transitions

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In recent years, more designers have been engaging in transitions for which design activity is used to develop innovations that steer change. However, little is known about how designers develop innovations to foster change along a desired transition path. In this short paper, we explore how designers can develop joint innovations that steer a transition of the Dutch food system to embrace flexibility and cater to enough. We present a new practice called Adaptable Consumption, which aims to realign food safety, quality, and sustainability. Based on our preliminary findings, we discuss how our process inspires reflections on the transition and reveals key indicators for collaborative change. We conclude by reflecting on areas of the process that need further exploration in order to stage the process and design expertise effectively in this highly complex transition context.

**Keywords:** *innovation; transitions; expert design; transforming practices*

## 1 Introduction

In recent years, there has been a growing number of research scholars and practitioners from various disciplines tackling societal transitions—including design. The urgency and relevance of such challenges have led to new areas of design that draw from systems thinking, transition studies, and design theory and practice, such as systemic design (Ryan, 2014) and the emerging transition design practice (Irwin, 2015).

Designers are said to bring valuable competencies to transition contexts, such as imagining and depicting futures that others want to act upon, reframing and challenging existing practices, integrating diverse disciplinary and stakeholder perspectives, and developing new artefacts that elicit responses (de Koning, 2019; Dorst, 2019; Gaziulusoy & Ryan, 2015; Gaziulusoy & Ryan, 2017a, 2017b; Irwin, 2018; Loorbach, 2022; Norman & Stappers, 2015; Ryan et al., 2015). However, given that few transition design projects come into practice, little is known about how designers actually carry out their practice in transition contexts.



One transition currently being responded to by designers is the transition of the food system to cater to enough food for everyone with hardly any food waste. Today there exists a significant disparity in food distribution across the globe. This imbalance has resulted in poverty and famine in some countries, while others experience abundance leading to extensive food waste (FAO,2013). This wastage has severe negative social, economic, and environmental impacts, affecting the well-being of individuals and society (FAO,2013; Salhofer et al., 2008). Moreover, food waste contributes 8-10% of global greenhouse gas emissions and exacerbates the three planetary crises of climate change, nature and biodiversity loss, and pollution and waste (FAO, 2013; UNEP, 2021). To fulfil the United Nations' objective of reducing food waste by 50% before 2030 and to cope with the increasing global demand for food, a holistic strategy addressing various aspects such as consumer behaviour, retail practices, and macro-environmental factors is required, ultimately transitioning the food system (Aschemann-Witzel et al., 2015; Schanes et al., 2018).

A transition is conceptualized as long-term, multi-phasal, multi-level, and non-linear processes of change toward a sustainable and just future (Geels & Schot, 2007; Loorbach, 2007). As such, it requires collaboration and cooperation among different actors within the system to achieve systemic change. Given that new systems are realized through design and innovation activity, this paper explores how designers can help conceptualize joint innovations that steer a transition of the food system to cater to enough. We explore this question through a series of two workshops with food system actors. This paper presents preliminary insights and describes how designing a new practice that fosters adaptable consumption appears promising in this transition context. This research is scoped to the context of transitioning the Dutch food system as part of the global food system.

## **2 Project background**

In the Netherlands, the amount of food wasted in the supply chain ranges from 1.77 to 2.55 billion kilos annually, with consumers being responsible for the largest share of this waste representing 33% (van Dooren & Mensink, 2018). Despite increasing awareness and concern for the implications of food production and consumption, consumers find it challenging to adopt food waste-free behaviour. Some reasons for this include insufficient culinary-related skills, over-preparation and over-buying, and concerns for food safety (Stangherlin & de Barcellos, 2018). As a leader in the agri-food domain, the Netherlands hopes to become one of the first countries to reduce 50% of its food waste (STV, 2023)

The work in this paper is part of a research group called FETE (“From Excess To Enough”) that brings together three Dutch universities and eight organizations within the food system that are interested in how they can reduce food waste now and partake in a transition to a food system that caters to enough, i.e., does not overproduce and hardly sells more than what is actually consumed. To develop joint innovations, five actors within FETE were brought together in a series of two half-day workshops held two weeks apart to establish their transition readiness (Goss et al., 2021). The actors who participated in the workshops included a national nutrition centre, a food waste foundation, a food manufacturer, a waste collector, and a meal delivery service company, representing different perspectives and expertise along the food chain.

The first workshop focused on understanding the participating organizations' network, their power and interest, and identifying a pathway to align innovation efforts. In this workshop, participants selected a transition pathway based on a shared vision (Goss et al., in review), reflected on obstacles

and opportunities in this path, and developed innovation concepts. The second workshop aimed to evaluate and further develop innovations from both a societal perspective to increase their potential to foster the desired change and a business perspective to increase the chance of being realized. In this workshop, participants reflected on which behaviours of the new practice were strongest and weakest in terms of pushing the transition, evaluated several innovations, and explored potential innovation experiments they could support.

### 3 Adaptable Consumption: a new practice

In this study, we propose a new practice called Adaptable Consumption. This practice fosters the transition of the Dutch food system to embrace flexibility in food production and consumption—implying changes in consumers and food system actors. This entails accepting variability in the type of products available due to seasons and variable success of harvest (changing contracting specifications between producers and retailers), framing consumption as meal types rather than exact ingredients, and developing food literacy around due dates and mixing ingredients to increase self-confidence in adapting meal plans.

To communicate the practice to the FETE actors, the authors 1) developed a comic strip depicting a consumer going through their week while engaging in the behaviours of the new practice and 2) developed an innovation portfolio of 7 concepts (figure 1), illustrating how the practice could evolve and develop over time. This section highlights key findings from the workshops and the process of designing Adaptable Consumption.

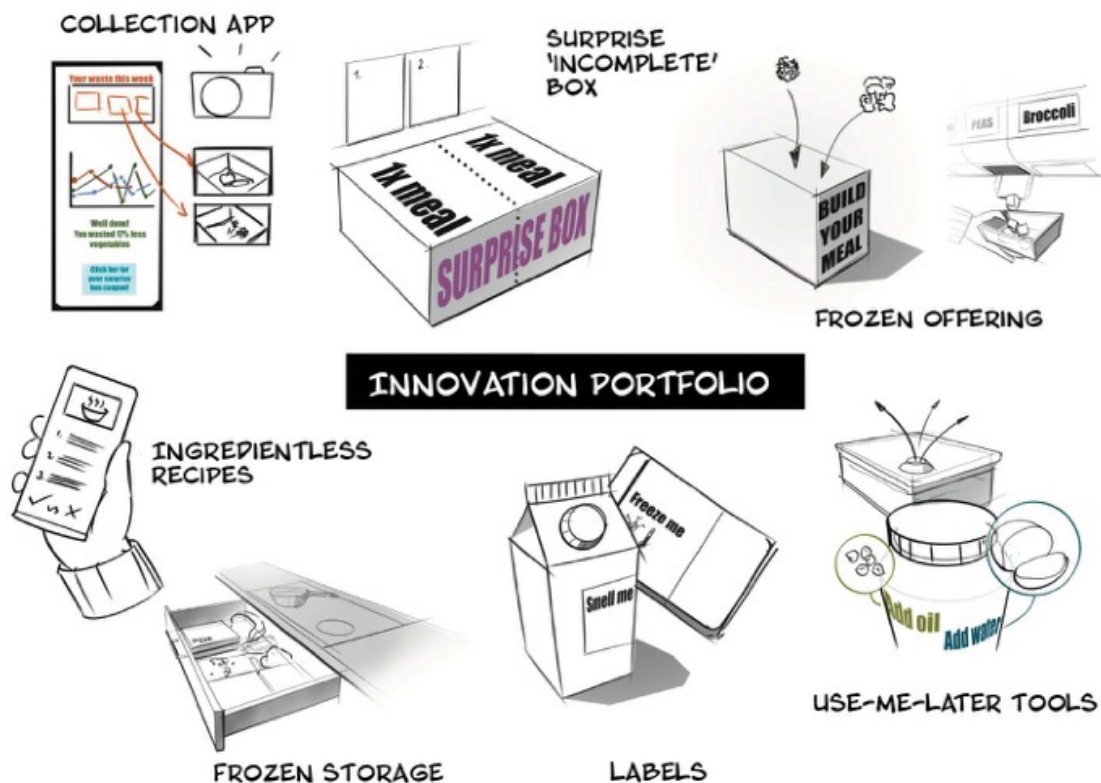


Figure 1: Overview of the 7 innovations developed that support the practice of Adaptable Consumption (drawings by Maria Sofia)

### **3.1 Aligning towards innovation path**

In this transition context, mobilizing the FETE actors along the same transition path was an important step as it allowed the authors to align innovation and design efforts, thus increasing the chance of the consortium effectuating change. During the first workshop, the actors voted on a path of 'Embracing Flexibility' as important to the transition and relevant to their organizations. Within this pathway, the participants reflected that the strong emphasis and prioritization of food safety in the Netherlands plays a key role in the amount of food being wasted as well as the limited freedom to innovate. Despite their innovations being proven effective and safe, the inflexibility and lengthy timeframes to address regulatory boundaries limit the space to do things differently and prioritize goals like sustainability. This highlighted the need for the Dutch food system to realign food safety, food quality, and sustainability (i.e., food waste) in terms of their priority to bring more resilience to society.

Focusing on one directionality/transition path allowed the design process to focus on designing a system that supports the space for safe risk-taking and to meaningfully align with the transition goal (i.e., embracing flexibility to cater to enough). Given that the pathway had buy-in from the actors from the onset, discussions focused on how each organization could support and have a role in the desired changes. The alignment also supported the development of a convincing narrative when communicating how adaptable consumption is the norm in the future and how the innovations can support a shift from the present.

### **3.2 Framing the problem and transition goal**

When examining the FETE transition in the first workshop, the discussion occurred on the systems level and how the structures in our food system lack flexibility, including the challenges and opportunities presented by this. For example, the participants explicitly noted how the current system prioritizes flexibility for the consumer even if it results in food waste within the supply chain. Yet, when the participants were asked to develop their own innovations, they tended to zoom into reducing consumer food waste without connecting the ideas to the larger transition goal. This highlights the challenge of framing innovations within a transition context, specifically, balancing the emphasis on the current problem, i.e., food waste, with the transition goal, i.e., creating a more flexible food system that caters to enough.

In our process, we started with a vision of Dutch food system in 2030 that caters to enough. Within this vision, the participants chose 'Embracing Flexibility' as the path to foster. From here, we wanted to intervene in consumption behaviours. Therefore, we linked the food waste-free behaviours and flexibility/risk-taking behaviours together through innovation. For example, if consumers feel confident in provisioning for fewer meals a week (e.g., 5 meals a week rather than 7 meals) (risk-taking/flexibility behaviour), they will learn to use leftovers or ingredients they have at home (e.g., in their freezer, fridge, pantry) (food-waste free behaviour) leading to less food waste. This relationship between the problem and the transition goal became a crucial frame when innovating and designing the new practice.

### **3.3 Varying innovations on radicality of practice**

When designing the innovations, the authors were conscious of the expertise and main activity of the participating organizations and considered which innovations could be potentially (jointly) developed by whom. This was done to increase the chances of future experimentation and implementation of the practice and innovations. For each of the 7 innovations, three variations were developed differing

in the radicality of the practice. Given that the innovations were developed in a very short time frame, this allowed for the discussion with participants to focus on the potential of the innovation to support behavioural adaption rather than the specific details of the innovation itself (i.e., form, materiality).

For example, one of the innovations fosters food literacy by supporting consumers to use their senses to evaluate food quality (figure 2). To do so, a redesign of food labels was proposed. The top right drawing shows food items without a label. In this expression of the practice, consumers are so advanced in their ability to evaluate food quality that ‘use by’, ‘best before’, and ‘expiration’ dates are no longer needed. A less extreme evolution (middle drawing) offers consumers labels with sensory indicators to assess food quality (e.g., “if I smell like eggs, don’t eat me), and dynamic indicators that communicate actions that can be taken (e.g., ‘freeze me’). A participant reflected that a strength of this concept is that it reduces the cognitive load currently asked of consumers and that the proposed practice is more intuitive and thus supports food waste-free behaviour while also improving food literacy.

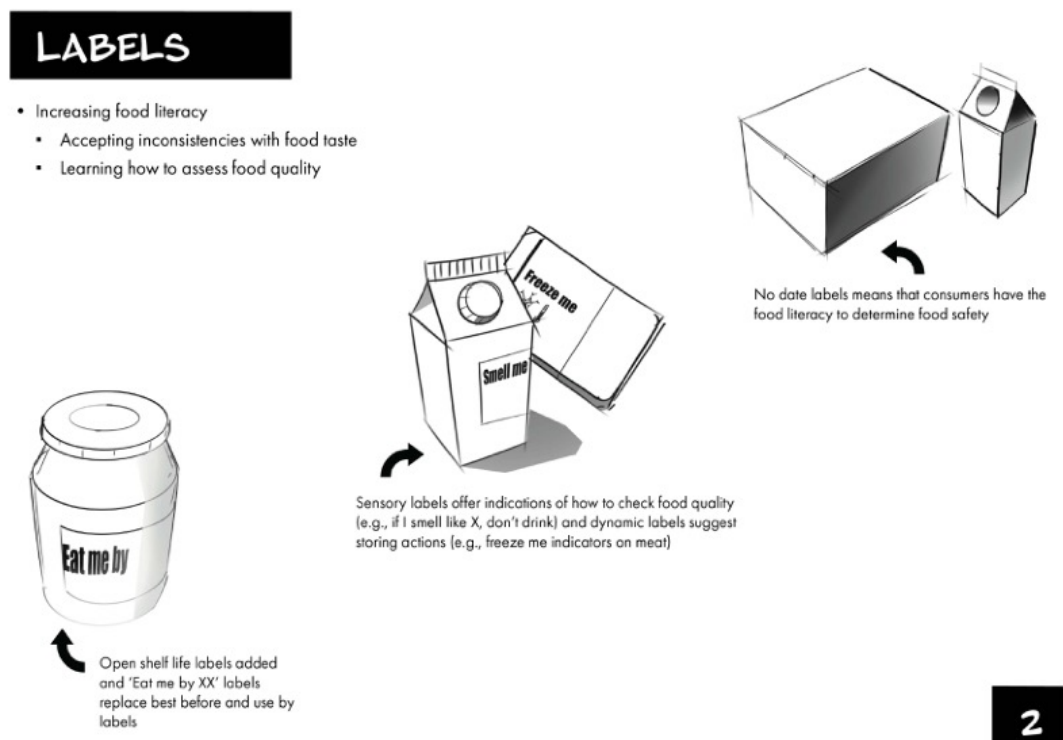


Figure 2: Example of one innovation varying on levels of radicality in the practice. (Drawings by Maria Sofia)

Extrapolating along the radicality of practice highlighted which barriers needed to be overcome from the perspective of the organizations to get to Adaptable Consumption and what was needed to make the practice in each innovation feasible for consumers. This level of discussion led to potential new collaborations to see how FETE could experiment and test elements of the practice today and gain the necessary evidence for the organizations to experiment further, even if the form of the innovations remained open. Exploration into collaborations both inside and outside the consortium was discussed. Some examples of what was brought to the table include, potentially working with the company Philips to redesign the fridge/freezer (outside FETE), setting up joint experimentation between the

meal delivery service and frozen food manufacturer around a surprise box (within FETE), or using the waste collector to set up a technology-free waste feedback loop for all Dutch Households (within FETE).

## 4 Discussion

The food system in the Netherlands is currently geared towards comfortable consumption and catering to our exact needs. However, given the expected growth in population, the food system needs to move towards adaptable consumption, which realigns food safety, quality, and sustainability. As new systems are realized through design activity, this paper explores how designing joint innovations toward Adaptable Consumption presents new meanings, skills, and stuff for people and the food system (Watson & Meah, 2012). In this work, we focus on the level of practice and discuss joint innovations. This is a logical and appropriate choice given that transitioning the food system represents a multi-stakeholder setting in which multiple and varied innovations guide different behavioural changes that together can shape a given practice.

Although the question of how designed interventions can 'steer' practices in particular directions is very complex and uncertain, various researchers emphasize the potential of design to configure system interactions through practices (Fam & Mellick Lopes, 2015; Kuijer & de Jong, 2012; Shove et al., 2015). While previous research has explored designing new sustainable practices (Fam & Mellick Lopes, 2015; Kuijer & de Jong, 2012) and retrospectively analyzing how practices have influenced transitions (Watson, 2012), there appears to be little research that describes how we can design new practices that inspire joint innovation along a transition path to foster desired transitions. The work in this paper illustrates how framing a new practice can support joint innovation or align innovation efforts creating momentum for shared transition experiments.

If we critically reflect on our process, a few challenges stand out. First, the practice of Adaptable Consumption remains largely consumer-facing. While this aligns well with the focus of the FETE consortium actors, if the aim is to reduce food waste and push a transition to flexible consumption, exploring how to engage other key actors in the food system, like producers, retailers, and policy makers and considering their role in this new practice requires attention to ensure a transition of the whole system. Second, there is a concern for potential greenwashing within the sustainability space. In our process, we found that some organizations expressed potential friction with the new practice, while others could pivot their business models without too much friction to their way of operating or waste levels. In our view, the transition of the food system requires some (fruitful) friction if we want to do things differently and reduce overproduction and consumption at large. Therefore, more discussions around how far we push organizations to change and how actors in powerful roles 'should' experience some discomforts are critical. Lastly, while the process successfully allowed the actors to reflect on how the practice resonates with their organization, it also revealed some moral/ethical implications, such as displacing certain actors (e.g., foodbanks) or inclusivity concerns. This brings questions around how the process stages the designer as a potential safeguard of the morals/values that drive the transition (e.g., equality, equity etc), and how design can reframe moral conflicts for actors in a transition.

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