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# Co-creating sustainable eating futures: Technology, ICT and citizen–consumer ambivalence



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## ABSTRACT

The early 21st century has seen a plethora of future-oriented roadmaps and foresight exercises focused on increasing food supply, often with the aid of advances in technology, in order to feed a growing global population under conditions of uncertain climate change. As such, they provide important, but only partial, pictures of how we might eat more sustainably. The complex politics underlying food production and distribution as well as factors that shape the highly uneven practices of food consumption are often obscured. Equally, and in the face of ongoing conflicts that suggest otherwise, supply-side analyses frequently assume that technological advances will play a relatively uncontested role in food futures. Drawing on insights from a participatory backcasting process that adopted a practice orientation within an overarching transitions framework, this paper adds two related dimensions to the productivist paradigm in urban food futures research. First, it places eating practices at the heart of food futures debates and second, it provides a critical reflection on consumer–citizen perceptions of the role for technology, and in particular ICT, in shaping those eating practices. Ultimately, it is argued that technological advances in production alone are unlikely to generate the significant transformations required to construct more sustainable urban future food landscapes.

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## 1. Introduction

In 2010 the World Economic Forum (WEF) announced its new vision for agriculture on the basis that agriculture contributes 30% of global greenhouse gas emissions, provides 40% of employment worldwide (and 70% for the bottom billion) and accounts for 70% of all water withdrawals (World Economic Forum, 2010). Derived from stakeholder consultation involving 350 leaders of business, government, civil society, international organisations and academia, the WEF initiative approached the major challenges presented by feeding the world from the position that agriculture is a positive contributor to food security, environmental sustainability and economic opportunity. The roadmap produced by this consultation ultimately concludes by outlining the need to ‘produce more with less’, thus evoking an ecologically modern interpretation of sustainability through its vision of a technologically driven agri-business future (Horlings and Marsden, 2011). The WEF are not alone in considering food futures from a productivist perspective (OECD, 2012a; GOS, 2011; European Commission, 2010a, 2011; Teagasc, 2012; CleverConsult, 2010) and focusing on supply-side issues of agricultural production, and the role that technology might play within that, is undoubtedly important (Borch, 2007). However, such

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perspectives rarely deal with the complexities that lie behind the abhorrent geographies of world hunger and obesity; these complexities being intimately related to geopolitical histories, economic development trajectories, socio-cultural norms and the global flows of food exports and imports that all contribute unsustainable eating practices (McLean and Hopkins, 1974; Freibauer et al., 2011).

This paper argues that adopting a productivist or 'predict and provide' approach will not address the highly unequal and unsustainable practices of eating and related food wasting around the globe in the future. More holistic approaches that link agricultural production with consumption and which go beyond a purely technological fix, will need to be developed in planning more sustainable eating futures. One such approach, practice-oriented participatory (POP) backcasting (where backcasting essentially refers to a process of imagining desirable possible futures and then working back to the present to consider interventions that might build towards its achievement), which considered how food acquisition, storage, preparation and disposal related to household eating practices could become more sustainable by 2050, is outlined and critiqued in this paper (Pape et al., 2011; Davies et al., 2012; Doyle and Davies, 2013). Before outlining and reflecting on the conceptual foundations underpinning the development and implementation of the approach adopted, a further clarification of the limitations of a solely supply-side approach is demarcated. Following this, a consideration of how the resultant scenarios for sustainable eating in 2050, and in particular their technological components, were delineated, shaped and received by the participants and in particular citizen-consumers is presented. In conclusion, the potential for POP backcasting to offer novel spaces for deeper and wider deliberation regarding alternative, more sustainable eating practices and desirable urban food futures is considered.

## 2. Problems with 'predict and provide' and the technological fix for sustainable eating

A key problem with current productivist paradigms, and in accordance with critiques of such 'predict and provide' approaches in other sectors such as transport or housing (Owens, 1995; Owens and Cowell, 2011), is that they do not address the question of 'need' in relation to food, nor differentiate between basic survival needs and unsustainable desires, either now or in the future. While all incidences of hunger and food insecurity are unacceptable, continued food shortages are made all the more distressing by the massive overconsumption of food (and therefore also overconsumption of related resources) elsewhere. While establishing exact patterns of food consumption globally and even within regions is challenging, it has been estimated that nearly twice as much food (in terms of the nutritional needs of their populations) as is required is consumed across the United States and Europe. Despite data constraints, the OECD has predicted that more than two out of three people will be overweight or obese in some OECD countries by 2020 (OECD, 2012b). Often couched in terms of the negative health impacts that such obesity levels will engender, and the costs of treating associated diseases and illness caused by obesity, the overconsumption of food also indicates profligate use of natural resources in terms of the associated water, energy, fertiliser and pesticide use required to produce, store and transport it. Equally, the issue of food waste and its geography is rarely incorporated into productivist prescriptions for food futures. This is despite the fact that the United Nations Food and Agriculture Organisation estimated in 2011 that roughly a third of the food produced in the world for human consumption (approximately 1.3 billion tonnes) gets lost or is wasted during the production, harvest, post-harvest and processing phases (UNFAO, 2011). While food loss during these phases is the major concern in developing countries, it is food waste, primarily caused by retailers and consumers throwing away edible foodstuffs, which is of major concern in industrialised countries. As with overconsumption, such food waste not only misses an opportunity to feed those who are hungry, it also represents a significant mismanagement of resources (EEA, 2012). In this vein, food waste features prominently in the European Commission's *Roadmap to a resource efficient Europe*, which suggests that 90 million tonnes of food (180 kg per person) are wasted every year in the European Union, much of it still suitable for human consumption (European Commission, 2010b). Building on these statistics, the European target for reduction of food waste stands at 50% by 2020, with some MEPs calling for 2014 to be designated the 'European year against food waste'.

In contrast to the WEF report, the EU Roadmap calls for farmers, the food industry, *retailers and consumers* to work together to develop and implement resource-efficient production techniques and *sustainable food practices*. Indeed, according to the Food and Agriculture Organisation of the United Nations' 2011 *Global Food Losses and Food Waste* report (UNFAO, 2011), consumers should be made aware that it is more effective to reduce food losses than increase food production in order to feed a growing global population, given the finite nature and limited availability of natural resources. Certainly, national consumption surveys indicate that significant work needs to be done in terms of both raising awareness and changing actions in relation to sustainable food practices. For example, the lifestyle survey conducted as part of the CONSENSUS (Consumption, Environment and Sustainability) project in Ireland found that price rather than environmental concern remains the main driver behind food purchases, followed by health concerns and taste. In terms of food waste, 48% of people regularly bought food only for it to expire before it was used and 54% do not compost their food waste. Such figures are not unique to Ireland, research conducted by Waste and Resource Action Programme in the UK found that a third of all food purchased in UK households regularly goes to waste (Pape et al., 2011; Carroll et al., 2012a,b). So, even in countries where hunger is not a key policy driver, widespread concerns about food sustainability remain and these concerns stretch far beyond questions of increasing production. In these countries, arguments about sustainability (for there is no one agreed definition) are beginning to focus more carefully on the demand-side of the food equation; essentially on people and the practices of eating which in turn have complex relationships with agricultural production, food processing, transport, storage, retail, cooking and disposal.

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