

Aim

To identify information that relates to environmental, ethical, and social impacts of actions and processes in the food chain, and to identify potentials, deficiencies, and research needs in order to allow such impacts to be transmitted in the food chain towards consumers and policy.

Results:

- Labels and logos are used to enact the following legislative goals: provide clear, legible and consistent information to consumers; facilitate consumer choice and enable consumer trust and confidence in the food sold across the EU and avoid the misleading of consumers. Labelling and logos based on certification schemes are seen as policy instruments to advance a range of policy goals including environmental policy goals for agriculture and food production.
- Appropriate information and signals is a complex and strongly debated field, amongst governance, consumer and retail, industry/technology with no clear convergence in today's marketplace.
- Stakeholders (Industry, certification schemes and NGOs) identified specific challenges around communicating information to consumers: 1 limited space available to food and food packaging on which to provide information; 2 recognition that consumers spend a short amount of time choosing their food purchases; and 3 diversity of consumers and therefore the diverse information needs of consumers
- More broadly, stakeholders are required to develop an approach to signalling to consumers about their food that provides a balance between supporting consumers' right to know and what consumers wish to know
- Logos represent a tool of communication but *recognition* rather than *understanding* is a key function.
- Certification schemes enable retailers and NGOs to meet their own agendas and aims, especially in the context of environmental impacts and sustainable food production. Third party independent certification schemes seen as ensuring the validity and credibility of information signalled to consumers. Indeed, retailers, manufacturers and certification scheme owners cooperate over some signalling issues to effectively communicate messages to consumers.
- The B2B and B2C dichotomy needs to expand to a B2B2C view in understanding transmission of information.
- Some market innovators (retailers and manufacturers) are seeking to develop their own product supply chains that embed sustainability. Such efforts may be signalled to consumer directly via food products but are communicated also through non-label provisions of information, such as annual corporate responsibility and sustainability reports. They are part of wider corporate branding strategies as well as supply chain strategies.
- Signals identified as being especially challenging to communicate to consumers were food safety, origin, environmental impacts and sustainability and, animal welfare. The reasons for this were diverse. E.g. complexities regarding the issues and methodological approaches to sustainability were regarded to hinder effective signalling on this issue. For other signals, such as origin and animal welfare, some stakeholders reflected that legislation measures in these areas lacked robustness and were selective. Consequently, certification schemes were identified as a tool to overcome the anomalies arising from legislation.
- Signals require management. This involves particular practices of information editing. Information editing in this context refers to the use, presentation and accessibility of information and the editing of information by stakeholders. Information editing enables stakeholders to develop coherent signal narratives about their food products and to maintain the difficult tension between offering too much and too little information to consumers. The pressure to provide information can be reduced, in part, by the choice editing of products sold.
- Reactive transparency: The required levels of reassurance from actors within the food supply chain alter, and are dependent on how food issues are discussed and represented in broader society.
- A further dimension to societal discourse is the development of social networking and the web enhancing C2C transmission of information – further amending the B2C model.
- Non-label provision of information is regarded as a further means to overcome the spatial and temporal limitations afforded by label based methods of information transmission. Non-label provision of information invariably occurs post-purchase and includes access to telephone care lines and websites.
- Stakeholders raised the possibility of future signalling practices which will increasingly rely on technology at both the point of purchase and post-purchase e.g. using hand held devices, use of semantic web technology and greater use of RFID technology in the future. This will also make greater use of traceable information.

- However, all transparency carriers such as RFID face substantial problems as they are confronted with multiple types of information/signals that need to be carried forward by a single information carrier. There is lack at present of suitable RFID and barcode technology or other *on-the-product* technology that can carry the above structured information (see e.g. <http://www.chill-on.com/>) that at the same time minimises implementation issues (breaks of information-chains) of information that may be required by consumers.
- Lay people appear to be overwhelmed and confused by much added information and labels on food product packages-based, through the internet or using other methods (e.g. information kiosks) to which they are exposed; consumers may in fact actively search in limited ways or understand only parts of the signals/information they are exposed to; and eventually make partial use of information/signals. Furthermore, multiple breaks in the *information chain* may exist and the final consumers may not be able to obtain the information they consider necessary when they so wish.
- Consumers' understanding may be either subjective (the meaning the consumer attaches to the information/signal) or objective (whether the consumer's understanding of the message is compatible with the intended meaning) component; consumers may infer a meaning by relating the information to pre-existing knowledge, and they may eventually make choices because they like the imagery of a particular label. Some-times, consumers may even make choices without the use of information/signals on the basis of pre/existing heuristics.
- A theoretical framework including the engineering of increased transparency that was created showed that: a) greater disclosure leads to greater transparency for the consumer; b) there are routine aspects and positive type signals; c) non-routine aspects and "negative" type information signals also exist; d) the identification of the process for information disclosure and greater perceived transparency is important; e) targeted transparency may indicate that no further information disclosure / use of additional signals is necessary, if consumers perceive that there are no issues to (re)act upon; f) the issues of trust and consumer perception of firm/supply chain motives and willingness to disclose information must be taken into consideration; g) consumer concerns for disclosure and the degree of perceived transparency will be affected by food supply chains' practices in disclosing information and signals employed. Disclosing information by the wider food business systems appears equivalent in nature to the notion of '*servicing customers*' that has long been the central focus of the marketing discipline. The difference has been the level of focus, marketing apparently focusing on a narrower range of aspects.
- Transparency also includes barriers such as the information/signal gap does not contribute substantially to public risks or perceived system failures; the (food-related or associated) problem does not lend itself to measurement and there is lack of consensus on measurement; communication is impractical (too multifaceted and complex); and variability and uncertainty are not acceptable.

Conclusions:

Information in food chains and the transmission of that information in ways that are effective through being informative to the recipient are important elements of transparency that can promote innovation and change to a more sustainable food system. To this end five broad areas of research need identified were:

- Further investigation of the relation between certification schemes to corporations' own sustainability focused supply chains.
- Investigation of the relation between certification schemes to public policy regulation of food and agricultural product and food marketing standards.
- Deeper and wider analysis of the ways signals and the forms of transmission are received and perceived by stakeholders and consumers.
- Establishing consumer trust, the role of the media and managing the transition to greater transparency.
- A comprehensive review and systematic mapping of emerging and prospective technologies used by stakeholders & consumers for transmission of signals.

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