



## Executive summary

### Overview analysis on distributional risks in food chains

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\* a deliverable is a formal output produced by a (EU) project

## Content Summary

The research discussed is part of the effort to develop a cost-benefit-based policy decision support model, which captures the reaction of business to policy regulations or recommendations.

The model draws on arguments enterprises might use to build their decisions. The activities follow two aspects: in an initial phase enterprises' arguments are identified and structural approaches, which might support enterprises to better judge their costs are identified in a second phase. In this context, the specific focus is on 'distributional risks'; in other words, the costs an enterprise will have to absorb in the event a recall is deemed necessary.

To manage risk in food safety, the focus is typically on prevention and avoidance of failures in processes encompassing procurement, production and distribution. Implementation of quality management systems (e.g. HACCP principles or the ISO22000 standard) supports this. However, in an effort to assure food safety, critical judgements are made around recall costs, which are balanced against costs for improvements in control and prevention. One example is the costs of establishing and maintaining batch-based tracking and tracing schemes versus recall costs.

The focus of our study is not on preventive measures but on the identification of recall costs, which have been deemed necessary in cases of potential food safety problems.

The costs for recall depend on, amongst other things:

- the number and complexity of stages in the chain of production and retail prior to recall
- the number and complexity of organisation involved
- time
- spatial distribution of deliveries (which could be regional, global etc.) especially towards the end of the chain

These factors can contribute to differences in recall costs in a variety of distribution channels (distributional risk). However, in the analysis of potential recall costs, enterprises are



confronted with two problems: there is almost no literature available that deals with distributional risks and could support the analysis, and enterprises usually lack information on actors and actions their products will be exposed to after sales but before they reach consumers. Such information is usually restricted to their immediate customers.

Pre-studies in two countries confirmed deficiencies in the transparency of this process. We aim to provide insight into differences in distributional risks in food distribution channels. The international research team selected the cereals sector for the first study and delineated distribution channels, which serve as principal benchmarks for analysis in other sectors. Following an introductory review of literature-based chain structures and approaches for risk and chain analysis, the research team focussed on a systematic empirical study in the cereal sector, which integrates knowledge from industry experts and representatives of industry groups. The study identified a number of principal distributional structures within a generic base. The survey participants evaluated and ranked different distributional structures according to their perception of factors that would influence decisions on food safety assurance initiatives. The ranking builds on different dimensions that could drive costs, and uses grading-scales similarly to those used in failure modes and effects analysis (FMEA), which is a procedure for the analysis of potential failure modes within a classification system by severity or determination of the effect of failures. The results were aggregated in a decision table, which describes decision scenarios for business and supports decisions on the selection of appropriate distribution channels or investments in food safety assurance.

As a follow-up to this, the results will be subject to a broad-based mail survey and used for benchmarking within several distributional channels in other food sectors if confirmed.

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MoniQA ("Monitoring and Quality Assurance in the Food Supply Chain") is a Network of Excellence (NoE) funded by the European Commission under the 6th Framework Programme. The Network aims to make food safer by harmonising methods for food analyses. The project is coordinated by the Vienna-based International Association for Cereal Science and Technology (ICC). More than 155 researchers and scientist from 33 international partners from 20 countries are involved in MoniQA.

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