

Exploration of information needs in the fruit and vegetables supply chain

Defended by: Gaia Raponi; Supervisor: Maurizio Canavari; Co-supervisor: Giovanna Sacchi.

Introduction

The Italian horticultural sector is experiencing a decline in competitiveness. The problem originates from the combination of various factors, among which: i) the prevalence of supply in the hands of large retailers; ii) uncompetitive production costs iii) a severe drop of Italian families' consumption experienced for more than ten years iv) restrictions in exporting outside European borders. The effects of this condition are reflecting on Emilia-Romagna, that is the main producer and exporter of the country. Strategies boosting the switch to upturn must rest on the exhaustive knowledge of market and production scenes at the national and international level. Innovation is a must in the fruit and vegetable sector to face global challenges and the European Union is promoting measures designed to transfer knowledge in rural areas. Nevertheless, some authors argued that farmers are mainly considered as end-users of innovation frequently developed without involving them in problem detection. This lack of communication between research and execution often brought to real needs not to be addressed. To fill this gap, the European Commission called for a change in this linear model, towards participatory approaches.

Study context

The present work is a contribution to the innovation project INFO-CSO funded by the Region Emilia-Romagna and led by CSO-Italy in collaboration with the University of Bologna. CSO-Italy, Fruit and Vegetable Service Center is a company that collects information in favor of growers and operators of the fruit and vegetables supply chain, being active in this purview for more than twenty years. The proposal that it is directing aims at improving data availability by creating an app transmitting user-friendly data in real-time, to assist holdings undertaking a path of growth and modernization. Even if nowadays there is a lot of information, it could be unclear or difficult to get a handle on it when necessary. Bottlenecks are challenging access and usability of data, and the lack of skills and specific professional profiles most often related to the interpretation of market figures.

Thesis objectives

The purpose of the thesis was to put into action the partnership between University and professionals promoted by the European Commission in developing and transmitting knowledge, fostering innovation, and meeting the needs of end-users. In particular, the work aimed at finding out the main issues that horticultural specialists in Emilia-Romagna face in searching or using the market and production information, as well as the types of devices and formats that could be adopted to transfer files. The results would enable CSO-Italy to refine and further feed its database and to develop the App, providing more suitable services for firms that could ameliorate in terms of operational capacity and strategic analysis enhancing the competitiveness of the system.

Methods and materials

The study belongs to qualitative research that is directed at exploring people's experiences and thoughts, making use of open-ended questions letting respondents answer spontaneously with their own expressions. The tools selected to collect data were focus groups for farmers and individual interviews for the other stakeholders engaged at different supply chain levels. Six producers per company were brought together in 3 focus groups going through gatekeepers and insiders, while 19 individual candidates were selected by the personnel of CSO-Italy involved in the project, who previously operated a screening of associates.

A protocol with instructions about all the steps from recruiting to follow-up activities and instruments needed to conduct individual interviews and focus groups, was developed. It included a list of guiding questions outlined to achieve defined objectives and to stay focused on them. Minor changes were made in the way focus groups were being conducted with respect to individual interviews, still preserving the content of the debate. A longer duration was considered, rules were introduced to have the floor and to encourage an equal contribution of all attendants to the argumentation. Furthermore, the interactive instrument Mentimeter was used to get the audience more involved.

The individual respondents worked either as general manager, president, technical director, or as people in charge of sales, communication, and marketing in 17 different companies belonging to various compartments of the fruit and vegetable supply chain ranging from R&D, production to commercialization and communication.

The activities were conducted in video-conference and recorded. Video recordings were converted into verbatim transcriptions to carry out a thematic analysis. Keywords and relevant concepts were highlighted on the resulting documents to create an initial coding and all the transcriptions were summarized and anonymized to preserve people's privacy. The reports were collectively read and compared and a comprehensive table of contents was built distinguishing for farmers and other operators of the supply chain. The subjects were classified in inductive clusters and listed under overarching points. Mind maps and quotes extracted from transcriptions were used to support the findings and links among them. Mind maps were the outcomes of the work just described, and they could be seen as the tip of the iceberg of an iterative, recursive and holographic process repeated in time.

Findings and results

The information needs of specialists in the fruit and vegetable sector were found to be common across in-depth interviews and focus groups. Two equally important domains of influence (production and market) and a set of data per each were identified:

- Productions: types of produces, production forecasts, land registries and land areas, harvested and unmarketable quantity, harvesting records, total production, stocks, agrochemicals' regulations.
- Market: export and import, new markets, sales, consumptions, consumer profile, prices.

The variables of both assortments have to be considered based on single varieties and at the national and international levels. Moreover, trends and comparisons are required in time and space.

However, some of these figures don't match with their epitomes. These are: types of produce, prices, production forecasts, land registries, and land areas, consumption, import, and export.

Part of the issues can be related to the nature of the horticultural system at the national level that is characterized by fragmentation and opposing interests among operators; another part to delays in communications, especially occurring at the international level. Most of the people interviewed declared that word-of-mouth is largely used to make up for the lack of official facts.

The study participants consider the information service provided by CSO very important and highly valuable for their business. Nevertheless, some respondents perceive the image of CSO as "too local" regarding both types of products and markets: on one side, it should expand its database with the most important fruit and vegetables in Italy and in the world; on the other side it should acquire data from more countries, especially those competing for the same markets, but also data about the consumption of those areas that recently imported fruits and vegetables from Italy. Consumer behavior is not comprehended in CSO's statistics at all. Many people suggested that CSO could enter into agreements with institutions involved in data collection to fill these gaps.

The idea of an app was welcomed by most and the main advantage was generally identified as immediacy, meant as data available at any time and place without the need to download it, to search or assemble information. Moreover, the tool could provide alerts for new information, as well as for graphs and synthesis giving an immediate understanding of a certain situation. The elaboration and analysis of data were also associated with value-enhancement, which could also be reached through the customization of the variables of interest; moreover, the secrecy of sensitive and strategic information, ensured by a system impeding data to be forwarded and photographed with screenshots, would contribute to preserving the value of precious information. Finally, if producers who are outside the organized world or the corporate base of CSO could use the app with the possibility of uploading data, it could be a way to monitor a new part of the production, increasing representativeness.

Conclusions

Personal information sources, interactions, and networks, such as farmers' associations and organizations, are widely accepted to be key elements in innovation, and in particular, advisory services are recognized to be knowledge suppliers encouraging the implementation of agricultural and rural policies.

This work demonstrated how the use of a user-centred design to enhance the capacity of all farmers to participate in, contribute to, and benefit from agricultural innovation development is essential.

No major differences were found among data collected by focus groups and individual interviews. The finding could mean that there is no discrepancy between the needs of different

experts from different companies. However a limitation of the research findings could be the fact that the people interviewed were not randomly chosen and that in this case 3 focus groups could be a too small number to meet the “data saturation point” at which there is no new information to be added.