

Consumer driven innovative fruit chain

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Guidelines for the fruit industry

Colofon

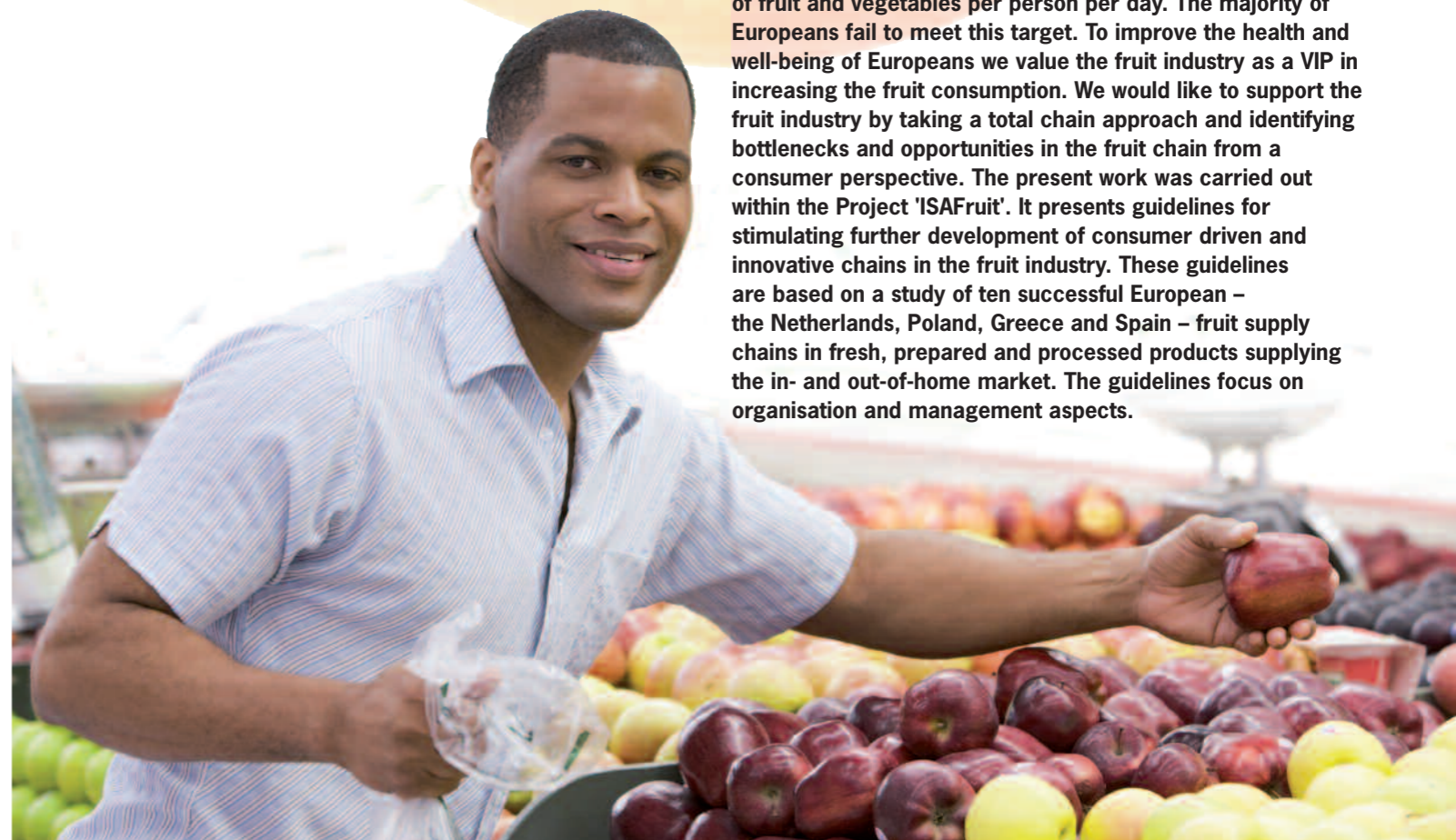
ISAFRUIT: Increasing fruit consumption through a transdisciplinary approach leading to high quality produce from environmentally safe, sustainable methods. For more information see the website www.isafruit.org

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The World Health Organisation recommends eating 400 grams of fruit and vegetables per person per day. The majority of Europeans fail to meet this target. To improve the health and well-being of Europeans we value the fruit industry as a VIP in increasing the fruit consumption. We would like to support the fruit industry by taking a total chain approach and identifying bottlenecks and opportunities in the fruit chain from a consumer perspective. The present work was carried out within the Project 'ISAFruit'. It presents guidelines for stimulating further development of consumer driven and innovative chains in the fruit industry. These guidelines are based on a study of ten successful European – the Netherlands, Poland, Greece and Spain – fruit supply chains in fresh, prepared and processed products supplying the in- and out-of-home market. The guidelines focus on organisation and management aspects.



Critical Success Factors (CSFs)

To have a successful consumer driven and innovative fruit chain there are a number of issues, so-called critical success factors, which require special attention:

Presence of a lead firm in the fruit chain

It is essential to have a firm in the fruit chain that initiates, stimulates, and coordinates the implementation of innovations. Besides its own business processes, this lead firm manages, coordinates or even integrates parts of both upstream and downstream chain business processes in the fruit chain, acting upon consumer behaviour. The lead firm typically has a central position in between fruit production, innovation and marketing and is therefore not likely to be at the very beginning or end of the fruit supply chain.

Customer focus

A strong focus on customers' needs and their alignment to consumers' demands is a basic requirement. Not all fruit chain actors have direct contact with, or information from end consumers. Consequently, they tend to focus on meeting the demand of their direct customers, assuming these have in fact translated the end consumer demands into their requirements. For each chain actor, it remains however important to continue tracking whether customers' requirements actually reflect consumers' demands.

Tracing and tracking through quality management systems

Food safety is an increasingly important issue in fruit supply chains. Every fruit supply chain should have a quality management system. In case of problems with products, they can be traced back to their origin and improvement measures can be taken. The quality management system includes structurally organised constructed communication channels to check quality and discuss problems and solutions. In practice, these frequent communication moments are also used to discuss other issues and often trigger sharing ideas on innovation.



Ready to enjoy



Innovation through cooperation

Cooperation within the fruit chain network

The ability to innovate is enlarged by having the right chain partners with the right expertise. Companies can cooperate by having agreements on the joint development or joint use of resources, outsourcing part of or the whole innovation process to actors by forming a strategic cooperation with chain partners or third parties such as universities. It is important to explore cooperation on innovation development within the fruit chain in an early stage to be able to organise appropriate action upon these actors in time.

Strategic attention for innovation

An innovation strategy helps to prioritise the innovation in new fruit products, processes, organisation and marketing. Internal reasons (based on performance measurements) as well as external reasons (market entry barriers, new competitors and technological competition) have to be taken into account when formulating the innovation strategy. Having a strategic fit with the different companies in the chain is essential. The strategic fit can for example be found in creating a strong brand or in being first to market with the innovation.

Focus on timing-to-market

In the context of timing-to-market, the most innovative companies are in general those that react directly to chances in the market. These are the ones that are the first to adopt new ideas and the first to introduce innovations to the market, albeit with high risks. Early adopters take fewer risks as they have the technology but wait to react fast until a successful product introduction of a competitor. These companies cope with lower levels of uncertainty about the success of an innovation introduced to the market.

Innovation-fostering culture

Innovations need to be managed in terms of resources and time needed to be successful. Communication in the organisation about the innovation process is important to make use of everybody's expertise. An innovation-fostering culture consists of: very actively collecting ideas for improvement from employees, ways to support unplanned but worthwhile initiatives, employees who are actively making suggestions about work improvements, and a reward system in the organisation for employees who come up with innovations.

Project approach to the innovation process

The innovation process can be formalised by using a project approach. An example of a project approach to structure the innovation process is the innovation funnel. Steps of this process consist of: 1) Idea generation, 2) Project definition, 3) Cost-benefit analysis, 4) Board approval of project, 5) Project execution, 6) Evaluation of (pilot) project (including customers' and consumers' reaction) and 7) Decision on further implementation.

Exchange of information

The exchange of information on production planning and traceability is a basic need. This essential exchange of information offers the opportunity to also exchange other information, share ideas on potential innovations and on joint development of fruit innovations. Retailers are good sources of market information as they are dealing directly with the final consumers. Other sources for information and inspiration are fairs, exhibitions, scientific articles and business related magazines.

Internal and external information collection

For decisions on developing innovations, it is important to know your weaknesses and strengths (internal) and your opportunities and threats (external). Consistent collection of information helps to know these internal and external driving factors for innovation. Internal factors can be derived from measuring performances (in finances, business processes, customer satisfaction and innovations). The financial perspective seems to be the most important one to many companies, but high scores on the other perspectives' indicators will help to achieve high scores on financial indicators as well. External information is information on consumers and markets, competitors and technology developments.

Investment in know-how

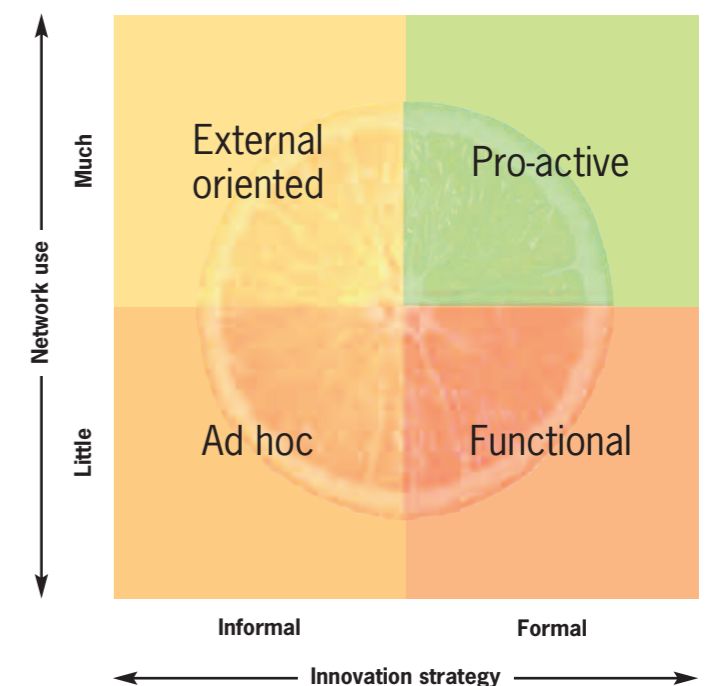
The knowledge and skills of the companies' employees are used in innovation. Human capital is one of the most important resources for developing innovations. In particular, the expertise on fruit production, product development, purchasing and sales is critical.



How to set priorities among the CSFs?

The ten studied successful supply chains each applied some of the listed CSFs. It is not necessary to apply all of them. To determine which CSFs are most essential to your company or chain, it is important to match the CSFs with the organisation and management style of the concerned chain. The following section shows which CSFs match different types of chain organisation and management.

With respect to organisation and management of consumer driven and innovative fruit supply chains we suggest four different types. These types are characterised by the formality of innovation strategy and the use of the chain's network. A formal innovation strategy is written down in a document, has a project approach to the innovation process and includes ideas about how to stimulate an innovation-fostering culture. An informal innovation strategy is not explicitly discussed as such or written down and is based on the experience of entrepreneurs in the chain. With regard to the chain's network, companies can choose to use and extend it intensively or make very limited use of it. A company's or fruit supply chain's network of people and institutions can be used to gather and exchange information, to collaborate and to outsource processes. Companies can also decide to do everything internally and make large investments in know-how within their own company or chain. Combining the formality of the innovation strategy and the extent of network use provides four different types of consumer driven and innovative fruit supply chains in terms of organisation and management, as shown in the figure below.





Which type are you?

Which type fits you and your chain best depends on the style of entrepreneurship that you and the companies in the chain prefer, type of product and size of company. The entrepreneur style determines partly whether the company and chain have a formal or more informal innovation strategy and whether it is making much or little use of its network.

Fresh product chains are often shorter than prepared and processed fruit supply chains. This is because less activities and actors are involved and because fresh products need to reach the consumer faster. In short chains actors can exchange ideas easily and change processes quite fast as communication with only a few parties is required. Therefore, fresh fruit supply chains more often choose the external oriented or ad hoc chain type with informal innovation strategies than the pro-active or functional chain type in order to be innovative and consumer driven.

Small companies mostly have informal innovation strategies as communication channels are short. By definition small companies need to make use of external organisations in their innovation process. These companies are likely to choose an external oriented chain type. Large companies need to be structured, including their innovation strategy and are therefore more often a pro-active or functional chain type.

To further assist your choice of type in which your chain fits best, the following characteristics of each type are given as guidance.

External oriented chains

- Exchanging a lot of information with the network, sometimes even on a day-to-day level.
- Sharing information on advances in fruit related developments.
- An innovation trajectory developed naturally in cooperation with others.
- Outsourcing (part of) the innovation process to actors in its network is common.
- Change of the collaborating parties over time according to the required specific expertise.
- A lead firm with an informal innovation strategy.

Pro-active chains

- A well-described innovation strategy with a clear choice of the innovation process.
- A strategy for stimulating an innovation-fostering culture.
- Use of the chain's network to leverage internal research and develop new ideas.
- Chain actors frequently exchanging knowledge and information among each other.
- Acquiring market information through the chain's network, visiting fairs and exchanging articles.
- One or more research and development groups within the chain.
- Collaboration within the chain and with others in the chain's network by forming strategic cooperation.

Ad hoc chains

- Implementing innovations based on own ideas, experience and gut feeling.
- The idea that the innovation process is common sense and the right thing to do.
- Having strong beliefs which are followed.
- Large investments in internal know-how.
- An innovation process taking place within the chain.
- Internal oriented or ad-hoc bilateral relationships with suppliers and customers.

Functional chains

- A developed innovation strategy which is well documented.
- Using in-house knowledge to develop and implement the innovation strategy.
- A clear decision on which innovator role to fulfil (be first to market, early adopter, follower).
- A formalised innovation process within the fruit supply chain, often by having a project approach.
- Investing in own know-how.
- Limited use of network with regard to innovativeness.

Which CSFs are most important to your type of chain?

Three CSFs are important to every fruit chain: 1) presence of a lead firm in the fruit chain, 2) customer focus and 3) tracking and tracing through quality management systems. The importance of the other listed CSFs depends on the type of chain you are in or want to be in. The table below shows which CSFs are most important to each type of chain. The first three CSFs are important to every type.



Consumer driven innovative fruit supply chain organisation and management

Critical Success Factors

| | External oriented | Pro-active | Ad hoc | Functional |
|--|-------------------|------------|--------|------------|
| Presence of a lead firm in the fruit chain | • | • | • | • |
| Customer focus | • | • | • | • |
| Tracing and tracking through quality management system | • | • | • | • |
| Cooperation within the fruit chain network | • | • | | |
| Strategic attention for innovation | | • | | • |
| Focus on timing to market | • | | | |
| Innovation-fostering culture | | | | |
| Project approach to the innovation process | | | | • |
| Exchange of information | • | | | |
| Internal and external information collection | • | | | |
| Investment in know-how | | | • | • |

For the **external oriented chain** it is by definition very important to have good cooperation within the chain and within the chain's network. This type of supply chain needs to collect information internally and externally as a basis for exchange of information and discussion for innovation driving factors. The network is used to constantly check whether generated ideas are feasible and respond to the market needs. The strategy of these chains is often to be first to the market, although not as a formally organised strategy.

For the **pro-active chain** it is important to maintain its strategic attention for innovation and have close cooperation with partners in the fruit chain network. If there is continuous strategic attention for innovation, other CSFs will follow automatically such as the innovation management being focussed on stimulating an innovation fostering culture and having a project approach. The same accounts for cooperation in the chain. If this is done intensively, the collection and exchange of information will go by itself. This information is used to develop the innovation strategy. The strategy of a pro-active chain is to be first to the market with the innovation.

For the **ad hoc chain** it is crucial to invest in its own know-how as they are not making much use of their network for getting expertise or new ideas. Human capital within the chain is the most important resource for developing innovations for this type of supply chain. The supply chain needs to have the expertise in house for different processes such as production, product development, purchasing, sales and marketing.

The **functional chain** needs to invest in its human capital to ensure an innovative consumer driven fruit supply chain. As it does not have the kind of gut feeling for innovativeness as in the ad hoc chain it is also necessary to have strategic attention for innovation and implement a project approach for managing the innovation process.



Guidelines to prevent pitfalls

Pro-active chain types are like textbook examples. They need to take care not to formalise too much as it might reduce the chain's flexibility to respond to changing consumer demands.

External oriented chains are continuously in touch with their network and are not likely to miss major changes in consumers' demand. However, because these chains do not have a formal strategy they risk losing efficiency in the chain. External oriented chains have to keep an eye on their informal strategy and make sure they are not losing focus among the extensive flow of information exchange.

For ad hoc governed chains to remain responsive it is important to react in time to changing circumstances and consumers' demand. Due to the limited cooperation in the chain's network, information necessary for making decisions on change does not flow naturally through the chain and is therefore often delayed. This can be prevented by having few chain actors, enabling a faster process. A quick reaction is further enabled by having long-term relationships within the chain.

For functional chain types frequent leveraging with other chains is necessary to remain responsive.



Examples of applied CSFs for a consumer driven innovative fruit supply chain:

Example in an external oriented chain type

A European importer developed an idea for the consumer trend of eating a healthy snack: apple chips. Innovation is such a core business in the chain that it is going naturally without a formal innovation strategy. The importer, the lead firm in this chain, developed the idea based on his experience in the fruit business and his gut feeling, and was inspired by visiting fruit fairs. The importer uses its network extensively as it outsources all processes, except for marketing. The importer constantly exchanges information with its network to develop ideas for other innovations. The chain network includes organisations dealing with health issues, diet advisors and medical foundations.



Example in a pro-active chain type

Three fruit cooperatives decided to start a joint venture and form an association of cooperatives. This association is a direct result of the intense collaboration among the cooperatives. The association is the lead firm in a canned fruit chain, coordinating the processing, packing and marketing of the produce. The actors in the chain actively collect and share information. Next to a research and development group, the chain actors collect information through fruit exhibitions visits, collaboration with universities and private laboratories and from the Ministry of Agriculture. The retailer shares consumer information with the other chain actors. Each chain actor has an innovation strategy as a requirement to stay in competition. The association has a strong innovation fostering culture, actively collecting ideas for improvements from employees and having a structured reward system for employees creating innovative ideas.

Example in an ad hoc driven chain type

A seedless watermelon variety was developed by the seed supplier of a fruit producers association in Southern Europe. The association decided as the exclusive client that only a limited number of growers are allowed to grow the seedless watermelon. The association has enabled its exclusiveness because of its long-term relationship with its seed supplier. There is no collaboration with any party outside the chain as the association believes this would be incompatible with the watermelon brand and would mean decreased margins. None of the chain actors has a formal innovation strategy. Downstream actors wait for upstream actors to come with innovations. Expertise of own staff within the chain is the most important resource and cherished as such.

Example in a functional chain type

A food producing company, lead firm in this chain, developed a vegetable fruit drink as a reaction to the health trend and easy to eat products. The lead firm decided to do most processes and information gathering itself, and has hired processing capacity for producing the drink. Therefore, it organised a lot of knowledge internally with limited information exchange with its network. Each chain actor has a formal innovation strategy with a strong innovation fostering culture and each wants to be first to market with its innovations. The used innovation funnel is used as a project approach to monitor a constant stream of new products to the market.

The listed Critical Success Factors and their priorities depending on the type of the chain organisation and management can hopefully contribute to the success of the fruit industry in their supply chain innovativeness. By acting consumer driven and innovative we can increase fruit consumption and reduce the risk of serious health problems.

