HOW TO DEAL WITH THE INEFFICIENCIES IN AGRI-FOOD SUPPLY CHAINS?

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Abstract: In the last decades one of the major trends in supply chains is increased competition and globalization of businesses. The agri-food supply chains are no exception from this trend. This means that agri-food supply chains have gained more complex relationships due enormous increase in cross-border flows of food products. This development requires enhanced quality, logistics and information systems that enable more efficient realization of processes and more frequent exchange of large amounts of information for coordination purposes (Aramyan et al., 2007; Jack van der Vorst 2005). Yet, more considerable changes have taken place in agri-food chains. Nowadays consumers put more demands on issues such as product quality, food safety, product diversity and service than they used to do just a couple of years ago. Furthermore, technologies evolve ever more rapidly, e-commerce gaining more significance, while product life cycles become shorter. Increasing consumer demands on one side and rising competition from emerging markets on the other side put enormous pressure on agri-food supply chain actors creating inefficiencies in the supply chains.

Food waste generation in supply chains is currently one of the most debated topic as being a result of such inefficiencies in agri-food supply chains (Canali et al, 2017). To deal with such inefficiency food supply chain actors can implement strategies to prevent and reduce food waste. However, such strategies should be economically feasible in order to be implemented. The development and implementation of a successful and economically feasible strategy goes hand in hand with a presence of an effective performance measurement system in the chain. Development of a tailored strategy and an effective performance measurement system are crucial elements in building unique competences in agri-food supply chain to achieve established competitive advantage. Despite its importance agri-food supply chains are currently lacking such effective performance measurement systems (Theodaras et al., 2005; Aramyan, et al., 2007, Gellynck et al, 2008; Kataike et al., 2016).

Evolving technology is a key to address inefficiencies in the agri-food supply chain. Hereby we can think of several examples such as big data applied to the farm and food management chain, APPs as farmers decision support system or technologies for greenhouses and closed systems, such as climate control. The logistics in supply chains can be optimized through the inclusion of several technologies, such as Auto Identification Systems (including RFID and biometric identifiers), for perishables, robotized transport, food safety control and early warning, logistic planning & optimization systems, food chain information systems vision-based sorting systems and adaptive packaging systems. Currently every business is a digital business (i.e. key financial and business processes and enabling collaboration across the organization). But is every supply chain ready to such digital supply chain? According to Accenture (2015) many companies are simply putting digital processes on top of traditional practices—re-fitting, re-wiring and re-adapting instead of re-inventing. This means that businesses cannot unlock the full potential of technology evolution without reinventing their supply chain strategy. This implies a design of new processes within the agri-food chains and thus leading to new business models.

Creation of new business models requires new types of collaborations in agri-food supply chains resulting in other types of innovation, which are social and organizational innovation, where the collaboration among supply chain stakeholders is vital. Thus unravelling the potential of social and organizational innovation applied to agri-food supply chains will help to create favorable conditions for cooperation, co-creation and thus adoption of technological innovation to reduce inefficiencies within agri-food supply chains.

The study provides an overview of current trends hampering the efficiency of agri-food supply chains and suggests the solutions to solve these inefficiencies. In particularly, three main topics are addressed:

- The impact of food waste on agri-food supply chains (according to WEF report, 2014 chain inefficiency contributes “significantly” to the 1.3 billion tons of lost food each year) and possible solutions to prevent and reduce it, thus marginalize inefficiencies
- The impact of socio-economic innovation on agri-food supply chain, where fast-forwarding technological innovation demands rapid advancements in organizational and social innovations
- The need for performance measurement system through the entire agri-food supply chain to addresses the inefficiencies in the supply chain and established competitive advantage

REFERENCES


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