

ON A MISSION OF REDUCING METHANE BURPS:

A CASE STUDY OF COMMERCIALISING A LOW-CARBON INNOVATION IN THE FOOD INDUSTRY

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In the light of climate change, new innovative solutions are emerging with the aim of curbing our greenhouse gas emissions. Reaching climate goals requires not only new technologies, but also new business models and markets. The rise of low-carbon innovations, being innovations offering a low-carbon option to incumbent technologies, is observed in various industries as a means to combat climate change (Pettifor, et al., 2020).

Introduction

In the food industry, a growing demand for meat and livestock farming contributes to high rates of greenhouse gas emissions (Chandaria, et al., 2021) and large portion of these are methane emissions from enteric processes. This issue is something that the start-up company Volta Greentech wants to address with their methane-reducing feed supplement for cattle, which can reduce enteric methane emissions with up to 90 %. By targeting consumers with methane-reduced meat and dairy products and the industry with a new innovative feed product, this brings complexity in commercialising a B2B and B2C product simultaneously.

These low-carbon innovations come with certain characteristics making their commercialisation process a complex and debated issue. Bringing value for the society as a whole, makes an implementation of such innovation a large undertaking affecting various stakeholders and implies the classical trade-off of sustainability versus cost. In their commercialisation process Volta Greentech must deal with a value chain of interdependencies and a “chicken and the egg” – problem in demand and risk taking among actors.

The purpose of this thesis is thereby to investigate how Volta Greentech’s innovation can be commercialised on a larger scale, considering all stakeholders involved, and how they in the role of an innovator, can facilitate the adoption.

The Case of Volta Greentech

Stakeholders in the network

Through interviews with the case company as well as various actors in their surrounding network such as food companies, researchers and regulatory organs, the most important stakeholders of the innovation were identified together with their main motivational factors and barriers to engage in diffusion of the innovation.

Farmer – motivated to develop a sustainable Swedish agriculture sector and to protect the nature. Restricted by low margins, difficulties to get financial support and increased workload connected to feeding the supplement.

Meat and dairy companies – Climate engagement and increased competitiveness with sustainable production are main motivational factors. Insecurities in perceived technical safety, resistance from farmers and high price are barriers to adopt innovation.

Food retailers – motivated by building an innovative and sustainable image and gaining competitiveness towards other food retailers. Main barrier for adoption is insecurity about consumer demand and financial risk.

Consumers – motivated by the willingness to make good choices for themselves and for the environment. Restricted by their ability to pay, a lack of understanding of the environmental and social impacts of their food choices, and confusion among environmental certifications.

Innovation networks – motivated by increasing the innovation rate and types of innovation within the agri-food sector. Barrier for engagement in the diffusion is their limited power to influence the commercialisation process.

Regulatory power – motivated by encouraging a competitive and sustainable Swedish agri-food sector. Barriers involve extensive process for decisions which require prior research, and competing sustainability attributes for prioritisation of policies.

The stakeholder perspective of analysing this commercialisation case made it particularly evident how a strong network of stakeholders is vital for adoption of a radical and discontinuous innovation as Volta Greentech's. Further, how all actors are part of a larger system around the innovation, where their actions result in feedback loops.

Facilitating the adoption

Key activities were identified for facilitating the adoption, both regarding the industry market and consumer market. Proving and clearly communicating product safety showed to be an essential means to overcome barriers in the industry. In parallel, the final food products must be accepted by consumers and a willingness to pay for these methane-reduced alternatives must be actively promoted. Through partnerships in the network, testimonials of implementation can be created to help the innovator create an awareness and buzz about the product.

Paving the way on the consumer market showed to be a criterion for adoption from several industry stakeholders, which highlighted the question on how to position and communicate the final food products. Interviewed consumer researchers argued climate labelling to be an effective means for steering purchase decisions and increasing willingness to pay. While climate labelling addresses the issue of limited consumer understanding of product impact, it simultaneously arises the issue of consumer confusion among various environmental certifications and products on the market. Consequently, this points at the need of solely focusing on the methane-reducing attributes while creating credibility together with established companies and brands.

Lastly, in order to bridge the gap between early and mainstream markets, the innovator needs to firstly: be attentive to early adopters needs and open to product adjustments, secondly: in accordance with the studied

commercialisation theory, constantly re-evaluate their business model for mainstream diffusion efficiency.

Call for policy intervention

Support of policies and regulatory power seems to be a necessary means for reaching a mainstream diffusion of innovation focusing on mitigating climate change, and so also for this innovation.

The current governmental support for the agriculture industry currently focuses on one-time investments for the green transition, and unlike electricity production, lack policies offering incentives for continuous efforts. However, in the case of feed supplements in the agri-food sector the need for continuous support can be argued to be of higher importance if a transition towards a low-carbon food production is to become a reality.

Adding to that, methane reduction has up until recently been a low prioritised climate issue. The reasons for this are debatable, though there is reason to suspect that a reduction of cattle has not been desirable by either the industry or policy makers, partly due to the sensibility of putting conflicting sustainability goals such as economic and environmental against each other. Nevertheless, it should be prioritised to increase the attention given to the issue of methane emissions from cattle and possible solutions to mitigate it.

Conclusions

Testimonials created through collaboration with stakeholders in the value chain is a key activity to build joint forces in a network. Thereby the innovator can engage all stakeholders in the system around the innovation, to foster adoption and enhance an adoption network configuration strategy as suggested by former scholars (Frattini, et al., 2012). Further, the created testimonials must be actively communicated to attract authorities' attention, prove product safety to the industry and pave the way on the consumer market through increased awareness and credibility.

It can be concluded that commercialising a low-carbon innovation is a challenge and commercialising one within the food industry is an even tougher one. This thesis and the case of Volta Greentech shed light on the need of green-thinking innovators in the food industry and shows how alliances of actors driven to make a change together can disrupt the system and lead the way through a green transition.

References

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