

Journeying towards sustainable business models

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Impact paragraph **A reflection on the scientific, societal and personal impact of this thesis**

My research was guided by a strong ambition to make a difference. I wanted to help real businesses realize more sustainable business models and felt that this required new frameworks for thinking, doing and action research. Climate change and the need to create a better world for future generations deeply concerns me. During my Master Sustainability Science, Policy and Society, it became clear that businesses worry about climate change and increasing resource use too, but they struggle to change track in a fundamental way as the profits-to-be are smaller and surrounded by larger uncertainty and uncomfortable dependencies, not only for them but also for the parties around them. Perhaps more than other students I felt that I had to understand the problems for shifting to sustainability from a business point of view. This resulted in the decision to be actively involved in an attempt by a business entrepreneur (Nijsen/Granico) to create a sustainable business model for food waste as pig feed. During this project, it became clear that new ways of thinking (for example, in purpose and outcomes rather than products) and collaborating are direly needed, which necessitates a process of discovery in which not just companies but also their stakeholders within and beyond traditional sectors are willing to adopt new roles and accept new mutual dependencies. As John Geurts from Nijsen inspirationally said during a joint lecture on boundary work on May 17, 2022: “the time for companies to fulfil just one function is gone”. The notion of boundaries turned out to be useful in this regard, but it took a lot of hard work to create a framework of boundary work for SBMI. The journey was far from easy but rewarding in terms of a new framework for science, 4 articles which are published in good journals and the creation of a tool for SBMI based on boundary work, which was greatly appreciated by businesses.

Contribution and relevance to the scientific field

This thesis was set out to develop a theoretical and actionable framework that helps businesses in becoming a positive force for sustainable development. Through 4 studies, the findings show that SBMI cannot reach its full sustainability potential if it neglects the importance of multi-stakeholder alignment. Even the most ambitious cases need to develop supportive multi-stakeholder networks to fully unroll the sustainability potential of their business model. This requires organizations to be reflective on their organizational boundaries, and mobilize others to reflect on and re-align their organizational boundaries too. The organizational boundary focus comprises the identities, power relations and competences next to the more widely known processes and activities of an organization. For example, a production company might realize that its current ‘make-and-sell’ identity becomes rapidly obsolete in a circular economy. As a solution, the company might

need to shift to the redesign, repair, refurbish and remanufacturing of their products in creating a sustainability-oriented service-based business model. This affects their identity, their need to develop circular skills, and ownership of the materials they work with. In questioning how such alignment can be approached by businesses, this thesis identified exploring, brokering and implementing activities, which are supported by boundary arrangements in the form of people, spaces and physical and digital objects. These insights have been translated into a boundary work framework consisting of phases, organizational boundaries and arrangements. Overall, boundary work is about exploring, negotiating, disrupting and realigning organizational boundaries based on multiple value creation, and requires brokering to re-align critical boundary dissonances in multi-stakeholder networks.

For both science and society, the findings of this thesis contribute to our understanding of the potential role of businesses in sustainable development. For science, the relevance of the findings are twofold. First, the scientific literature has lauded SBMI for its sustainability potential, but this potential is dependent on a variety of factors amongst which, this thesis shows, the need for multi-stakeholder alignment. This research addresses the theoretical gap in understanding these processes of multi-stakeholder alignment in SBMI. The thesis pleads for approaching SBMI as a relational and dynamic process between a business and its multi-stakeholder network, with attention for shifting identities, power and the adoption of new roles between stakeholders, instead of an (often internally focused) reconfiguration of company products, processes and revenue models. The second relevance of this thesis for the scientific field lies in the role of science in society. Given the complexity of societal challenges, the scientific community is increasingly challenged to bridge the scientific boundaries with practice work, which is defined as “the work of actors to create, maintain, and disrupt the practices that are considered legitimate within a field” (Zietsma and Lawrence, 2010, p. 189). This development is happening not just in sustainability science, where it is particularly geared to science-policy interactions, it is also apparent in other science disciplines (Gibbons, 2000). I will elaborate on my personal position with regard to practice work further on in this chapter. This research functions as an example of such engaged scholarship: compared to existing theories that explain concepts and their relations, the boundary work approach is a middle-range theory that combines scientific theory with practical frameworks and tools that are co-developed through deep and reflexive empirical investigation.

Contribution and relevance to society and societal actors

The importance of utilizing the full sustainability potential is becoming vastly urgent, given that the consequences of unsustainable production and consumption become more discernible and lead to pressing societal challenges of, for example, food scarcity and health risks, as recently exposed by the COVID-19 pandemic. The need to change our behavior will be inevitable. Whether it

fits our current interests or not, ultimately, the environmental and social consequences of our practices will force a reconsideration of how we produce and consume. It is therefore paramount that research is being conducted that helps policy-makers, businesses and other organizations to create a supportive environment for the innovation of sustainable business models. However existing research largely limits itself to boundary spanning, overlooking the relevance of the organizational and relational dynamics involved in an SBMI process. Famous tools like the business model canvas are bound to 'boxes and squares', but it is exactly these boxes and squares that boundary work aims to transcend.

For businesses and entrepreneurs, the boundary work framework and tool helps to improve the understanding of their multi-stakeholder network as a means to identify and develop opportunities for SBMI. This is particularly relevant given that sustainability ambitions transcend the experience of individual actors (Sarewitz, 2000). In such interactions between organizations, businesses often do not realize that identities, power, competences and efficiency are relevant influencers of the SBMI process. This realization came to Karel van der Velden from Nijsen Group as well: *"Myrthe's research has provided us the insight that the perspectives of other parties in the value chain make that a message, that is perceived as clear by us, does not come across as we would expect, and that helps to better understand the reasons why communication is so difficult"* (e-mail correspondence, 22-05-2022).

What if a production company engages directly with actors that are situated at the end of the traditional value chain? This brings up whole new opportunities for creating value, as the Nijsen/Granico case nicely illustrates. The boundary work framework is unique in combining an enlightenment function with practical steps for dealing with challenges of boundary-shifting processes in multi-stakeholder settings. As John Geurts, corporate director from Nijsen Group pointed out: *"Boundary work helped us to move away from thinking in value chains, integrations and squares, towards a much needed transcending paradigm and framework"* (e-mail correspondence, 15-05-2022). The phrase he used for this was: to "circle the square".

For policy and policy-makers, boundary work has the potential to inform policy-making in a more holistic way, taking into account the complexity of multi-actor interactions and underlying aspects of identity and power. For policy makers this is not easy, as they maneuver between vested stakes and the limits of their own position and sphere of influence within the multi-actor field. Boundary work encourages them to explore new ways of stakeholder engagement, mobilizing multiple actors as a basis for more contextualized, progressive policy-making.

For educational institutes and educators, boundary work can contribute to equip future decision-makers with necessary values and skills for more sustainable development, such as systems thinking, reflexivity and multi-disciplinary collaboration. The experiences with students are very encouraging, both in their active participation in lectures and workshops, as well as graduate students that used boundary work as a framework, from which ideas even led to the request for successive graduates by the companies involved. In education, students are taught to do an actor analysis and sometimes a system analysis but they fail to examine the question of why the problem exists, despite attempts and calls to do something about it.

For intermediary organizations and boundary workers, boundary work can help to strategically design consortia and guide innovation processes in such a way that dissonances (which require creative congruence) can be identified and dealt with at an early stage. Boundary work helps to understand why existing value chains are unable to re-invent themselves, and why SBMI based on new roles amongst collaborating partners requires new value networks. There is little theory on the creation of new value networks for business model innovation and most articles on this are rather abstract and lacking in empirical depth.

A personal perspective on this thesis

I realize that the position of a scientific researcher holds a responsibility with regard to the normative positioning of the research. My personal affection with the need to conserve our precious natural environment influenced the way I engaged with my research. For me, the PhD journey was also a process to better understand my own societal position and its boundaries. Particularly the Nijsen/Granico case demanded me to be conscious of my role as a researcher. I attempted to function as an honest broker, clarifying the scope of options for Nijsen/Granico rather than telling them what option to prefer. Simultaneously, aspects of stealth issue advocacy crept in. My deep engagement in creating a successful SBMI made me help in laying out options in this direction (rather than options that were less aimed at sustainability), and advise on steps that could lead to this success. Hence, I was not neutral to the ideas we produced. This tension on the boundaries of my scientific role was also apparent in the tool development study, where I took up intermediary activities and actively encouraged organizations to become involved in SBMI processes. This had political overtones as it concerned a means to spark debate and promote consensus that enables action (Sarewitz, 2000). To me, this is boundary work too. In education, we are told to be objective and to take a reductive approach to problems, which make us overlook the normative dimension and own responsibility for making the world a better place. My colleague at Fontys University of Applied Sciences, Jifke Sol, once remarked in one of our conversations: *"People who work on a sustainability transition based on a deep conviction [of fostering positive change]*

often put their own position at stake [because you are not rewarded for making a difference in the world but for publishing articles]. That requires courage". For me this was not a matter of courage, but deeply uplifting.

On a practical level, you might have noticed that this thesis looks different from well-known office paper. By choosing paper made from waste, and limiting the amount of printed copies, even the smallest actions contribute to doing less harm to our natural environment. My future mission lies in reconnecting humans and businesses with nature, whilst being aware that this is not done to preserve unsustainable ways of doing.

Disseminating knowledge to create impact

For this thesis, I have engaged with 45 companies, of which 28 have been actively involved in applying the boundary tool. The application of the tool has led to strategic reflection and decisions about the boundaries of the participants and in 5 out of 6 cases, the tool led to follow-up actions in their SBMI process. Although I developed skills at intermediation, at heart I remained a researcher. The encounters with practitioners in companies resulted in 3 funding applications to further experiment with new boundary configurations. The tool development process was supported by students from Fontys University of Applied Sciences, both from the minor Circular Economy as well as from the course Sustainability in Business. This provided the students the opportunity to engage with scientific research in a practical societal context.

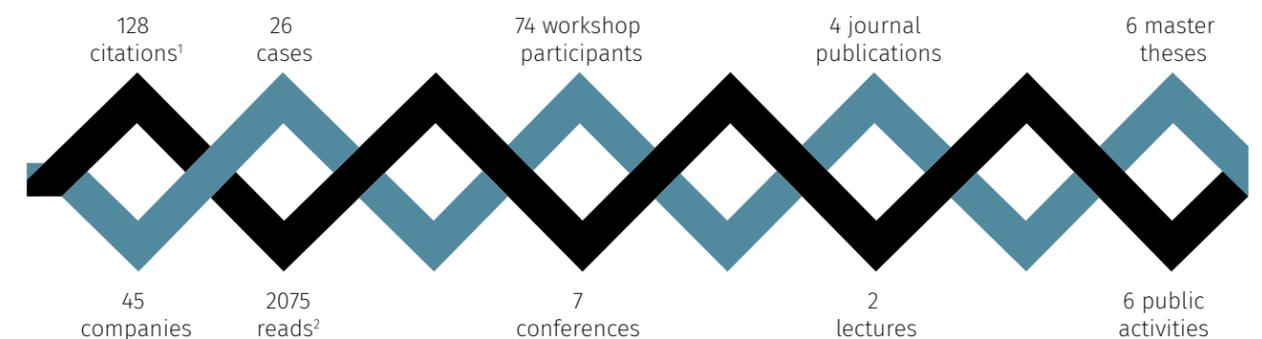
For further non-science dissemination, I have initiated collaboration with a Maastricht University Sustainability Science & Policy master student to publish an article about his master thesis for the Brainport 'Food from Food' magazine (accessible via www.foodfromfood.eu/food-food-magazine-najaar-2020). For him, the framework had clarifying value: "During my graduation research into sustainability transitions at SME production companies in the Netherlands, boundary work helped to understand bottlenecks and opportunities of circular innovations by pointing at the boundaries of organizations, where they touch each other and how they change through interaction and collaboration" (Maarten van de Westelaken, graduation student 2020). 5 other Maastricht University students have used boundary work as a lens for their masters' thesis and pointed at the strength of the framework to grasp multi-stakeholder complexities: "Thinking in organizational boundaries, especially by employing Myrthe's model, helped me tremendously to develop my master thesis. I analyzed the potential of a reusable food container scheme in Moroccan supermarkets through a boundary work lens. Especially for the comparison of the status quo with the desired reusable food container scheme, the model deemed invaluable, as I could grasp complex stakeholder systems in an easy, straight-forward and yet precise way" (Anna-Lena Henke, graduation student 2020).

In terms of outreach and engagement, this work disseminated in 3 public workshops during the 'Dutch Circular Economy Week', as well as a public lecture via Innovation Origins, an Eindhoven-based Innovation platform. The Fontys Sustainability platform for students, employees and external interested parties published two articles on boundary work, accessible via www.fontys.nl/actueel/boundary-tool-helpt-bedrijven-in-samenwerkingen-voor-een-circulair-businessmodel/ and <https://fontysforsustainability.nl/inzet-boundary-tool-bij-circulair-bedrijfstextiel/>.

Dissemination to the scientific community has taken place through 4 journal publications (the 5th is in preparation for submission), the presentation of my research at 4 global conferences and 3 university-oriented conferences. Additionally, This thesis resulted in a bachelor and a masters' level lecture on boundary work, as part of courses on 'Innovation for Sustainability'.

For future research and dissemination, I would like to encourage more projects of engaged research like the project of Nijsen/Granico. As I do, I point at the equal need for researchers to be explicit and reflective on their own boundaries, particularly on their position with regard to science and consultancy. Through collaboration with entrepreneurs, policy-makers, educators and intermediaries, boundary work can be incorporated into other multi-stakeholder settings to enhance its societal impact. For public engagement, citizen participation would be a valuable avenue, for example through citizen panels, experimentation groups, or a public 'guerrilla college'.

THIS THESIS IN NUMBERS



¹ <https://scholar.google.com/citations?user=2aE9ycUAAAAJ&hl=nl>, accessed 13-08-2022

² <https://www.researchgate.net/profile/Myrthe-Velter/stats>, accessed 13-08-2022