

Helmer, Judith^{1,2}

¹ University of Adelaide, Australia

² Science-to-Business Marketing Research Centre, FH Münster University of Applied Sciences, Muenster, Germany

Supervised by

Prof. Dr Carolin Plewa

Dr Joelle Hawa

Acting Prof. Dr Sue Rossano-Rivero



Introduction

Based on the understanding of markets as malleable or plastic complex adaptive systems, market-shaping as a phenomenon describes the deliberate actions of diverse market actors to shape markets into new and more favourable directions¹. More specifically, the extent literature on market-shaping considers human individuals, collectives, or organisations as being able to take the role of shaping markets through agency². As such, market-shaping is mostly limited to the study of human actors as market-shapers, but draws less on other theories that equally acknowledge agency of non-human actors³. This is despite the view that digital technology, as non-human actor, has been noted as an important and significant player for driving radical and disproportionate changes in markets⁴. So far, digital technology has only been given a subtler role for market-shaping¹. Recent studies acknowledge the existence of other actors to shape markets⁵ but a clear conceptualisation is still missing.

Objectives

Thus, this dissertation aims to go beyond the understanding of human actors as shapers and explores how digital technology as a non-human actor can equally shape markets. Therefore, three distinct studies will be executed to systematise and deepen the understanding of digital technology and its role as non-human actor (1) to form relations and to have agency for market-shaping, (2) to act and shape in a distributed network of agents for market innovation, and (3) to maintain a market through agencing and influencing viability mechanisms. Thereby, the following research question shall be answered:

How can digital technology shape markets?

Q1: What role(s) does digital technology play in market-shaping?

Q2: How can distributed agency between digital technology and other actors inform market innovation?

Q3: How can digital technology support the maintenance of a market through agency and viability mechanisms?

Methods

Overall, this study works within the emerging literature of market-shaping and its related Definitions and concepts. While first indications of digital technology in market-shaping can be found in recent studies⁶, it lacks a clear conceptualisation of human-technology interaction and agentic efforts of actors other than humans that we could consult. Therefore, this study consults two major theories – role theory according to Biddle and actor-network theory by Latour – as theoretical framework to form a holistic understanding of digital technology in interaction and with agency potential for market-shaping. Furthermore, the following methods will be deployed to explore the topic.

Study 1: Aiming to develop a holistic understanding of digital technology roles for market-shaping and to synthesis existing literature, this paper will be of a conceptual nature. By making use of role theory (1986) and actor-network theory (1996) to enrich the market-shaping literature, a categorisation of “variants of concepts as distinct types”⁷ of digital technology for market-shaping shall be achieved.

Study 2: Building on the conceptualisation of digital technology roles from the first study, the second study aims to integrate these roles into the diverse network of market actors. To be able to investigate this issue, the study will apply agent-based modelling as the methodological approach. The simulation of actors’ behaviour within the digital space of the platform will enable the observation and analysis of actor interactions and emerging systemic patterns⁸. To ensure the validity of the digital simulation, it will be checked against its fit to a real-world case. Therefore, several options of digital platform cases are currently reviewed regarding their fit.

Citations

¹ Nenonen, S., Storbacka, K., & Windahl, C. (2019). Capabilities for market-shaping: triggering and facilitating increased value creation. *Journal of the Academy of Marketing Science*, 47(4), 617–639.

² Nenonen, S., & Storbacka, K. (2020). Don't adapt, shape! Use the crisis to shape your minimum viable system – And the wider market. *Industrial Marketing Management*, 88, 265–271.

³ Latour, B. (2007). *Reassembling the Social: An Introduction to Actor-Network-Theory*. OUP Oxford.

⁴ Möller, K., Nenonen, S., & Storbacka, K. (2020). Networks, ecosystems, fields, market systems? Making sense of the business environment. *Industrial Marketing Management*, 90, 380–399.

⁵ Kaartemo, V., & Nyström, A.-G. (2021). Emerging technology as a platform for market shaping and innovation. *Journal of Business Research*, 124, 458–468.

⁶ Storbacka, K. (2019). Actor engagement, value creation and market innovation. *Industrial Marketing Management*, 80, 4–10.

⁷ Jaakkola, E. (2020). Designing conceptual articles: four approaches. *AMS Review*, 10(1-2), 18–26.

⁸ Rand, W., & Rust, R. T. (2011). Agent-based modeling in marketing: Guidelines for rigor. *International Journal of Research in Marketing*, 28(3), 181–193.

⁹ Peters, L. D., Nenonen, S., Polese, F., Frow, P., & Payne, A. (2020). Viability mechanisms in market systems: Prerequisites for market shaping. *Journal of Business & Industrial Marketing*, 35(9), 1403–1412.

¹⁰ Locke, E. A. (2007). The Case for Inductive Theory Building. *Journal of Management*, 33(6), 867–890.

¹¹ Lawlor, J., & Kavanagh, D. (2015). Infighting and fitting in: Following innovation in the stent actor-network. *Industrial Marketing Management*, 44, 32–41.

¹² Nenonen, S., Storbacka, K., & Frethey-Bentham, C. (2019). Is your industrial marketing work working? Developing a composite index of market change. *Industrial Marketing Management*, 80, 251–265.

Methods (continued)

Study 3: After having investigated digital technology involved in the activity of market-shaping and a specific case of market innovation, the third study takes the perspective of an established market which is defended against contestants. Therefore, this study employs a retrospective, in-depth case study to understand how digital technology can defend the minimum viable market system through agency and influencing viability mechanisms^{2,9}. As such, this study will follow an inductive approach¹⁰ to investigate the digital learning platform Amboss. Aiming at constructing “a comprehensive record of events”¹¹, a document analysis of previous events as well as qualitative interviews with key market actors will be deployed.

Preliminary Results

Study 1: Based on the extent literature on market-shaping combined with the theoretical framework of role theory and actor-network theory, three distinct digital technology roles are proposed and conceptualised. Main factors of the conceptualisation are its relations to other actors in terms of how roles are conceptualised and in how far digital technology makes or takes roles. Furthermore, attention will be paid to changes resulting from the ongoing relation adaptations in the actor network. As a follow-up parameter, the agency potential is delineated. In this context, it is evaluated in how far the agency potential aligns with the aspects of agency of things and / or market-shaping agency. In this regard gradual differences can be found which form variations of concepts that can be formed into a typology – (1) the supporting and engaging shaper, (2) the incubating challenger, and (3) the engaging shaper. Finally, the different types are further explicated through illustrative cases.

Study 2: With regard to the conceptualised roles, the relations and interactions between human actors and digital technology are an emerging element of high relevance for market-shaping agency. Based on recent studies on collective agency and distributed agency in a network of market actors, preliminary results show that different constellations and dynamics of agency between actors can be found. These shall be studied in more detail. It is expected that constellations will vary between key market shapers with wide actor engagement and a rather distributed constellation of market-shapers. As market-shaping is considered as an activity, dynamics are expected to appear and form a non-linear process.

Study 3: As digital technology agency for market-shaping unfolds in different ways than human agency, this is likely to lead to different agencing efforts and dynamics not only with regard to establishing a market innovation but also with regard to defending the market against contestants and retaliations. Despite it proven viability, it is expected that constant agencing efforts of digital technology and other market actors defend the minimum viable system which leads to ongoing smaller dynamics and evolutions on the market. Furthermore, the agencing efforts are not only expected to lead to a direct but also an indirect influence through the specific constellation and calibration of viability mechanisms as outlined by Peters et al.⁹.

Significance & Contribution

Building on the highlighted understanding of markets as systems of actors¹², this study aims to contribute through a systemic view to explore the interactions within the diverse set of actors and to specifically highlight digital technology as a non-human agent for market-shaping. By explaining the relations and interdependencies between human and non-human actors in the market system, this study informs the non-linear process of market innovation and systemises why the dynamics appear. By explaining how roles are conceptualised and changed in relations between human and non-human actors and how this translates into agency potential of digital technology, it shows how dynamics unfold to lead to a market innovation.

More specifically, by defining a typology of digital technology roles as non-human actors for market-shaping from the relational and agency perspective, this will not only enrich the theoretical body by extending the concept of market-shaping actors but also contribute to practice as a better understanding of the potential influences of digital technology is presented which will help in its strategic use for market innovation.

Furthermore, the second study contributes to theory by exploring a digital platform in the course of market innovation. In this case, the systemic view will enable the mapping of individual actors’ behaviour to simulate how this behaviour translates into systemic patterns. By analysing the emerging patterns through diverse actors, we cannot only understand how the diverse human actors shape through their collaborative actions but also reflect on the role and function of digital technology therein to co-shape. Translated to the practical context and applied to a practical case, this contributes to the disentanglement of the ‘black box’ that digital platforms represent when they are found at the centre of a market innovation and will help businesses to form their own choice whether to be involved and engage on the platform.

While so far, much attention has been given to the emergence of market innovation, the third study specifically contributes to the largely understudied dynamics happening after the establishment of a market. Through this, a theoretical contribution shall be made to the market-shaping literature to extend the understanding of agency and viability mechanisms to the establishment of markets. Furthermore, this will also contribute to the wider marketing literature to enrich the understanding of market evolution with regard to constant dynamics appearing especially under the involvement of digital technology. As firms are faced by unpredictable market changes and are constantly asked to rethink and re-evaluate their market environment⁴, this study shall serve as a foundation to understand how markets can be kept alive and change can be made much more foreseeable.