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Delineating the fuzzy front end of market shaping

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ABSTRACT

Emerging perspectives define markets as continuous, malleable processes that can be shaped through various activities. In this research, the authors address the early phase of such market-shaping processes, developing a conceptual framework and linking the front-end phase to an overall market-shaping process. We propose and develop a fuzzy front end (FFE) concept centered around the market image to reflect market shaping's less organized and more exploratory early phase.

Nine propositions outline this critical phase and its fundamental dimensions, roles, and characteristics. Finally, by outlining the FFE of market shaping, this article reveals future research directions for elaborating on the concept.

1. Introduction

Emerging perspectives on markets define them as continuous processes created and recreated by the practices of market actors (e.g., Hawa, Baker, & Plewa, 2020; Kjellberg, Azimont, & Reid, 2015; Mele, Pels, & Storbacka, 2015; Peñaloza & Venkatesh, 2006). In this view, markets are malleable, plastic entities (Nenonen et al., 2014) with systemic properties (Vargo et al., 2017). A key characteristic emanating from this perspective is that actors can shape markets (Flaig, Kindström, & Ottosson, 2021b).

Studies recognizing markets as malleable processes tend to portray market shaping according to a view where they consist of specific shaping-oriented activities and their directed orchestration (e.g., Kjellberg & Helgesson, 2006; Nenonen & Storbacka, 2020). Furthermore, studies on market shaping often refer to some well-defined market actor driving the process by deliberately transforming or creating markets (e.g., Flaig, Kindström, & Ottosson, 2021a; Tóth, Biggeman, & Williams, 2022). Market shaping resembles a linear process in such depictions, proceeding from clear, articulated visions of the future market to their realization without necessarily accounting for emergent aspects or potentially competing market ideas (Flaig et al., 2021b; Nenonen & Storbacka, 2020). However, as recent research demonstrates (e.g., Makkonen, Nordberg-Davies, & Saarni, 2022), changes in business markets comprise different types of emergent market-shaping processes.

Our research posits that this relatively linear description only provides a partial fit early in a market-shaping process, as market actors are still forming their respective tentative ideas, or images, of a future market (cf. Kjellberg & Helgesson, 2006). In such an early phase, any future envisioned market images and the processes for realizing them remains uncertain. That is, any future market images and the processes of their emergence are 'fuzzy'.

Previous research has indicated the existence of such an early fuzzy phase (e.g., Flaig et al., 2021b; Sprong, Driessen, Hillebrand, & Molner, 2021) but has not explicated what it might entail, e.g. in terms of how a market shaping actor rise to prominence or the potential impact of multiple emerging market images. Thus, there is a need for further investigations into this 'front end' of a market-shaping process (cf. Storbacka, Nenonen, Peters, & Brodie, 2022). We borrow the metaphor of the fuzzy front end (FFE) from product innovation studies (e.g., Khurana & Rosenthal, 1998; Reid & De Brentani, 2004) to delineate this early phase of a market-shaping process. The FFE terminology provides a conceptual device to focus on this phase, explicating its boundaries and inherent characteristics, as well as connecting to the overall market-shaping process. Notably, we focus on articulating dimensions along which the FFE of market shaping can be defined and progress can be evaluated.

In this research, we address calls for more research on market-shaping and change processes (e.g., Humphreys & Carpenter, 2018). Specifically, we draw inspiration from previous research providing indications of an early phase of market shaping, e.g., efforts in planning

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and preparing markets (Tóth et al., 2022) and in market infusion and formation (Flaig et al., 2021b). We argue that this early phase exhibits particular characteristics and is a unique phase of market shaping in need of further investigations (see also Storbacka et al., 2022). This is particularly relevant in business-to-business (B2B) contexts where market actors, unlike business-to-consumer (B2C) contexts, are organizational entities connected through complex and multifaceted relationships (Zolkiewski et al., 2017; Holmlund, 2004). These more complex B2B relationships can potentially both enable as well as constrain the emergence of markets as well as subsequent market-shaping initiatives.

With our proposed FFE conceptualization, we forward a novel and nuanced consideration of the early phase of market shaping. Specifically, we forward four main contributions, also adding avenues for further research. First, extant literature on market shaping tends to focus mainly on a single actor or well-defined set of actors with orchestrated agency, guiding a relatively directed shaping process (e.g., Flaig et al., 2021a; Kjellberg et al., 2015; Storbacka & Nenonen, 2011a). Orchestrating market actors and guiding their behavior is essential, but it is unclear how a market shaper achieves this position or what happens before these directed efforts commence. Our study explicates and conceptualizes this early phase of the process. Second, extant literature describes how intended, directed activities shape market structures. The current study expands this view by acknowledging how emerging, or even serendipitous, activities might lead to unclear and unintended outcomes in the early phase of market shaping. Third, we propose and discuss key dimensions of the FFE, developing our conceptual framing. Prior studies, focusing on more directed market shaping, tend to conceive these key dimensions as relatively straightforward and linear. Our emphasis on the FFE reveals nuances that have not previously emerged in the literature. These nuances enable a more in-depth understanding of how the FFE phase of the market-shaping process unfolds. Fourth, we reframe the prevalence of the seemingly linear tendency in many discussions on market-shaping processes by noting the non-linearity emerging from uncoordinated activities in the early phase of market shaping. Finally, our initial conceptualization of the FFE of market shaping provides propositions for research that can expand this field.

The structure of the following article starts off by discussing the overarching notion of the fuzzy front end, forwarding the market image as a key mechanism for market shaping and as a foundation for delineating the FFE. Next, we elaborate on the idea of an FFE phase of market shaping. We develop nine research propositions explicating the inherent and unique characteristics of the FFE, outlining the need to delve deeper into this area. Finally, we conclude by discussing the implications of our study, providing a summary of the research propositions, as well as recommendations for further research.

Throughout our discussion, we employ the case of cloud computing in B2B markets[1] to exemplify our nine research propositions and illustrate their relevance in an industry setting (see Case excerpts 1–9). The early development of cloud computing provides a relevant empirical context to illustrate the FFE phase in market shaping. Cloud computing is an example of a multi-billion-dollar business market that often is taken for granted. It may appear as if Salesforce, Amazon Web Services (AWS), and other major technology firms clearly visualized the market and developed technologies and infrastructures linearly from scratch. However, a closer look at the early development of cloud computing reveals it was not a process where a well-defined actor deliberately drove the market creation process. Instead, several competing cloud-related ideas, challenges they encountered, and different views on the potential of cloud computing emerged and vanished before a dominant vision of the market was shared across actors.

[1] Cloud computing in B2B markets is used as an illustrative case based on publicly available sources. The authors wrote and adapted it solely for this particular context.

2. The fuzzy front end of market shaping

In building our conceptual framing and providing terminological clarity, we take inspiration from the FFE concept adapted from product innovation research (e.g., Khurana & Rosenthal, 1998; Reid & De Brentani, 2004). In innovation research, the FFE refers to a less organized, more exploratory early phase of an innovation process in which multiple innovative ideas or concepts emerge. These innovative ideas are then evaluated, and a dominant idea is eventually forwarded and further developed in more formal phases. The FFE concept provides a relevant and robust anchoring point for our discussion on the emergence of multiple ideas of future markets. The development and materialization of a dominant market idea clearly parallels developing and selecting a product idea in a product innovation funnel. We argue that introducing the FFE provides a valuable contribution to the market shaping discourse.

During the FFE, multiple market images (i.e., potential and innovative new ideas regarding a future market) of various individual market actors emerge through multiple and uncoordinated processes, without any clear or directed actions for orchestrating that take precedence in later stages of a market-shaping process (Kjellberg & Helgesson, 2006). The FFE concept explicitly allows for the possible emergence of multiple market images, ultimately leading to an expressed, clearly articulated, and dominant market image. Such a dominant market image, much like the final chosen idea for a future product during innovation processes, seals off the FFE phase and initiates more organized, purposeful, and explicit phases of the market-shaping process aimed at realizing that dominant, expressed market image in practice (Johne, 1999; Kjellberg et al., 2015; Nenonen, Storbacka, & Windahl, 2019).

In forwarding the notion of the FFE, we build on extant research, albeit limited, providing indications of such an early phase in market shaping (see Table 1). However, most studies do not explicitly outline such an early phase, and no study, to the best of our knowledge, discusses it in any detail (see conceptual discussions by Flaig et al., 2021b, Sprong et al., 2021, and Nenonen & Storbacka, 2021). Extant research only implicitly indicates the possible existence of such a phase. Typically, these studies focus on a single actor with an existing and expressed market image starting an orchestrated and directed shaping process, i.e., most conceptualizations of a market-shaping process tend to begin when the FFE ends. In our research, and with our proposed conceptualization, we offer a more explicit, nuanced, and holistic consideration of an early fuzzy phase of market shaping, offering novel theoretical insights and avenues for further research.

2.1. Market images, market shaping, and the fuzzy front end

When market actors seek to shape a market in a particular direction, they develop and propose ‘tentative’ market images, reflecting their current vision for future markets and the inherent practices (Baker & Nenonen, 2020; Flaig et al., 2021b; Geiger & Finch, 2009). Market images are performative tools (Callon, 1998; Rinallo & Golfetto, 2006) that can differentiate current and future markets (Baker, Storbacka, & Brodie, 2019; Nenonen, Storbacka, & Frethey-Bentham, 2019; Rosa, Porac, Runser-Spanjol, & Saxon, 1999). A market-shaping process, in this sense, emphasizes developing an image of a desired future market sufficiently convincing to mobilize other market actors to participate in realizing it (Gawer & Cusumano, 2008; Jaworski, Kohli, & Sarin, 2020). Aligning different market actors (Mele & Russo-Spena, 2015) and mobilizing relevant resources (Humphreys, 2010) around a specific market image provides a means to overcome obstacles and guide the process emanating from any tentative market images (Beninger & Francis, 2021; Maciel & Fischer, 2020).

The market image represents a future market, supporting increased or new opportunities for resource integration and value co-creation

Table 1
Contrasting with selected market shaping research indicating on the FFE.

Authors	Key concepts indicating a FFE	Links to the conceptualization of the FFE
Fehrer et al. (2020)	*Emerging engagements* and *institutional arrangements* drive early market shaping.	Dynamically interacting market actors trigger engagement processes and create new resource linkages needed for market shaping.
Flaig et al. (2021b)	Early *market infusion* is a distinct phase in a market-shaping process.	The key role of developing a market vision and a market system (network) in market shaping, influencing institutions and proposing a market identity as markets form.
Nenonen, Storbacka, and Frethey-Bentham (2019)	*Capabilities trigger* and *facilitate* early market change, discovering value potential and initiating market shaping.	The importance of involving multiple actors, purposefully authoring meanings resonating with other actors, having a systems perspective, and discussing that shaping can be serendipitous and not always planned.
Sprong et al. (2021)	*Market pioneering* is an early market-shaping process influencing elements of a market.	Pioneering as a strategy for starting market shaping and the role of non-linearity in shaping processes.
Storbacka and Nenonen (2015)	Triggers lead to an *origination process* where actors attempt to understand how to approach an early market change.	The key processes of authoring meanings and involving (mobilizing) multiple actors.
Tóth et al. (2022)	Early *planning* and *preparing initiatives* are part of a market-shaping process.	Shared mental models drive shaping and emphasize unintentionality in shaping processes.

(Kjellberg & Helgesson, 2006). Hence, a market image resembles what Storbacka and Nenonen (2011a, p. 253) refer to as a "market vision" that depicts "how the market should be configured," with compelling and beneficial accounts of the future (Jaworski et al., 2020). Further, the market image resonates with the concept of a "market identity" (Cornelissen, Haslam, & Balmer, 2007; Flaig et al., 2021b), as market actors collectively enact their shared idea about beneficial future market outcomes.

Prospective market-shaping actors must articulate a significantly more attractive future vision of the market, with sufficient incentives, to rally other market actors around their proposed market image (Flaig et al., 2021a, 2021b; Jaworski et al., 2020). This entails conducting dissemination activities, coordinating and communicating a proposed market image (Azimont & Araujo, 2007; Kjellberg & Olson, 2017) to build legitimacy (Humphreys, 2010). Doing so necessitates comprehending the market system and value-creation processes for customers and other stakeholders (Nenonen & Storbacka, 2020). A prospective market-shaping actor succeeding in mobilizing enough other actors around their particular market image can guide the direction of the future market (Maciel & Fischer, 2020; Ulkuniemi, Araujo, & Tähtinen, 2015).

2.2. Market shaping as enacted market images

Any market actor can propose a tentative market image that could lead to a future market providing increased or new opportunities for resource integration and value co-creation (Storbacka & Nenonen, 2011a). Through collective engagements, such a tentative market image may, over time, coalesce into an expressed and articulated market image (Johne, 1999), and we exit the FFE entering a more directed market-changing phase (e.g., Flaig et al., 2021b). Once a market image is realized, the focus shifts from change per se to maintaining the status quo and stabilizing existing market conditions (Flaig et al., 2021a; Kjellberg et al., 2015), and even preventing future changes (Fligstein, 1996) through "institutional maintenance" (Vargo, Wieland, & Akaka, 2015).

Early market shaping includes orchestrating the activities of different market actors and reconciling unique, tentative images of a market into a shared market image (cf. Nenonen, Storbacka, & Windahl, 2019). As previous research highlights, any shaping effort requires orchestration among various market actors to realize a market image (Mele & Russo-Spena, 2015; Storbacka, 2019; Storbacka & Nenonen, 2011b). This process tends to be described as orchestrated or directed from the perspective of a focal, market-shaping actor (Hawa et al., 2020) with a starting point in a shared and expressed market image. In this view, a focal market actor infuses an already expressed market image into a market-shaping process and attempts to effectuate the realization of that particular market image through a directed orchestrating process (Flaig et al., 2021b; Kindström, Ottosson, & Carlborg, 2018; Nenonen, Storbacka, & Windahl, 2019).

However, this relatively linear description only partially fits as market actors are still forming tentative market images (Kjellberg & Helgesson, 2006) in the early phase of market shaping. Any future envisioned market images and the process for realizing them remain unexpressed and shrouded in uncertainty. That is, they are fuzzy regarding both the future content as well as the process of realizing it.

3. Delineating the fuzzy front end of market shaping

In discussing the FFE and proposing a guiding conceptual framework, we take initial cues from a systems perspective on markets (Vargo et al., 2015; Vargo & Lusch, 2011, 2016). Accordingly, we view markets as "relatively self-contained self-adjusting systems of resource-integrating actors connected by shared institutional arrangements and mutual value creation through service exchange" (Vargo & Lusch, 2016, pp. 10–11) manifested in continuous and malleable market processes (cf. Giesler, 2008; Nenonen, Storbacka, & Frethey-Bentham, 2019; Vargo et al., 2017). A market-as-system approach enables the capture of a broader set of context-oriented market actors, resources, and interactions over time.

Our proposed conceptual framework takes a starting point in the previously discussed focal notion of the market image but adds four other central systemic dimensions derived from the markets-as-system perspective: potential market actors, available resources, associated actor-oriented value propositions, and the institutional arrangements guiding actions and actors (see Table 2). This framework enables us to delve deeper into the nuances of the FFE and to develop research propositions, providing theoretical insights into this early phase of a market-shaping process.

Table 2
A conceptual framework for delineating the FFE.

The fuzzy front end of market shaping	
Market images: Intended process outcomes	Multiple, tentative, and emerging market images that can be conflicting, competing, complementing, and collaborating
Actors and agency: Subjects of action	Activating, triggering, and potentially multiple, discovery-oriented agential actors (i.e. potential active market shapers)
Resources: Antecedents for activities	Loosely coupled, potentially heterogeneous, and uncoordinated resources for developing tentative market images
Value propositions: Motivators for engagement	Multiple value propositions emphasizing uncoordinated actor-oriented value propositions
Institutional arrangements: Guiding norms and values	A broad set of institutional arrangements mostly unrelated to emerging and unclear market conditions

3.1.1. Market images

In the FFE, a market image does not necessarily manifest explicitly at the macro-level of the market system, and the content of any market change (outcome) is still fuzzy. In fact, intentional and unintentional micro-level interactions can lead to multiple emerging and tentative market images (Tóth et al., 2022). These interactions are likely serendipitous, with a limited impact on the macro level. Yet, even if the outcomes are unpredictable and pertain primarily to actor-specific interactions, tentative market images that are more systemic may emerge and be shared by a collective set of actors near the end of the FFE. Such shared market images offer the first signs of an emerging market system that can synthesize interactions and actor perceptions into a collective representation of a market able to guide future market shaping (Storbacka & Nenonen, 2011b).

The emergence of such a shared, expressed market image facilitates a shift to more planned and directed activities (Tóth et al., 2022). Macro-level market outcomes then become clearer and more predictable, and actors purposefully begin engaging in concrete market-shaping work supporting the collectively envisioned market image (Maciel & Fischer, 2020). Progress tends to be more deliberate in these later phases, reflecting the direct market activities and institutional work of agential market actors (e.g., Humphreys, 2010; Windahl, Karpen, & Wright, 2020). Non-systematic interactions and serendipity however characterize the FFE, advancing the process through emergence (for an extended discussion of emergence in marketing in general, see Vargo, Peters, Kjellberg, et al., 2023). From this, we derive the first proposition:

RP1 – *The FFE phase of market shaping features non-systematic interactions and serendipity in an emergent process.*

Case excerpt 1

Long before the shared vision of the cloud computing market, researchers and engineers worked on various projects to develop related technologies. These technologies seemed unrelated but eventually contributed to what is known as cloud computing.

For instance, the FAFNER project aimed at factoring RSA130 using a new numerical technique – the Number Field Sieve (NFS) factoring method – which relied on electronic mail to distribute and receive factoring code and information. The I-WAY project was created to integrate existing high bandwidth networks from the need to connect resources that were available but not necessarily designed to work together. FAFNER and I-WAY attempted to produce metacomputing environments by integrating resources from opposite ends of the computing spectrum. This involved non-systematic interactions between computing resources, leading to unexpected and serendipitous events. Further, these projects were not specifically designed to pave the way for the early development of web-based meta-computing projects (or later: grid computing); rather, the success of these projects ended up leading to this anyway. Also, they fed into the Globus project, contributing to developing a larger distributed computing infrastructure beyond its original scope.

Later, WebFlow applied the Globus Toolkit in its backend, which again served in developing the Gateway Computational Web Portal and the Mississippi Computational Web Portal. However, there was non-linear development with the emergence of peer-to-peer (P2P) computing, such as Napster, which took advantage of globally distributed resources.

None of these projects shared the vision of cloud computing as we know it today, but they unintentionally contributed to developing meta-computing, grid computing, and virtualizing computers. These examples suggest the impact of these projects was not necessarily due to a carefully designed plan but to unexpected or accidental factors.

Due to the fuzziness and uncertainty inherent in the FFE, market actors tend to experiment with multiple, uncoordinated, tentative market images in-the-making, in the form of early-phase market process multiplicity (Kjellberg & Helgesson, 2006), or multilinearity (Sprong et al., 2021). These interactions and activities entail varying degrees of intentionality and are typically uncoordinated and distributed, leading to a process characterized by multiple, non-linear, and opaque outcomes of seemingly unrelated activities performed by various market actors. Before an expressed market image emerges as a shared market vision, these markets thus appear multilinear (Storbacka & Nenonen, 2015), leading to our second proposition:

RP2 – *The FFE phase of market shaping features uncoordinated multilinearity.*

Case excerpt 2

The early stage of cloud computing featured uncoordinated multilinearity, exemplifying the diverse and fragmented landscape of market actors and solutions. Amazon Web Services (AWS) or Salesforce did not invent the idea to provide computing resources over the internet. Grid computing, virtual private networks (VPN), and application service providers (ASPs) emerged as the early forms of distributed computing. Grid computing aimed at combining the computing resources of multiple organizations in a network to collaborate on complex problems. However, grid computing was largely inaccessible to non-specialist users and developers, grappling with compatibility and integration challenges. VPN services were aimed to provide remote access to firm networks and resources via *the internet but suffered from limited connectivity and bandwidth to gain wider popularity. Conversely, ASPs focused on offering businesses access to software and computing resources* via *the internet without needing massive upfront investments. The idea was to outsource business applications to a third-party provider for hosting and management. In practice, ASPs encountered numerous security, performance, and reliability issues, hindering widespread adoption.*

Multiple market actors attempt to understand their role, the roles of other actors, and the potential outcomes of different tentative market images they encounter in the emerging multilinear market. In these nascent markets, market actors try to design and promote their tentative market images to gain benefits and to materialize the market through the content of their own individual market image (Rosa et al., 1999). Thus, market shaping becomes an exploratory, sometimes undirected process resulting in the emergence of multiple, conflicting, competing, complementary, and collaborative tentative market images, and we offer our third proposition:

RP3 – *The FFE phase of market shaping features the emergence of multiple, uncoordinated, tentative market images.*

Case excerpt 3

During the nascent years of cloud computing, there were diverse interpretations of what cloud computing could and should be, resulting in an uncoordinated and tentative array of market images. These images reflected the varied approaches to delivering different types of cloud computing services and the different understandings of its potential. For instance, software as a service (SaaS) refers to a cloud as a software licensing and delivery model. Platform as a service (PaaS) was a view of cloud computing focusing on how developers could build, test, and deploy applications without dedicated hardware. Infrastructure as a service (IaaS) refers to a cloud as a solution for individuals and organizations to store, manage, and share digital data and files.

While providing a distinct vision of a cloud computing market, each tentative market image had its strengths and weaknesses. As the cloud computing market matured, these visions began converging and coalescing around the cloud computing concept.

When an expressed market image emerges, a more defined set of active market-shaping actors, or even a single market actor, typically takes on a more prominent leadership role in the shaping process (Kindström et al., 2018). These market shapers aim to orchestrate the process by matching the value creation opportunities of the individual actors with the collective notion of what a future market image might be (Hawa et al., 2020; Mele & Russo-Spena, 2015). With an expressed market image, a shared idea of the market can develop, and actors and activities can be mobilized to realize that desired market (Jaworski et al., 2020; Kjellberg & Helgesson, 2007). We approach the FFE as a critical, early phase in the market-shaping process initiated by the forming of multiple tentative market images and concluding with the emergence of an expressed, actionable, and collectively understood market image. Thus, we forward a fourth proposition:

RP4 – *The FFE phase of market shaping ends when a shared and expressed market image emerges.*

Case excerpt 4

Various actors explored and experimented with different opportunities in the FFE of the cloud computing market. Early visions for cloud computing collided in a frenzied competition for supremacy. The FFE in cloud computing ended when diverse and uncoordinated tentative market images converged in the early 2000s. While pinpointing the exact timing for the end of the FFE may be difficult, the arrival of a cohesive market

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(*continued*)

Case excerpt 4

image for cloud computing was influenced by a slew of significant events and developments that pushed it to the forefront of the tech world, including the launch of Amazon Web Services (AWS) in 2002, particularly the Amazon Simple Storage System (S3) in 2006. Overall, AWS played a pivotal role in popularizing cloud computing and establishing its legitimacy and reliability. Later, the formation of industry standards, such as the National Institute of Standards and Technology's (NIST) definition of cloud computing in 2011, helped define the technology and establish a common understanding of what cloud computing was and could be used for. Altogether, these developments precipitated the coalescence of a definitive and widely recognized market image for cloud computing, effectively bringing the FFE phase to a close.

3.1.2. Actors and agency

As uncoordinated and distributed agency characterize the FFE, identifying all active market actors can be challenging. Nevertheless, while actors might lack a shared vision of the market, recognizing several discovery-oriented actors who gather around a topic might be possible. For example, such actors may question a market's status quo, or a particular set of actors might develop different ideas linked to a specific emerging technology (Flaig et al., 2021a) or opportunities related to new potential value propositions (Nenonen, Storbacka, Sklyar, Frow, & Payne, 2020). While their activities may seem, and likely are, uncoordinated in the FFE, this pool of potential market shapers actively interacts with other actors to trigger the emergence of a shared vision of the market (cf. Humphreys & Carpenter, 2018). From this, we propose the following:

RP5 - *The FFE phase of market shaping features multiple, primarily discovery-oriented, potential market-shaping actors.*

Case excerpt 5

The early phase of cloud computing market witnessed diverse market actors exploring and discovering opportunities. Tech startups, established giants, academic scholars, and government organizations were all actively involved. Amazon Web Services (AWS) emerged as a trailblazer, leading the pack with its pioneering cloud computing solution. Google was another early convert to cloud computing and employed it to support its search engine operations, eventually launching Google App Engine. IBM, a major tech firm, adopted cloud computing to optimize its internal processes while providing cloud-based services for its clients. Meanwhile, academic researchers from universities and research institutions were crucial in exploring the various applications of cloud computing and developing and testing new technologies and concepts. The dynamic activity of these market actors laid the foundation for the impressive growth of cloud computing in the following years.

When actors arrive at a shared market vision, identifying a more defined set of active market shapers or even a single market-shaping actor, orchestrating the overall market development becomes possible (Flaig et al., 2021a). Market shaping literature tends to, as mentioned, emphasize the activities and characteristics of these expressed market shapers.

Inherent in the FFE is the idea of multiple and distributed agency (cf. Sprong et al., 2021), according to which multiple actors may try to influence the process and the content of market shaping. Such actors try to identify and promote their preferred market image, creating opportunities for conflicting, competing, complementary, and collaborative market images. For tangible market shaping, various agential market actors must align around a particular market image (Nenonen, Storbacka, & Frethey-Bentham, 2019). In the FFE, that vision of a future market is typically blurry. Furthermore, which actors can assume agency and effectuate a particular market image is unclear. The market agents' uncoordinated activities reflect the lack of a shared vision and clear agency. Multiple agential actors are in this trying to develop multiple instances of a market (Storbacka & Nenonen, 2015), with limited impact on any emerging more coherent market system. Because their agency is distributed and implicit regarding articulating actions and outcomes, each effort has potentially only limited capacity to direct a collective market vision. Thus, we formulate our sixth proposition:

RP6 - *The FFE phase of market shaping features uncoordinated, distributed agency and actions.*

Case excerpt 6

In the early stages of cloud computing, various market actors, such as corporations, research institutions, and grid computing firms, independently developed their solutions, resulting in a fragmented landscape of cloud computing solutions with each market actor striving to achieve their objectives and goals. The uncoordinated and distributed efforts of these market actors allowed unique perspectives and resources to be introduced into the market, fostering the evolution and diversification of cloud computing. During this period, commercial players like Amazon Web Services (AWS) and Salesforce.com were pioneering cloud computing solutions for commercial purposes while research institutions were concurrently exploring the potential of grid computing for scientific applications. This simultaneous development of cloud and grid computing was instrumental in driving innovation in both fields as they inspired and learned from each other, resulting in developing the best practices and ideas.

Collective agential shaping efforts can only flourish when a shared market vision is articulated (e.g., as in consumption-driven market shaping evidenced by Martin & Schouten, 2014).

3.1.3. Resources

Engaging multiple market actors is essential regarding the resources they can access and bring to bear on the market-shaping process (Fehrer et al., 2020; Storbacka, 2019). Thus, resources and their density (see Normann, 2001) constitute the building blocks needed to form and propagate a coherent market image (Maciel & Fischer, 2020). Concerning resources, the FFE can be described as a collection of loosely coupled resources with the potential to enable the materialization of a market image. Thus, in the FFE it becomes vital to identify, comprehend, mobilize, and link the potential resources that are most valuable for articulating a particular tentative market image (Nenonen, Storbacka, & Windahl, 2019; Storbacka, 2019). Resources are typically tied to specific market actors, so engaging those actors or securing access to the resources in other ways becomes pivotal during the FFE and for promoting an attractive market image. Thus, our seventh proposition forwards the following:

RP7 - *The FFE phase of market shaping features loosely coupled resources tied to uncoordinated market actors.*

Case excerpt 7

During the formative stage of cloud computing in the 1990s, a diverse and dynamic range of actors actively shaped the market landscape with a diverse resource pool. Universities, research institutions, rising startups, established tech corporations, and government organizations were all in the mix, each bringing their unique skills, resources, and ideas. The academic and research communities were instrumental in developing the core technologies underpinning cloud computing, while startups pushed the boundaries of what was possible regarding commercial applications. Established tech firms were also keen to get in on the action, leveraging their expertise and market position to carve out a niche in the emerging cloud computing domain. Meanwhile, government organizations provided crucial financial backing and other resources to fuel cloud computing research and development. With each market actor pursuing their independent and often uncoordinated paths, the result was a highly fragmented landscape of experimentation and discovery. However, through the coalescence of these diverse and disparate resources, a collective and coherent market image eventually emerged, signaling the end of the FFE phase in cloud computing.

Resources typically become more explicit and articulated as the market-shaping process progresses, moving away from the FFE. Complementary resources may also emerge, forming more tightly coupled linkages that can demonstrate and implement the collective and now expressed market image, driving subsequent market-shaping initiatives (Nenonen, Storbacka, & Frethey-Bentham, 2019).

3.1.4. Value propositions

Multiplicity characterizes the FFE and multiple engaged actors craft and visualize actor-oriented value propositions to mobilize the resources needed to support the emergence of their particular market image (cf. Kjellberg & Helgesson, 2006). Multiple market actors develop tentative, reciprocal, and actor-oriented value propositions (Storbacka &

Nenonen, 2015), forming a crucial element of any market image. Reciprocally oriented value propositions reflect the value potential for individual actors and the overall market system regarding the value sought from as well as offered to the system. In this context, reciprocity means that market images can be divided into different kinds of value creation opportunities for the actors and value propositions related to the market image, i.e., the proposed market system. Thus, value propositions are key devices that emerge through market actors' interactions, which can initiate and drive the emergence of an expressed market image through the FFE as well as support it throughout the subsequent market-shaping process (Nenonen et al., 2020).

In the FFE, market actors explore multiple actor-oriented value propositions attempting to understand and articulate how different actors and their resources align with different tentative market images. Aligning more actors can trigger new directions for the tentative market image, leading to a more clearly expressed version of a market. In the FFE, when the market image still is unexpressed, the value propositions become oriented more towards single actors and the benefits of direct exchanges rather than systemic, longer-term outcomes. Thus, we formulate our eighth proposition:

RP8 – *The FFE phase of market shaping features value propositions primarily focused on actor-oriented short-term value.*

Case excerpt 8

In the FFE of cloud computing, market actors were mainly concerned with optimizing their benefits in the short term, leading to concentrating on value propositions specific to each actor, such as cost reduction and operational efficiency tailored to the needs of individual organizations or industries. IT departments, e.g., aimed to centralize their IT infrastructure and applications, while the financial services industry sought to streamline their business processes and minimize risks.

However, as the cloud computing market evolved and the collective market image became more defined, the focus shifted towards systemic, longer-term benefits that transcended individual advantages. Converging a broader range of actors and resources that aligned and contributed to the market image made this shift possible.

One such example of these systemic, longer-term benefits is increased innovation in the market through centralizing IT infrastructure, applications, and data. Another example is improved data security and privacy, where the widespread adoption of cloud computing necessitated developing security protocols and sophisticated security technologies to protect sensitive data stored in the cloud, benefitting not only a single actor but its various stakeholders and society in general and helping the more widespread use of cloud computing, resulting in the increased accessibility and affordability of IT services for small and medium-sized businesses, leading to new market opportunities and a more level playing field among firms of different size.

These systemic, longer-term outcomes demonstrate how the focus shifted from actor-specific, short-term value propositions to systemic, longer-term benefits as the market matured and the collective market image became more distinctly expressed.

As a market image becomes expressed, value propositions related to several actors become increasingly coordinated, linking them to that particular market image. These value propositions then begin to reflect systemic characteristics, including longer-term macro-level consequences.

3.1.5. Institutional arrangements

Any future realization of market images through value propositions, enabled by resource integration, depends on the institutional context in which actors are embedded (Baker et al., 2019). Thus, the emergence of tentative market images and the link to value propositions and resource integration is mediated by actors' perceptions of institutional arrangements (cf. Koskela-Huotari, Edvardsson, Jonas, Sörhammar, & Witell, 2016). For market shaping to occur, institutional arrangements must be in place and internalized (see Fehrer et al., 2020; Vargo & Lusch, 2016), so market actors can begin to align themselves relative to an emerging market image. Institutional arrangements typically comprise interrelated sets of institutions, or the 'rules of the game', shaping actions in the market system (e.g., Baker et al., 2019; Vargo et al., 2015). The concept of institutional work (e.g., Lawrence & Suddaby, 2006) refers to actors' capabilities to perceive and act on opportunities and threats associated with institutional arrangements when they engage in practices to create, disrupt, and maintain institutions (and thus markets). In the FFE, institutional work is centered around facilitating the emergence of market images and the realizing of value propositions through resource integration.

Unlike studies emphasizing the idea of purposive action (e.g., Nenonen, Storbacka, & Frethey-Bentham, 2019), we acknowledge that institutional work can include various unintentional, practical accomplishments that can create and influence institutions (Windahl et al., 2020). In the FFE, market actors do not yet have any central, shared, or internalized institutional arrangements related to a future market (cf. Storbacka, 2019), meaning there are not yet any actor-generated institutional arrangements about a future potential and emerging market (cf. Geiger & Kjellberg, 2020; Vargo & Lusch, 2016). Instead, external institutional arrangements emanating from other, existing markets typically guide their behavior. This reasoning leads to our ninth and final proposition:

RP9 – *The FFE phase of market shaping features nascent and externally oriented institutional arrangements.*

Case excerpt 9

In the early days of cloud computing, the institutional arrangements had not matured, and market actors faced several challenges. For instance, the lack of consistent regulations and standards for data security and privacy left market actors unsure of best practices. Further, unreliable service offerings and inconsistent service level agreements added further complications.

Instead, external institutional arrangements were a guiding force for cloud computing market actors. Organizations outside the industry established these arrangements, including regulatory bodies like the Federal Information Security Management Act (FISMA) and the Health Insurance Portability and Accountability Act (HIPAA), providing guidance on information security and privacy. Standards organizations such as the Institute of Electrical and Electronics Engineers (IEEE) and the International Organization for Standardization (ISO) established best practices for security, privacy, and data management in cloud computing.

While these external arrangements provided a framework for market actors, they limited the ability to shape the direction of the market. Cloud computing industry actors were forced to adapt to existing conditions rather than actively influence them. In essence, the early cloud computing market was at the mercy of external regulatory and standard-setting organizations.

As the market logic becomes pronounced and starts guiding actors, clearer and shared institutional arrangements emerge and become internalized, forming the new market system's institutions (Baker et al., 2019; Windahl et al., 2020).

4. Implications and further research

Understanding market-shaping processes is crucial for studying the emergence and change of B2B markets. This study is one of the first to focus on the early phase of market shaping. For terminological clarity, we leverage the concept of an FFE to refer to this relatively unorganized, exploratory phase. We particularly emphasize the role of the market image in securing actor mobilization and resource commitments. We use four additional key dimensions to facilitate an in-depth understanding of the FFE.

In the following sections, we forward six main theoretical implications, provide managerial guidance, and suggest key avenues for future research.

4.1. Theoretical implications

First, by delineating the FFE, we focus on a previously overlooked pivotal phase in market shaping (cf. Flaig et al., 2021b; Storbacka et al., 2022). The FFE is crucial in understanding how and why markets emerge and what actors will take leading roles in the shaping process. For B2B markets, identifying and understanding driving actors is critical, e.g., for establishing industry standards and gaining first-mover advantages. By proposing the notion of the FFE, we provide a conceptual framework and terminology enabling us to extend the market-

shaping process towards the front end, leading to a more complete understanding of the entire process. Introducing the notion of fuzziness, we can distinguish among three different 'types' of fuzziness in what we label context, process, and content fuzziness, meaning the FFE is characterized by uncertainty regarding the actors and resources involved (contextual), as seen in RP 5–7; how the process will unfold (processual), as seen in RP 1–2 and 9; and what market image will emerge (content), as seen in RP 3–4, and 8. These facets contribute to the uniqueness of this early phase of market shaping.

Second, we elaborate on the role of the market image as a key mechanism in market shaping in general and for the FFE in particular. By emphasizing the tentative, expressed, and realized market image, we build on previous research (e.g., Flaig et al., 2021b; Kjellberg & Helgesson, 2006) in outlining its key role in market shaping. Extant research often tends to implicitly assume an expressed market image exists when the market-shaping process starts (see e.g. Baker et al., 2019; Fehrer et al., 2020). Our research adds to this by elaborating on how market images emerge and attain their pivotal role in the subsequent stages of market shaping. Market images are especially important early on, as prospective market-shaping actors must articulate a significantly more attractive future vision of the market, with sufficient incentives, to rally other market actors around their proposed market image. In the FFE, multiple actors can develop their own tentative market images, creating a multiplicity that can result in conflicting, competing, complementary, and collaborative market images.

Third, the conditions for market shaping are still being formed in the FFE, without any concrete or directed actions for orchestrating the process. Emphasizing the key role of the market image and using a markets-as-systems perspective, we delineate the FFE as a multi-actor and multilinear phenomenon of distributed actions. Thus, we can accommodate a broad set of technological, business, and societal actors and their interactions in our conceptualization. By highlighting key characteristics, our conceptual framing furthers our understanding of the complexities of market-shaping processes. By providing guidance for continued research efforts, our findings may, in this regard, also contribute to understanding of market-shaping processes beyond the FFE.

Fourth, a key consequence of our discussion is that market shaping emerges from the FFE through serendipitous, multilinear, uncoordinated, and distributed actions indirectly steering the cumulative development process towards a preferred emerging market image. Previous research has noted some of these aspects (e.g., Finch & Geiger, 2011; Sarasvathy, 2001), but the multidimensional nature of the FFE proposed in this research provides a new perspective on the emergence of the directed market-shaping activities that often have been the focal point in market shaping research.

Fifth, by proposing the FFE, we further acknowledge how and why these focal actors emerge, providing conceptual tools to describe how expressed market images arrive at the starting point for initiating more concrete shaping activities. At the actor level, the emerging FFE perspective emphasizes the need to understand the broader contextual picture and market system (Nenonen & Storbacka, 2020) as it unfolds. Market actors must identify and evaluate other actors early to find matching resources and collaboration opportunities (Mele & Russo-Spena, 2015). As resources are typically tied to specific market actors, engaging actors or securing access to the resources in other ways becomes pivotal during the FFE. Focusing on a systemic understanding and collaborative mindset facilitates the rise of a focal market-shaping actor (or actors) who can drive and direct collective action, promoting a shared market image as the leading, materialized vision for the future. The FFE ends when the actors have engaged and aligned within a concrete actor constellation that can nurture long-term value by solidifying an expressed market image into a realized market image through orchestrated actions. In this, we extend the market shaping towards the 'front end', adding insights into how markets emerge.

Sixth, exploring and discovering opportunities, rather than deliberately co-creating opportunities, characterizes the FFE phase (cf. Whalen & Akaka, 2016). The FFE typically focuses on the short-term value of individual actors, often dominating long-term perspectives on the value provided by the wider system. However, we posit that there are market actors that can visualize longer-term, systemic value propositions. These actors are willing to take actions to nurture market development, driving the emergence of an expressed market image. Thus, proposing attractive, reciprocal value propositions that can align market actors to a particular emerging market image becomes a key activity (see also Nenonen et al., 2020). Inherent in this process is identifying and mobilizing the necessary and typically loosely coupled resources around such an emerging market image (Storbacka & Nenonen, 2015).

4.2. Managerial implications

Market-shaping actors and their activities in the FFE might differ from those later in the market-shaping process. Through awareness of these differences and paying attention to the unique characteristics of the FFE, these emerging market-shaping actors can prioritize the right activities. Further, a closer look at FFE may help various actors to understand their role in this early phase and to prepare for upcoming, more concrete, phases of market-shaping. Our conceptual framework and the discussed key characteristics provide a foundation for prioritizing activities and guiding decision processes.

Introducing the FFE into the managerial toolbox opens opportunities to analyze and understand the actions of other actors, and to identify possible collaborators in developing a dominant market image. Thus, engaging other actors and creating a 'critical mass' of aligned market actors that can drive the development towards a collective vision becomes a critical managerial activity in the FFE. In B2B-contexts, leveraging existing relationships and networks can enable this development.

In the FFE, a firm needs to be aware of the emergent nature of multiple tentative market images, being open and flexible in their approach as a dominant market image is being formed. One important notion here is developing multiple market images, using them as strategic tools to gain knowledge into how technology and products can develop over time, and how future markets can emerge. This can then lead to new insights and provide opportunities for creating competitive advantages that become difficult to imitate. For B2B-firms this is crucial as they also need to engage with organizational customers in the FFE.

Interacting with other market actors and mapping out potential key resources early on become pivotal in B2B-contexts as this enables the creation of a beneficial tentative market image, guiding future efforts and driving the support of, for instance, the aforementioned organizational customers. The multilinearity and multiplicity of this early phase emphasize the ability to interact with other market actors and to relate internal objectives with that of an emergent market, especially relevant in gaining acceptance of future value propositions on a B2B-market. Thus, being able to act in multiple contexts and with multiple other actors become important.

4.3. Future research

Future research should establish and explicate more details about the FFE to build on our initial efforts to explicate the early phase of market shaping. For example, many studies of collective market shaping focus on primarily consumer-oriented markets (e.g., Baker & Nenonen, 2020; Maciel & Fischer, 2020; Martin & Schouten, 2014); we call for expansions into B2B multi-actor settings to clarify the similarities and differences across distinct contexts and actors.

This study forwards nine research propositions on the FFE of market shaping (summarized in Table 3). These propositions offer insights for a further 'unboxing' of the FFE and opening up for a better conceptual understanding of how to define the FFE, the boundaries of FFE, and

Table 3
Summarizing the research propositions and suggesting future research directions.

Research propositions (RP)	Suggested future research directions (FRD)
RP1: *The FFE phase of market shaping features non-systematic interactions and serendipity in an emergent process.*	**FRD1:** Investigating participating actors, their processual co-evolution, and their activities in the FFE.
RP2: *The FFE phase of market shaping features uncoordinated multilinearity.*	**FRD2:** Investigating the emergence and decline of different market images and actors in the FFE.
RP3: *The FFE phase of market shaping features the emergence of multiple, uncoordinated, tentative market images.*	**FRD3:** Investigating emerging market images, their triggers, trajectories, and nature over time.
RP4: *The FFE phase of market shaping ends when a shared and expressed market image emerges.*	**FRD4:** Investigating the conditions needed for transitioning from tentative market images to an expressed market image.
RP5: *The FFE phase of market shaping features multiple, primarily discovery-oriented, potential market-shaping actors.*	**FRD5:** Investigating market actors, their roles, and dependencies in the FFE.
RP6: *The FFE phase of market shaping features uncoordinated, distributed agency and actions.*	**FRD6:** Investigating the participating actors (direct and indirect), and their intentions, influence, and objectives in the FFE.
RP7: *The FFE phase of market shaping features loosely coupled resources tied to uncoordinated market actors.*	**FRD7:** Investigating and delineating potential and concrete resources in use and their linkages to tentative market images.
RP8: *The FFE phase of market shaping features value propositions primarily focused on actor-oriented short-term value.*	**FRD8:** Investigating value propositions and their objectives in the FFE.
RP9: *The FFE phase of market shaping features nascent and externally oriented institutional arrangements.*	**FRD9:** Investigating the emergence of institutional mechanisms supporting specific market images (and the coordinating actors) in the FFE.

potential idiosyncrasies relative to an overarching market-shaping process. Based on these propositions, we suggest future research directions that can guide developing research initiatives.

Aligning with our propositions and suggested research directions, we call for further research into the dynamics that drive formation, emergence, and success of agential actors as multiple tentative market images emerge. We also expect further investigations of the development of actor-oriented value propositions in the FFE. This is of particular interest in B2B-contexts with embedded relationships and established networks. We encourage other scholars to illuminate how nascent institutional arrangements influence the emergence of market images. Further, we need more studies linking the market actors' micro-level actions with macro-level market (system) performance, which could help define and measure the 'success' of market-shaping activities. We consider this notion of success to require developing metrics regarding short- and long-term market outcomes. For instance, learning how the activities in the FFE influence the requirements and performance in the later phases of market shaping would be valuable. Thus, later stages should not be studied independently of understanding the development of the FFE. Similarly, the conceptual dimensions we identify provide a basis for research deriving effective measures, such as quantitative scales, that can capture the progress and status of market changes, including the emergence of an expressed market image potentially ending the FFE phase.

Focusing on the FFE offers exciting avenues for continued research. In particular, we call researchers to undertake efforts to specify the role of FFE role in the overarching market-shaping process (an integrative perspective). Moreover, we expect further clarifications to the transition between the FFE and other phases (a transitional perspective). Such efforts could increase understanding of how, when, and why market actors embrace roles as active market shapers, orchestrating the process as they move along the market-shaping process. Finally, different dimensions may have, more or less, prominent roles in certain situations. As a result, contextualizing these dimensions in varying B2B markets would be beneficial. Similarly, investigating how dimensions shift over time could provide much-needed insights into market shaping research and practice in B2B markets.

Data availability

No data was used for the research described in the article.

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